
# EVALUATING E-GOVERNMENT SERVICES: A CITIZEN-CENTRIC FRAMEWORK

**by**

**ANNASTELLAH O. SIGWEJO**

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**Supervisor:** Professor Shaun Pather

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## DECLARATION

I, Annastellah Obedi Sigwejo, declare that the contents of this thesis represent my own unaided work, and that this thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

01 December 2015

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**Signed**

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**Date**

## ABSTRACT

In a quest to offer better services to both citizens and businesses throughout Africa, efforts to adopt e-government projects are gaining momentum. As a result of this, there is a need for effective measurement of delivery and quality of such e-services. Currently, there are several metrics applied to measure and rank the e-readiness of various African countries. However, while these measures have provided a source of comparative analysis between different e-government projects, they are far from being perfect. For example, most of these measures are diverse and difficult to compare, since they assume 'one size fits all' and ignore differing environmental, cultural and contextual factors of various countries. Further criticisms of these measures are that they are 'first generation metrics' designed for developed countries, as opposed to developing countries.

*Thus, the crux of the research problem was that there are no suitable evaluation strategies for understanding and measuring the effectiveness of e-government services in order to improve the management thereof, and thereby attain the best possible value for citizens.* The objective of this study was to develop a framework, for evaluating the effectiveness of e-government services in a typical developing country. Tanzania's mainland was chosen as the context for this study: as a typical developing African country, its early phase of e-government development provided an optimal case for this study concerned with the useful and effective evaluation of e-government services.

I have chosen a qualitative research method paradigm, underpinned by an interpretive approach, to facilitate both research objectives: developing an evaluation framework after determining the necessary evaluation parameters. Empirical evidence was gathered via interviews with e-government practitioners in Tanzania and via focus groups with selected citizens. Other sources of data included government documentation (policies and strategies) and government websites. The data was analysed through the combined application of an adapted grounded theory method and interpretation.

Using the latter analytical processes several effectiveness dimensions of e-government services were derived. Through further analysis these were

synthesised into the main output of the study viz. an e-government citizen satisfaction framework (ECSF). This framework, a unique contribution to the existing body of knowledge, demonstrates how citizen and government imperatives should be amalgamated to evaluate the effectiveness of e-government services. The findings further support and advance Information Technology management within government, as this is the first comprehensive framework to ensure an integrated approach for monitoring and evaluating e-government programmes. This study also combines important ideas from two existing domains—service management and IS evaluation—to generate new foundations leading to further work by researchers.

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*You will succeed not by Power, not by Might, but by the Spirit of the Almighty God* (Zechariah 4:6).

My work pursuing this doctoral programme could be considered a journey of academic excellence. This thesis would not have been possible if there were not others who were willing to walk with me and work with me along the way.

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## DEDICATION

*For my late father, Obedi Jim Mwakajinga*

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# CHAPTER ONE

# INTRODUCTION

## 1.1 Introducing the research

In today's economy, both businesses and governments are gradually transforming, now deriving their competitive advantage from intangible knowledge-intensive resources (Binney *et al.,* 2007). People, skills, knowledge, innovation, leadership and technology are factors integral to the success of businesses and government institutions**.** In almost every region of the globe, whether in developed or developing countries, businesses and governments are positioning critical information online, automating processes and interacting electronically with clients and citizens (Bhatnagar, 2004). The private sector seems to have taken the lead, though, in making the transition from offline to online fulfilment of the changing needs of customers. As a consequence, the public sector is under intensifying pressure to transition to the provision of online services.

Recent developments in technology and the advent of the Internet in particular have irrevocably altered the way we live and work. The World Wide Web (WWW) has offered individuals, governments and businesses a whole new way to interact and communicate (Jaeger & Thompson, 2003). Private sector companies exemplify this by selling their products and services on the Internet. Educational institutions are offering distance learning opportunities over the Internet, and financial institutions are completing banking transactions over the Internet (Ombati *et al.,* 2010).

For each service delivered over the Internet, the experience of the end user is paramount. People are shopping, learning, banking and enjoying a host of other services that are largely new experiences and conveniences. Advanced technology, mobile devices and Internet communications all suggest that more and more end users will be increasingly connected as time goes on. Thus, in the future, staying connected will be a necessity, a requirement for being in tune with the world. Change is inevitable, so people will need to embrace it.

The move towards Web 2.0. Operating Systems has also escalated the ways in which a greater number of avenues for accessing services are created on an array of participatory public platforms (Parston, 2010). The confluence of all these developments will make e-government a global reality in the not-too-distant future (Bwalya & Zulu, 2012). Thus, all countries should understand the e-government marvel (its conceptualisation, design, deployment, implementation, monitoring and evaluation) and exactly how important it is for their survival if these governments and countries are to flourish as economies of knowledge economies and convenience in this information era.

Governments around the globe are cognisant of Information and Communication Technologies (ICTs) and their advantages, particularly in helping to interact with and communicate with the public and businesses (Wimmer & Traunmuller, 2004). The availability of the Internet 24 hours a day, seven days a week, and the prevalence of the WWW—'anytime, anywhere'— allow government information and services to be available to more and more citizens at greater convenience and with increased satisfaction (Schiavetta, 2005).

The implementation of e-government in the current era is obligatory for the government to function in this information age. The needs of people, global competition and new demands of the information age are critical issues, particularly in developing countries. Accordingly, in order to enhance e-government services, various developing countries have launched strategic plans which, according to Ismail (2008), are normally undertaken and implemented following the essential step of e-readiness evaluation. He suggests a pathway for improvement: action plans should be developed which allow for the augmentation of ICT capacities Ismail (2008). However, these plans are not a guarantee of uptake of use of e-government services, especially in developing countries.

As efforts to adopt e-government projects gather momentum in the quest to offer more efficient services to citizens and businesses, strategies for assessing their effectiveness and measuring the delivery and quality of

services are critical. Currently, there are several metrics applied to measure and rank a country's e-readiness. While these measures have provided a source for comparative analysis between various e-government projects, they are far from being perfect.

As mentioned, most of these measures are diverse and difficult to compare as they assume a 'one size fits all' application and ignore differing environmental, cultural and contextual factors, both within countries and between countries. Another criticism of these measures is that they rely on first-generation metrics designed for developed countries. For example, the United Nations (UN) e-government ranking is based on a capacity dimension that concerns readiness of the country (e-readiness), a willingness dimension which concerns e-participation, and a dimension for capturing the potential for e-government that is already in place (Koh *et al.,* 2008; United Nations, 2008). There are three indicators that the UN applies: 1) web measure, 2) human capital, and 3) telecommunication infrastructure. Web measures capture the country's online sophistication. Human capital is a compound measure of education resulting from a combined weighted ratio between adult literacy and academic enrolment from elementary to tertiary levels. Thirdly, the telecommunications infrastructure is comprised of a number of indicators, including access to personal computers, telephone lines and the country's online population (Mwangi, 2006).

For developing countries, particularly in Africa, rather than just adopting these existing indicators, it seems far more logical to re-evaluate and customise the indicators, establishing which ones are important and suitable for a typical African e-government service environment. Clearly, there is a need to develop more African-appropriate e-government metrics, emerging from consideration of African environmental, cultural and contextual factors.

In addition, even with widespread acceptance of the importance of providing public services in an electronic manner (Verdegem & Verleye, 2009; Belanche *et al.,* 2009), there is a dearth of knowledge about the determinants of citizens' adoption and use of online public services. In other words, not enough attention has been given to the users of e-government services in consideration of their expectations and experiences. Certainly, to date, almost all studies in this regard have focused on well-known adoption models

such as the Technology Acceptance Model (TAM) or the Theory of Planned Behaviour (TPB) (Wu & Chen, 2005). Consequently, little consensus exists about what motivates citizens to make use of existing electronic public services. Furthermore, there is no empirical evaluation of the antecedents of African citizens' intention to use online public services, even though this awareness would be key for encouraging citizens to use and thereby benefit from the ease and efficiency of online services.

*Information Systems Effectiveness*

In government, as in business, it is important to understand and appreciate the effectiveness of implementing any Information System, because its adoption strongly impacts the content and shape of work within the organisation. Thus, the evaluation of IS effectiveness is necessary and has become a concern in both IS management practice and research (Irani & Love, 2002). The evaluation of IS effectiveness establishes the worth of information technology in the organisation through qualitative or quantitative means (Willcocks, 1992:220).

In an IS context, *consequence* is defined as a dependent state that arises from the introduction of IS (Renkema & Berghout, 1997:2). IS evaluation paradigms distinguish between tangible and intangible consequences, as both tangible and intangible consequences determine the value of an IS to a stakeholder. So in conducting any evaluation, it is imperative to avoid neglecting the organisational context or the process of IS development and content, as all these elements are crucial to the successful adoption and application of information technology (Serafeimidis & Smithson, 2000:93).

Researchers in the area of IS effectiveness evaluation have conceded that this is a complicated and difficult subject resulting in a plethora of diverse evaluation approaches of IS effectiveness, including some surrogate evaluation approaches. A *surrogate evaluation approach* is an indirect evaluation of IS effectiveness through the measurement of concepts such as service quality and user satisfaction. DeLone and McLean (1992) proposed a unified framework that incorporates several already accepted dimensions of an IS effectiveness evaluation into a single model that incorporates service

quality with several other dimensions: information quality, system quality, user satisfaction, system use and net benefit (DeLone & McLean, 2003).

Initially, the evaluation of IS mainly targeted the product aspect, resulting in focus on the observable and tangible elements (Pitt e*t al.*, 1995) but ignoring the service-based perspective. In contrast, however, Pitt *et al.* (1995) drew attention to the fact that service quality is a significant measure of IS effectiveness and proposed that the original D&M IS Success Model be augmented with the service quality measure. They affirmed that "there is a danger that IS researchers will mis-measure IS effectiveness if they do not include in their assessment package a measure of IS service quality" (Cao *et al.,* 2005; Pitt *et al.*, 1995:173). On the basis of this *service quality* is an important consideration in terms of its applicability of as a potential dimension in the evaluation of e-government environments.

*Service quality*

Over the previous three decades, service quality has been investigated extensively in the service-marketing field, although the current service quality literature is mainly focused on the private sector, which is driven by profit motivation. Consequently, we have yet to fully comprehend the expectations of citizens with regard to e-government services and hence what criteria should be applied in the measurement thereof. According to Butler and Collins (1995:83), the introduction of service quality rhetoric in the public sector is a more recent phenomenon that can be traced to the New Public Management (NPM) movement. A search of the literature reveals only very limited research into e-government service quality, especially in the context of developing countries.

## 1.2 Research problem

The public sector in Tanzania has experienced a massive process of reform over the past two decades. The primary justification for this reform is grounded in awareness of the need to be increasingly responsive to citizens' needs. These reforms are clarified through the tightening up of accountability, promoting efficiency and effectiveness, introducing participative decision

making and adopting customer-focused practices in Ministries, Departments and Agencies (MDAs) and Local Government Agencies (LGAs).

Tanzania, like many other African countries, is implementing these reforms in line with e-government objectives. The government adopted an e-government strategy through its National Information and Communication Technology Policy (NICTP) which, among other emphases, includes the provision of efficient and effective services to citizens, increased responsiveness to the needs of the citizens and the introduction of participatory decision making.

While there are several e-government projects currently being implemented in Tanzania as part of public reform programmes, the outcomes thus far still fall short with regard to the provision of necessary and sufficient conditions for the success of e-government projects. So, in spite of nearly two decades of efforts for extensive reforms in the public sector for improved service delivery, the results are not impressive.

The e-government projects were supposed to result in modification of the working habits of civil servants towards being more responsive and efficient in their public delivery endeavours. Likewise these projects are intended to bring about intended benefits to citizens from varying perspectives of service delivery. However there is no evidence at hand which allows for an assessment of the effectiveness of e-government projects. The current situation appears to paint a bleak picture in terms of the anticipated successful implementation of these programmes.

Consequently, several pertinent questions arise: Why are these e-government projects, in line with planned reforms, not successful? What is amiss in these e-government projects? To what extent, if any, are the e-government projects contributing towards improved service delivery within the country?

The literature is replete with information and examples and case studies of how to adopt and implement e-government programmes (Colesca & Dobrica, 2008; Yonazi *et al.,* 2010). However, minimal attention has been given to the

evaluation of the effectiveness of e-government services, and even less so from the perspective of a country's citizens.

The evaluation of e-government service effectiveness from the demand side is necessary, as it provides a foundation for understanding the needs of the citizens as well as identifying the benefits to them. Unfortunately, like many other ICT projects, there have been no appropriate evaluation strategies designed for evaluating e-government service effectiveness (Sharif *et al.,* 2010).

The absence of such evaluation strategies as applicable to overall e-government strategy from the citizens' perspective inhibits a government's awareness of and ability to assess problems relating to uptake, use and benefits of e-government services. Governments are thus challenged to improve e-government services and enact measures that will realise the intended benefits. In other words, if a government doesn't know how its citizens are feeling, what they are needing, or how they are experiencing a particular e-government service, the government will be unable to improve that service.

A coherent framework for the evaluation of effectiveness of e-government services is therefore required for improving e-government practices in Tanzania. Moreover, the fact that e-government concepts and effectiveness measures emerged from industrialised developed countries (Heeks, 2003) means that existing strategies of e-government success in those countries must be interrogated from the unique perspective of developing countries in Africa, such as Tanzania, and amended accordingly.

*In summary, the crux of the research problem is that no suitable framework exists for understanding and measuring the effectiveness of e-government services in a developing country.*

Based on the above problem, the underlying aim of the study is *to investigate the key components of e-government which, when viewed holistically from the perspective of citizens within a developing country, provide a basis on which the success of e-government may be evaluated in Tanzania.*

Then following critical research question is thus raised:

*What are the dimensions for effectiveness of e-government services which, when jointly considered, would lead to maximum citizen use and satisfaction?*

The concomitant research sub-questions are as follows:

- *What are the various evaluation models for e-government services?*
- *What are the approaches and measures for evaluating Information System (IS) effectiveness?*
- *Which approaches are relevant for the evaluation of effectiveness of e-government services?*
- *What are the relevant service quality dimensions that may be applied in the evaluation of e-government from the perspective of citizens?*
- *How do these dimensions relate to each other, and how could they be presented cohesively as a framework for effective citizen-centric e-government evaluation?*

To fully understand and explain e-government evaluation phenomenon in Tanzania, this research set out to undertake the following:

- identify the existing models available in literature on e-government studies and determine the need for further research within the context of the research problem;
- derive the dimensions for effectiveness of e-government from citizens' perspectives;
- establish the interrelationships between the derived dimensions; and
- assess the applicability of these dimensions for e-government evaluation in developing countries.

The motivation for this research stemmed from the need to investigate an e-government service evaluation phenomenon in the context of a developing country like Tanzania, characterised by socialist roots within its current political and economy setting. E-government is a social phenomenon; as such, in this research, it is studied within the information systems (IS) domain. Roode (1993) defined IS as follows:

*An inter-disciplinary field of scholarly inquiry, where information, information systems and the integration thereof with the organisation is studied in order to benefit the total system (technology, people, organisations and society).* (cited in de la Harpe, 2008)

The study finds no evidence in the extant literature of research pertaining to e-government service evaluation under various political and social environments. Hence, this study offers a potentially significant contribution to research, with useful insights provided from studies of e-government in low-income countries (such as those highly dependent on donors) like Tanzania. Much recent IS evaluation research has applied varying theoretical and philosophical lenses to understand the e-government evaluation phenomenon. This research adopts a socio-technical perspective, which is a set of theories and concepts that seek to jointly optimise the co-evolution of governments and technology.

E-government discourses have gained recognition across technology and public administration disciplines. This research is positioned within the broader e-government discourse because of the anticipated theoretical, methodological and practical contributions it will make to the present body of research. A theoretical e-government system framework will be formulated to represent constructs within the e-government context, with an assessment of effectiveness in particular. The methodological contribution lies in the application of the analytical lens of the grounded theory method analysis within an interpretivist paradigmatic view. The e-government effectiveness framework for Tanzania will be the practical and beneficial contribution of this study.

## 1.3 Contribution of the study

The research findings provide a means of continually evaluating the ongoing effectiveness of e-government services; this in turn will accelerate the beneficial evolution of e-government initiatives in Tanzania. This study also combines important ideas from two existing domains, service management and IS evaluation, to provide new foundations for further work by other researchers.

## 1.4 Research scope

An e-government system is a specific type of information system (IS). Thus, in investigating the effectiveness of e-government, the study combines important ideas from both IS evaluation and service management literature.

Section 1.2 clarifies the research objectives and research questions that this study intends to address. This section, though, stipulates what this research *does not* address.

- The research is not about e-governance in general but is specifically about e-government in developing countries. *E-governance* is considered to involve broader issues, e-democracy and e-voting for example.
- The research focuses on e-government services from the central government, not e-government at a local government level, although the research outcomes may be applicable to e-government at all levels.
- The research is concerned with government-to-citizen services (G2C) only.

The research primarily focuses on citizens' perspectives of utilising e-government services. However, as depicted in Figure 1.1, the empirical study includes perspectives from *both* citizens and government agencies, so that a more holistic set of evidence is considered. This is elucidated in more detail in Chapter 3.

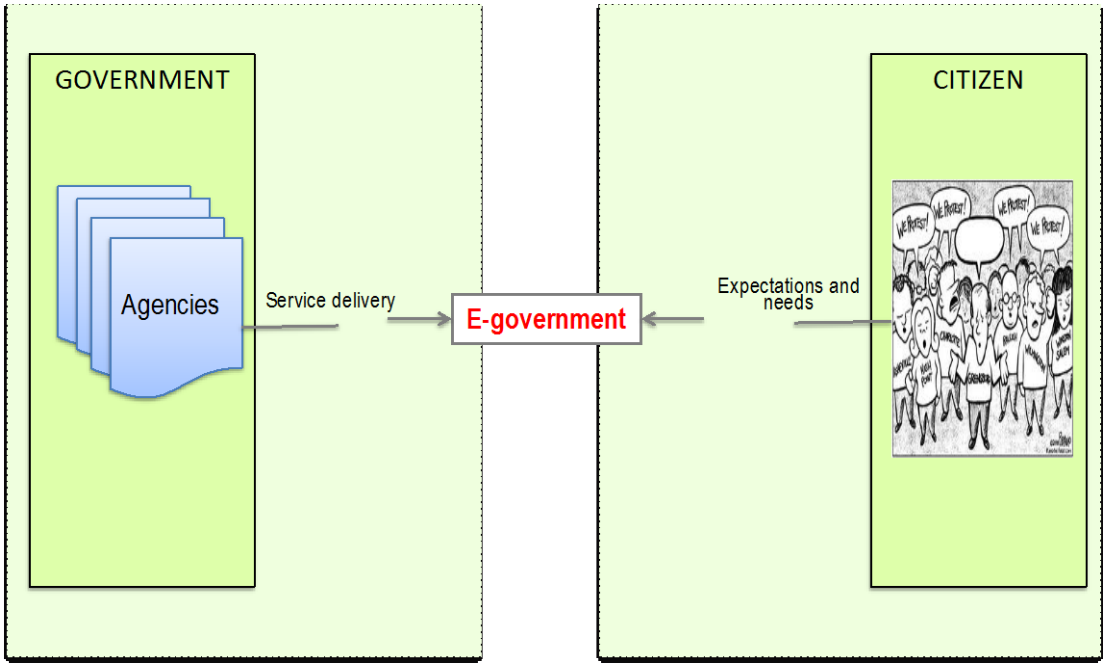


**Figure 1.1: Scope of the empirical investigation**

The rest of this chapter discusses the e-government in Tanzania as the empirical setting of the study, followed by an overview of the main aspects of this research.

## 1.5 Tanzania: the empirical setting

Tanzania is a developing country located in the eastern part of Africa. The official name of Tanzania is *United Republic of Tanzania* (URT). The United Republic of Tanzania was formed from the union of two sovereign states, Tanganyika and Zanzibar. Tanganyika became a sovereign state on the 9th of December, 1961, and became a Republic the following year (World Bank, 2014). Zanzibar became independent on 10 December, 1963, and the People's Republic of Zanzibar was established after the revolution of 12 January, 1964. The two sovereign republics formed the United Republic of Tanzania on 26 April, 1964. However, the government of the URT is a unitary republic consisting of two governments, the Union Government and the Zanzibar Revolutionary Government (World Bank, 2014).

The country is currently run by the fourth democratically-elected President, Jakaya Kikwete, who continues to maintain a peaceful existence in an often-turbulent post-independent period in the region. The president won his second and last term in 2010 with 61% of the vote (Dagne, 2011). His party,

Chama cha Mapinduzi (CCM), has dominated the political landscape since 1961, when multi-party politics were abolished under the founding president, Julius Nyerere (World Bank, 2014).

In 1992, as part of wide-ranging political and economic reforms, the country returned to multi-party democracy. Since then, the number of parties participating in the political space has grown from 11 to 19, but only six of these have been able to achieve representation in the parliament, where they are considerably vocal on issues such as transparency and accountability. While they have not been successful in dislodging CCM from power, they have continued to encroach on its support base, as evidenced by the 2010 elections and recent by-elections. The most prominent opposition party, CHADEMA, made significant strides in the last election, winning 44 seats in Parliament, from five seats in the 2005 election (World Bank, 2014).

Tanzania embarked on a constitutional review process in 2012 (World Bank, 2014), though to date the new constitution is not yet published. This is because of misunderstandings of certain constitutional issues between the government and opposition parties, which has led to its postponement until after the election. Otherwise the constitutional debates have already been conducted all over the country under the supervision of a special constituent committee, which has produced a draft constitution. The constituent assembly to debate the draft was established and the current draft constitution is being debated.

Tanzania has a territorial area of 945,087 square kilometres ($km^2$) with a population of 44.9million (National Bureau of Statistic, 2013) and is the largest country by area in East Africa. It is bordered by the Indian Ocean on the east; by Malawi and Mozambique in the south; Zambia, Republic of Congo, Burundi and Rwanda in the west; and Uganda and Kenya in the north (Figure 1.2) (www.nationsonline.org/oneworld/map).

Dar es Salaam is the largest city and the commercial capital. About five hours by road west is Dodoma, the capital city and seat of government. Tanzania's gross national income (GNI) per capita is 541 (2011). The official languages of Tanzania are Kiswahili and English, while the population groups in

Tanzania are mainly black Africans (99%) with non-Africans making up one percent of the population. English is the language of business and trade.

**Administrative regions of Tanzania**

Tanzania is divided into 26 regions (mikoa), with region capitals noted in parenthesis: Arusha (Arusha), Dar es Salaam (Dar es Salaam), Dodoma (Dodoma), Iringa (Iringa), Kagera (Bukoba), Kigoma (Kigoma), Kilimanjaro (Moshi), Lindi (Lindi), Manyara (Babati), Mara (Musoma), Mbeya (Mbeya), Morogoro (Morogoro), Mtwara (Mtwara), Mwanza (Mwanza), Pemba North (Wete), Pemba South (Mkoani), Pwani (Kibaha), Rukwa (Sumbawanga), Ruvuma (Songea), Shinyanga (Shinyanga), Singida (Singida), Tabora (Tabora), Tanga (Tanga), Zanzibar Central/South (Koani), Zanzibar North (Mkokotoni), and Zanzibar Urban/West (Zanzibar; Stone Town) (www.nationsonline.org/oneworld/map/tanzania-administrative-map.htm).


**Figure 1.2: Tanzania map (source: www.nationsonline.org/oneworld/map/tanzania-administrative-map.htm)**

Social key indicators for Tanzania are provided in Table 1.1 below. The fifth census since independence, conducted by the National Bureau of Statistics (NBS) in 2012, reports the population of Tanzania to be 44,928,923 (United Republic of Tanzania National Bureau of Statistics and Office of the Chief Government Statistician, 2013).

**Table 1.1: Key Indicators**

| Indicators | Number | Sources |
|---|---|---|
| Population (2011) | 44.9 million | NBS Tanzania |
| Literacy (2010) | 67.8% | World Fact Book 2012 |
| Gross National Income per capita in Dollars (2012) | 570 | World Bank |
| Internet users (est. 2012) | 5,629, (12% population) | http://www.internetworldstats.com/stats1.htm |

Tanzania is a typical developing country. In the World Bank Framework (1.2), Tanzania falls into the group of low-income countries. In 2008, Tanzania had a Gross National Income per capita of 1,230 (United Nations, 2008). Accordingly, the government of Tanzania is implementing various development strategies aimed to bring about sustainable social and economic development in the country. E-government is one such strategy.

### 1.5.1 E-government in Tanzania: overview

Elaborating briefly on the development of e-government in Tanzania provides an opportunity to link the theoretical knowledge regarding the rethinking of e-government to daily practices and citizen experiences. Existing ways of working or new initiatives can be reviewed and consequently, guidelines can be deduced that may be interesting to share with both the community of researchers and practitioners.

The Tanzanian government has been moving forward steadily, establishing policies and building frameworks for e-government. Tanzania began to prioritise e-government services at the end of the 1990s, responding to the rapid development of the Internet and the increase in the usage of ICTs. Since its implementation in Tanzania, e-government has been primarily regarded as a crucial driver for public transformation. Simultaneously, the focus has also been on the technical aspects of e-government. In Tanzania, the intergovernmental co-operation management strategy of integrated e-

government is an important point of attention, as is the reduction of the digital divide (the gap between those who operate online and those who don't). Accordingly, the government of Tanzania is implementing various development strategies aimed at generating sustainable social and economic developments within the country. Examples of strategies include the following:

i) The National Poverty Reduction and Monitoring Strategy (URT, 2005);
ii) Zanzibar Strategy for Growth and the Reduction of Poverty (RGoZ, 2009); and
iii) Kilimo Kwanza[1] (TNBC, 2009).

These strategies aim at achieving several target goals:

- a high standard of living;
- peace, stability and national unity;
- good governance;
- an educated society imbued with an ambition to develop; and
- a competitive economy capable of producing sustainable growth and shared benefits (URT, n.d.).

Tanzania, like many other countries, recognises that ICT is the key facilitator of the development strategies in the country. The National ICT Policy (URT, 2003) emphasises the application of ICT in various development sectors such as health, education, government, infrastructure and agriculture. Accordingly, the government acknowledges that e-government has the potential to enhance its productivity and effectiveness for sustainable national development. This can be substantiated with the formulation of national e-government strategies and the recent establishment of the e-Government Agency (eGA).

E-government in Tanzania has been related to public sector reform programmes intended to improve service delivery in the public sector (Kobb, 2008). The reform programmes include the Civil Service Reform Programme from 1991 to 1999 and the Public Service Reform Programmes from 2000 to

[1] A slogan meaning 'Agriculture first'

2007. Although it had not been an explicit component in the previous reform programmes, e-government emerged as a necessary enabler for the successful reformation and advancement of public service.

The e-Government Agency (eGA) was established by Act No 30 of 1997 Cap 245 and began operating in July 2012. The agency is mandated with the responsibility for coordination, oversight and promotion of the e-government initiatives in the country. The functions of the Agency are an integral part of the Public Service Reform Programme that aims at improving service delivery to the public throughout government (Utumishi, 2011). Prior to creation of the e-Government Agency, the President's Office Public Service Management (PoPSM) department was the overseer of e-government in Tanzania, responsible for coordination and funding of e-government countrywide. The office played a significant role in ensuring that Tanzania achieved an adequate level of e-government implementation.

Generally speaking, there has been some e-government progress in Tanzania (Oreku & Mtenzi, 2011), though distribution of infrastructure is still a hurdle. Even with all the e-government programmes and activities, Tanzania's e-government is still lagging, with some claiming that it remains in a nascent stage (Yonazi *et al.,* 2010). There seem to be many reasons for that, but one notable one is the absence of an evaluation framework for e-government initiatives in the country. For the country to understand the development of e-government, and its benefits, an evaluation is undeniably necessary. However, as with many other ICT projects, there have been no appropriate evaluation strategies for tracking e-government service success, or lack thereof. Indeed, the absence of evaluation strategies within the overall e-government programme inhibits the government's ability to comprehend problems relating to uptake, use and benefits of e-government. As a result, Tanzania's e-government has been perceived to be a partial, or even total, failure. The government is facing the challenge of improving e-government and aiding in the realisation of the intended benefits for its citizens (Heeks, 2006b).

Following the emerging common priorities for the development of citizen-centred or user-oriented strategies and strategies to increase interaction and citizen uptake of e-government service, various citizen-focused e-government

initiatives are being implemented in Tanzania, aimed at making the government more 'reachable' and 'approachable', and at delivering public services more transparently, efficiently and effectively (URT, 2008).

Good examples include the following:

- The e-government initiatives at the Tanzania Revenue Authority (TRA) under the Ministry of Finance, which introduced a one-stop tax office where citizens access the respective information and services.

- The Ministry of Land Management, though the system is still at the infant stage of operation. It implemented various initiatives that facilitated application, tracing and obtaining of land-related documents in a more efficient manner. However, the system has yet to be implemented in all parts of Tanzania. But such processes that previously took up to six months to complete, now take less than a week. Currently, it takes only a week for citizens to trace and obtain required documents. This saves citizens both time and money that would otherwise be spent in following up their requests, and on the government side, these new processes increase efficiency and transparency. The government, moreover, hopes that such initiatives may also help to curb corruption by enhancing accountability within government (Yonazi, 2010).
- The establishment of telecentres is yet another initiative. A great number of them have been established in Tanzania as an access point for information and services. The installation of telecentres in some parts of Tanzania was expected to accelerate the use of e-government services as well as usage of ICT to the surrounding communities. Unfortunately, the Tanzania Communications Regulatory Authority (TCRA) reports (TCRA, 2007) indicate that the telecentres are not performing as expected: reasons given include inadequate infrastructure and power distribution, lack of awareness of existing services that can be accessed (e.g. because VoIP is an unknown technology, only 0.03% of telecentre users are accessing it), and locations of telecentres (TCRA, 2007). In some locations, people are not able to access the services through the telecentre because of

cost, while in other areas, lack of accessibility is due to low education, lower Information Communication Technology (ICT) usage and communities characterised primarily by senior citizen population. In many cases, citizens are attracted to the service but cannot afford telecentre service charges, especially the Internet charges which range between Tsh.500 to Tsh.1000 per half an hour. These high service charges are due to high Internet Service Provider (ISP) bandwidth fees at these access points.

### 1.5.2 E-government and policies in Tanzania

Most African public administration is characterised by low performance, weakly developed local administration, rampant corruption, high levels of over-staffing with low pay rates, as well as unmotivated and unqualified staff (Oreku & Mtenzi, 2011). The consensus on the causes of administrative deficits is not yet determined; however, weak administrative structures have plagued African efforts in e-government. It has resisted meaningful public administration structural changes, necessary for e-governments to be successful. As a result, in a majority of cases, there is no political will and no championing of e-government projects.

E-government initiatives in Tanzania were undertaken under the auspices of continuing public service transformation and before the establishment of the e-Government Agency (EGA), which is overseen by a Steering Committee chaired by the Chief Secretary (Shame, 2009). The overall co-ordination of these public service reforms falls under the President's Office for Public Service Management (POPSM) headed by the Permanent Secretary. One among the ten fast-tracked components of National ICT (NICT, 2003) was the e-government strategy that was approved by the Cabinet in April, 2004 (Shame, 2009). The government of Tanzania has secured a budget of nearly 60 million dollars for implementation, which includes building a countryside network infrastructure to link all key government offices on a consolidated platform. Moreover, COSTECH, the Tanzania Commission for Science and Technology in 2004, adopted a strategic plan to catalyse ICT application and development in the country. This included the formation of regional ICT-based networks. Currently, the focus is on utilisation of ICTs (computer technology, software and Internet) in the government to enhance public

services delivery efficiency. These enhancements are in three salient overlapping areas: external interaction, connecting citizens and process improvement in one or a combination of these focal points. Generating improvement in one or a combination of these focal points remains a typical aim of e-government strategies (POPSM-URT 2011).

## 1.6 Research map

This thesis has six chapters, each one presenting valuable information.

*Chapter One* presents the introduction, covering background information leading to the problem statement of the research. Research questions, objectives, aims and the expected contribution of the study are also presented. The research scope and context of the research are also presented in this chapter. Finally, this chapter provides an informative overview of Tanzania and sketches an outline of the state of e-government in the country.

*Chapter Two* presents an overview of available academic literature. The literature review describes, summarises, evaluates and clarifies literature that is related to e-government and e-government evaluation, with a specific focus on developing countries. The chapter also situates this study within the information systems (IS) domain. The literature review was helpful in developing a theoretical lens through which the researcher explored the empirical research.

*Chapter Three* presents the philosophical paradigms and theoretical framework. The interpretivist paradigm is discussed in detail as the philosophical lens of the study. The overarching conceptual framework that guides the rest of the research is also presented in this chapter.

*Chapter Four* presents the research methodology and design for the study. Moreover, each analysis approach for this study is discussed in detail.

*Chapter Five* reports the findings on dimensions of e-government services in Tanzania. The chapter mainly provides a knowledge contribution to the body of research by way of an insight into designing an appropriate e-government system evaluation framework for developing countries to be presented in

Chapter six.

*Chapter Six* presents the answers to the initial research question. Theoretical, methodological, knowledgeable and practical contributions of the study to the broader e-government discourse within the IS domain are presented. Also presented in this chapter are recommendations for further research.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

The context of the research problem in this study concerns e-government services in Tanzania. The essence of e-government, especially in a typical developing country, concerns considerations of economic development and the social wellbeing of its citizens. The focus of this research is based on developing a clearer understanding of how individual citizens' needs could be met through e-government and how governments can more thoroughly manage associated processes for greater public participation, whilst ensuring transparency. This chapter presents a literature review on the underlying issues and concepts related to e-government. The review serves as a first step towards achieving the research aim, identifying key components of e-government which, when viewed holistically, provide a basis for evaluating the success and effectiveness of (G2C) e-government services in a sample developing country and thereafter determining a concomitant evaluation framework. The principal concern of this chapter is therefore the presentation of a conceptual frame to provide essential background knowledge for this research, with the primary intention of highlighting gaps present in the extant literature.

The chapter starts by providing an overview of the fundamental concepts for the study. It describes the context and concept of e-government, e-government services, and challenges facing the necessary evaluation of e-government services. Secondly, it explores types of evaluation approaches for information system (IS) effectiveness and relevance of the evaluation of IS to the context of e-governments. Given the specific research aims, the chapter will further home in on concepts related to service quality and its relevance to the evaluation of e-government services. Finally, a conceptual framework for e-government service evaluation is derived.

## 2.1 E-government overview

The concept of *e-government*, as used in this study, has a broad definition. It is a concept not just limited to use of the Web or Internet-based applications in government. Instead, it embraces all uses of information communication technologies (ICTs), such as primary computer and networks, as a means to deliver services to all government constituents (Heeks, 2006b), delivering convenient access to government services and information (Grönlund & Horan, 2005). Advocates of e-government promise better government through improved quality services, cost savings, more effective internal processes, wider political participation and the creation of public value (Grimsley & Meehan, 2007). According to some researchers, it may reflect priorities in government strategies (Heeks & Bailur, 2007; Yildiz, 2007; Evans & Yen, 2006).

The concept of e-government, though, has no single common definition, as the term itself is not used universally[2]. Because of that, over the years, there have been various proposed definitions of e-government, as indicated in Table 2.1 below. Herewith presented are the various definitions of e-government, as extracted from the existing body of literature, highlighting their variety of use and nuances in focus.

[2] In terms of spelling the term, the convention adopted in this study is '**e-Government'** at the start of a sentence, '**e-government'** elsewhere**.**

**Table 2.1: Definitions of e-government from the existing body of literature**

| Author | Definition | Focus of e-government |
|---|---|---|
| Heeks (2004) | E-government "the use of information and communication technologies (ICT) in improving the activities and services of government". | Use of technology to improve activities and government services. |
| Gil-García & Pardo, (2005) | E-government is the intensive or generalised use of information technologies in government for the provision of public services, the improvement of managerial effectiveness, and the promotion of democratic values and mechanisms. | To improve service delivery. |
| Cater and Belanger (2005) | E-government is the use of information technology to enable and improve the efficiency with which government services are provided to citizens, employees, businesses and agencies. | To improve efficiency. |
| Tung & (Rieck, 2005) | E-government is believed to lead to better delivery of government services, improved interaction with business and industry, citizen empowerment through access to information, or more efficient government management. | To improve interaction with citizens. |
| World Bank, (2007) | E-government is *"the use by government agencies of information technologies that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management".* | Use of technology to improve activities and government services delivery. |
| European Commission, (2003) | As use of Information Communication Technologies (ICTs) in public administrations combined with organisational changes and new skills in order to improve public services and democratic processes and strengthen support to public policies. | Use of technology to improve delivery of service to citizens. |
| Al-jaghoub *et. al.*, (2010) | E-government can be described as the use of any type of information and communication technology to improve services and operations provided to different parties such as: citizens, businesses, and other government agencies. | Use of technology to improve delivery of service to citizens. |

The fundamental part of each of these definitions originated from the concept developed in 1979 by Simon Nora and Alain Minc who provided a report about the way to shape political and civil society using *telematics* (Nora & Minc, 1980). In their report, *telematics* was described as an amalgamation of computers and telecommunications and the ways in which the society could benefit from this (Cats-Baril & Jelassi, 1994). Therefore, e-government is not just about the Internet, but quite importantly, is inclusive of the use of ICT by public sector organisations and citizens.

A study by Hu, *et. al.*, (2009) attempts to analyse different definitions of e-government with the intent of deriving one widely accepted definition. They used CATA software to analyse 632 articles drawn from three world leading academic databases. The analysis concluded that definitions of e-government were conceptualised by six elements, varying from different academic fields: everybody talks about e-government but all have different interpretations. The success of e-government, therefore, suggests an alternative view of academic groups – as entities that are dynamic and malleable, yet at the same time held together by a common, underlying, but permeable core (Hu *et al.,* 2009). Roy (2003:4) expands on this by stating that there is a "greater value in viewing e-government as a dynamic process rather than a static or single set of issues". The area is a dynamic one, where the policies as well as definitions need to remain relevant.

In view of that, individual countries adhere to various e-government definitions. The World Bank (2007), however, comprehensively defined e-government as "the use by government agencies of information technologies that have ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improve interactions with business and industry, citizens empowerment through access to information, or more efficient government management" (World Bank, 2007). The clear emphasis in this definition pertains to the use of technology for delivering services efficiently to citizens.

With regards to this study, the relevant working definition of e-government is as follows: "the application of all sort of technologies, including Internet, within government to enhance operations and electronically deliver services to citizens, business and other government agencies" (Grant & Chau, 2005; Å. Grönlund & Horan, 2005; Horan, 2005; Adeshara *et al.,* 2004; Arif, 2008). In addition, this working definition is aligned with the definition provided by Heeks (2004), who viewed e-government as a concept whereby information communication and technologies (ICTs) are applied to enhancing the activities and services of government.

Although most definitions of e-government focus on government service delivery, in general, e-government is not only concerned with the provision of government services. The e-government concept is part of broader *e-governance* concepts, described by Saxena (2005) as *a* "commitment to utilise appropriate technologies to enhance governmental relationships, both internal and external, in order to advance democratic expression, human dignity and autonomy, support economic development and encourage the fair and efficient delivery of services" (Ismail, 2008*).* Elmgarmid *et al.* (2001) argue that this concept is a further step forward towards remodelling the nature of communication between government and citizens. This remodelling occurs by deploying ICT while maintaining transparency of information and decision-making (Elmgarmid *et al.*, 2001). Subsequently, from the ICTs, citizens should be able to systematise the benefits of e-government services (Sakowicz, 2001; Wimmer & Bredow, 2002).

The existence of *e-democracy* in a country which allows for the involvement of citizens in government activities is the hallmark of active e-governance. This might occur through virtual meetings and cyber campaigns, public surveys and community forums. As a result, citizens will be increasingly aware of and engaged in the decision processes that affect the achievement of the government's social targets (UNDESA, 2003).

In improving the means to communicate and share information within and between agencies, *e-administration* is also included in e-governance. E-administration aims to reform government administrative processes to be more stream-lined, more automated, and hence more effective (Heeks, 2002). Given the importance of the various aspects of e-governance and its relationship with e-government, the scope of this study will be narrowly refined to *e-government*, as explained previously, and even more precisely, to the delivery of government electronic services to citizens in a developing country rather than a developed one.

## 2.2 Characteristics of e-government

The features of e-government projects are analogous to information systems (IS) projects, as these follow similar steps from inception to deployment (Heeks, 2006). However, e-government has peculiar characteristics which influence both project design and employment (Abdelghaffar, Bakry & Duquenoy, 2005). The following are characteristics that illustrate the scope of e-government:

1. E-government projects deal with the enhancement of government operations and service delivery to citizens and other stakeholders. It is therefore of particular interest to politicians and other decision-makers. The politicians (because of their interest in winning the voters) often make hasty decisions concerning e-government without sufficient involvement of experts, with a detrimental impact on their professional career (Heeks, 2002).
2. The sustainability of e-government projects needs continuous support from politicians as well the top management. Without such support, the project may not reach its goals (Heeks, 2003; UNDESA, 2003).
3. Since the reformation of public service management to enhance service delivery is a primary aim of e-government, government might encounter resistance to change, as employees fear job loss. To minimise this apprehension, employees are to be made explicitly aware of the objectives and benefits the e-government projects (InfoDev, 2002).
4. Delivering services electronically to the broader public online necessitates dealing with security, confidentiality and data protection (Wimmer & Bredow, 2002).
5. Changing public culture, behaviours and expectations might be necessary when deploying e-government, as citizens must be encouraged to familiarise themselves with new methods of service delivery (Cohen & Eimicke, 2003).
6. Compared to private sector projects, the objectives of e-government projects are different because of the political component and the fact that e-government projects are not profit-making projects. Clearly, customer services and productivity are not the only issues that should

be considered (Cohen & Eimicke, 2003).

7. E-government and e-business have different characteristics, though many aspects of a successful e-business implementation are required for e-government. Because of that, some scholars have characterised e-government as the *"e-business of the state"* (Schubert & Häusler, 2001). Thus, e-government could use technologies applied in e-business and e-commerce to increase e-government service delivering efficiency (Csetenyi, 2000; Barzilai-nahon & Scholl, 2007; Swedberg & Douglas, 2003). However, the goal of e-government is quite the opposite of e-business (Sakowicz, 2001) as it covers rules and links with agencies. The main target of e-business is to maximise profit and an enterprise's market share through web technology, while e-government is primarily intended for non-profitable service delivery (Liikanen, 2003).

## 2.3 E-government stages and services

The *evolution perspective* and *interaction perspective* are two prominent perspectives that explain e-government stages. The *evolution perspective* presents e-government as progressing through a hierarchy of various stages. Each higher stage represents a more advanced level of service and technological sophistication. Although different frameworks provide different ways of describing the stages of e-government (Layne & Lee, 2001; UN, 2005:16; Wastson & Mundy 2001), it is rather noticeable that there is no consensus regarding the exact number of e-government stages, and very little focus on citizens' perspectives with regard to their participation in policy-making processes. Some researchers believe that only three stages are necessary; others believe that four, five, or even six stages are required before achieving any stated programme objective. The World Bank (WB) framework (InfoDev, 2002) presents an elaborate set of stages and characteristics of e-government evolution.

Table 2.2 illustrates a three-stage model for e-government adoption: publishing, interaction, and transaction. The stages are differentiated in terms of the degree of service and technological sophistication present in each stage. Understanding these stages is pertinent, particularly for this

study, as this model can be applied to provide the criteria for evaluation as well as to reveal the significance of e-government service evaluation.

**Table 2.2: Three Stage Maturity Model for e-government (source: InfoDev, 2002)**

| Stage Model | Perception |
|---|---|
| Stage one: Publishing | Information about activities of government available online |
| Stage two: Interacting | Enables citizens to have simple interactions with their governments |
| Stage three: Transacting | Provides citizens with full benefits of transactions over the Internet |

*Publishing - the first stage*: Information such as rules and regulations, forms and documents are published on the website. This information, however, is static, suggesting that the relationship between citizens and government is not active. This stage implies that content contained on a government website should simply be basic information, such as organisational information, working hours, contact address and telephone and fax numbers. This information would need to be updated regularly (AOEMA 2004).

*Interacting - the second stage*: This is the stage where government engages in active interactions with citizens and businesses. The interaction, though intended to be two-way, comes mainly from the citizen and business side, as they are downloading the forms from the websites and proceeding with transactions. The government may be active via email in some cases. These two stages, publishing and interacting, are necessary for citizens to trust and make use of these services.

*Transacting - the third stage:* This is a stage where the government is able to provide a full array of services electronically. Citizens and businesses complete all transactions online. That is, the interaction between the citizens and government take place actively online. In e-government projects, this is the most important stage because ICT benefits that simplify transactions, minimise effort and reduce time are realised in these interactions. There is a sub-stage in this third stage of e-government known as *full integration of transactions*, as observed by other scholars (AOEMA, 2004; Group, 2000; Seifert, 2003). This is an even more advanced stage of transacting, where full integrations are occurring in such a way that boundaries between citizens and government are beneficially blurred: citizens can apply for services at one point and be linked to any other government service.

The above stages are interrelated and may at times be interdependent on each other. For example, a government website first needs to be populated with available static information, and information about the services of government activities made available, followed by a stage of continuous development and improvement till the fully integrated stage is reached (movement thru stages).

The interaction perspective defines interactions between its principal actors, (i.e. citizens, businesses or private organisations, and public institutions or government). With e-government, various types of services are provided to citizen and private organisations depending on government objectives (Heeks, 2001; Martin & Byrne, 2003:13-14).

- *Government-to-Government (G2G):* This is a type of e-government service that provides assistance between the government and departments or agencies. This type of service can extend further, to government employees (G2E), as observed by Ndou (2004) and AOEMA (2004). The relationship between government and employee can escalate through transparency, that is, increasing employee participation in decision-making (Riley 2003).
- *Government-to-Business (G2B):* These are services that the government offers to businesses, such as registering businesses, obtaining a business licence, business inquiries and making forms accessible online.
- *Government-to-Citizen (G2C):* This is a type of service provided to citizens electronically, allowing them to interact with government. Citizens are offered a variety of services by the government such as birth registration, making tax payments and obtaining identity cards.

Government-to-citizen (G2C) services are the type of e-government services designed to facilitate the interaction between citizens and government electronically. Some governments perceive this to be the primary goal of e-government. Apparently, though, this has not yet come to fruition as not all governments, particularly governments in developing countries, have their full array of services provided online. There are numerous reasons for this: inadequate infrastructure, low PC penetration, limited use of the Internet,

varying literacy levels and physical constraints of certain demographic groups (e.g. the elderly, children or those with disabilities). Thus, it is strongly advocated that in order to facilitate citizen/government interaction, the government must consider multiple-channel access for G2C services to reach the maximum number of citizens who might then utilise the services. Increased efficiency and returns on investments are only possible with a widespread use of e-government services (Verdegem & Verleye, 2009).

Since this study investigates the means of evaluating the effectiveness of e-government services from the perspective of citizens, it is necessary to examine and present the literature relevant of G2C e-government services in relation to citizens. Heeks (2001:8) refers to this relationship as *e-citizens/e-services*. According to Heeks (ibid), such initiatives deal particularly with the relationship between government and citizens. Ndou (2004) refers to *e-society* to explain the relationships and interactions beyond boundaries, among stakeholders and consumers of government services. The concept of the relationship between e-citizens and e-services helps to realise the connections and properly understand interrelationships among governments and citizens and the benefits of delivering automated services (Ndou, 2004).

The emergent focus on e-citizens and e-services is precipitated by the inefficiencies of silo-based e-government where, according to CS Transform (2010), each government agency does the following:

- maintains its own databases, even for universal common data such as citizens' birth records and identity addresses;
- builds its own custom-made applications for functions which are also common to other agencies; and
- builds common bespoke applications in a manner that duplicates expenditure as well as diminishes interoperability with other government institutions.

Governments continue to attempt to deliver e-government programmes, as noted in the 2019 OASIS report: "an increasing number [of governments] are now getting to grips with the much broader and complex

set of cultural and organizational changes that are needed for ICT to deliver significant benefits to the public sector. This new approach is generally referred to as Transformational Government. It encompasses a new, virtual business layer within government that allows an integrated, government-wide, citizen-focused service to be presented to citizens across all channels, but at no extra cost and without having to restructure government to do so" (OASIS, 2010).

Currently, many countries have realised the importance of G2C e-government, although they continue to face development and implementation challenges (Verdegem & Verleye, 2009). The leading governments are, in fact, already in a conclusive shift *away* from e-government and towards more essential transformation of the entire association between government as the service provider and citizens as the user of services. The shift is referred as *Government 2.0* to some, while other referred to this as *transformational government*. Still others call it *citizens service transformation* (CS Transform, 2010). In this study, it is regarded as *citizen-centred service*. The issue here is not how it's labelled, however, as the change measures discussed are for the purposes of allowing government organisations to most effectively answer to the increasing demands and climbing expectations of citizens.

Figure 2.3 illustrates the transformation of citizen service (from Government 1.0 systems to Government 2.0). The two key enablers, according to CS Transform (2010), that generate a move toward citizen-centred services (Government 2.0) are as follows:

- an increasing understanding and awareness of the governance changes required; and
- a set of market innovations to transform the way that governments and citizens engage with underlying technology.

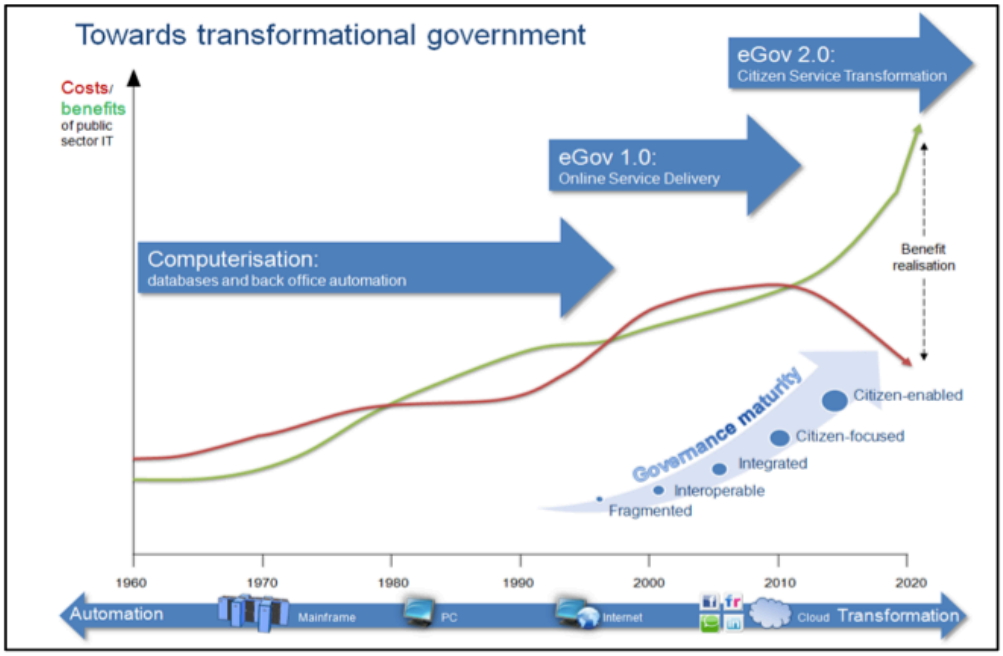


**Figure 2.1: Transformation of citizen service delivery (CS Transform, 2010)**

Although there is a definitive shift towards citizen-centred services, it is not clear that electronic (online) service delivery has been successful in the developing countries, since it seems there is a gap between different communication channel preferences between government and citizens in developing countries as opposed to those in the developed world. The communication channels favoured by governments may not be the channels which citizens prefer. While factors such as the cost efficiency of channels will likely guide government decisions, citizens may prefer channels depending on, for instance, characteristics of the task, or personal or situational factors (Ebbers *et. al.*, 2008). As a result, faltering use of the services is experienced. Therefore, these e-services need to be re-visited and re-considered with the goal of optimising the use of services (European Commission, 2006).

The limited use of a service, which is the primary reason for low uptake of the services, has become problematic, as greater efficiency and returns on investments are *only* possible with a widespread use of e-government services (Verdegem & Verleye, 2009). These are the kind of challenges that force the government to shift towards citizen-centred service delivery options (citizen service transformation), a transformation which involves new governance and new business models within government (CS Transform, 2010). Simultaneously, delivery of integrated public services through various channels may be explored (Reddick, 2005; Wimmer, 2002) to increase the utilisation of the services.

Clearly, it is imperative that government understand the degree of uptake of the employed services for a service to be considered a success. This can *only* be achieved through measuring the effectiveness of the services by assessing the choices and expectations and degree of satisfaction experienced by the service users – the citizens themselves. It is therefore an opportune time to undertake assessment and evaluation of these initiatives, to capture a set of lessons learnt to date, with the goal of using these lessons to maximise citizen satisfaction going forward and avoid pitfalls in future e-government programmes.

## 2.4 E-government services delivery channel

E-government service delivery channels are very important, given that citizens in the country are in different situations with different degrees of accessibility to the channels a government chooses for feedback or service delivery. One paramount e-government goal is to reach as many citizens as possible, bringing services to citizens wherever they are. Multi-channel service delivery with various types of delivery channels provided by e-government will be the only way to reach citizens in different situations. These channels depend mostly on direct use of the Internet to access the services. Depending on national conditions, Internet accessibility and therefore service accessibility through the Internet not only differs country to country, but also within countries. Using computers supplied on government premises could be one channel, telecentres another, public Internet kiosks another, or, where there is low penetration of personal computers, as is the situation in most developing countries, people rely on Internet access while

at work. In the situation where network connection is limited or not available at all, one solution might be wireless mobile connection. This type of access has been put into practice in Brazil, where wireless connections via mobile units are put in place by government officers to access rural areas regularly for services (InfoDev, 2002).

Call centres, which are dependent on phone calls and digital TVs, are yet other channel to access e-government services. These types are very useful in the situation where there is small number of personal computers coupled with high computer illiteracy (Cohen & Eimicke, 2003).

Given that e-government offers various channels to deliver services, it is best to use every available channels. This assists in reaching many citizens in different situations. The Internet is the most efficient and effective channel, as it provides the most effective means of interaction and allows services to be offered access 24/7, with e-services continuously available to the country's citizens at citizen convenience (InfoDev, 2002).

## 2.5 Citizen-centred e-government service

As citizen-centeredness is a primary concern of this study, the research problem zeroes in on this concept. The main research questions are as follows: what are the current e-government evaluation dimensions and how do we best evaluate these from *citizens'* perspectives? The study focuses on investigating the key components for evaluation of the effectiveness of e-government services while capturing the citizens' perspectives and levels of satisfaction in a developing country, Tanzania. Several researchers (Alshawi & Alalwany, 2009; Irani *et al*., 2005) highlight the need for evaluating e-government services through a distinctly citizen-centric concept. This study, based on a citizen-centric concept, is designed to provide insight into citizens' expectations as this information is exceptionally important to the uptake of e-government services.

Citizen-centric e-government acts more as a transformation tool which provides new government models based on citizen-focused feedback (Schelin, 2003). It is argued by some scholars that for e-government

capabilities to be fully realised, government must fully transform from agency-centric to citizen-centric (See Figure 2.2).

Instead of starting out by asking what services government agencies can provide, governments must start with what the citizens really need. In other words, there has to be a distinct shift from an "agency centric" model to a "citizen centric" model (Yong, 2004).

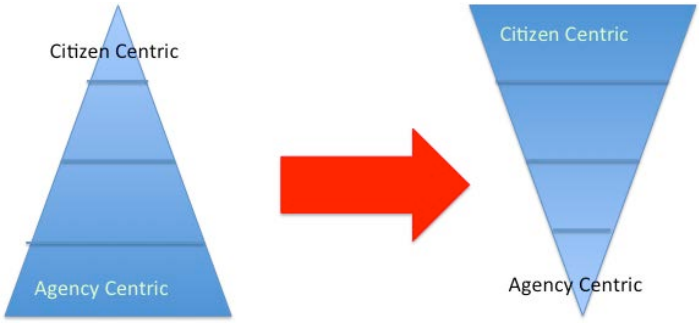


**Figure 2.2: A shift from "agency centric" model to a "citizen centric" model (Source: Yong, 2004)**

Citizen-centric e-government services are designed to deliver increasingly cost-effective, personalised and relevant services to citizens, but also serve to enhance the democratic relationship, and build better democratic dialogue, between citizens and their government, which then enhances the practice of citizenship within (cc:eGov, 2007).

The citizen-centred approach advocates the provision of citizen-oriented services, that is, services to meets the citizens' demands and expectations. In other words, governments will provide services and resources custom-made to the actual service and resource needs of the citizens, including government employees and others (Bertot, Jaeger & McClure, 2008; Jin-fu & Duo, 2009). A high quality of government service delivery systems implies that governments will gain economies of scale, reduce costs, and offer technology-enabled user services. Citizen-centred service is viewed as the ideal manifestation of e-government as it demands information integration across department lines, government units, and even organisations across various sectors (Chen, 2010). Having said that, citizens themselves are not required to know the structure of government and its departments; rather, the government must link its various departments one to another to increase

both the efficiency and effectiveness of government services for citizens (Chen, 2010).

The efficiency of the service is facilitated through citizen utilisation and the public value of its effectiveness. In the process of e-governance, efficiency is demonstrated by cost benefits, whereas effectiveness is a result of efficient processes to construct service portfolios that offer individual and public value. To manage the transformation of efficiency into effectiveness requires organisational behaviour and proper management of relationships with citizens (cc:eGov 2007). However, the challenges remain for the government in question to properly investigate and understand the needs and expectations of its citizens. Adoption and use of new services is still rather limited in most countries, particularly in the developing world (Deursen *et al.*, 2006; Dijk *et al.,* 2008; Kunstelj *et al*., 2009; Bertot & Jaeger 2008; Ebbers *et al.,* 2008) and require some stimulation to provoke greater uptake (European Commission, 2006). Low uptake becomes problematic as greater efficiency and returns on investment are *only* possible with a widespread use of the e-government services (Norris & Moon 2005; Jeager, 2003). Up until this point, e-government services have primarily been guided by supply-side factors (Bertot & Jaeger, 2006; Reddick, 2005b; Kunstelj *et al.,* 2009). Governments are only starting to develop their portfolio of services by creating online services (van Dijk *et al.,* 2008; Lee-Kelley & Kolsaker, 2004) and mainly, still, doing so without any consideration of the demand side.

Another issue is technology. Governments often consider the technological possibilities rather than the citizens' (users') needs in determining the design of government online services. Much more attention is given to technology than to the real needs and expectations of citizens (Bertot & Jaeger, 2008; van Dijk *et al.,* 2008; Ebbers *et al.,* 2008; IPTS, 2004; Pieterson & Ebbers, 2008; Reddick, 2005a). For effective and efficient public services, understanding of citizens' needs, seeking to discover and meet their expectations, is essential. These can only be determined through the evaluation of service effectiveness, where the objective of government is not technological, not self-serving, but rather to meet the practical expectations of delivering efficient and effective services that meet social expectations of the countries' citizen, and that increase citizen engagement and government

literacy. To get to that point, evaluation of e-government service effectiveness through a citizen-centred lens is absolutely essential (Jaeger & Bertot, 2010).

Having reviewed the citizen-centric e-government evaluation concept, this research asserts that citizen-centric e-government service evaluation approaches are of great significance, and particularly so in developing countries, as they still lag behind already developed countries with more sophisticated technologies and more connected citizenry. It helps to know the needs and expectations of the citizens who are actually using e-government services to increase engagement of citizens in government operations. With today's ICT, where new innovations occur in rapid succession (Verdegem & Verleye, 2009), more consideration into the investigation of the citizens' perspective towards e-government services is desperately needed. With regard to this research, the investigation pertains specifically to *how* to derive the best evaluation dimensions from the citizens' perspectives

## 2.6 Benefits and challenges to e-government services

Most developing countries expect massive benefits from the implementation of e-government programmes. Governments are expected, through e-government, to reach increasing numbers of citizens by efficiently delivering their services. As a step for reforming the public services, government, through e-government application, can revise and change all service processes to adopt new forms of service delivery (Liikanen, 2003). This revision will bring about a strong citizen-centred ethic in the provision of public e-services.

Two examples of developing countries which currently exemplify this citizen-centred-ness are Chile and India: Chile has reformed their tax return service processes and established new service processes that reduced reply time from 25 days to 12 hours (Ray & Rao, 2004). India also has reformed its land registration service process and established new service processes that decrease reply time from 5-7 days down to five minutes (Ray & Rao, 2004).

The ability to reach the citizens at the location of their choosing is yet another benefit of e-government. This means that citizens at various locations and living in differing situations and circumstances can access government services through a variety of available channels: their mobile phones, home computers, or through service centres that are located in their area (for example in shopping malls, libraries or even Internet kiosks or cafés).

From an economic perspective, the implementation of e-government promises both tangible (direct) and intangible (indirect) benefits. The direct benefits are government cost-cutting. For instance, in Egypt, according to Jones, Iran and Sharif (2007) and Darwish (2008), it was estimated that with e-government in place, the government could increase productivity and save about 900,000 working hours. In terms of intangible benefits, the implementation of e-government services can reduce the bureaucratic entanglements, abridge the process of delivering services, and increase government transparency and accountability to the citizens (United Nations, 2003). More interaction with citizens is yet another indirect benefit. This means that more citizens will be interacting with the government, enquiring about services and information, and therefore the communication channel becomes two-way interaction and not just one-way distribution of information. Consequently, the democratic process is enhanced (Liikanen, 2003).

Even with all of the professed significance and provision of opportunity of e-government to date, a number of e-government projects deployed in developing countries have met with mixed, and limited, success. The countries that have succeeded in achieving their set targets in implementing e-government projects are a scanty few when compared to those arguably only reaching partial or frailer success (UNDESA, 2003). In a survey conducted by Heeks (2003) on 40 e-government projects that were implemented in developing countries, 35% were considered to be total failures. Most of these projects were counted as failures because of project termination. Such terminations occurred for a number of reasons: lack of funds to continue with the project, poor or absent project management, and so on. The automated voter registration projects in Uganda and the

automated land licensing and planning systems for Beira City in Mozambique, are examples of the above. Such e-government project failures in developing countries have inspired this researcher to investigate the reasons for such failures in depth. Do they result from a lack of evaluation, for example, or lack of an evaluation framework and appropriate criteria for e-governments in developing countries?

Moreover, 50% of e-government (ICT) projects deployed in developing countries are considered to be partial failures. The criteria applied here is partial achievement of intended goals. Only 15% of the e-government projects in those countries succeeded (i.e., were not terminated and achieved the goals set for these programmes).

Given the challenges of e-government in developing countries, the reasons for failure of a number of e-government projects echo reasons given for failure of information system projects in general. The stakes in developing, implementing and evaluating such systems are high. To understand the types and causes of failure of e-government services, the evaluation of e-government remains critical.

## 2.7 Evaluation of e-government

*Many people think of evaluation as taking a snapshot of outcomes at the end of a program to prove to a founder that it worked or failed. These same people don't hold evaluation in much regard because they feel they are getting too little information too late in the day, especially if their program fell short of expectations or made no difference at all. Evaluation can, and should, however, be used as an on-going management and learning tool to improve an organization's effectiveness (Cathy L Martinez, 2005).*

The evaluation of e-government services is an indispensable tool for governments to discover the present state of e-government services in relation to their citizens. Evaluation is required both to determine the degree to which strategies and action plans have been successful and to ascertain the strengths and weaknesses of the accessibility of e-government services. Evaluation also aids in the construction of new guidelines, as well as in exploring examples of best practice. Furthermore, evaluation allows for

comparison with several other e-government organisations at the national and international levels. Additionally, evaluation of e-government helps the policy-makers in their decision-making (Kunstelj & Vintar, 2004a).

As revealed in the literature, a number of scholars contend that a well-documented and formal approach to e-government (ICT) investment requires evaluation to understand the implications for the government. Jones *et al.* (2007) contend that financial traditional (formal mechanistic) methods, which are based on economic factors, are the common methods that have been employed by organisations. Cost Benefit Analysis, Return on Investment and Payback exemplified these economic factors. However, Zahir, Irani, Love and Jones (2008) contend that even when these formal methods are applied rigorously, their relevance in the public service domain is questionable, because economic measures, such as value and financial returns, are very difficult to define in the public sector.

Even so, the actual cost benefits achieved by e-government services are rarely evaluated, and this dearth of evaluation is precisely why so many advocate the need for evaluation of e-government projects (Sharif, Irani, & Weerakkoddy, 2010). In most governments, (Fountain, 2003; Irani & Love, 2001; Sharif *et al.*, 2010) the evaluation of ICT projects has been not undertaken and these governments have thus not been able to realise the full benefits of ICT projects. There is a need for better monitoring and evaluation of e-government systems for better understanding of their benefits (Foley, 2005; Heeks, 2006a; Horton *et al*., 2006).

*Evaluation is an important and complex organisational process. The traditional approach to ICT evaluation, based on narrow technical and accounting terms, has limited relevance to the role of ICT in today's organisations* (Sharif *et al*., 2010).

A lack of description of both indirect and direct benefits of ICT is evidence of the significant need for evaluation in the public sector (Sharif *et al.,* 2010). In the case of e-government systems, it is even unclear to what extent evaluation should be conducted and, because of this uncertainty, evaluation is disregarded and overlooked in too many organisations. The traditional methods are unable to address the evaluation of e-government system, since

their evaluation methods measure variables that are not the primary concern of e-government. This is also true for ICT projects. Difficulties aside, the evaluation of e-government services remain significant for governments to understand and by which to measure these services and maximise value to the citizen. Evaluation of e-government service assists the government to understand the extent of e-government service effectiveness, improve the associated policies, and increase the capabilities and outreach of e-government. Ergo, this study explores the means of evaluating e-government services that will take account of aspects of e-government that enable both government and citizens to obtain the best possible value from these e-government services.

### 2.7.1 Existing e-government evaluation approaches

Evaluation of e-government has been reported by a number of prior researchers as being difficult, complex and vastly underrated (Jones *et al.,* 2007). Despite this difficulty, several researchers and practitioners of e-governments have attempted to evaluate e-government services using a variety of approaches. Most of the evaluation approaches targeted very specific aspects of e-government initiatives. The existence of a variety of models for evaluating e-government is evidence of this specificity (Osaman *et al*., 2011). Table 2.3 presents examples of different evaluation approaches that target specific aspects of e-government initiatives.

An analysis of literature on various evaluation models included that of Coursey and Norris (2008) who attempted to examine different e-government models to discern whether or not they are accurate and useful for understanding the actual development of e-governments. Their results indicate that existing models are *not* accurately describing the development of e-government.

Other e-government evaluation attempts include the research of Baum and Maio (2000), Hiller and France (2001), Lyne and Lee (2001), Ronaghan (2001), and Wescott (2001), which intended to learn about and predict the growth of e-government. Dawes (2008) attempted to understand the future vision of e-government and its investment value (Dawes 2008). The output of the study was categorised into four key future themes in the field of e-

governments: innovation, interoperability, confidence and relevance (repeated below). These studies demonstrate the importance of both e-government and research into e-government itself, indicating a need for research into the effective evaluation of e-government. Looking to these studies, we see they are all enhancing the evaluation of e-government in order to improve the understanding of its development. Because of this, this study intends to develop a means of assessing the evaluation mechanisms for e-government in the context of developing countries.

In addition, Esteves and Joseph (2008) claimed that the evaluation of e-government initiatives is a significant topic of research. However, lack of formal methods for monitoring and evaluating e-government initiatives leads to a significant slowdown of country-level e-government development, particularly in developing countries (Kunstelj & Vintar, 2004:131). Throughout the literature, it is indicated that there are a number of studies which attempted to evaluate e-government services. However, very few, too small a number to rely upon, were conducted in developing countries. Thus, it is critical to establish a clear and helpful means for evaluating e-government services in the context of developing countries in order to understand e-government in those countries and ensure its development in the most citizen-friendly ways. Since there are vast differences among cultures, structures, social norms and economics between developing countries and developed countries, the dimensions for evaluation are necessarily going to be different.

Governments have embarked on major ICT investments in an attempt to take advantage of the benefits of the Internet, extending the channels by which services are provided to their citizens. Citizens now expect the government to serve them as businesses do. Because of the Internet, they also have higher expectation that demands will be addressed (Gupta & Jana, 2003:366). Citizen's needs and expectations for social changes will remain the driver for better government service delivery through the use of ICTs. Therefore, many governments have embarked on plans for delivery of citizen-centric e-government services, both to understand the needs and expectations of citizens and to provide the services demanded.

With citizen-centric e-government service as an area of concern for government, (Chen, 2010) the reviewing e-government evaluation approaches that are citizen-based is clearly worthwhile, since these provide the researcher, and thus the government, with a clearer understanding of what the citizens' expectations are. Table 2.3 below lists several citizen-based evaluation approaches that have been developed thus far, but most of which have targeted only one particular aspect in a certain context. For example, the research undertaken by Wang *et al.* (2005) focused *only* on how citizens can get information, while Motgeson's (2012) study was mainly focused on the citizens' expectations and levels of satisfaction with the government service. These studies can be considered as helpful benchmarks, even though they were conducted in developed countries. Other approaches were focused on web-based e-government services, e-services and public service, as indicated Table 2.3 below.

**Table 2.3: E-government evaluation models that align to a citizen-centric approach**

| Context | Finding/Model/Dimensions | Reference |
|---|---|---|
| Web-based e-government services | Developed a theory model for evaluating the performance of e-government services<br>The model serves also to understand the success or failure of e-government portals in serving citizens. | Wang et. al., (2005) |
| Government website | Evaluation Instrument: Security and privacy; Usability; Content; Services; Citizen participation; and Features. | Middleton (2007) |
| | Develop tool to evaluate website | Eschenfelder & Miller, (2007) |
| | Proposes a socio-technical toolkit for evaluation of e-government websites that address issues of openness and trust in e-government systems. | Eschenfelder & Miller, (2005) |
| | Develop an Instrument (multi-item) known as e-GovSqual for evaluation of website service<br>Website design; Navigation; Communication; Site aesthetics; Information quality; and Security. | Kaisara & Pather (2011) |
| E-services | Reference Process Model (RPM) | Tsohou *et al.,*(2012) |
| | Four Dimensional Quality Framework (C2ST): Coordination, Control, Sharing Transparent | Corradini et al. (2009) |
| | MAQM: to evaluate the portal and e-service quality by users in an adaptive manner. MAQM (Model for Adaptive Quality Measurement) comprises different ontologies including concepts regarding quality aspects, questions | Magoutas & Mentzas, (2009) Magoutas *et al.*, (2010) |

| Context | Finding/Model/Dimensions | Reference |
|---|---|---|
| | and questionnaires, portal characteristics and problems encountered by users while using the portal. | |
| E-government services | Proposes an evaluation model based on AHP technique.<br>Assess in an objective manner the change in service quality as a result of e-Government project implementation. | Ray & Rao (2004) |
| | Proposes holistic (COBRAS) evaluation Framework; Cost; Opportunity, Benefit; and Risk, Analysis for satisfaction. | Osaman *et al.*, (2011) |
| | Develops a framework for evaluation-led design of e- projects that complements traditional approaches to IS evaluation. The framework is based upon Moor's concept of public value. | Grimsley & Meehan, (2007) |
| | Develop e-GovQual multi-item scale evaluating e-government service quality, using four factors: Reliability; Efficiency; Citizen support; and Trust. | Papadomichelaki & Mentzas, (2012) |
| | g-CIS: Customer Satisfaction Index for E-government (g-CSI) model is an integrated model of: National Customer Satisfaction Index (NCSI) in Korea and American Customer Satisfaction Index (ACSI). Based on this model Perceived Quality (Information, Process, Customer, Service, Budget Execution, and Management Innovation) and User Expectation will lead to user satisfaction, which is the moderator for user complaints and other outcomes such as: trust; and reuse | Kim *et al.*, (2005) |
| Public value of e-government | Proposes an evaluation framework for evaluating e-government public value. Framework comprises with four dimensions; Delivery of public service; Achievement of outcomes; Development of trust; and Effectiveness of public organizations. | Karunasena & Deng, (2009) |
| Evaluating e-government | Proposes e-government assessment framework (EAM) with components: e-Government maturity level; e-Government stakeholders; and Assessment dimensions. | Esteves & Joseph, (2008) |
| Evaluating multi-dimensional web-based e-government | Multi-Dimensional Web-based e-government evaluation strategy in four major classes: Usability; User feedback; Usage data; and Web and Internet performance data | Wood *et al.*, (2003) |
| E-government initiatives | Devises EGOVSAT model to evaluate citizen's satisfaction with e-government services. The model comprises with three factors: Utility; Efficiency; Customisation. | Horan & Abhichandani, (2006) |
| Government | Expectancy-Disconfirmation Model | Motgeson, (2012) |

| Context | Finding/Model/Dimensions | Reference |
|---|---|---|
| services | (EDM): Party Identification (Party ID); Political Ideology; Trust; and Expectations. | |

Given the significance of evaluation of e-government services, Jones *et al.* (2007) argue that the implicit evaluation and knowledge of such schemes has a series of complex priority requirements in both political and administrative systems. Ji (2009) avers that setting up an evaluation of an e-government system, "is bottleneck that trouble the further development of e-government". Researchers highlight that, as in Information Systems (IS) evaluation, a major issue in e-government evaluation is the integration of human and organisational factors (Lee *et al.,* 2008; Jones *et al.,* 2006). Although there have been changes in the focus of evaluations, as depicted in Figure 2.3, the involvement of all stakeholder and organisational factors in evaluations is unavoidable.

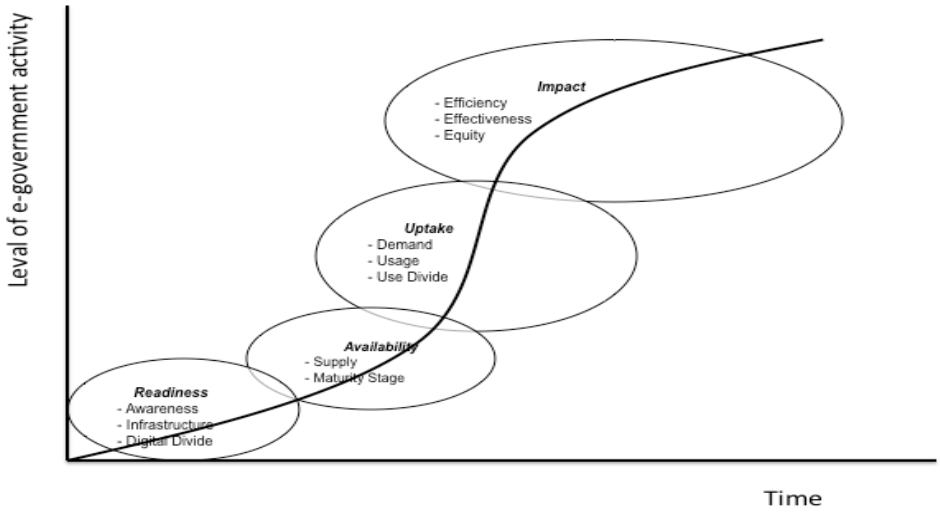


**Figure 2.3: Changing focus of e-government assessment over time (source: Heeks, 2006)**

The literature indicates that low uptake of e-government services by the citizens in most countries is presenting a challenge (Verdegem & Verleye, 2009) to e-government delivery. Accessibility and awareness have been the main emphases of concern, resulting in the focus primarily being on the important issue of 'the digital divide'. There are likely several reasons that

citizens choose not to (or for some reason cannot) utilise e-government services: this is one among other issues this study will investigate.

Issues like social conditions or behaviours of citizens are likely to be disregarded when it comes to utilisation of e-government services by the citizens. However, Jaeger and Thompson (2004) have taken this particular issue – social behaviour of citizens – into account and emphasise that is important to examine e-government, both theoretically and practically, with this in mind. In their observation, they argue that the aspect of social behaviour may offer greater understanding of the usage of e-government services. They further consider that the application of the concepts of normative behaviour and information poverty in research could serve as a framework for future studies.

This indicates that there is a gap that this research will fill by including citizens' social behaviour as criteria in an evaluation of effectiveness of e-government services. This gap in the evaluation of e-government systems, particularly in developing African countries, is quite serious (Shafi & Weerakkody, 2009). Certainly, the theoretical models for evaluating e-services that have been developed and implemented in developed countries can serve as a basis for understanding why citizens in developing countries are not using e-government services.

### 2.7.2 E-government evaluation: citizen-focused approach

As discussed previously, this research also attempts to derive evaluation dimensions that will be arrived at by an understanding of citizens' expectations. Existing evaluations, then, that are citizen-centric are important in helping to achieve this particular research objective.

Gouscos *et. al.*, (2007) developed a conceptual framework for modelling quality and performance in the field of e-government, with a set of quality and performance indictors proposed based on an outcomes assessment approach (i.e. a combination of private and public stakeholders). In their study, the researchers provided an overview of major stakeholders of e-government services and modelled a framework for analysing quality and performance dimensions. Though the approach is not focused on the

citizens, their findings are clearly relevant to this study as their work involves private and public stakeholder, as opposed to just considering what the government wants.

The research undertaken by Wang *et al*. (2005) is one of the citizen-approached evaluations that proposes a theoretical model for evaluating e-government system performance. The model was developed and tested for validation. The model can be used by an organisation as an instrument to understand the successes or failures of e-government services.

A three-dimensional ex-post framework for the assessment of e-government initiatives is another attempt to evaluate e-government initiatives (Esteves & Joseph, 2008). The dimensions include e-government maturity level, stakeholders and assessment levels. The study also considered the technological, strategic, organisational, operational, service and economic aspects. While the study is not citizen-centric per se, it also, like the research of Gouscos, Kalikakis, Legal and Papadopoulou (2007), is relevant in that it considers the stakeholders in its evaluation.

Another citizen-centric evaluation attempt was carried out by Eschenfelder and Miller (2005) who developed a model for evaluating government portals based on socio-political information and its value to citizens. The model, famously described as a socio-technical toolkit, was developed to evaluate the openness and trust in e-government services. The tool-kit consisted of three parts: 1) internal information characteristics, 2) elements to capture the social and political context of the information, and 3) assumptions about the roles of citizens and government information (Eschenfelder & Miller, 2005:8). Eschenfelder and Miller also developed another evaluation model which focused on evaluating the degree to which text information provided on the government website facilitates various relationships between government agencies and citizens (Eschenfelder & Miller, 2007).

Grimsley and Meehan's (2007) study was also an attempt at evaluation of e-government services. The researchers developed a design framework, or template, for the evaluation of e-government projects with a particular focus on the concept of public outcomes, services, satisfaction and trust. The developed framework can also assist in designing e-government systems

that promote trust and satisfaction.

Kaisara and Pather (2011) presented yet another approach based on citizen-centric objectives of government and service quality approaches. They developed and tested an instrument (multi-item) known as 'e-GovSqual' for the evaluation of e-government services, citing six dimensions applicable to e-government evaluation, as indicated by the developed instrument: website design, navigation, communication, site aesthetics, information quality and security.

While this current study couldn't capture all citizen-focused evaluation approaches, presented here are a number of studies to highlight the importance of citizen-focused approaches in the evaluation of e-government. As mentioned earlier, the perspective of the citizens helps highlight where there is an interaction break between the citizen and government, and also aids in decision making, as the decision maker will be made aware of what the citizens actually need.

There are a number of important issues drawn from the literature with regards to e-government and citizen-focused approaches to evaluation. These include the following:

- The presence of citizen perspectives in government decision making is vital. It is argued that involving the citizens in decisions makes the citizen feel validated in their concerns, and in return, citizens become part and parcel of the project. They buy into it, so to speak. Discovering how government cares for its citizens is one of motivations for this study.
- Prompt and reliable service is another important issue to evaluate. Citizens, because of how they are being served by private industry, are now expecting prompt and reliable service from government, too. And, as outlined in the literature, such services assist not only the citizens but also the government economically. The type of service required by the citizens will vary depending on the situation.

Given these lessons, the evaluation of e-government is likely to be informed by the current understanding of the evaluation of the effectiveness of

information systems (IS). The following section thus provides a review of IS evaluation approaches and assesses the relevance of these to the evaluation of e-government services.

## 2.8 Information systems (IS) evaluation

Information Systems (IS) are defined by Zwass (1998:5) as “an organised set of components for collecting, transmitting, storing, and processing data in order to deliver information for action”. The core or centre of operation of information systems is computer technology.

From the time of the introduction of computers as a commercial application in the private sector, businesses have been depending on information systems (IS) to varying degrees. Huge amounts of funds are invested in the IS project and benefits are expected to be of strategic value. However, the evaluation of IS effectiveness is an issue of concern in both IS management practice and research (Irani & Love, 2008). Zahir Irani, Gunasekaran and Love (2006:951) added that the evaluation of IS remains a thorny problem in organisations, and they define IS evaluation as “the process of assessing or justifying the value of information systems, for the purpose of organizational decision-making through some kind of organizational discourse”. Though evaluation of IS effectiveness has remained an issue for concern, there are various perspectives on value that businesses gain from IS, and for that reason, various approaches have been proposed to determine the value obtained from IS.

Traditional, or financial-based approaches, have been widely adopted in evaluating IS effectiveness. Although this traditional approach has been most commonly applied, many companies are now finding it to be limited (Ward & Daniel, 2006:30). Studies criticise traditional approaches for inadequately embracing all IS evaluation concerns (Irani & Love, 2002; Love, Irani & Edwards, 2004). Irani, Love, Elliman, Jones and Themistocleous (2005:64) observe that traditional approaches are characterised by limited definitions of stakeholders, as the approach targets only tangible benefits—accounting and finance-based—and do not consider human and organisational components of the system. Kumar (2004) also added that these traditional financial approaches do not prudently reflect relatively intangible benefits such as user

levels of satisfaction. These kinds of approaches carry the risk of overlooking some of the hidden costs and intangible benefits generated from the system uses (Grimsley & Meehan 2007). There has been debate among researchers about which is the most appropriate IS effectiveness evaluation approach. The approaches that address the widest array of benefits address both the tangible and intangible benefits. Various IS evaluation approaches have been developed to represent different interpretations of IS evaluation.

### 2.8.1 IS effectiveness evaluation

The literature review indicates that the terms *effectiveness* and *success* are used interchangeably. While Seddon (1997:243) conceptualised IS success "as a value judgement made by an individual, from the point of view of some stakeholder", Information Systems *effectiveness* was identified by Hamilton and Chervany (1981:58) as the extent to which the IS performs, relative to its predetermined objective. The predetermined objectives could be the desired sales revenue, customer satisfaction and profit contributions. These terms have often been cited by researchers of IS effectiveness or success, implying that researchers consider the terms to be synonymous (Molla & Licker, 2001; Pather *et al.,* 2003). In this study, the term *IS effectiveness* will be used.

For an organisation to experience effective IS, the IS must, in the first instance, be functional. *Functional* in this case means that the system is in working order as a result of successful systems development phases. Organisations expect the system to be perfect (or near-perfect), and for the software to run smoothly, with timely and precise information being generated, data being transmitted over the network with no errors, and system output meeting user satisfaction. Another issue regards the value added to an organisation in terms of benefits from implementing the system. Capital return on the investment is a very important benefit expected from the implementation of IS. However, as discussed earlier, the benefits are not all direct (tangible) or easily susceptible to financial quantification (Irani & Love, 2002; Gomez & Pather, 2012). There are various indirect benefits ascribed to IS, such as improved consumer services, improved responsiveness, increased agility and enhanced quality of work life. While these indirect benefits are acknowledged as *benefits,* they are also seen as indicators of IS effectiveness. Extant discussion on IS effectiveness has revealed a surfeit of ideas regarding IS effectiveness and evaluation (Berghout & Remenyi, 2005).

The evaluation of information system (IS) effectiveness has been widely discussed in the IS literature, and has been a long-standing concern, not only for academics, but also for IS practitioners (April & Pather, 2008). The literature is replete with discussion on evaluation of IS effectiveness. Some scholars suggest that IS effectiveness can be described as the degree to which a system realises the goals for which it is designed (Liu & Arnett,

2000). Given the goals and organisational missions, information systems are expected to contribute to attaining the organisation's mission, improving productivity and facilitating service delivery (Elpez & Fink, 2006). Ward and Daniel (2006) classified the basic categories of IS benefits as strategic, management, operational and support (Ward & Daniel, 2006).

The evaluation of IS effectiveness is necessary, as often IS adoption has influenced the shape of work in organisations. In an IS context, these influences arise as a result of the introduction of the information systems (Renkema & Berghout, 1997), with a distinction made between direct (tangible) and indirect (intangible) influences. Both direct and indirect influences determine the value of an IS to a stakeholder. Therefore, it is imperative when conducting an evaluation to incorporate organisational context and the process of IS development and content, as all these elements are crucial to the successful adoption and application of information systems (Serafeimidis & Smithson, 2000).

**E-government IS evaluation**

In the government environment, implementation of e-government represents a specific case of information system (IS) investment in the public sector (Grimsley & Meehan, 2007; Chircu, 2008; CEES & Marie Curie Actions, 2009). This implies that the evaluation of e-government investment is likely to resemble the evaluation of IS. The major issues in evaluating IS effectiveness are—1) difficulties encountered in incorporating multiple perspectives of all stakeholders in the whole process of evaluation, and 2) quantifying the benefits—even though the importance of evaluating the IS effectiveness and quantifying the technical determinants have been strongly advocated in the literature (Irani & Love, 2002; Willcocks, 1996). Alahmary and Alalwany (2007) argue that because of the changes in the nature of IS investment, in terms of technology capability and the benefits it delivers, as well as in terms of diffusion into most aspects of society, its evaluation complications have increased. This correlates with the case of e-government. The difficulties inherent in incorporating multiple perspectives (human *and* organisational factors) in the evaluation of information systems also apply in evaluation of e-government (Lee *et al.,* 2008).

But the debate amongst researchers not only pertains to the lack of integration of multiple perspectives in IS evaluation, but also to the most appropriate evaluation approach to be applied for specific information systems (Alshawi & Alalwany, 2009). In other words, there is limited knowledge and understanding of methods and techniques for evaluating IS, resulting in a lack of consistency. This is evident from the existing number of IS evaluation approaches. As a result, these evaluations approaches have been categorised by researchers as *quantitative methods* that used direct benefits (tangible) and *qualitative methods* that account for indirect benefits (intangible), from the organisational and human perspectives (Farbey, Land & Targett, 1999).

Alshawi and Alalwany (2009) observe that a suitable approach for IS evaluation depends mainly on the organisational context: there is no single IS approach that can be applied to *all* IS situations. Instead, in the particular context of a particular organisation, the most suitable and appropriate information systems evaluation approach contributes to the success of IS. Similarly, e-government evaluation, which represents a specific kind of IS investment in the government, and thus is likely to be informed by the existing understanding of public sector IS evaluation, is even more multifaceted: an accurate evaluation requires consideration of multiple perspectives (of stakeholders and the social and technical contexts of use). From the perspective of this study, the citizen perspective is crucial.

As a response to the difficulties and complexities surrounding the evaluation of e-government services, this study will adapt the *interpretive evaluation approach* which, according to Grimsley and Meehan (2007:135), is the approach that seeks to accommodate subjective evaluation at every stage of a project in order to complement objective techniques. This approach will aid in determining evaluation dimensions from *all* perspectives of e-government to develop a suitable evaluation framework. It is anticipated that an evaluation framework will include an inquiry into several perspectives, considering a wide range of diverse needs of specific citizen groups who use a particular e-government service: students, pensioners, professionals, unemployed persons and so forth. Moreover, the benefits associated with the use of e-government services may be derived and subsequently quantified,

even though Beynon-Davies (2005) and Grimsley (2007:135) claim that this is difficult. Furthermore, in evaluating e-government services, all social and technical aspects in the context of use will be considered.

As we have seen, the evaluation of the effectiveness of e-government systems has become a topic of increasing interest, with a number of scholars attempting to evaluate e-government though a variety of approaches. Most of these evaluation approaches, however, are supply-side focused rather than demand-side focused. That is, the evaluation focuses on the technical dimensions of situating the services online, including presence, availability, efficiency, effectiveness, capacity and design. The evaluation that focuses on the demand-side (citizens), though undeniably vital to true assessment of e-government success, has yet to be conducted with depth and rigour, and consequently there is a dearth of knowledge concerning the expectations and needs of citizens (Bertot & Jaeger, 2006; Reddick, 2005). Given the objective of this study, it is critical to explore both sides — citizens' perspectives as well as government's — for the fullest understanding of what is and what isn't working with regard to e-government services. Only then can improvements be made, improvements leading to the uptake in use of such online services.

As Alshawi and Alalwany (2009) argue evaluation of e-government systems is similar to the evaluation of information systems, because just as information systems influence the shape of work in organisations, e-government influences the work of the government. In an IS context, these influences are considered a dependent state arising from the introduction of information systems (Renkema & Berghout, 1997) and are distinguished as either direct (tangible) or indirect (intangible) influences. Both direct and indirect influences determine the value of an IS to stakeholders. Hence it is as imperative in e-government evaluations as it is in IS evaluation to incorporate organisational contexts, developmental processes, as all these factors are crucial to the successful application of e-government (Serafeimidis & Smithson, 2000).

### 2.8.2 Diversity of evaluation approaches

Over the years, various approaches to evaluating IS effectiveness have been developed, using both financial and non-financial indicators of effectiveness.

A financial approach includes return on investment (ROI), net present value (NPV), economic value added (EVA) and real valuation (ROV) (Bills, 2004). In order to determine the potential financial investment of IS implementation, these approaches employ statistical formulae. These approaches have been widely applied in evaluating the IS investment, though they have been victim to criticisms that are they are inadequate in the concerns of IS evaluations (Zahir *et al.,* 2005). Not addressing intangible benefits of IS (user satisfaction, for example) exemplifies the inadequacy of such evaluations (Kumar 2004). As a result, the consensus amongst academics is that a procedure of evaluation that addresses a broader range of benefits (both tangible and intangible) must replace the traditional evaluation approach (Doherty & King, 2001). To date, there has also been a diversity of approaches for evaluation of IS effectiveness from non-financial perspectives, although the difficulty of developing thorough measures of IS effectiveness have been noted (Pather *et al.,* 2004:35).

Generally, both non-financial and financial approaches are important, particularly when evaluating the ability of information systems to support the goals and strategies of a business. This entails evaluating the effectiveness of the IS within an organisation, involving the assessment of the technical quality of the system (for instance, response time and software architecture) (Dobrica & Niemela, 2002). However, the difficulty of developing measures for assessing IS effectiveness has been noted from the earliest stages (Pather *et al.,* 2004:35). As a result, surrogate measures evaluating IS effectiveness have been opted for by many researchers (Elpez & Fink, 2006:221). In other words, evaluation measures which examine IS effectiveness indirectly by applying the construct measurements for such elements such as satisfaction and service quality (Bailey & Pearson, 1983; Hughes & Cooper, 2002; Shaw *et. al,* 2002) and the degree of system use, are preferred over traditional measures.

Pioneering studies on the evaluation of IS effectiveness, however, have realised the absence of a wide synthesis across the numerous approaches for evaluating IS effectiveness. Indeed, the lack of such a synthesis renders the empirical results in this area inconsistent (Rai, Lang & Welker, 2002; Sabherwal *et. al.,* 2006). The inconsistency and diversity in approaches has

resulted in numerous attempts to unify these approaches for evaluating IS effectiveness. Table 2.4 presents the outcomes of four such studies.

**Table 2.4: Classifications of IS effectiveness measures**

| Classification | Reference |
|---|---|
| • User performance<br>• User satisfaction | Zmud, (1979) |
| • System quality<br>• System acceptance:<br>o System usage, system impact on user behaviour, information satisfaction | Ives & Olson (1984) |
| • System quality<br>• Information quality<br>• System use<br>• User satisfaction<br>• Individual Impact<br>• Organisational Impact | DeLone & Mclean (1992) |
| • System quality<br>• Information quality<br>• Intention to use<br>• User satisfaction<br>• Net benefits | DeLone & McLean, (2003) |
| • Contextual factors:<br>o Top management IS facilitating conditions; quality of ISD team<br>• User related factors:<br>o User IS experience, user attitude, user participation<br>• System success<br>o System quality, perceived usefulness, user satisfaction, system usage | Sabherwal *et al.,(* 2006) |

Of the four studies presented in Table 2.4, DeLone and McLean's studies in 1992 and 2003 have garnered the primary attention of many scholars. DeLone and McLean (1992) noted that there were just as many *measures of effectiveness* put forward as there are *studies on the measurement* of information systems effectiveness. The reason for this could be the information itself, since a product of the information systems could be measured at different levels, including technical, semantic and effectiveness levels. Still other scholars comment that much of the diversity of the methodological and theoretical approaches to the evaluation of information systems stems from the objective, rational, positivist perspective (Wilson & Howcroft, 2005:19).

### 2.8.3 IS effectiveness model (D&M Success Model)

The multidimensionality of information systems effectiveness has sparked a number of studies on IS effectiveness evaluation to address different aspects of information systems. DeLone and McLean (1992:61) noted that there are as many IS effectiveness evaluation studies as measures of effectiveness put

forward. This, then, prompted scholars to acquire a deeper understanding of the concept of IS effectiveness, out of which they proposed a modified or updated IS effectiveness model (Figure 2.4) which they describe as a "*taxonomy of IS success measures*". This resulted in an amalgamated model of six "categories of IS success" or "dimensions" (DeLone & McLean, 1992: 60-61).

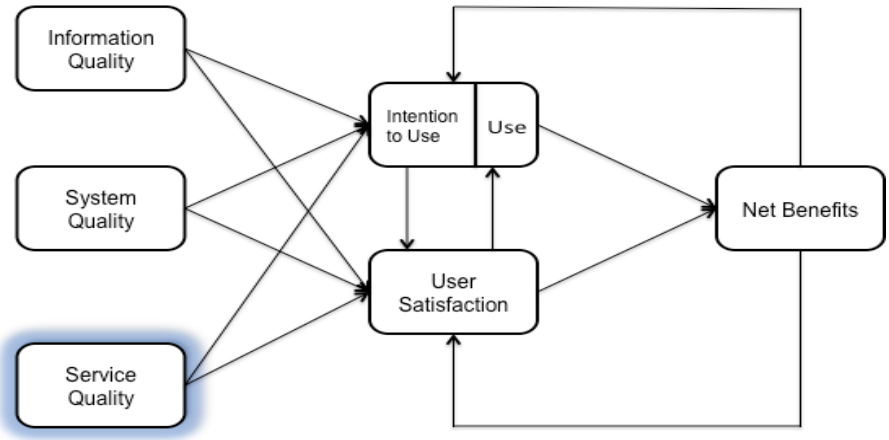


**Figure 2.4: The updated IS success model (DeLone & McLean, 2003:23)**

Interpretation of the model and its dimensions:

*"System quality and information quality singularly and jointly affect both use and user satisfaction. Additionally, the amount of use can affect the degree of user satisfaction positively or negatively, as well as the reverse being true. Use and user satisfaction are direct antecedents of individual impact; and lastly impact on individual performance should have organisational impact"* (DeLone & McLean, 1992:83-87).

The IS success model is one of the models that has been exposed to a number of challenges and critiques from many scholars (Etezadi-Amoli & Farhoomand, 1996; Goodhue & Thompson, 1995; Igbaria & Tan, 1997; Rai *et al*., 2002; Seddon & Kiew, 1996; Roldàn & Leal, 2003) and to an extent, even the authors themselves (DeLone & McLean, 2003:15). Within an interval of 11 years, the model received almost 300 critiques from various scholars (DeLone & McLean, 2003:10), important to note as this justified, by academia, of the significance of the contribution of IS to the model.

The greatest challenges to the Success Model of IS concerns the issues of

process and variance models (Seddon, 1997). According to Seddon (1997), the two cannot be combined in one model, as they are interpreted differently. *Process theory* can offer a powerful description even when revealed to be insufficient for results to occur, and while *variance theories* excel at explaining variations in the magnitude of a certain outcome, they tend not to do well in situations where the outcome is uncertain (Soh & Markus, 1995). The incorporation of both into the same model, however, leads to countless possibilities of confusions of meaning (Seddon, 1997:240).

Early IS evaluation approaches focused primarily on product aspects. In this approach, evaluation focuses on observable and tangible elements, such as system response time, data volumes and usage rate (Pitt, Watson & Kavan, 1995:174; Whyte & Bytheway, 1996:75). Whyte and Bytheway (1996) introduced the service component to the determination of IS success. They argued that the determination of IS effectiveness was initially focused on the tangible attributes and characteristics of systems products, but as attention shifted to process (due to the increasing of rate of failure of IS projects) this required the introduction of the service aspect in IS effectiveness evaluation.

Table 2.5 portrays the evolution of service perspectives in the IS effectiveness literature. Researchers assert that the service perspective of IS effectiveness measurements considers the 'softer issues', in dealing with user problems and concerns, as well as addressing users' emotional and aspirational needs. The concept of evaluating service quality is originally a concern within the discipline of marketing. Thus, service quality research from marketing literature has been used as a point of departure for most IS service quality research.

**Table 2.5: Perspective of IS effectiveness (adapted from Whyte & Bytheway, 1996:75-77)**

| Three perspective of IS effectiveness | |
|---|---|
| **PRODUCT:** *The product which is delivered to the users (e.g. actual software)* | Early Information Systems research dealt with the product viewpoint, mainly focusing on the observable and tangible elements, such as systems response time, data volumes and usage rate. |
| **PROCESS:** *The process that creates the system (e.g. RAD approach, end-user approach)* | Increased systems complexity, the increasing number of unsuccessful systems and a growing systems development backlog led to a shift in attention from the product to the process viewpoint. The studies again concentrated on the more tangible attributes, such as the number of errors occurring within the process, the level of user involvement and the milestones at which user approval is given. |
| **SERVICE:** *Deals with softer issues (e.g. answering questions, dealing with problems addressing concerns of users)* | The emergence of a service perspective introduces the idea of evaluating end-users' perception of IS effectiveness. |

The introduction of a service component in the evaluation of IS effectiveness resulted in more emphasis on the role of the IS department in the organisation. Although it is reported that there are higher rates of IS failures in developing countries (Heeks, 2002), still the role of an IS department is not only to implement the systems for organisational performance improvement, but also as a service provider. The introduction of facilities such as information centres and help desks reflect the enhanced responsibility of IS. In today's technological world, IS departments are providing an ever-increasing range of services to their users, roles which have extended from product developers and operations managers to service providers (Jiang *et al.*, 2002). Researchers in the IS field, by recognising these extended service roles of the IS function, have therefore suggested that service quality be included as one of the measures in the evaluation of IS effectiveness (Kettinger & Lee, 1994; Pitt *et al.,* 1995; Watson *et al.,* 1998).

Service quality was added into DeLone and McLean's model as one of the dimensions (Figure 2.5), making up the six dimensions of the Updated IS Success Model: information quality, system quality, service quality, user satisfaction, system use and net benefit (DeLone & McLean, 2003). Dimensions that were suggested as metrics for service quality in the Updated IS Success Model were assurance, responsiveness and empathy (DeLone & McLean, 2003:18) which are similar to service quality dimensions identified in the service marketing literature in the work of Zeithaml (2002), Lee and Lin (2005) and Parasuraman *et. al.,* (2005). With these similarities in research findings regarding the service aspect, irrespective of the field of study, the IS literature points us towards a *service quality* and *user satisfaction*-based model. As far as the evaluation of e-government is concerned, this model is suited for the evaluation of e-government in terms of service quality, since service quality is the dimension that reflects the very aspects affecting citizen/user satisfaction. Hence, this researcher determined that a review of literature pertaining to service management would show its suitability and applicability in the e-government context. The following section, then, discusses the service quality dimensions of IS evaluation.

### 2.8.4 Service quality as effectiveness dimension

The main reason for implementing IS in an organisation is to improve the quality of the service provided (Bharati & Berg, 2003). *Service quality* is defined as "the difference between customers' expectations for service performance prior to the services encounter and their perception of the service received…as the subjective comparison that customers make between the quality of the service that they want to receive and what they really get" (Pather et al., 2003).

Service quality is a key determinant of whether or not a particular service offers value and strengthens competitive advantage (Rowley, 2006:347). Parasuraman *et al.* (1985), using a priori studies on services, developed the following themes:

1. Service quality is more difficult for the consumer to evaluate than goods quality;

2. Service quality perceptions result from a comparison of consumer expectations with actual service performance; and
3. Quality evaluations are not made solely on the outcome of service; they also involve evaluations of the process of service delivery (Parasuraman *et. al.*, 1985:42).

Initially, research relating to service quality considered the quality of service as an indefinable construct, difficult to understand, and service as intangible and so perhaps immeasurable (Parasuraman *et al.,* 1988). However, by applying the Expectation-Confirmation Theory (Oliver, 1980) as a basis, Parasuraman *et al.,* (1988) developed a SERVQUAL model. The SERVQUAL model is the product of the combination of expectation-confirmation theory and empirical research, considering service quality as a multi-dimensional construct comprised of five dimensions: tangibles, reliability, responsiveness, assurance and empathy.

The SERVQUAL model was developed based on the gaps between *expectation* and *perception* in the deliverance of services. The model has been widely adopted to measure service quality in traditional services, the public sector, higher education, real estate, hospitals, as well as in the legal profession and employee service providers (more about this is discussed in Li *et al*., 2002). In information systems, the model was also employed to measure the service quality that is provided in IS departments (Jiang *et al.*, 2000; Kang & Bradley, 2002; Kittinger & Lee, 2005), e-retailing service quality (Barnes & Vidgen, 2001), e-banking service quality (Zue *et al.*, 2002), online travel service quality (van Riel *et al.,* 2004) and web portal service quality (Yang *et al.,* 2005).

The service gap model, SERVQUAL, which developed in the marketing domain is built on the premise that *service quality* can be defined as 'the extent that needs and expectations of customers are met'. Thus, operationally, *service quality* can be defined as "the difference between citizens' service expectations and actual service delivery perceptions" (Gupta *et. al*.,2005). Lack of understanding of service quality is critically detrimental to management because failure to accurately interpret users' desires can result in a reduction in the use of the services (i.e. loss of business) (Gabbie & O'Neill, 1997).

Distinctions concerning service quality were also drawn from other scholars like Brown and Swartz (1989), Grönroos (1983), and Lehtinen and Lehtinen (1982) who were concerned about this particular dimension. Brown and Swartz (1989) argued that what service delivers is evaluated after performance, and the dimensions such as *outcome quality* by Parasuraman *et al.* (1985), *technical quality* by Gronroos (1983) and *physical quality* by Leitinen and Leitinen (1982) are measurements of how the service is delivered and evaluated during delivery. Another dimension is *process quality* by Parasuraman *et al.* (1985) while Grönroos (1983) called it *functional quality*, and Lehtinen and Lehtinen (1982) called it *interactive quality*.

Evaluating the physical, technical and outcome qualities of any service is not easy. For instance, with service in the health environment, the service provider's technical competence isn't immediately measureable and results may not show until after many treatments, so it is very difficult for a patient (who is the customer) to evaluate service quality, either before or after the delivery of the service. Owing to this difficulty in assessing technical quality, users (customers) rely on other measures of quality attributes associated with the process of health service delivery, such as reliability and empathy.

As this study concerns the evaluation of e-government services from the citizen's perspective, a service quality perspective is one of the components that will be integrated. *Service quality* is the extent to which a service meets citizens' needs and expectations. *Service quality* can thus be defined as the difference between citizens' expectations and the actual perception of services (Ombati *et al.,* 2010). In the cases where the expectations are greater than performance, then perceived quality is less than satisfactory and citizen dissatisfaction occurs (Parasuraman *et al.,* 1985).

Service quality is acknowledged as one of the key factors for sustainability of an organisation and one of the driving forces for an organisation's achievements (Alanezi *et al.,* 2010). It represents the comparison between customers' expectations of how a company or organisation should perform and the service performance that customers perceive. Zeithaml, Berry and Parasuraman (1988) define the *perception* of service quality as a customer's assessment of the overall excellence or superiority of the services. This school of thought includes Alanezi *et al.* (2010) and Bauer *et al.* (2006) who confirm that perceived quality of a particular service is an outcome of an evaluation process where the service consumers weigh their expectations against perception of the service received.

The term *perceived service quality* has been used in most of the definitions of service quality to emphasise that it is the customer who judges if the service quality matches the customer's expectations (O'Reilly, 2007). The only remaining challenge in the entire process of measuring service quality from this perspective is to identify what the customers' expectations are and to plan how to meet them. Meeting customer expectations, or not meeting them, will have a significant bearing on the perceived service quality (Kettinger & Lee, 1997; Pitt *et al.,* 1997; Watson *et al.,* 1998).

As introduced earlier, the SERVQUAL scale is the most extensively applied scale (Hongxiu & Reima, 2009) for evaluating service quality. The scale is used to measure the service quality as the gap between consumer expectations and perceived delivery (Parasuraman *et al.,* 1985). With this scale, customer expectations can be captured and compared to customer perceptions of service received. Among the advantages of this scale is its superior managerial diagnostic capability in a gap measure and the conceptual matching of the SERVQUAL dimensions with IS settings.

### 2.8.5 Dimensions for measuring service quality

The SERVQUAL model (Parasuraman *et al.,* 1985) initially consisted of 10 dimensions with 97 items. Later, in early 1988, the dimensions were reduced from 10 to five, with 22 attributes, as shown below:

- *Tangible:* the physical facilities, functional appeal and appearance of employees;
- *Reliability:* the ability to execute the promised service in an accurate and trustworthy way;
- *Responsiveness:* the willingness to assist the end user with confidence and provide punctual service;
- *Assurance:* the personnel cognisance which persuades user confidence and trust; and
- *Empathy:* the provision of care and individual attention paid to customers (Parasuraman *et al.,* 1988).

The SERVQUAL model gained popularity in the IS field as the result of a debate concerning its applicability to the field (Kettinger & Lee, 1997; Pitt *et al.,* 1997; Van Dyke *et al.,* 1997). The scale received both scholarly and managerial attention as a diagnostic tool for discovering areas of strengths and weaknesses in IS service quality (Kittinger & Lee, 2005). The main criticism of the application of SERVQUAL in IS service is a psychometric concern of operationalising a single concept as the difference of two separate elicitations, and also the empirical ambiguity of the construct structure. The use of the difference score was not directly accepted in IS, as it presented certain problems such as unreliability, poor convergent validity and dimensional structure (Van Dyke *et al.,* 1997). As a result, the SERVQUAL model adopted for information systems (IS) lacks consistency in terms of dimensional structure, reliability and validity (Cronin & Taylor, 1992; Kittinger & Lee 1997; Kittinger *et al.,* 1995; Parasuraman *et. al.,* 1994). Since the object in this study is to evaluate e-government services, the main challenge here is whether or not these issues with consistency are serious enough to warrant excluding the use of SERVQUAL in an e-government setting.

Cronin and Taylor (1992:63) are among the scholars critical of the SERVQUAL scale. Their idea was that measuring service quality can produce better results for reliability, validity and predictive power if the service quality performance (SERVPERF) model is used (i.e. the perceived service in SERVQUAL). SERVPERF, which measures only the customer's perception of service quality, enjoys the support of many scholars (Boulding *et al.,* 1993; McAlexander, Kaldenberg & Koenig, 1994; Parasuraman, Zeithaml & Berry, 1994; Zeithaml *et al.,* 1996). In spite of this, the use of SERVQUAL has been advocated due to its ability to provide better managerial diagnostics. The designers of SERVQUAL defended the managerial diagnostic capability of SERVQUAL over SERVPERF and refuted the many concerns about the scale (Parasuraman *et. al.,* 1994; Pitt *et. al.,* 1997; Boshoff, 2007:110). Therefore, this study will directly use the discrepancy between customers' expectation and customers' perceived service quality as a measurement for e-government services.

Kang and Bradley (2002) claim levels are also critical of the application of SERVQUAL measurement in the IS field. Their proposed solution is a new measurement model that integrates *both* the acceptable and ideal levels of user expectation. The major difference with the original gap model, as asserted by Kang and Bradley (2002), is the acknowledgement that IS users are aware of limitations imposed on IS suppliers because of personnel, technology and other organisational factors. This is a caution for this study, as this study intends to explore citizens' perspectives on the e-government services. Different citizens in different situations have different perspectives on the services provided, and different expectations thereof. These expectations may be more or less realistic, depending on their familiarity with the system concerned and the setting in which it is deployed. So the possibility exists for questioning the applicability of the SERVQUAL with integration of ideal levels of user expectations.

The QUALT measurement instrument that was developed by Wilkin and Castleman (2002) to evaluate the quality of IS provides yet another context for SERVQUAL, though it originated from the five-scale dimensions of SERVQUAL. Wilkin and Castleman (2002) took five years to develop QUALIT, an IS-quality measurement instrument based on the re-specified IS

success model. The five-scale dimensions of SERVQUAL (reliability, responsiveness, assurance, empathy and tangibles) were the departure point for the QUALIT multi-term measuring instrument. The instrument was empirically tested for system information and service quality based on the opinions of user/stakeholders, and a final version of QUALIT was proposed, with different dimensions from the original SERVQUAL dimensions for all three quality components (Table 2.6).

**Table 2.6: QUALIT dimensions (source: Wilkin & Castleman, 2002)**

| Component | QUALIT Version One | QUALIT Version Two | QUALIT Version Three |
|---|---|---|---|
| System Quality | Tangible | | Functionality |
| | Reliability | Reliability | Integration |
| | Responsiveness | Responsiveness | Usability |
| | Assurance | Assurance | Reliability |
| | Empathy | Empathy | Security |
| Information Quality | Tangible | | Accuracy |
| | Reliability | Reliability | Availability |
| | Responsiveness | Responsiveness | Relevance |
| | Assurance | Assurance | Presentation |
| | Empathy | Empathy | Promptness |
| Service Quality | Tangible | | Expertise |
| | Reliability | Reliability | Credibility |
| | Responsiveness | Responsiveness | Availability |
| | Assurance | Assurance | Responsiveness |
| | Empathy | Empathy | Supportiveness |

As earlier stated, the objective of this research involves investigating the applicability of service quality dimensions in government electronic services and their relevance to the effective evaluation of e-government services. The above studies raise many important aspects and concerns about the dimensions for measurement. These motivate even further for the applicability of adapting dimensions of service gap models into an e-government services environment in a developing country.

### 2.8.6 E-government and service quality

The e-government literature suggests that the government has lagged behind the private sector in the pursuit of service excellence. However, in the early 1990s, the trend began to reverse when the ideology of quality spread into the realm of public services. Many governments at that time, with the impetus of the total quality management (TQM) movement, began striving to meet the service expectations of their citizens (Kaisara & Pather, 2011). Governments increasingly viewed e-government as a vehicle to attempt to improve the quality of service delivery within an overall TQM approach (Teicher, Hughes & Dow, 2002). A nation can gain a competitive advantage for international business if they deliver high quality e-government services (Davison *et al.,* 2005).

As outlined by other researchers, employing e-government could ensure long-term cost savings and improved service quality (Irani *et al.* 2005). Governments are gradually realising the benefits of e-government in augmenting the performance of the services they are providing (Ebrahim & Irani, 2005). The only remaining question concerns the best way to discover and then evaluate the levels of improvement of service performance within government agencies. The quality of service delivery improvement does not depend only in investing in technology. Various scholars have steadily proposed a number of evaluation approaches in a quest to address this (Kaylor, Deshazo & Eck, 2001; Gupta & Jana, 2003; Irani *et al.,* 2005; Evans & Yen, 2006). As a result, then, service quality began to receive attention as a means of evaluating users' attitudes towards electronic services offered by governments (Gilbert & Balestrini, 2004).

In spite of the fact that service quality has been proven to be a suitable indicator of IS effectiveness evaluation (Pitt *et al.,* 1995; DeLone & McLean, 2003), the evaluation of the quality of services in governments, particularly in developing countries, has received very little research attention. Failure to reach agreement conceptualising and defining service quality on the part of academics and researchers poses a challenge to any attempt to evaluate service quality as delivered by e-government initiatives (Ray & Rao, 2004). Jaeger and Thompson (2003) further lament the lack of measures of services quality in e-government.

### 2.8.7 Service quality dimensions for e-government services

The importance of measuring e-government service quality has gained considerable attention in recent years. In response, a range of measuring instruments has been put forward to measure online service quality. Some instruments, like the eTransQual (Bauer *et al.,* 2006; Woifinbarger & Gilly, 2002, 2003) and WebQUAL (Loiacono *et al.,* 2002) were proposed to assess service quality in a specific area: the online environment. As a result of that, the literature includes several studies that attempt to find the key dimensions of e-service quality associated with online environments. These include studies conducted in various contexts, such as e-service areas, online banking, online travel agency, online public libraries, online retailing, web portals and online shopping. Table 2.7 provides an overview of some of the instruments that have been identified in the literature.

**Table 2.7: Analysis of e-government service approaches**

| Sources | Context | Dimensions |
|---|---|---|
| Wang & Liao (2008) | e-government success | • Multi-dimensional categories of IS Success including user satisfaction, systems quality, net benefits. |
| Liu *et al.*, (2008) | e-government | • Stakeholders dimensions<br>• Including dimensions for strategy<br>• Indices of all dimensions should be affected or measure strategy |
| Esteves and Joseph, (2008) | e-government projects | • Assessment dimensions<br>• Technology,<br>• Strategic<br>• Organisational<br>• Operational<br>• Services<br>• Economical |
| Fitsilis and Anthopoulos (2009) | e-government software | • Project and product evaluation dimensions<br>• Social economics indices<br>• Citizen satisfaction indices |
| Victor et al., (2007) | e-government | • Specific metrics and indices are not defined |
| Carter & Bélanger, (2005) | e-government | • Perceived usefulness<br>• Relative advantage<br>• Compatibility<br>• Perceived ease of use<br>• Image<br>• Trust in the Internet and in governments |

| Sources | Context | Dimensions |
|---|---|---|
| Ho & Lee (2007) *e-Travel service quality* | Tourism | • Information quality<br>• Security<br>• Website functionality<br>• Customer relationships<br>• Responsiveness |
| Cristobal *et al.* (2007) | Online retail | • Customer service<br>• Web design<br>• Assurance<br>• Order management |
| Parasuraman *et al*. (2005) *E-S-Qual with E-RecS-Qual* | Online retail | • Efficiency<br>• System availability<br>• Fulfilment<br>• Privacy<br>• Responsiveness<br>• Compensation<br>• Contact |
| Ribbink *et al*. (2004) | Online retail | • Ease of use<br>• E-scape<br>• Responsiveness<br>• Customisation |
| Cox and Dale (2001) | Online retail | • Accessibility<br>• Communication<br>• Credibility<br>• Understanding<br>• Appearance<br>• Availability |
| Wolfinbarger and Gilly (2003) *eTailQ* | Online retail | • Fulfilment/Reliability<br>• Website design<br>• Privacy/Security<br>• Customer service |
| Barnes and Vidgen (2002) *WebQual 4.0* | Online retail | • Website usability<br>• Information quality<br>• Service interaction |
| Yang *et al.*,(2005) | Information services web portal | • Usability<br>• Usefulness of content<br>• Adequacy of information<br>• Accessibility<br>• Interaction |

## 2.9 Service dimensions for e-government evaluation

In synthesising the literature review on e-government evaluation, it is evident that various evaluation models have been developed, with different approaches to evaluating different aspects of e-government. Since the aim of this study is to develop a framework for e-government effectiveness, it was necessary to understand the possible effectiveness dimensions in relation to utilisation of services by citizens in developing countries. In addition, the understanding of major problems of ICT in that context was also essential, because this is likely to contribute to e-government success or failure.

Therefore, this section discusses some of the dimensions derived from the literature which may be applied to the evaluation of e-government initiatives.

### 2.9.1 ICT infrastructure

According to Ndou (2004), the infrastructure for ICT includes a basic access infrastructure: telephone lines, personal computers, Internet accessibility and penetration in rural areas, bandwidth available for the public to access the Internet, and the cost of the services provided in comparison to citizens' income. The inadequacy of infrastructure in developing countries is a challenge that brings into sharp distinction the differences between ICT delivery in developed countries and developing countries (ITU, 2012).

Despite penetration of mobile-based Internet and the launch of 3G mobile-broadband services in a number of countries, infrastructure (fixed-broadband) in developing countries remains limited (ITU, 2012). The World Telecommunication reports show an increment in the world's personal computer penetration (the number of PCs per 100 people) from 4.2 in 1995 to more than 12 in 2004 (Chinn & Fairlie, 2010) and the fast growing percentage of Internet users from less than 1% to 13.7%. The dispersion of ICT in developing countries is notable. According to the study by Chinn and Fairlie (2010) there is a remarkable increase of use of ICT in developing countries. Access to Internet in the developing counties has increased, 31% of the population in the developing countries were online in 2013 (ITU 2014) compare with only four Internet users per 10,000 people in developing countries in 2009 (Chinn & Fairlie, 2010). This is an alarming that with higher penetration of mobile phone in the developing countries the digital gap will be minimised.

### 2.9.2 Interoperability

Another dimension that this study identified is *interoperability, or* more precisely *interoperable e-government*, which means facilitating the exchange of data and services within and across government agencies (i.e. having government systems 'talk to each other') (Mokhtor & Harudni, 2007). At present, there are several definitions for *interoperability* in the literature but the main theme of each concerns the ability to link or speak with other

systems over a heterogeneous network in a meaningful and useful manner (Podder, 2013). In the domain of computer science, the term *interoperability* is mainly used in the middleware context that provides capability for the exchange of data between systems (Scholl & Klischewski, 2007). The concept furnishes a set of technical guidelines essential to describe an interface between the systems of different agencies to link or exchange data and functionality during interoperation, without necessarily changing their existing technologies (Mokhtor & Harudni, 2007).

Designing and developing interoperable e-government presents a challenge. In designing interoperable e-government systems, issues of portability and compatibility of present systems with new technologies have to be considered. This is because there is a hesitant uncertainty regarding new technologies and the quick rate at which they change (Mundy & Musa, 2010; Signore *et. al.,* 2005). For interoperable e-government services to function, a different level of resources is required. Consequently, the format of user interface and integration from one agency to another should be considered and the systems must be interoperable with both new and existing systems (Signore *et al.*, 2005).

### 2.9.3 Service expectations

Individual citizen expectation is another difficult e-government challenge. Governments must not only understand the needs and expectations of the citizens but also understand that citizens in different situations have different needs and expectations. It is also expected that they understand the demographics of the population of citizens who are both willing and able to use the e-government services, as well as have the capability to implement the requisite e-government services to meet the citizens' identified needs (ITU 2008). Many governments in developing countries, as they actualise e-government services, learn that they are not aware of precisely what kind of e-government services their citizens want and how these will affect responses to the services offered (Mundy & Musa, 2010). Ergo, governments must become citizen-focused to ensure their efforts are not wasted and that citizens are receptive to the services provided.

### 2.9.4 Inadequate ICT knowledge

Low levels of ICT literacy, which with most developing countries are confronted, is a significant challenge to e-government, as e-government services without users are abandoned (InfoDev, 2002). The situation is worse in some countries, as the rate of illiteracy is exceedingly high in both urban and rural areas. Consequently, the limited number of digitally-literate citizens impedes e-government initiatives in the country (InfoDev, 2002). Norris (2001) summarised that in developing countries, *digital divide* is the gap between those who can access the Internet and those who cannot (InfoDev, 2002; Ndou, 2004). The digital gap challenge concerns not only the usage of computers but goes further into how technology is used by the citizens in their daily activities, in terms of different electronic applications such as e-government services, e-voting, e-commerce and more.

### 2.9.5 Legal and regulation framework

The absence of legal regulations in the delivery of electronic services can be another problem. Lack of an electronic signature law in most developing countries is evidence of this problem. The legal regulation framework is very important in online electronic transactions because such a framework bolsters citizens' confidence (InforDev, 2002; Ndou 2004) and thereby increases usage. The electronic law should incorporate suitable regulations such as investigation and/or prosecution for unlawful access to government and citizens' computers, and focus much more on the protection of citizens' data hosted by the government.

### 2.9.6 Trust in e-government

Another challenge is the privacy and security of citizens when using e-government services. The privacy and security of citizens is very important, as the uptake of the services is increased if citizens are assured of information privacy and data security (Mundy & Musa, 2010). As citizens interact with the government using e-government services, the government must simultaneously guarantee privacy and data security for citizens if they

wish citizens to continue using the service. This has benefits for government and citizenry alike.

### 2.9.7 Awareness of existing services

Awareness of existing services is an effectiveness dimension associated with the citizen's knowledge about e-government and the availability of e-government services. Lack of awareness of the existence of e-government services is directly related to the usage, or lack thereof, of e-government services (Mofleh & Wanous, 2008). That is, if citizens are aware of what the government offers electronically, there is certainly a higher possibility of citizens using these services. As such, awareness is a bottom-line dimension that will increase the demand for e-government services within a country. Basically, if citizens don't know about the services, they can't use or benefit from them!

If governments would like the services to be utilised, they must begin, and later maintain, promotional efforts. Governments have to promote their array of service offerings so that citizens and businesses understand exactly what types of services are available. In the case of developing countries, it is apparent that governments do devote sufficient effort to the promotion of e-government services, and thus settle for low demand for e-government services (Jaeger, 2003). Again, lack of awareness of existing e-government services in developing countries is a challenge that will retard the growth of e-government.

### 2.9.8 Lack of coordination

The coordination of e-government services is another dimension that may affect the uptake of e-government services. Coordination is important for the steering of both e-government services and e-government activities. It is expected that with good coordination, governmental buy-in is certainly possible, and policies and procedures can be identified and reviewed. Also, standards, plans, strategic advocacy and publicity of e-government initiatives can be accomplished. This dimension is important, particularly where the e-government implementers are the individual government institutions (Nurdin *et al.*, 2014)

## 2.10 Conclusion

The broad scope of this literature review furnished a context that frames the investigation in the context of evaluation of the effectiveness of e-government services from the perspective of citizens. The analysis explored the environment that supports the evaluation of effectiveness of e-government services through the lens of citizens within the context of developing countries.

The exploratory interrogations in this research demand a broad coverage of the literature. The wide ambit of the principal question influenced the wide literature analysis as well. The extant literature dealing with e-government, with IS effectiveness evaluation and with service quality was reviewed. Figure 2.5 synthesises these key issues into a framework for the context of the research problem domain as it relates to the literature.

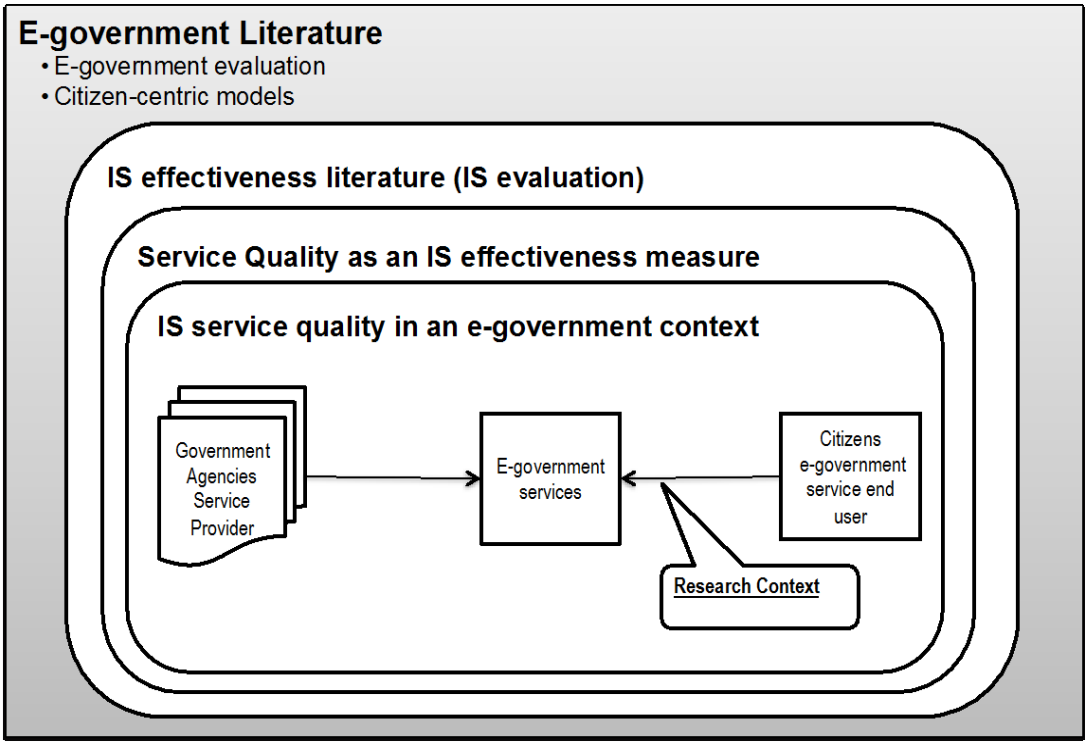


**Figure 2.5: Literature review framework**

Drawing on the above synthesis, the first key issue is the relevance of the realm of information system research. The review of the e-government literature suggests that e-government information systems evaluation is linked to key concepts identified in the IS effectiveness literature.

Throughout the literature, it was indicated that there are a number of IS effectiveness evaluation dimensions, including the service quality dimension, which was discussed in great depth, since the literature review revealed that service quality was a key component for e-government evaluation. This does not mean that other IS effectiveness dimensions are not important, but effectiveness dimensions are rarely covered in the e-government service literature. Therefore, the aims of this research have been reinforced: the unevenness of regard for various dimensions suggests that the topic be approached with caution so to very carefully empirically ground effectiveness dimensions rather than depend on the uneven reports from the literature to offer a theoretical underpinning.

Other important conclusions from the literature include the following:

- There is a lack of perspective in the broader e-government literature on how to evaluate e-government information system effectiveness in developing countries. The importance of the evaluation of e-government has also repeatedly been bypassed by the literature. This is substantiated by Kamatula (2012) and Sharif *et al.* (2010) who posited that e-government services are rarely evaluated; hence, many have advocated the need for better monitoring and thorough evaluation of e-government projects. We do recognise that the evaluation of e-government services is an important and complex organisational process. The traditional approach to e-government systems evaluation, based on narrow technical and accounting terms, has limited relevance to the role of ICT in today's organisations. While many studies in this arena have previously concentrated on the financial aspects of e-government systems, this is just one approach to evaluating the effectiveness of e-government systems and is insufficient for the needs of this project. As outlined by DeLone and Mclean (1992:88), there are many success measures identified by studies in IS effectiveness. As a

consequence of this diversity of options, it is not possible to frame appropriate effectiveness metrics based solely on a literature review. The same applies to this study: the identified problem cannot be effectively answered using effectiveness metrics based solely on the existing body of knowledge.

- There is a dearth of consistency in evaluation models and frameworks. Likewise, there is an absence of consistent trends in the application of evaluation models in the realm of e-government; instead there is an assortment of models and approaches presented. It is thus a worthy goal to develop an e-government evaluation model. This literature review suggests that the outcomes of this study will add significantly to the extant body of knowledge. In addition, the literature review outcomes suggest that the answer to the primary research question of this study has potential value to both the actual practise of governments in the implementation and monitoring of e-government services, as well as the academic society.

Having reviewed the literature, the primary research question, posited in Chapter One is thus still relevant:

- *What are the dimensions for effectiveness of e-government services which, when jointly considered, would lead to maximum citizen use and satisfaction?*

The aims of this research in investigating this question will be of significance to e-government as well as the IS community in general. The conclusion provides for suitable groundwork to build a suitable research plan for this study. The empirical exploration is described in subsequent chapters.

# CHAPTER THREE

# RESEARCH PHILOSOPHICAL FRAMEWORK

## 3.1 Introduction

This chapter assesses the relevance of *interpretivism* as the methodological approach to the study. Thus, how this inquiry fits within the interpretivist paradigm is determined by the argument that e-government evaluation represents a complex object of inquiry and therefore, of necessity, a multi-disciplinary lens from an academic perspective is required. The theoretical perspectives presented in this chapter recognise this multifaceted nature of e-government evaluation, scaling down to two main disciplinary foundations of information systems (IS) and e-government service administration (public service delivery). The disciplinary perspective of public service administration is used to highlight certain aspects of the social problem of governance as a key anchor in this study. By acknowledging the social character of the research and the phenomenon under study, the chapter further elaborates on the research framework.

### 3.1.1 The three worlds framework in research design in context

From an academic point of view, *research* is the manner by which new knowledge is added to the established body of knowledge. Research is about understanding the world: one's understanding is informed by how one views the world, what one views understanding to be, and what one sees as the purpose of understanding (Creswell *et al.*, 2010:30). Mouton (2001:137) argues that applied research problems are formulated to address real life problems. The three worlds of knowledge are below:

(i) the world of everyday life (lay peoples' knowledge);
(ii) the world of science and scientific knowledge (expert knowledge); and
(iii) the world of meta-science (philosophical knowledge).

Fundamentally, the interaction between these three worlds is the pursuit of scientific research (Mouton, 2001). Figure 3.1 illustrates the basic tenet of these three worlds, distinguished as follows (Mouton, 2001:138-139):

*World One,* according to Mouton's framework, encompasses the social and physical reality within which individuals exist. The everyday life of family, friends and children produces knowledge referred to as *lay knowledge*. This lay knowledge is acquired through experience, learning and self-reflection (Mouton, 2001:138).

In *World Two*, scientific research and knowledge allows researchers to view *World One* as the subject of methodical and rigorous enquiry. The overriding goal of *World Two* is searching for truth, which is referred to as *epistemology*. Just as practical curiosity encourages the acquiring of knowledge in *World One*, epistemic interest infuses every part of the process of knowledge acquisition in World Two (Babbie & Mouton, 2001).

In *World Three*, scientists and researchers subject their approaches to study to critical reflection, selecting models to adapt and make use of in the quest to evaluate the phenomena the research is designed to address. The consequence of this practice is the establishment of various *meta-disciplines* like philosophy, sociology and methodology of sciences and research ethics (Babbie & Mouton, 2001).

The objective of this chapter, hence, concerns *World Three,* the *meta-science* perspective, and the positioning of this study within a philosophical research context.

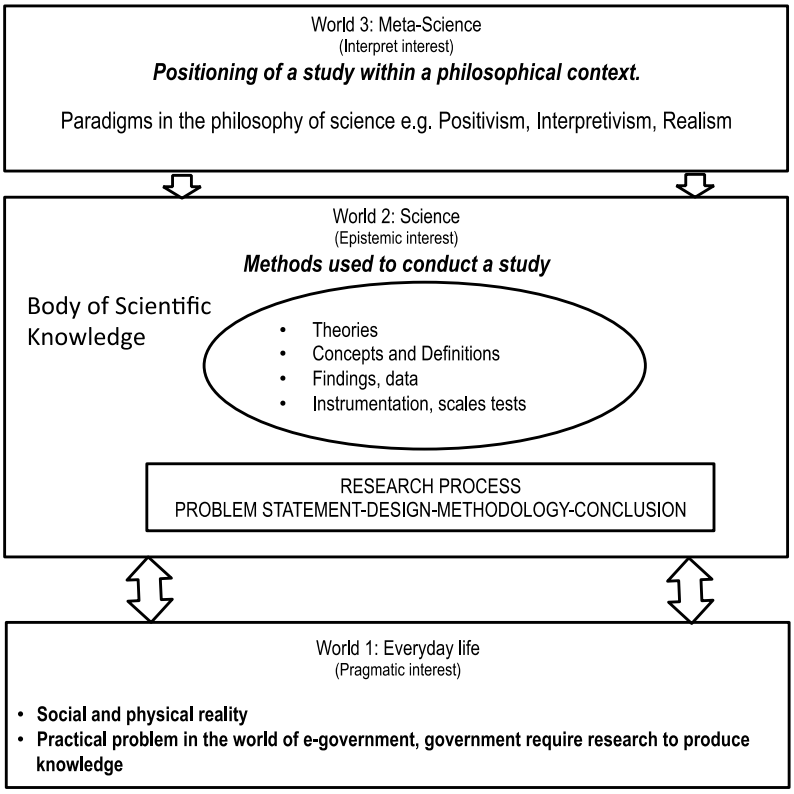


**Figure 3.1: The three-world framework (adapted From Mouton, 2001:139–141)**

The application of the *Three Worlds* in relation to this work is elaborated as follows:

- The worlds of government and e-government, as parts of everyday life, are subsets of *World One*. The identified problem in *World One* relates to this problem: the absence of a model for evaluation of effectiveness of IS which informs G2C e-government services.
- Solving this problem will require interaction with the world of science, which is *World Two*, to review present relevant philosophies and concepts about the phenomena associated with the research problem, against an evaluation of e-government services. From the preliminary literature review in the previous section, it has been ascertained that there is *no relevant and specific framework* to solve the problem. The researcher must apply *World Two's* techniques and tools in making an informed choice regarding their use.
- The researcher should position the research within a philosophical paradigm, one which guides the manner in which scientific tools and techniques will be applied. The research philosophical paradigm also

provides an overarching frame for the research stance on the construction of knowledge.

- Thus, the decision of how to apply the tools is guided by several scientific options in *World Two,* but this implies that the researcher must become knowledgeable with *World Three,* the world of meta-science, in order to understand different patterns in the philosophies of science and in the manner which they inspire research in *World Two*. This chapter, then, introduces the philosophical perspective for the research, positioning the research undertaking within an appropriate philosophical context of study.

## 3.2 Ontology, epistemology and paradigm

A systematic enquiry includes the search of knowledge in which we pursue as close an approximation as possible to truth (Babbie & Mouton, 2001). Social science research depends on certain philosophical views of reality; these views guide the selection of the research paradigm and the appropriate research methods to carry out the research at hand. However, the ontological perspectives that lead to these paradigms and methods are often confusing. In this regard, Krauss (2005:759) argues that "understating the difference in epistemology among research paradigms begins primarily as a philosophical exercise". This process entails understanding the relationships between the different characteristics of the research paradigm which Krauss (2005:758-759) identifies as follows: 1) *ontology*, which involves the philosophy of reality; 2) *epistemology,* which addresses how we come to know that reality; and 3) *methodology,* which identifies the particular practices used to attain knowledge of the reality. In an earlier treatment of research paradigms, Guba (1990:18) characterised paradigms based on the way their proponents responded to the ontological, the epistemological, and the methodological questions as follows:

- *ontology:* What is the nature of knowledge or reality?
- *epistemology:* What is the nature of the relationship between the knower (the inquirer) and the known (or knowable)?
- *methodology:* How should the inquirer go about finding out knowledge?

Danermark, Ekstrom, Jakobsen and Karlsson (2002) also describe epistemological issues as concerned with the examination of the conditions, possibilities, nature and limits of human knowledge and therefore the criteria which must be met to construct and evaluate knowledge. The evaluation of the phenomenon of e-government in this study is undertaken with the underlying epistemological concerns articulated by Danermark *et al.* (2002).

In terms of methodology, there are at least three major paradigms of social research that generally inform the approach to IS research: *positivism*, *interpretivism* and *critical realism*. This study recognises all three paradigms and their philosophical underpinnings; however, a debate over which is preferable was not regarded as beneficial in this research. In order to position this study within the interpretive research paradigm, Table 3.1 provides a summary of the key ontological, epistemological and methodological concerns of dominant research assumptions in relation to interpretivism.

**Table 3:1 Research paradigms**

| | **Positivistic** | **Interpretive** | **Critical Realism** |
|---|---|---|---|
| **Ontology** | Realist ontology asserts that there exists a single reality, independent of any observer's interest in it and which operates according to immutable natural laws, many of which take cause-effect form. Truth is defined as that set of statements that is isomorphic to reality. | Relativist ontology asserts multiple socially constructed realities ungoverned by laws, casual or otherwise. "Truth" is defined as the best informed (amount and quality of information) and most sophisticated (power with which the information is understood and used) construction on which there is consensus (although there may be several constructions extant that simultaneously meet that criterion). | A *stratified reality* independent of human consciousness, and at the same time a dimension, which includes our socially determined knowledge about reality. Thus reality has an objective existence but our knowledge of it is conceptually mediated. It is true that facts are theory-dependent, but this not to say that they are theory-determined. Three levels of reality: the empirical, the actual and the real. |
| **Epistemology** | A dualist objectivist epistemology asserts that it is possible (indeed, mandatory) for an observer to exteriorise the phenomenon studied, remaining detached and distant from it (a state often called "subject-object dualism") and excluding any value consideration from influencing it. | A monistic subjectivist epistemology asserts that an inquirer and the inquired are interlocked in such a way that the findings of an investigation are the literal creation of inquiry process. Note that this posture effectively destroys the classical ontological-epistemological distinction. | Science has two dimensions: an intransitive and transitive dimension. Theories are the transitive objects of science and they constitute the dimension that connects science with reality. However, there is no relation between science and the intransitive object; an ontological gap always |

| | | | |
|---|---|---|---|
| | | | exists. |
| **Methodology** | An interventionist methodology strips context of its contaminating (confounding) influences (variables) so that the inquiry can converge on truth and explain nature as it really is and really works, leading to capability to predict and to control. | A hermeneutic methodology involves a continuing dialectic of iteration, analysis, critique, reiteration, reanalysis and so on, leading to the emergence of a joint (among all the inquirers and respondents, or among etic and emic view) construction of a case. | A structural analysis approach that relies on the nature of the object to determine the possibilities we have for gaining knowledge of it. Methods must suit the object of study and the purpose of the study. |

**(Source: Guba & Lincoln; Danermark *et al.,* 2002)**

### 3.2.1 Research paradigms

*Philosophy*, from a scientific viewpoint, is concerned primarily with rigorous scientific approaches to establish, regulate and improve the creation of knowledge in all intellectual arenas. Reviewing the main features of the philosophical school of thought is the primary stage in understanding the implication of the methodological options in any research undertaking. An acquaintance with these different options has become integral in social science research. This is equally true in IS research, given that the IS field is essentially pluralistic (Gallier, 1992). Thus it is especially relevant to understand and reflect on the differences and similarities of these philosophical orientations, and to subsequently take a position on them.

There are several views on the problem of selecting a philosophical outlook in information systems literature, such as Mingers (2004), Walsham (1995), and Orlikowski and Baroudi (1991) who have demonstrated the dominance of positivist and social constructivist philosophies for many years. However, despite the emergence of contemporary trans-paradigmatic approaches in information systems research, *interpretivism* is gaining space as a fundamental research philosophy. While other philosophical assumptions in IS research are not preferred in this research, it is however deemed necessary to examine them so as to support the positioning of this research within the interpretivism paradigm. The following subsections present a brief overview of dominant research paradigms in the IS field.

#### 3.2.1.1 Positivist paradigm

Ontologically, *positivism* builds on the assumption that an external reality exists, where the subjective reality and the subjective techniques of enquiry about the truth are dismissed (Burke, 2007). Olikowski and Baroudi (1991) explain that positivist research is premised on the existence of a prior fixed relationship within phenomena, which are typically investigated with structured instrumentation. The facts are assumed to be objective, empirically measurable and the subject should be separated from the objective and context (Burke, 2007). Research under this paradigm often follows hypothesis formulation and the testing of theories, focusing on the enabling of predictions and generalisations about a phenomenon (Myers, 1997).

Babbie and Mouton (2001) explain that the positivist research tradition 1) prioritises natural science research methods, and 2) assumes that natural science phenomena (matter and machines), social science phenomena and related investigations are sufficiently similar. The implication is that 3) the logic of fixed relationships between phenomena applies to all researchable disciplines; hence, all research should use natural science research methods.

On the basis of the supposition that "the best or only way of measuring the properties of a phenomenon is through quantitative methods" (Babbie & Mouton, 2001:49), this approach tends to privilege one perspective of inquiry into varying disciplines. In a social setting, however, understanding of theoretical issues and dynamics of technology will surely require more than just the deductive methods of theory testing. In the context of this research, understanding of the context-based and subjective insight about the social-technical context of technology usage in government or the public sector setting is more significant. While the positivist paradigm can be valuable in the outlining of first-order problems about the number of computers and the frequency with which they are used by people, it is not geared for interpretation of context-specific factors such as feelings, beliefs and motivations. It cannot be used to uncover and explain contextual relationships between technology and subjective social phenomena outside a preconceived theoretical framework (Klein & Myers, 1999).

Certainly, a conceptual framing of e-government evaluation which concerns ICT issues requires both first-order insight into the current situation and subjective interpretations of social, technical and organisational contexts by stakeholders. Since the subjective contextual factors cannot be fully understood by using only the predictive hypothesis-testing measures of variable (Klein & Myers, 1991), the positivist paradigm is not suitable for this study.

#### 3.2.1.2 Critical realism

The *critical research paradigm* is not necessarily an exclusive alternative; rather, it is a different or perhaps an additional level of approach that can be applied to positivism or interpretivism to get a critical-positivist or a critical-interpretive paradigm (Niehaves & Stahl, 2006). The critical perspective, as delineated by Howcroft and Trauth (2004), considers organisations and IS in a broader social context, addressing issues such as power, domination, conflict and contradiction. Furthermore, according to Klein and Huynh (2005), critical research assumes that social realities are biased, a problem of subjectivity inherent in the human condition. Hence, researchers come to their work declaring their interest biases. This, then, critiques repressive conditions that limit people on the periphery from developing to their full potential, by pushing for changes to the restrictive and alienating current situation (Alvesson & Willmott, 1992) and eventually, to encourage emancipation and transformation of alienated individuals (McGrath 2005). Because of this focus, the critical paradigm has predominantly been applied to questioning the alienating and dominating power relations in socio-technical contexts (Niehaves & Stahl, 2006). As such, the critical paradigm is more appropriate for studies where alienation is evident, and the goal is to emancipate the alienated (Niehaves & Stahl, 2006).

In this study, evidence of alienation is not required for the research problem stated in Chapter One. As the critique of the current situation of e-government evaluation is necessary, exclusive application of the critical research paradigm would have been short-sighted, given the objective of the empirical studies under discussion. Instead, the critical interpretive perspective was deemed more appropriate.

### 3.2.1.3 Interpretive paradigm

The *interpretative research paradigm* assumes that access to reality is a function of social constructions which need to be analysed, decoded and represented (Creswell *et al.*, 2010). It is built on the assumption that social reality is not singular or objective, but rather moulded by human experience and social contexts (ontology) and is therefore best studied within its social-historic context by reconciling the subjective interpretations of its various participants (epistemology) (Bhattacherjee, 2012). Based on this logic, IS research can only be interpretive if it is grounded on the assumption that knowledge of reality is gained only through social constructions such as language, consciousness, shared meanings, documents, tools and other artefacts (Kaplan & Maxwel 1994). The interpretive paradigm is underpinned by observation and interaction, where to observe is to gather information about the phenomena and to interpret is to make meaning out of gathered information by drawn inferences or by judging the match between the information and some patterns. This paradigm attempts to understand phenomena through the meanings that people assign to them (Deetz 1996)

Further, the interpretive paradigm is concerned with understanding the world as it is from subjective experiences of individuals. The meaning (sense-making) oriented (versus measurement) methodologies such as interviewing or observation are used. In this type of research, the pre-defining of dependent and independent variables is not applied but rather it focuses on the full complexity of human sense making as the situation emerges (Kaplan & Maxwell 1994). That is, the meaning (sense-making) of the independent reality is socially constructed (Kaplan & Maxwel, 1994). It is claimed that in adopting the interpretive approach, social phenomena must be understood in the social context in which they are built and reproduced through activities.

The assumption behind the investigation in this research is that the application of technology in an e-government service context is a social science construct. It is an embedded system that represents both its technical form and the process to which it is applied (Orlikowski & Lacono, 2001). Understanding the interaction between the social science and technical influences of the usage of e-government (ICT) (as interpreted by the researcher from the context of citizens' perspectives and government

official's perspectives) thus is a central feature of this investigation. The interpretive paradigm seems to be ideal for use in such investigation as it "aims at generating an understanding of the context of IS, whereby IS influences and is influenced by the context" according to Walsham (1993).

That is, the context of e-government and dialectical relations between e-government and context is more of a concern than the object of e-government. Given that this research is positioned within the domain of IS, the main character of IS research knowledge is an understanding through processes of interpretation. Thus the researcher supposed to interpret the existing meaning systems shared by the actors (Orlikowski & Baroudi 1991:15). Klein and Myers (1999) have developed and described a set of principles for interpretive field studies. The set of principles is as follows:

***The hermeneutic circle principle***

The most fundamental principle of *hermeneutics* is that it places higher emphasis on iterations between interdependent meanings of various parts of a phenomenon, since phenomena are subject to various interpretations in relation to the whole that they form. A *hermeneutic circle* applies the iterative sense-making process between the terms and their meanings within a context to interpret phenomena. All issues, and not only written text, are incorporated in an interpretative process, including verbal and nonverbal forms of communications (Klein & Myers, 1999). An example of the successful application of this principle is the work of Lee (1994) which investigated the richness of the e-mail medium in enabling effective communication by comparison with face-to-face communication.

In this study, the richness of empirical data was located in subjective experiences and encounters by citizens and government officials in terms of their respective usage of e-government services, and from within their specific contexts. In the same manner as with Lee (1994), the operational framework was used as a context to interpret meanings of different experiences in the findings. Used in conjunction with the principle of contextualisation, therefore, the principle of a hermeneutic circle enriches the understanding of the interplay between the effectiveness dimensions, usage, and evaluation of e-government services in this study.

### *The principle of contextualisation*

The *contextualisation principle* facilitates the researcher's understanding and helps to account for the situation under investigation by putting the research subject in its historical, social and cultural context (Klein & Myers, 1999). Analysing the government officials' perceptions of the enablers of computer-assisted government operations from their historical context, for example, enriched the understanding of the unexpected factors of limited usage of e-government services in the findings of this study. The principles of contextualisation are carefully embedded in the data collection tool, in the structure of the questions, the gathering of information from the informants, and ultimately, the use of frameworks to interpret data.

### *The principle of interaction between researchers and subject*

The *principle of interaction* suggests that insight in research emerges from an interactive process between the researcher and research subjects (Klein & Myers, 1999). It further highlights the importance of insight between the researcher and subjects, because an absence of interaction may result in a confusingly divergent frame of reference. Hence, data collection considerations are emphasised in this principle. A researcher is advised to be positioned in a realistic historical context that will enable meaningful interaction with informants when preparing for data collection (Klein & Myers, 1999).

The principle was considered useful in strengthening the depth of research interviews and focus group questions prior to collection of empirical data for this study.

### *The principle of abstraction and generalisation*

In the interpretivism paradigm, theories still play a significant role, although the objective is not to test and prove hypotheses. To distinguish between research interpretations and anecdotal research, the use of theory in a sensitising manner is necessary (Klein & Myers, 1999). The *principle of abstraction* emphasises the use of appropriate theoretical lenses to glean understanding of the situation under investigation. It enables some level of

generalisation, which helps in the development of concepts and in the drawing of inferences from rich insights (Walsham, 1995). The IS field contains a number of theories, mostly to assist interpretive researchers in developing frameworks upon which contextual abstractions and generalisations could be based. Theories that are appropriate within the interpretive paradigm, such as the Unified Theory of Acceptance and Use of Technology (UTAUT), the Updated IS Success Model and Service Quality Mode (SERVQUAL) among others, are discussed later in this chapter.

***The principle of dialogical reasoning***

The *principle of dialogical reasoning* emphasises the need to apply objective, rather than biased, reasoning. Personal prejudgement and bias are the main influences that researchers must avoid to prevent a contamination of the actual meaning of the phenomena in an investigation (Klein & Myers, 1999). For the interpretations to remain consistent, unbiased and reliable, researchers are advised to clearly identify a specific philosophical and theoretical stance for interpreting meaning. It is in accordance with this, therefore, that this study conducted interviews and focus groups with participants as part of its investigations. As participants hold differing perceptions and interpretations of and motivations for e-government terms and practices, regard for the principle of dialogical reasoning led the probing of responses that seemed to have multiple interpretations.

***The principle of multiple interpretations***

The *principles of multiple interpretations* and *contextualisation* are closely related in an e-government environment. Clearly, historical, social and cultural contexts need to be investigated in order to understand an informant's motivation for a specific point of view. In applying the principle of abstraction and generalisation together with the above, one should further reconcile variations in meanings, warily guarding against possible "false preconceptions" (Klein & Myers, 1999). It is in this context that the principle of multiple interpretations was applied in the analytical framework of this study.

***The principle of suspicion***

The *principle of suspicion* considers the possibility of false preconception, false consciousness, the existence of socially created distortions and psychopathological delusions. Hence, it may not be enough to only interpret the meanings uncritically (Klein & Myers, 1999). Because of that, the principle of suspicion was adapted into interpretive research. Ricoeur (1976) argues for the exposure of distortions and delusional arguments in interpretive research through the use of this principle. The principle of suspicion is influenced by critical theorists such as Habermas and Foucault (Ngwenyama, 2002), as well as Myers and Young (1997) among others. The findings of this study were not taken merely at face value, but were critiqued against established theoretical assumptions, and against peer perspectives on similar points raised by interviewees and in the focus groups. The critical aspect embedded in this principle provided a basis for improving the in-depth analysis, in that phenomena were viewed, not just at face value, but with extended critique of tensions that emerged from the findings.

### 3.2.2 Conclusion on research paradigms

In IS research, a theoretical lens is salient since it separates the scientific activities from the speculative anecdotes, especially reflecting on the developmental history of IS research and how the positivist school of thought has dominated in it. Although positivism tends to support the hypothesis and theory-testing formats of investigations that are largely aligned with natural sciences (in the name of 'objectivity'), subjective issues of the socio-technical context were the centre of focus of this study. By implication, a paradigm that could enable interpretation of social and cultural contexts was required.

Since the interpretive tradition of research is "aimed at producing an understanding of the context and is influenced by the context" (Walsham, 1993), it fitted the purpose of observation. The adoption of the interpretive paradigm implied a selection of interpretive methods for conducting research. Within the selected interpretive paradigm, interviews, focus groups and documentation techniques, as well as the appropriate interpretive analytical techniques were used, as discussed in Chapter 4. The following elaborates on a theoretical foundation for this present study.

## 3.3 Theoretical basis for analysis

> *"Theories…are the product of the particular conditions in which they are created. If they are to be useful in other times and places therefore, they must be treated not as repositories of truth that are fixed and immutable, but as helpful tools for thinking with, which can themselves be improved in the process" (Well, 1999:334).*

The principles of abstraction and generalisation emphasise the use of theories as analytical lenses (frameworks) on which an investigation and its analysis can be suitably based. Using theories either as analytical devices or as objects of validation and development is common practice in various disciplines, particularly in IS (Kaplan *et al.,* 2004). Philosophers, researchers and academics have detailed numerous theories to explain the nature of the various objects. The objective of this research is to understand the effectiveness of e-government in the context of citizens' perspectives in a developing country. The literature reports that a number of scholars have attempted to clarify the need for evaluation of e-government initiatives so as to obtain the maximum benefit of using ICTs (Bigdel *et al.,* 2011). Jones, Irani, Sharif and Themistocleous (2006:2), for example, argue that evaluation "is an important and complex organisational process. The traditional approach to ICT evaluation, based on narrow technical and accounting terms, has limited relevance to the role of ICT in today's organisations". Evaluating e-government services is vital and must be based on the most suitable evaluation criteria for taking necessary action (Jones *et al.,* 2007).

Chircu (2008) argued that e-government services represent an exclusively specific case of IS investment, implying that the evaluation of e-government services is similar to the evaluation of IS effectiveness. Hence, it is appropriate to measure the effectiveness of e-government services by applying the same models that have been used to evaluate the effectiveness of information systems. The researcher, in the course of establishing a potential method for evaluating e-government service effectiveness and through an extensive review of literature, examined various models that have been used to measure information system effectiveness so that the most appropriate method of determining the effectiveness of e-government services could be derived.

A synthesis of the literature displays that IS effectiveness research can be categorised into two distinct sets of models: the models that are linked to *technology acceptance* comprise the first set (Davis, 1989; Szajna, 1994; Venkatesh & Davis, 2000; Venkatesh, Morris, Davis & Davis, 2003) and the models that are linked to *service quality (user satisfaction)* comprise the second set (Bailey & Pearson, 1983; DeLone & McLean, 2003; Parasuraman *et. al.,* 1985; Seddon & Kiew, 1995; Torkzadeh & Doll, 1999). The first set of models, those linked to that concept of technology acceptance, focused primarily on attitudes, beliefs and behaviour of individuals; while the second set, those concerned with service quality, focused on information system attributes such as performance, reliability, accuracy, impact and usage. Consideration of these two sets of models and their foci, led the researcher to adapt the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Updated D&M IS Success Model as the models for most appropriately guiding the study.

Further examination of IS effectiveness literature led to the realisation that service quality has become quite a salient measure in information system effectiveness evaluation (Jiang *et al.*, 2002). In e-government evaluation, as in IS evaluation, service quality measures are an extremely important aspect. The service quality literature gives us a very clear base upon which to argue that service quality must be an integral part of any developed e-government service evaluation framework. Thus, the service quality model was also adapted and examined to assess its applicability in the evaluation of e-government services.

The post-consumption evaluation of service performance, that is service quality, can be as influential for its adoption as perceptions about service (Mirchandani & Kailash, 2008). The service gap model, SERVQUAL, proposed by Parasuraman *et al.* (1985) has been successfully applied in the marketing literature to evaluate service quality. The model consists of five service dimensions: tangibles, reliability, responsiveness, assurance and empathy. Dabholkar *et. al.,* (1996) also present significant dimensions that determine expected service quality while comparing user's motivations in choosing between traditional and online service delivery. These dimensions include speed of delivery, ease of use, reliability, enjoyment and control. Based on these, the researcher deemed it relevant to use the service quality model SERVQUAL as another model to apply in the development of a framework for evaluating the effectiveness of e-government services.

All the evaluation models concern themselves with two variables: acceptance and satisfaction. Further, given that e-government services require technology-based delivery, certainly citizens' utilisation of e-government services must involve the incorporation of technology-acceptance aspects. In addition, the choice of electronic government service delivery to citizens by means of traditional methods of delivery will also concern new technology that needs to be accepted. Thus, in the process of evaluating e-government services, it is both relevant and vital to review the adoption of new technology (Gilbert *et. al.*, 2004). Based on this, it is relevant to the process of developing the theoretical evaluation framework to review the technology adoption literature.

The following section discusses the development of each model—UTAUT, the Updated IS Success Model and SERVQUAL—and scrutinises specific instances of the application of these models, to inform that the research has contributed to the adapted model described in this research. The fundamental attributes of the service quality models make this category of model most suited to the examination of e-government services.

***Technology acceptance***

The Innovation Diffusion Theory (IDT) by Rogers (1995) suggests that an individual's decision to use a particular technology is based on perceptions of its characteristics. Davis (1989) suggests that the individual would accept and adopt technology following a path framed by his Technology Acceptance Model (TAM) based upon the Theory of Reasoned Action (Ajzen, 1985; Ajzen & Fishbein, 1980) with reference to the beliefs of perceived ease of use and usefulness of technology. The model, considered the most robust and influential model to explain the acceptance of technological behaviour, has the power to predict the use of technology (Davis, 1989; Davis, *et al.,* 1989; Lu, 2003). Because of that, this model has been extensively supported through validation, application and replication (Weerakkody *et al.*, 2009). On the flip side, though, TAM neglects to consider some important sources of variances and issues, such as time or money constraints, as dimensions that hinder an individual from using the technology. Moreover, other researchers have argued that this model fails to provide meaningful information about user acceptance of the technology, due to its generality (Mathieson *et al.,* 2001).

Subsequently, a series of adapted TAM models have been proposed that are applicable to contemporary technologies (Horton *et al.*, 2001; Chau & Hu, 2001). To minimise the uncertainties and variances that the inclusion of multiple models may pose, the researcher opted to apply only the Unified Theory of Acceptance and Use of Technology (UTAUT) model to outline the user's intention to utilise the new technology as the dependent variable.

### 3.3.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

Since the establishment of UTAUT by Venkatesh, scholars have come to appreciate the model's consistency in obtaining results pertaining to the variance in terms of why users use or accept technology (Venkatesh *et al.*, 2003). UTAUT amalgamated several models of information technology acceptance. It integrates the elements of eight prominent theories: Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM2), Motivation Model (MM), Theory of Planned Behaviour (TPB), Combined TAM and TPB (C-TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory

(IDT) and the Social Cognitive Theory (SCT), each specifically tailored for modelling user acceptance of technology.

The intention of the UTAUT model was to clarify determinants of technology acceptance, as well as to give explanation of users' behaviour across a range of end-user computing technologies, while at the same time being justified theoretically (Weerakkody *et al.,* 2009). UTAUT is therefore considered applicable to studies of user acceptance of e-government services, because it constitutes a class of ICT projects.

The model had been tested over six months in four organisational settings and the results displayed important prediction intentions—performance expectancy, effort expectancy, social influence and facilitating conditions—whereas attitude toward using technology, self-efficacy and anxiety were theorised to *not* be direct determinants of intention (Venkatesh *et al.,* 2003:447). The fullness and reliability of the UTAUT model has encouraged the adaptation of the UTAUT model for this research, extending it to the research domain in Tanzania.

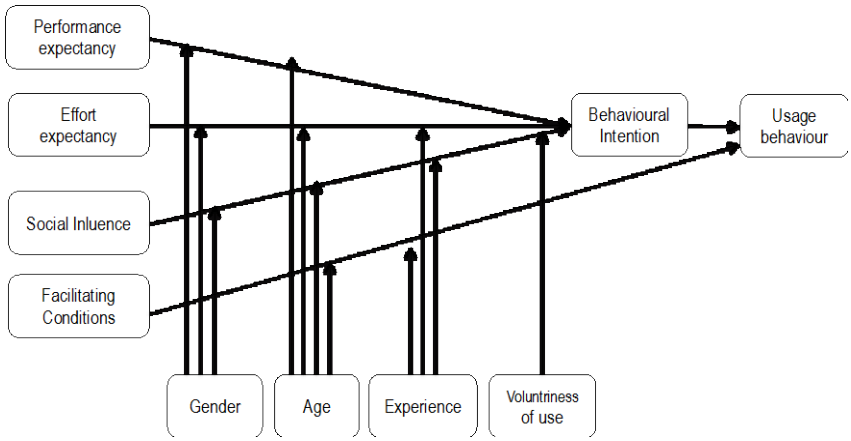


**Figure 3.2: UTAUT (Venkatesh, Morris, Davis & Davis, 2003: 447)**

### 3.3.2 Updated IS Success Model

Other theoretical models given consideration for association with the phenomenon under study are the Updated IS Success Model of DeLone and McLean (2003) and the Service Quality Model (SERVQUAL) proposed by Parasuraman *et al.* (1985).

The IS Success Model is the mostly widely cited framework for measuring IS effectiveness (Scott *et al.,* 2009). The model has been employed by many researchers to evaluate IS effectiveness, and in the process, measures have been developed for six core constructs: information quality, system quality, service quality, use, user satisfaction and net benefits. A study by Petter, DeLone and Mclean (2008) provides strong evidence to support many of the interrelationships between these effectiveness measures.

While the IS effectiveness model has been applied in numerous contexts, predominantly in the private sector, little research has been conducted to identify measures that determine e-government effectiveness. As such, there is a clear need to examine whether traditional IS success models can be extended to evaluate e-government systems effectiveness as well. Several models have been developed and which validate the use of the D&M IS Model, for example, a multi-dimension success instrument for enterprise systems from the perspective of public sector employees by Gable, Sedera and Chan (2008). Prybutok, Zhang and Ryan (2008) also used the D&M Model to examine the effects and positive delivery outcomes of leadership and IS quality in an e-government environment. Their results support an optimistic relationship between *leadership* and *quality* and a similar impact between *IS quality* and *net benefits.*

The IS Success Model of DeLone and McLean has been empirically validated by Wang and Liao (2008) in the context of e-government. Teo, Srivastava and Jiang (2009) studied the connection of *trust* and e-government with results showing that trust in government is related to trust in e-government websites. It has also been shown that the Updated IS Success Model has a significant relationship with the constructs of *use* and *user satisfaction*. The above studies, then, provide evidence of the explanatory power of the D&M IS Success Model in an e-government context. However, as mentioned, there has been little focus on evaluating e-government initiative effectiveness as well as an absence of research examining this effectiveness from the perspective of its users – citizens – and perspectives even more specific to developing countries. Thus, the D&M IS Success Model contributes to the development of the research model most suitable for this research.

DeLone and McLean (2003) argue that *use* and *intention to use* depend on whether the context involves mandatory or voluntary usage. As citizens' usage of e-government services is entirely voluntary, *service use* is an actual behaviour (Muhlberger, 2006). The measure of service use has actually been considered as the variable closer in meaning to success than behavioural *intention to use* (Wang & Liao, 2008). Hence, this study adopts *intention to use* as an e-government service effectiveness measure.

*User satisfaction* is sometimes measured indirectly through the three quality constructs. However, the concept of e-government service effectiveness has been adapted, based on the DeLone and McLean (2003) model of IS Success and the empirical work of Petter *et al.* (2008), to develop a causal relationship between *system quality*, *information quality*, and *service quality* and the overall level of *user satisfaction* (Wang & Liao, 2008). The factors for measuring *user satisfaction* will be taken from previous measures of overall *user satisfaction* developed in an e-government context (Seddon & Kiew, 1995; Teo *et al.,* 2008).

### 3.3.3 SERVQUAL dimensions of e-government service evaluation

The SERVQUAL model by Parasuraman *et al.* (1985) is a standardised and reliable model widely used in defining how well a delivered service level matches citizens' expectations (Parasuraman *et al.,* 1985). It is the evaluation of *service performance* after use (post-consumption) which can be influential (characterised by IDT and UTAUT) about the service (Mirchandani & Kailash, 2008). The model developed by Parasuraman *et al.* (1985), SERVQUAL, has five dimensions—tangibles, reliability, responsiveness, assurance and empathy—that are used to measure the gap between *customer expectation* and *customer perception* (i.e. the disconfirmation model of service quality).

The instrument was endorsed by Pitt *et al.* (1995) as an appropriate instrument for measuring the *service quality* of the IS function. The focus on the product rather than the service was noted in most IS effectiveness measures for which there is the probability of not measuring IS effectiveness properly if IS service quality is not included. In the IS literature, several researchers have concurred that service quality *should* be part of IS

effectiveness evaluation measures (Kettinger & Lee, 1995; Li, 1997; DeLone & McLean, 2003).

Van Dyke *et al.* (1997), however, query the issue of including the use of different scores to measure the expectation gap. The unstable dimensionality of the SERVQUAL factors and the difficulty of using a single instrument across industries led VanDyke *et al.* (1997) to question the applicability of SERVQUAL. In terms of its psychometric characteristics, it has been suggested that an instrument for service perception is better than using a score based on the difference between perception and expectation. Van Dyke *et al.* (1997) concluded that it is preferable to use a perceptions-only method.

Despite this and other critiques of SERVQUAL, the model does provide guidance for measuring the quality of a service through citizens' perspectives. Its logic could thus be relevant for measuring the effectiveness of e-government services. The SERVQUAL scale was tested in the IS context by several researchers (Kettinger & Lee, 1995; Pitt *et al.,* 1995) with results showing slight changes in dimensions: the tangibles dimension, addressing infrastructure such as hardware and software; reliability, focused on dependability; responsiveness, addressing the degree to which user demands were accommodated; assurance, addressing the service provider possessing the knowledge to do the job well; and empathy, considering whether or not information systems had the users' best interest at heart. In an e-government context, *service quality* should include assurance, reliability and empathy, whereas *system quality* addresses tangibles and responsiveness.

### 3.3.4 Summary of theoretical perspectives: Towards a citizen-centric model for e-Government Effectiveness

From the discussions above and from taking a careful and deliberate look at the nature of e-governments in developing countries, key components of e-government and a conceptual evaluation framework for assessing e-government services is hereby proposed. These key components and the framework are based on the three models: UTAUT, the Updated IS Success Model and the Service Quality Model (SERVQUAL). The proposed

framework consists of two major effectiveness dimensions (Figure 3.3) including (a) S*ervices Expectations* and (b) *Facilitating Conditions*. Each dimension consists of several sub-dimensions for better measuring e-government services from citizens' perspectives. The framework will be applied towards evaluating three key elements derived from the service encounter viz. e-government services, usage and satisfaction. Although usage and satisfaction are conceptually slightly different, in an e-government environment they are related. It is anticipated that satisfaction measures of e-government services will provide an indication of e-government effectiveness. The dimensions are synthesised under citizen perspectives and government perspectives.

Based on the fact that the use of e-government entails adoption of technology, the researcher at this particular point looked for the direct determinants of the adoption of e-government services appropriated from UTAUT, and for that purpose defined dimensions as Service Expectations and Facilitating Conditions.

Since the empirical evidence to support UTAUT does not assist scope of this research, the dimensions of this research are not UTAUT-equivalent. As a matter of nature, citizens and government processes for the adoption of technology are different and follow different dynamics. In addition, the relationship between citizen and government technology adoption suggests a state of interdependence that UTAUT renders difficult to frame. Henceforward, UTAUT concepts are augmented with notions from other fields of study, specifically Information Systems (IS) and Service Quality. This therefore leads to definitions of the dimensions[3] as follow:

- Service Expectation is a direct determinant of *behavioural intention* or *intention to use* the technology. This will merge performance and effort expectancy together with social influence*;*
- Facilitating Conditions are a direct determinant of *behavioural intention* or *intention to use* the technology.

[3] It is useful to recall here that: "***Performance expectancy*** *is defined as the degree to which an individual believes that using the system will help him or her to attain gains in job performance.* ***Effort expectancy*** *is defined as the degree of ease associated with the use of the system.* ***Social influence*** *is defined as the degree to which an individual perceives that important others believe he or she should use the new system.* ***Facilitating conditions*** *are defined as the degree to which an individual believes that an organization and technical infrastructure exist to support use of the system" (Venkatesh et al., 2003:447-454*

## 3.4 Initial theoretical framework

The conceptual framework can now be extended to show how e-government service effectiveness can be evaluated. The framework is intended to cater to the evaluation of user satisfaction with the service encounter. Use and user satisfaction are conceptually slightly different, but in an e-government situation they are being integrated because it's assumed that to be satisfied, one should, as a minimum, use the service. In this proposed framework, user satisfaction with e-government services is expected to provide an indication of e-government service effectiveness. Hence, it is anticipated that strengthening of service expectations and the broadening of facilitation conditions for e-government systems will favour the effectiveness of e-government service in Tanzania (Figure 3.3)

In terms of the proposed model: the performance of e-government systems, the skills or expected effort required to utilise e-government systems, and the benefits of using an e-government system collectively determine citizens' *service expectations.* This in turn is a determinant of citizens' *intention to use* and as a result, *actual use* (shown by *user satisfaction*). Parallel to this, e-government's legal environment, infrastructure for e-government systems and organisational efforts will determine the *facilitating conditions,* further determinants of a citizen's *intention to use* (and hence *user satisfaction*).

The conceptual model suggests how the *user satisfaction* of e-government service in Tanzania would be determined. This will be through matching *Service Expectation* from the citizen side with *Facilitating Conditions* from the government side, *w*hich enables the use of the services from the government (Figure 3.3).

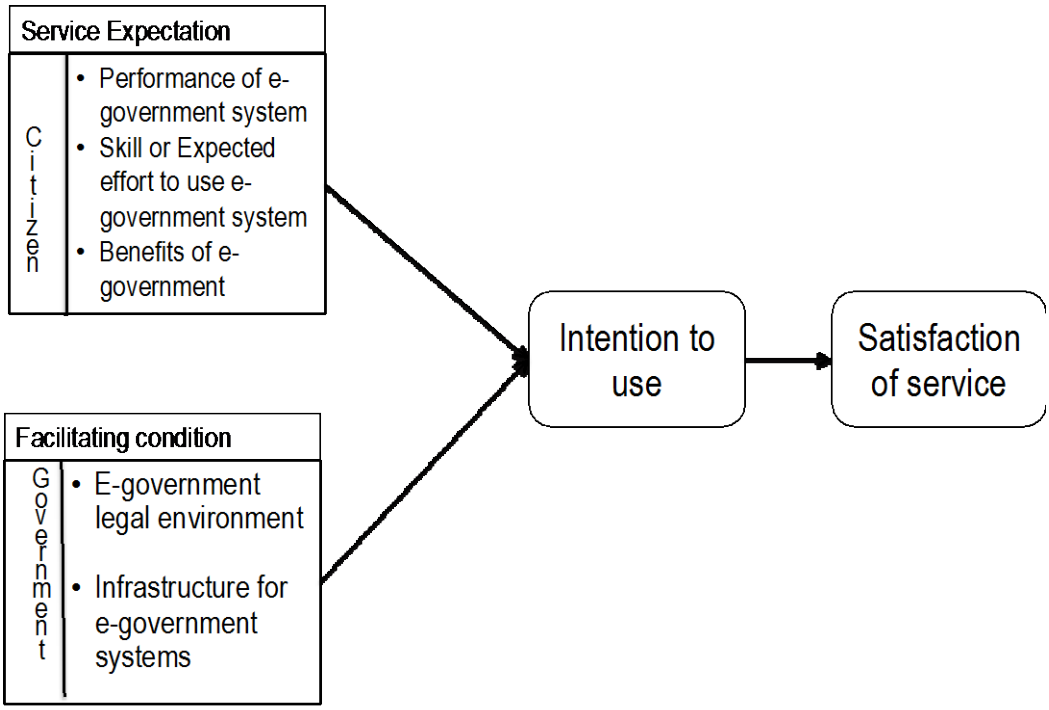


**Figure 3.3: Research conceptual framework for evaluating e-government service effectiveness (source: author)**

Table 3.3 below provides the descriptions of the proposed model dimensions serving as an evaluation framework for e-government service effectiveness.

**Table 3.3: Framework of dimensions for e-government service effectiveness (source: author)**

| E-government service effectiveness dimensions | Description | Reference |
|---|---|---|
| Service expectations | Service expectations (the term *expectations* is derived from the service quality literature[4]) is the product of performance expectations and use behaviour of e-government services. | Venkatesh *et al*., (2003); Parasuraman *et al,.* (1988) |
| Performance of e-government system | Performance of e-government systems relates to the extent to which an individual perceives that using e-government systems can facilitate improving his/her performance. | Venkatesh *et al.,* (2003) |
| Skill or expected effort to use e-government system | Measures the degree to which an individual perceives that an e-government system will be easy to use. | Venkatesh *et al.,* (2003) |
| Benefit of using government system | Represents the value of using an e-government system. | Parasuraman *et al.* (1988) DeLone & McLean, (2003) |
| Facilitating conditions | Product of organisational culture, legal environment infrastructure and initiatives towards using e-government services. | |
| E-government legal environment | Regulations and policies pertaining to the use of e-government services. | |
| Infrastructure for e-government systems | ICT-related infrastructure that consists of multichannel services that must be provided to related stakeholders for accessing the e-government services. | Venkatesh *et al.,* (2003); Quirchmayr, Funilkul & Chutimaskul, (2003) |
| Intention to use | Intention is an immediate predictor of behaviour. | Verhagen *et al.,* (2006); Venkatesh *et. al.,* (2003); Ajzen, (1991); Davis, (1989). DeLone & McLean, (2003) |
| User satisfaction | User satisfaction may be defined as the extent to which citizens believe the services available meet their requirements (service-need fit). It is a means of measuring citizens' options of | DeLone & McLean, (2003); Ives *et al.,* (1983). |

[4] "Expectation" is desire or want of citizen, that is what they feel the government (service provider) should offer

| | | |
|---|---|---|
| | the e-government service. | |

## 3.5 Summary

This chapter has outlined the philosophical paradigm stance of this research and the research framework. Based on the research problem, aims and intentions, the philosophical stance for this study has adopted the interpretivist paradigm. The three theoretical models (UATUT, the IS Success Model and Service Quality Model) which underpin this study were outlined. Finally, this chapter presented an initial framework and outlined the purpose for this framework. The next chapter presents the study design and research methodology.

# CHAPTER FOUR

# RESEARCH METHODOLOGY AND DESIGN

## 4.1 Introduction

The preceding chapter situated this research within a theoretical framework and presented details of key fundamental concepts. The extant literature detected prevailing issues of concern in the research environment, as well as emerging problems. It positioned this research endeavour within the existing body of knowledge.

As stated in Chapter One, the aim of this research is first to explore the key components of e-government which, when viewed holistically, provide a basis on which the success or effectiveness of e-government may be evaluated from citizens' perspectives in a developing country; and secondly, to develop an evaluation framework for e-government services. The exploration of the effectiveness of e-government services from citizens' perspectives demand an understanding of the interdisciplinary, deductive, holistic, qualitative and cross-sectional nature of the study. In effect, the evaluation of e-government services from citizens' perspectives draws upon a variety of research areas, including the adoption of technology, social sciences, information systems and service management (marketing).

In a scientific enquiry, it is essential that observation and interpretation are conducted within a set of strict guidelines (Babbie & Mouton, 2001:72). In the previous chapter, these guidelines were laid out, while the subsequent steps of this inquiry involve the actual implementation of the research methods themselves. This section emphasises the strategies and procedures elaborated in the data collection techniques, and discusses approaches for the analysis of data. The implementation of these strategies is directed at finding acceptable responses to the primary research question.

## 4.2 Research design: exploratory strategies

A *research design* is a plan or strategy that moves from the underlying philosophical assumptions to specifying the selection of respondents, the

data-gathering techniques to be used and the data analysis to be done (Nieuwenhuis, 2010).

From a methodological perspective, data collection may be approached in three ways, either 1) through a qualitative approach or 2) through a quantitative approach or 3) through a mixture of both approaches. A *quantitative approach* is largely aligned to the positivist school of thought and, as discussed in the previous chapter, this comprises regularities, casual laws and explanations of an objective world (Mackenzie & Knipe, 2006). However, given that the nature of this study is exploratory, the study is founded on interpretative principles, thus leading to an examination of qualitative methodological options as being more suitable to the phenomena under examination.

According to Goldkuhl (2012), *qualitative research* is the approach that makes most sense from the interpretivism school of thought. It requires that the researcher adopt an interpretive stance to understand the phenomena being studied. Through an interpretive stance, a qualitative methodology with which to undergo this empirical study was selected.

In conducting this research, the conceptual framework as presented in Figure 4.1 was used as the basis of study, providing the grounding for evaluation of e-government service effectiveness. This entailed the collection of detailed data and the creation of a picture of perceptions, uses, attitudes, reactions and environments (Wiersma, 2000).

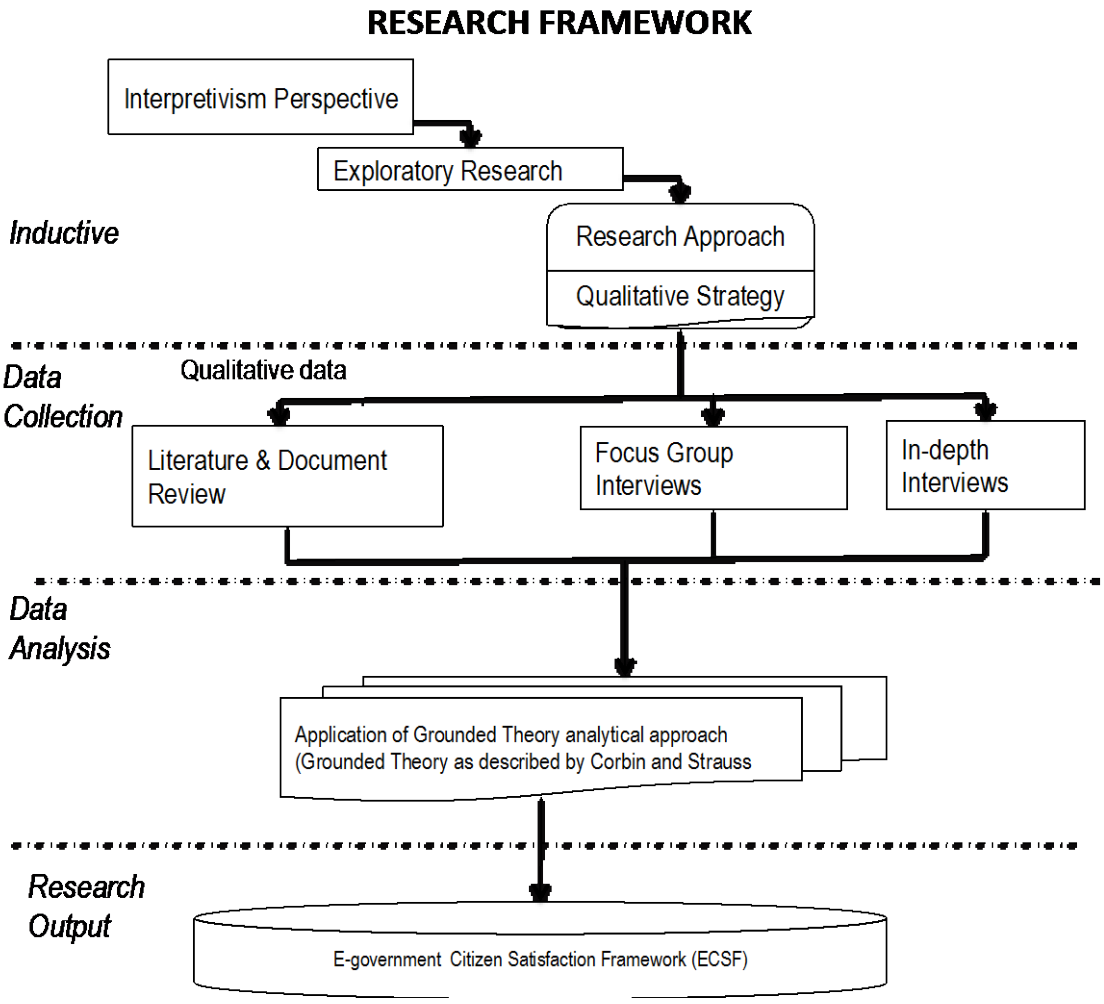


**Figure 4.1: Research design (source: author)**

### 4.2.1 Qualitative research assumption

*Qualitative research* defines phenomena in words instead of numbers and has as its centre the goal of developing an understanding of human systems (Corbin & Strauss, 1998; Hull, 1997; Savenye & Robinson, 2004; Wiersma, 2000). It includes an investigation process by which the researcher gradually makes sense of a social phenomenon by constructing, comparing, replicating, categorising and classifying the objects of study (Miles & Huberman, 1994). *Descriptive analysis* is its origin and it applies an inductive process of reasoning, moving from specific situations to general conclusions (Wiersma, 2000). An analysis of the methodological literature (Myers, 1997; Marshall & Rossman, 1999; Merriam, 2002; Savenye & Robinson, 2004; Wiersma, 2000) underlines the basic characteristics of and reasoning behind qualitative inquiry:

- It occurs within a natural setting, exclusive of manipulation. It is process-focused research, emphasising that behaviour should be reviewed in the setting in which the subject operates. Phenomena should be viewed holistically and not experimentally examined or measured in terms of quantity, amount, intensity or frequency.
- Its findings are holistic and provide a rich and dense description of a social phenomenon, and may contain quotations from the data illustrating and supporting the findings (Denzin & Lincoln, 2003).
- It is not tightly pre-figured research but instead is flexible, evolutionary and emergent, avoiding both a priori assumptions and conclusions. The interpretations are discussed with human data sources because it is subjective realities that the researcher attempts to reconstruct (Merriam, 1998).
- Multiple methods in qualitative research are commonly used: these are interactive and humanistic and involve detailed and rich descriptions of human behaviours and opinions. In qualitative research, the insights of those being studied are important as they are measures of the reality of those being studied. Multiple realities that an individual constructs are also allowed in their environment.
- It is basic to this approach that interpretation goes beyond numerical data. Expressive language and the presence of voice, which offers 'flavour', are also noted, while the level of insight of the research is a measure of success. The substance is of multiple forms of evidence and coherence of the interpretation.

Furthermore, in qualitative research, if the understanding of the phenomenon is the primary interest, then the researcher will have many options of methodology, the most popular being *grounded theory*, *case study*, *ethnography* or *interpretive study*.

### 4.2.2 Qualitative research rationale

The question that a researcher endeavours to answer should dictate the selection of methods used (Savenye & Robinson, 2004). A qualitative research approach is adopted in this study because it supports the development, and fuller understanding, of e-government service evaluation. Qualitative research emphasises viewing phenomena holistically in their

natural settings, as this contributes to the understanding of the context within which the participants act, and the influence that this context has on their actions (Denzin *et. al.,* 1996). This study focused on the participants' perspectives on the meaning of government process and the researcher understanding of e-government services. From this focus, a qualitative approach was determined as most likely to account for the complexity of group behaviours and reveal interrelationships among multifaceted dimensions of group interactions. The necessary processes in this study include investigating and documenting in detail the factors and values that users perceived to be affecting citizen actions. The researcher opted to use face-to-face interaction, as is allowed in qualitative inquiry, so as to understand these deeper perspectives (Marshall & Rossman, 1999). Although in most interpretations of qualitative research, generalisation is not allowed, the "context-sensitivity" of its naturalist paradigm contributes to the understanding of phenomena on which this study is concentrating (Wiersma, 2000).

Generating comprehensible and experientially trustworthy research results is the goal of qualitative research. These results could conceivably improve existing practices, rather than simply measuring the value of a programme. This illustrates that understanding the process by which things happen in a particular situation is of greater importance in qualitative research than comparing it rigorously with other situations (Maxwell, 1996). Qualitative analysis is frequently deductive and interpretative, and findings are richly descriptive, often used to create or expand on theory (Merriam, 1998). Data analysis consists of analysing texts, developing themes, and finally, stating the meaning of the findings (Corbin & Strauss, 1990; Creswell, 2005) relating to the research aims and objectives.

A qualitative inquiry is considered appropriate for this study because of the fact that this research not only deals with the measuring of e-government services but also desires to better understand the practice, which anticipates successful contributions to the deployment (*and* improvement) of e-government services.

## 4.3 Research methods and data capturing procedures

As discussed in section 4.2.1 above, *qualitative research* can be associated with an interpretivist research stance (Choudrie & Dwivedi, 2005). Thus, it employs multiple methods, both interactive and humanistic. These methods are described in detailed human behaviours and opinions for capturing data. Aligned to that, this empirical study used multiple methods of research: in-depth interviews, focus groups, websites and documentation.

### 4.3.1 Selection of research informants

Based on the nature and aim of this research, the broader group of study informants which were to be selected initially, are defined as follows:

The two groups of research populations were 1) government officials who were knowledgeable of e-government services and had in-depth understanding of the government business operations; and 2) citizens who were users of the e-government services.

Based on the above, the following specific categories of study informants were identified:

- managers or directors of ICT or IT who oversee operations and have either direct or indirect responsibility for the e-government services;
- IS or IT managers involved in the development, maintenance and support of e-government services in Tanzania; and
- citizens who used e-government services, grouped according to the service used.

This group of informants was subsequently extended to include four consultants who had experience with e-government. As compared with private sector service experience, these consultants presented a broader range of e-government experience, assisting the researcher to more fully understand e-government and e-government services in Tanzania. Table 4.1 provides an overview of the background of the informants who participated in the study.

**Table 4.1: Background of informants**

| Category | Number of respondents | Percentage |
|---|---|---|
| Directors of ICT | 14 | 12.7 |
| IS/IT Managers | 13 | 11.8 |
| IS/IT Officers | 4 | 3.6 |
| e-Government Users | 79 | 71.9 |
| Total Participants | 110 | 100 |

In qualitative research, it is possible to work with a small number of informants who are purposively selected on the basis of valid criteria. According to Blaxter, Hughes and Tight (2001), this kind of purposeful selection involves choosing distinctive or interesting cases; the researcher can select informants on the basis of his own knowledge of the population, its elements and the nature of the research aims (Babbie & Mouton, 2001:166).

Given the research aim three specific services that are being provided by the government electronically and have been run for at least one full year were considered: 1) the Centralised Admission Service (CAS), a service provided by the Tanzania Commissions for Universities (TCU); 2) Customs Systems, run by the Tanzania Revenue Authority (TRA); and 3) the Land Management Information System service, offered by the Ministry of Land Management and Human Settlements.

### 4.3.2 In-depth interviewing

In qualitative research, the data collection strategy that dominates is in-depth interviewing. *In-depth interviewing* is a technique of collecting data which can be described as a purposeful, guided conservation between two people with the intention of gathering descriptive data in the subject's own words (Bogdan & Biklen, 2003). A great deal of information is extracted from in-depth interviews in qualitative research, through guided intensive conservations with respondents. In accordance with the assumptions of qualitative research, the participant perspective on the phenomenon of interest should

unfold as the participant views it, and not as the researcher views it (Marshall & Rossman, 1999:108).

In-depth interviews were targeted, and focused directly on the subject: e-government services. These 'conversations' were a very useful technique to collect large amounts of contextual data which provided for immediate follow-up and clarification. Further, the data was collected in a natural setting, facilitating a discovery of the nuances of a culture (Marshall and Rossman, 1999; Yin, 2004).

Given the multidisciplinary nature of the study, it was very important to have a degree of systematisation of questioning (Marshall and Rossman, 1999). The interviews were conducted using the conceptual framework (Figure 3.3) as the interview guide. The conceptual framework depicted the key issues underpinning the phenomenon identified within the research problem domain and also synthesised the relevant literature in the context of this study. This consequently provided a set of issues to guide the interviews. However, because of the in-depth nature of the interviews, the respondents were allowed to provide more detailed explanations where they felt it necessary. Thus the elements of the conceptual framework simply served as the basis for framing the initial interview questions, which then allowed for further probing questions. This helped to manage and direct the interviews to the relevant issues that concern this research. This applicationof interview technique is consistent with Krauss et al., (2009:248) who argued that "the researcher must, through his or her deep understanding of the topic, be able to pose questions that will allow both the researcher and the respondent to explore the topic together".

***The interview schedule***

All the interviews were conducted at the interviewees' premises so as to maximise convenience for the interviewees. The time allotted for each interview was approximately 60 minutes (one hour) although in some cases the interview took longer. In all interviews, the researcher initiated the conversations by introducing herself, followed by a brief explanation of the

research aim, followed in turn by the asking of questions[5]. All respondents in all cases cooperated in providing sufficiently detailed answers to each question. All the interviews were recorded, transcribed and prepared for analysis.

### 4.3.3 Focus group discussion

A focus group is another technique for collecting qualitative data: a small, homogenous group comprised of targeted individuals whose points of view address a selected topic (Krueger & Casey, 2000; Vaughn, Schum & Sinagub, 1996).

Focus groups are used for many purposes, including the evaluation of related research and the stimulation of new ideas and concepts (Langford & McDonagh, 2003). There are various ways of conducting focus groups, including participation in 'creative participant activities', questionnaires using 'mood boards' or collages, or just 'focus group discussions' (Langford & McDonald, 2003:23-24). This method is rich, as it can be applied both to study the content (that is, to gather what the group talks about), and to study the interaction (that is, to gather how the group acts). What the group thinks about a phenomenon is more vital than what an individual thinks, and that is the main point of these focus groups. The assumption in this technique is that individuals develop their opinions within a social context by talking to other people (Preece & Maloney-krichmar, 2003).

Focus group discussions were conducted with citizens who were users of the Tanzanian e-government services. At the beginning of each focus group, the participants were advised of the topic aim and the information required from them. Participants were then divided into smaller discussion groups, and given between 30 to 40 minutes for discussion. A focus group guide (Appendix B.3) was also provided to each group to facilitate discussion. A joint group discussion was then convened, and each group was asked to present their observations for discussion. This approach not only allowed participants to actively participate in the discussion, but it also facilitated

[5] Interview Questions – Appendix B.1

thorough discussion and constant probing. The average duration of the focus group discussions was 120 minutes.

***Selection of focus group participants***

Focus group participants are chosen on the basis of their individual characteristics (relative to the topic) through the purposive sampling of participants belonging specifically to identified groups (Morgan, 1998). The sample size may vary between the following formats of the focus group: the mini groups (between four to six participants); or telephone groups (using telephone conferencing systems); and full groups (having between eight and ten participants) (Greenbaum, 1998). In this e-government investigation, the full group format was selected as most suitable, because it engages with a substantial number of participants over a reasonable length of time.

Participants of the focus groups were drawn from the users (citizens) of each selected service: Central Student Admission services (CAS), Customs Services, and Land Management Information Services (LMIS). As shown in Table 4.2, 96 users (citizens) of three selected services were chosen. A more detailed description of focus groups is illustrated in Table 4.2 below. These focus groups were conducted during January-March 2013, and the processes followed in participant selection and related ethical considerations are discussed in detail below.

**Table 4.2 Focus groups**

| **Service** | **Groups** | **No. Users** | **%** |
|---|---|---|---|
| Central Student Admission Service (CAS) | 3 | 25 | 26 |
| Custom Services | 5 | 32 | 33.3 |
| Land Management System (LMIS) | 4 | 21 | 21.9 |
| Mixed Users | 2 | 18 | 18.8 |
| **Total** | **14** | **96** | **100** |

### 4.3.4 Documentation

*Documentary research* is another technique of collecting data in qualitative research which can offer some credible data for research. Mogalakwe (2006) prescribed that the documentary method is the technique used to categorise, investigate, interpret and identify the limitations of physical sources, most commonly written documents, whether in the private or public domain. Lehnman (2003) stated that document collection is about learning from things. Though intentionally recorded, documents are not just produced for research purposes, but are naturally occurring objects with a concrete or semi-permanent existence, informing us indirectly about the social world of the people who create them (Mogalakwe, 2006). Therefore, the collection of documents is also important in qualitative inquiry as it provides easy and low-cost access to information, letting the qualitative researcher explore multiple voices and conflicting interpretations from a material culture that is more permanent than the spoken word and which can provide further historical insight.

The documents collected for this research included the following: government policy and procedure documents, e-government strategy plans, annual reports, e-government project reports, and several other publications related to the phenomenon under study. These were collected to validate the respondents' perceptions. In addition, the researcher also gathered internal reports, including budget reports and minutes from government officials, as well as websites.

### 4.3.5 Website content

Analysis of *website content* is another strategy of data collection integrated into this research. This was done to gain an overview of the state of e-government in Tanzania and ensure that evaluation of e-government services was a significant requirement of the country. Thirty-five government websites accessible to citizens were identified during this study[6]. The websites were used as sources of data as well as evidence of e-government services in the country. The websites were evaluated using the World Bank's e-government

[6] Appendix C.2: List of government websites

maturity model (InfoDev, 2002) to identify available services and general maturity stages. The World Bank's e-government maturity model consists of three stages: 1) the publishing of government information; 2) government interactions with citizens; and 3) transactions conducted and completed online by citizens. These phases are not dependent on each other, nor is there a need for one phase to be completed before another can begin, but conceptually they offer three ways of thinking about the goals of e-government. Criteria can be use as measurement to assess each phase of the website[7].

Thirty-five government websites were analysed, as shown in Appendix C.2 All 35 websites were accessible at the time of analysis and the maximum possible total score for each website was 21 (Appendixes C.3-6). This analysis revealed that, currently in Tanzania, there are quite a number of services provided electronically, although most of them are in the information stage, only a few in the interaction stage, and very few, if any, in the transaction stage. This indicates that, while e-government has been implemented, the need to evaluate e-government services is significant, as it is necessary to explore the reasons why services are predominantly in the information stage rather than the transaction stage.

### 4.3.6 Transcription of interviews

The transcribing of recorded interviews followed after each interview concluded. The procedure followed after transcribing involved three steps to ensure a high quality transcript was derived: first, the first transcripts of the interviews and the audio recordings were given to a colleague who listened and checked for mistakes; secondly, to ensure accuracy, the researcher listened to the recorded interviews several times before coding the interview transcripts; and finally, as the transcriptions were used as a centre for emerging the higher-order narrative, the listening to recorded interviews was undertaken parallel with the coding process to avoid ambiguity in the transcribed text.

[7] Appendix C.4: Website analysis framework

## 4.4 Data analysis

Given that the type of data collected in this study is qualitative and informed by principles of interpretivism, various questions arose concerning how to analyse data. Henn,*et. al.,* (2006) assert that there are no clear rules or procedures for analysing qualitative data, due to the fact that there are numerous qualitative analytical approaches. However, the absence of rules liberates a researcher to apply any of the approaches. The important issue here is that a researcher should be aware that the adopted analytical approaches which have been successfully applied by other researchers can provide both a useful framework as well as valuable knowledge. The researcher found a number of analytical approaches: hermeneutics or interpretive analysis, narrative and performance analysis, discourse analysis, grounded theory analysis, content analysis and cross-cultural analysis.

The analytical approach must consider the pragmatic interest of the underlying research objective which must be addressed via the type of data collected. This necessitated the identification of analytical methods which are the most appropriate for analysis in respect of the collected qualitative empirical data. As advocated by other researchers (Blaxter *et. al.*, 2006; Mayring, 2000), the nature of the data in this study could have been analysed using content analysis methods. However, a scan of the literature indicates that studies are increasingly appearing which have followed the grounded theory method (GTM) of qualitative analytical approaches and which were successful in doing so. An example of such a study is that of Jones,*et. al.,* (2006) who were evaluating e-government. Charmaz (in Henning *et al.,* 2004) noted that grounded theory as an analytical methodology comprises methods consisting of flexible strategies for focusing and expediting qualitative data collection and analysis. She further suggests that these methods provide a set of inductive steps that successfully lead the researcher from studying concrete realities to rendering a conceptual understanding of them. It is in this process of converting “concrete realities” to “conceptual understandings” that analysis by the grounded theory tradition works. The researcher examined a completed research project on IS effectiveness evaluation that applied the grounded theory methods as an analytical approach over at least 10 years and found that grounded theory methods were widely adopted

(LaRossa, 2005). Having considered in-depth the grounded theory method as an analytical approach, this study opted to use the analytical approaches of grounded theory methods to analyse empirical data. The analysis strategies were thus informed by the following considerations:

- that the evidence consisted mainly of textual data; and
- that the analysis strategy needed to facilitate the development of a framework for evaluation.

### 4.4.1 Grounded theory methods

*Grounded theory* extends back to schools of thought in the 1960s when Glaser and Strauss took a particular approach to the analysis of collected qualitative data. *Grounded theory* is defined as the process for "the discovery of theory from data systematically obtained from social research" (Glaser & Strauss, 1967:2). Accordingly, Bryant and Charmaz (2007b:2-3) distinguished the grounded theory from other approaches, or in other words, they claimed that grounded theory may be used in two unique ways:

First, it may be used as a research philosophy, meaning that the researcher approaches a research question with no *a priori* research framework or theoretical context. The research questions are considered interesting and data is collected relative to the questions. Consequently, the data analysis is employed to support the researchers' contention about how the data may be used in response to the research question.

Secondly, the approaches inherent in grounded theory methods may be used as data analysis methodology (i.e. grounded theory methods as a technique for analysing qualitative data, which involves the process of constant comparison). The constant comparative analytical procedure is the key to this method. The procedure can be carried out in a diversity of ways; however, the general idea is that a manuscript is broken into units of analysis (e.g. a line of text, or a paragraph, or more) and the interpreted meanings among the units come to be represented as categories. At this stage, it is the data that is constantly compared. The categories continually compare themselves as they increase in number and lead to more abstract categories. The abstracting of categories is a continuous process, until a 'core' or central

category is conceptualised. This process can also be done via computer. There are electronic databases which have been developed to facilitate this process of managing data for constant comparative analysis and, for that matter, even ordinary word processing programmes are useful in this regard (Corbin & Strauss, 1990b).

As mentioned above, a key constituent of the analysis approach is a constant comparison method of coding and analysing data, with the analytical procedure consisting of three stages:

- *Open coding* (the examining, comparing, conceptualising and categorising of data) is the first step of the analytical process, whereby the original text is segmented and the data is examined, compared, conceptualised and categorised (Corbin & Strauss 1990a). The small segments are re-read to generate codes, concepts or categories that account for the data under analysis. Close reading of the data opens up the text, revealing the thoughts, ideas, and meaning contained therein.
- *Axial coding* (the reassembling of data into groupings based on relationships and patterns within and among the categories identified in the data) is the procedure that starts shortly after beginning the open coding with the intention of putting the data back together for the purpose of making connections between categories. Applying a coding paradigm here assembles the broken down data in the open coding. This procedure consists of sets of relationships: causal conditions, phenomena, contexts, intervening conditions, action /interactions and consequences. The details of each are explained by Charmaz (2006:60-61), although Corbin and Strauss (1990:59) mention that the coding procedures are not fixed like mathematical procedures, but instead allow for flexibility in certain situations.
- *Selective coding* (identifying and describing the central phenomenon, or 'core category' in the data) (Dey, 1999; Strauss & Corbin, 1998) is the stage where refinement is continued at a higher-level abstraction in order to derive the main category and the central storyline. The main category is a concept that brings all categories together and is of fundamental relevance to the key research question. According to

Corbin and Strauss (1990:120), the researcher may inspect the list of categories to identify if one of them is abstract enough to encompass all that has been described in the story.

Ideally, for easy incorporation of information into categories, each interview needs to be coded before the next interview is conducted. Themes identified through the coding of initial interviews may then be explored in follow-up interviews.

### 4.4.2 Analysis of data

The Grounded Theory Method (GTM) was taken into consideration, with regards to both its positive and negative aspects of analysing qualitative data. The empirical qualitative data for this research was first analysed as follows: the data was interpreted through the combining process of iteration and reflection, an application of hermeneutical techniques (Klein & Myers, 1999). That is, to apply the interactive sense-making process together with analysis of reflection of significance of e-government service effectiveness evaluation. This was facilitated by Quantitative Content Analyser (QCA) software developed by Bytheway (2014). To summarise, the use of GTM analytical process, reflection or contextualisation, and hermeneutic circles, together with the underlying influences of interpretivism formed a cohesive tripartite approach to data analysis and interpretation.

The description of procedure adopted was as follows:

- Interview and field notes are transcribed and the content of the transcripts is reflected on by the application of hermeneutical principles;
- Transcripts are compared with field notes, relevant information drawn from government websites and any documentation provided by the respondents;
- Transcripts are verified for accuracy by replaying the recording and comparing with the verbal interview;
- Data is further reflected upon;
- Coding is conceptualised.

The second strategy was to analyse the empirical data to identify the key components of e-government and thereafter develop a framework of e-government effectiveness evaluation dimensions. This involved the concept of creation which, according to Strauss and Corbin (1998:103), is the first step in developing a framework. Just as Strauss and Corbin (1998) consider the act of conceptualising, this study refers to it as *coding,* the purpose of which is to identify key components and develop an evaluation framework:

*"to provide the researcher with analytical tools for handling masses of raw data; to help analysts to consider alternative meanings of phenomena; to be systematic and creative simultaneously; and to identify, develop, and relate the concepts that are the building blocks"* (Strauss & Corbin, 1998:12-13).

The three coding procedures, as advocated by Strauss and Corbin (1990), were carried out as illustrated below:

Open coding: As mentioned earlier, the analysis was facilitated by the QCA software. Transcriptions were loaded in the QCA and coding was carried out as illustrated in Figure 4.2 below. Transcriptions were divided into chunks (segments) of data with short names that simultaneously summarised and accounted for each piece of data. The developed codes/concepts/categories are presented in Appendix D.

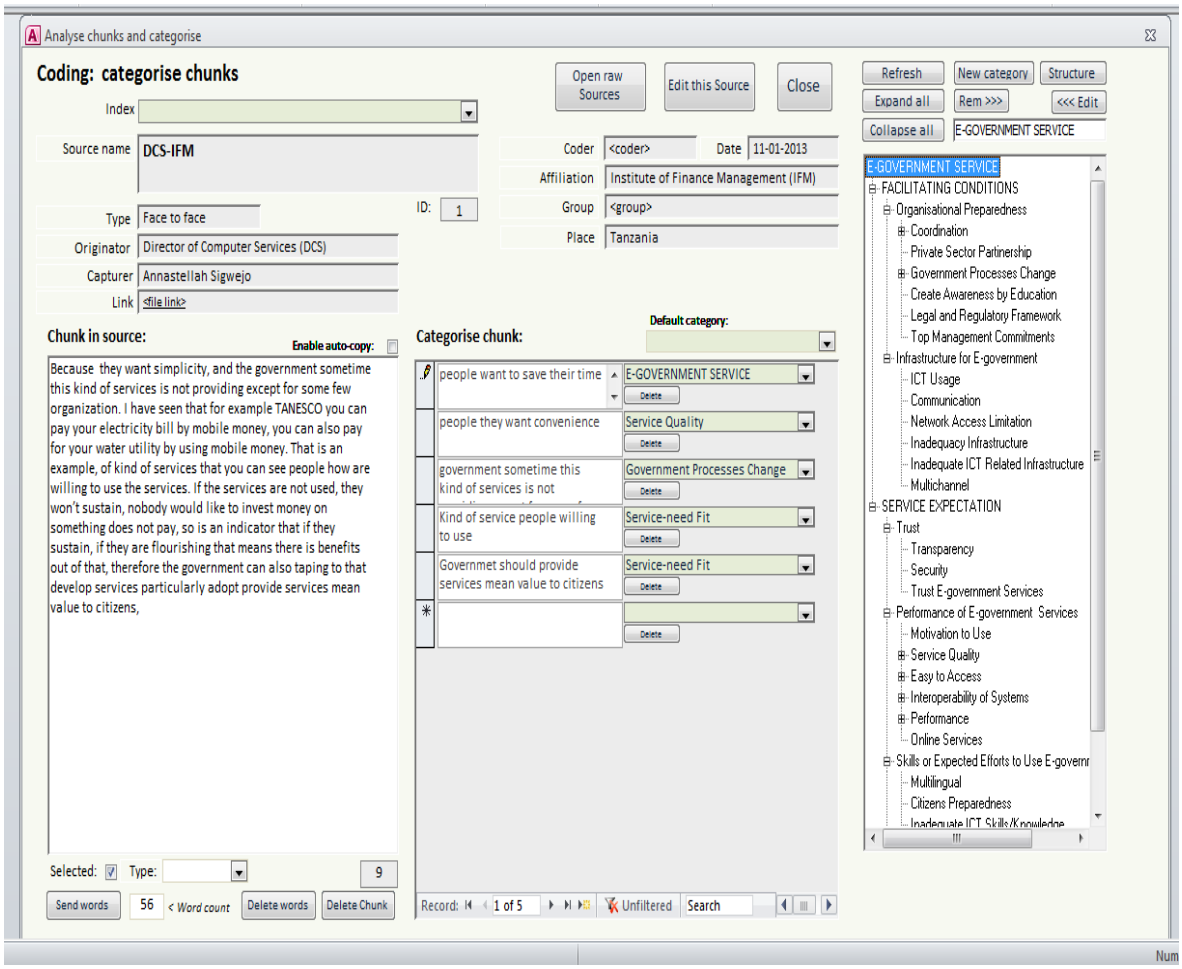


**Figure 4.2: Data entry and the analysis process**

*Axial coding:* In this process, codes were clustered together to identify relationships between or among concepts/codes. In particular, Strauss and Corbin (1990) suggested looking for answers to the questions that pertain to the primary question (i.e. in this case, the development of an evaluation framework). The questions applied here were as follows: What are the dimensions influencing the use of service? Which service dimensions are most influential? How do they jointly represent an evaluation framework? In addition, as LaRossa (2005) suggested, the following questions were continually posed: How do the categories created during open coding relate to one another? How are they linked? How can categories be grouped? In this study, the axial coding process was facilitated by the QCA and the output presented in a tree form, as shown below in Figure 4.3.


**Figure 4.3 Categories arranged in tree form**

In the process of developing the service dimensions, the initial step was to determine the possible relationships between categories by grouping them under common broader categories. For instance, the infrastructure category comprises all related categories grouped under it, as shown in Figure 4.3.

Constant comparison was carried out, comparing the codes (concepts) with each other under the axial code while continually asking such questions as: How do these codes show relationships? How can they be joined to form an evaluation framework? The dimensions which influenced the citizens' utilisation of e-government services were also determined in this process. As a result of this constant comparison process, the following categories, out of 150 codes, were determined: infrastructure, organisational issues, legal issues, performance, trust, end-user skills, user benefits, ease of use, coordination and funding issues. Each of these categories was then classified into two major themes: *facilitating conditions* (on the part of government) *or service expectations* (on the part of citizens).

*Selective coding:* The third stage of coding was *selective coding,* whereby the researcher did not specifically label text as 'selective code 1' or 'selective code 2'. Instead, possible models with different groups of categories were developed, using a variety of possible central categories and arrows to explain relationships between categories and underlying concepts. The identification of the core categories (key components) in this research informed a more substantive framework of e-government effectiveness which identified and integrated the dimensions which influenced citizens' perspectives of e-government services.

***Document analysis***

A document analysis form (Appendix B.4) was used to facilitate the analysis of the documents. Formal documents such as organisational reports, strategies and publications were requested from each of the e-government providers. Other documents such as laws, business cards, newspaper publications and website pages were obtained by the researcher's own initiative. All documents were read and relevant points summarised and prepared for analysis. While formal documents were used to elicit information about the organisations, informal documents such as business cards were used to trace informal issues (e.g. the use of Yahoo, Hotmail, or Gmail accounts to mitigate the unreliability of internal email services). The resulting reports were captured in the Qualitative Content Analyser (QCA) as supporting field notes for the appropriate categories.

### 4.4.3 Computer aided data analysis

The coding process was facilitated using Qualitative Content Analysis software (Bytheway, 2014). Qualitative data Content Analyser (QCA) (Bytheway 2014) (Figure 4.4), facilitated the analysis of gathered data.


**Figure 4.4: Qualitative data content analysis (QCA)**

The initial framework for e-government evaluation guided the coding process. The software was used for management of data and to code, analyse and relate emerging themes. QCA provided a flexible way of comparing concepts and their relationships in the process of determining the dimensions necessary to develop an evaluation framework. It was an essential tool allowing for the recording and analysis of interviewees, interviewers, interviews, and categories; it accommodated the full interview transcripts and worked with a full index of words (a concordance).

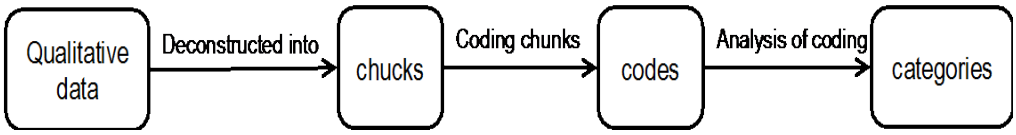


**Figure 4.5: Analytical process**

Furthermore and perhaps most importantly, it allowed the deconstruction of transcripts into *chunks* (i.e. word segments) for analysis of text, then into *denotata,* the abstract ideas that link to a category or meaning unit. The category is the topology in which the result of the analysis is located (See Figure 4.5).

## 4.5 The evaluation of qualitative research outcomes

The evaluation of research outcomes is the final component of the research design. This is concerns the approach that the researcher employs to evaluate the outcomes of the study. It is important to evaluate the research outcomes to ensure that the research is both valid and reliable. Normally, a large number of questions are raised during the process of evaluating the research findings, questions like: Are the research outcomes reliable and valid? Can these outcomes be generalised? Providing answers to these questions has instigated debate in the academic community because of differing views on the subject of qualitative and quantitative research. Most of the qualitative researchers do not agree with the rules by which quantitative studies are judged, believing them to be inappropriate for judging the worth of qualitative studies (Kvale, 1996; Merriam, 1998; Ritchie & Lewis, 2003; Henning *et. al.,* 2004).

While it is difficult to evaluate the accuracy of the outcomes of qualitative research, there are several possible strategies and criteria that enhance the trustworthiness of qualitative research outcomes. *Trustworthiness* is a term applied regularly in qualitative research as a measure of the quality of research. It can be thought of as the ways in which a qualitative researcher ensures the credibility, transferability, dependability and confirmability produced by the research. According to Lincoln and Guba (1985), these can be constructed parallel to the way quantitative criteria of internal and external

validity, reliability and neutrality are established. Each strategy applies criteria such as reflexivity, triangulation and dense descriptions. The researcher is aware of this research audit and prefers to use strategies that speak to the trustworthiness, dependability, and credibility of the research (Creswell, 2007).

### 4.5.1 Credibility

Ensuring the *credibility* of the research outcomes in qualitative research is an important issue, as it establishes the trustworthiness of research (Lincoln & Guba, 1985). As does validity in quantitative research, credibility in qualitative research addresses how research outcomes match reality. Reality, as per the philosophy underlying qualitative research, corresponds to the meaning that people construct within social contexts. Given that qualitative research can have multiple realities, then its validity will not apply to all realities. It is readers who can judge the extent of its credibility based on how they understand the research. There is no single reality to discover, but reality is constructed individually (i.e. personal reality) (Smith & Ragan, 2005).

In the interpretive school of thought, there is no objective truth or reality to which the results of a study can be compared. However, one of the methods to increase credibility is to include the participants of research in checking the outcomes, that is, obtaining data feedback (Kaplan & Maxwell, 2005) and checking the conclusions of the participants themselves. Lincoln and Guba (1985:314) consider member checking of outcomes as “the most critical technique for establishing credibility”.

### 4.5.2 Confirmability of the outcomes

*Confirmability* of the outcomes is the extent to which the research outcomes exclude the researcher’s bias, motivation or interest, but are shaped by the respondents (Lincoln & Guba, 1985). Confirmability is considered as analogous to objectivity, that is, the extent to which the researcher’s awareness accounts for individual subjectivity or bias. This confirmability can be established by research auditing, where a researcher makes the provision for a methodological self-critical account of how the study was conducted. The research-auditing can be made accessible to other scholars if all the

data collected were archived in a well-organised, retrievable shape so that in case of doubt, outcomes can be made available (Shenton, 2004:72). Confirmability in this research has been considered. The outcomes were shaped by the respondents and all collected data were electronically archived in a QCA database which can be easily retrieved.

### 4.5.3 Transferability

Outcomes of research are *transferable* only if findings of the research can be applied to other situations or contexts (Merriam, 1998).

Again, the transferability of the research outcomes only occurs when the outcomes of the research can be generalised - or *transferred* - into a context different from the actual context of study (Merriam, 1998). Transferability is thought of as analogous to external validity, which is the degree to which outcomes can be generalised. Whilst Ritchie and Lewis (2003:265) argue that inferential generalisation, or transferability, is more appropriate to the qualitative paradigm than generalisability, Maxwell (2002) himself refers to *generalisability* as the magnitude to which one can convert the account of a particular situation or population to other persons, times or settings than those directly studied.

One of the major challenges in qualitative research is *transferability of outcomes* because of the subjectivity of the data gathered. This transferability is also a threat to the valid inference, in the traditional thinking about data in qualitative studies. However, transferability can be enhanced by detailed examination of research methods, contexts and assumptions underlying the research. The provision of detailed, rich descriptions of the settings of study by the researcher will enable others to make judgements about transferability.

Since this research is based on the interpretive qualitative paradigm, the appropriate generalisation process matches the inferential generalisation that Ritchie and Lewis (2003) clarified as generalising from the context of the research study itself to other settings or contexts. The researcher, accordingly, is required to document and justify the procedural approach, and explain in detail the critical processes and procedures that have assisted the

researcher in conceiving, shaping and linking meanings associated with those phenomena. Moreover, in this study the researcher has been sensitive to likely biases by being conscious of the potential for multiple interpretations of reality.

While generalisability is sometimes ignored in favour of improving the local understanding of a specific situation, in this study it was considered that providing a rich, thick description[8] of research would allow readers to judge the importance of the transferability of study findings. This is a study that contributes a detailed description of e-government services in Tanzania, a developing country. This knowledge can assist readers interested in applying the study findings in other situations (other African countries, for example). The reader of the research report has to resolve issues of generalisability based on the extent to which the reader's context resembles the actual context. According to Ritchie and Lewis (2003:268), it is a matter of judgement of the context and phenomena discovered which allows others to assess the transferability of the findings to another setting.

### 4.5.4 Dependability

As described by Lincoln and Guba (1985), *dependability* is a way to show that the research outcomes are consistent and whether the research could be repeated. Dependability is similar to reliability, which is the consistency of generating the same findings if the research were to be repeated under the same circumstances. However, if credibility and dependability are tied together in practice, it shows that credibility goes some distance to ensuring dependability. This can be attained through the use of overlapping methods such as focus groups and individual in-depth interviews (Lincoln & Guba, 1985). The outcomes of this research might be replicated with similar subjects in a similar context. This emphasised the importance of accounting for or describing in detail the contexts and situations: this is fundamental to consistency of outcome.

[8] Thick description *refers to a detailed description of a phenomenon that includes researcher interpretation in addition to the observed context and processes. It may also include providing a thorough accounting of the methods and procedures followed during and after data collection*

The use of an audit trail is one strategy to demonstrate dependability (Babbie & Mouton, 2001:278). The audit trail involves an exposition of researcher's methods and data documentation and choices made during research, as well as end results. For dependability, auditing requires rich and elaborative data and research descriptions.

### 4.5.5 Triangulation

Viewing things from more than one perspective is *triangulation*. This includes the use of diverse methods, sources of data or even different studies within the research (Denscombe, 2007). According to Yin (2004:98), "any findings or conclusions in a study are likely to be more convincing and accurate if based on several different sources of information".

This study demonstrated the triangulation process, since it provided multiple techniques of data collection: gathering information for verifying the same phenomena, assessment of evidence from several sources of data, and using the data to build a coherent confirmation of themes (Creswell, 2003:196). Maxwell suggests that gathering information from a variety of individuals using diverse methods reduces the risk of bias and permits a stronger valuation of the validity of the study's explanations (1996).

The researcher sought multiple sources from which to obtain data. The varied techniques of gathering data included in-depth interviews, focus groups, and documentation, including websites, which were all sources of substantiating evidence.

## 4.6 Ethical considerations

Interpretive research in e-government is, by default, social-technical in nature. It is not just about technology and machines, but also about people. In other words, the human element is at the centre of meaning and a major source of insight. Consequently, formal research in this field must comply with ethical scientific practices. This research was designed in such a way to anticipate and minimise any risk to the subjects, by employing voluntary participation in the study with informants guaranteed confidentiality.

The research process complied with research codes of ethics for each of the institutions studied (Saunders *et. al.,* 2009:130). On completion of the study proposal, the researcher satisfied the ethical requirements of the CPUT ethics committee, and was granted an ethics clearance certificate to proceed. Ethical consent for research was also obtained from the government of Tanzania.

In addition to institutional clearances, letters introducing the research, its purpose and value, as well as clarity on how the data would be collected and analysed were sent to participants requesting informed consent to participate. These letters further clarified the level of participation expected from the participants. Protection of the confidentiality and anonymity of the participants, where this was needed, was also undertaken (Ritchie & Lewis, 2003). Ethical clearance letters, letters of consent and individual acceptances of a request to participate are attached in the Appendices.

## 4.7 Conclusion

This chapter clarified and justified the methods within a qualitative research design framework that this researcher employed to allow readers to see how e-government service can be evaluated from citizens' perspectives. The selection of procedures and descriptions of the participants were outlined. The overview of methodology established data collection methods and the analyses that were applied in this research concerning e-government evaluation in Tanzania. Also presented was the constant comparative method with which the collected data was analysed in order to address the specific research questions.

# CHAPTER FIVE

# FINDINGS FROM THE FIELDWORK: E-GOVERNMENT SERVICE EVALUATION FRAMEWORK

## 5.1 Introduction

This chapter provides the empirical foundation in response to the problem of *evaluation of e-government service effectiveness in Tanzania,* as described in Chapter One. The practical element of the main research objective was achieved through the application of the research design, as outlined in the preceding chapter. This chapter presents the findings which emerged through the application of qualitative data analysis methods described in Chapter Four. The findings are based on data categories derived from the open, axial and selective coding processes. The code analysis process in this study was guided by the research objectives and their pertinent research questions. Answering the research questions required that data be coded at two levels. *Level one* involved looking for grounded information from the data which reflected the constructs which drive or motivate uptake of e-government services among the citizens. Therefore, the researcher had to establish codes as they emerged from the respective text narratives, following an *inductive approach* to do so. *Level Two* involved a *deductive approach* which entailed subscribing data elements to codes that were developed *a priori*, being driven by theoretical concepts and the initial conceptual framework. Appendix D presents all categories as constructed from the empirical data.

## 5.2 Citizens expectations and facilitating conditions

A number of categories emerged from the empirical data analysis (Appendix D.1). These categories were further analysed and reduced to 16 categories and two main dimensions which reflect the key components of e-government: Citizens' Expectations (CE) and Facilitating Conditions (FC). As the latter were the key high level dimensions which evolved, they form the basis upon which to report the findings.

The data provided insight into circumstances of utilisation of e-government services in Tanzania. The empirical evidence presented in Table 5.2 depicts the relationships identified between each of the categories.

Findings show that the majority of informants had certain expectations of services and information from e-government channels. When compared against the findings of the website analysis discussed above, it becomes clear that, although most government departments and agencies *seem* to be meeting the service expectations of citizens, citizens expect more advanced services, including payment of their rates and fines electronically, making online applications for licensing, online certification and the ability to contact government officials. With regards to benefits, citizens expect e-government services to lend support to achieving a decent quality of life.

Given the latter, Citizens' Expectations formed a high level dimension comprising concepts which were direct determinants of citizens' intention to use, *and* their ultimate satisfaction with e-government services. The concepts were classified accordingly into two sub-dimensions: f*unctionality of e-government systems* and *motivation to use e-government systems.*

In addition to citizen expectations, the findings further showed a great concern from citizens in respect of conditions which are necessary to *facilitate* the use of e-government, including a combination of elements which either support or hinder their use of e-government services. Facilitating Conditions thus have a direct bearing on usage of the e-system. The findings in this respect are supported by the seminal technology adoption study of Venkatesh *et al.* (2003). These researchers indicated that usage is expected to increase with experience as users of services find multiple avenues for help and support from the government, thereby removing impediments to sustained usage. Hence, Facilitating Conditions will have a significant influence on intention to use and satisfaction with e-government services. Facilitating Conditions is a key effectiveness dimension that encompassed two-sub-dimensions: *enabling infrastructure* and *government preparedness*.

**Table 5:2 E-government services dimensions: findings from fieldwork in Tanzania**

| Category | Sub-category |
|---|---|
| Citizen Expectations | |
| *Functionality of e-government system* | Performance |
| | Service quality |
| | Interoperability |
| *Motivation to use e-government services* | Ease of use |
| | Trust of e-government system |
| | Perceived benefit |
| | Inadequate expertise to manage e-government |
| Facilitating Conditions | |
| *Infrastructure* | Inadequate infrastructure |
| | Access limitation |
| | Multichannel delivery of e-government service |
| *Government Preparedness* | Coordination |
| | Commitments of management |
| | Government process change towards a citizen-centric mode |
| | Funding |
| | Legislation and policies |
| | Awareness of existing system |

Each of the above sub-categories is discussed in subsequent sections.

## 5.3 Functionality of e-government systems

*Functionality* of e-government systems relates to the extent to which citizens perceive that using e-government services would expedite the performance of the required task. Thus, a well-functioning e-government service, citizens believe, would influence citizens' perspectives of e-government services or

influence *usage intention* and *user satisfaction*. In this study's conceptual evaluation framework, this category links to *intention to use* the e-government services and satisfaction. This category is comprised of *performance*, *service quality,* and *system interoperability.*

### 5.3.1 Performance

*Performance,* for this study, is defined as the capability of the e-government services to function adequately.

Results suggested that performance of the services is a significant issue influencing citizens' preference for e-government services, as citizens appreciated its convenient accessibility; savings in time, money and effort; and efficiency of service delivery. Citizens believed that well-performing e-government systems would improve their ability to perform their job, enhance their job performance, and allow them to be more productive or gain more profits. This concurs with the findings of Poister and Thomas (2011) that performance of service exerted a positive effect on satisfaction. Further, good performance of the service works favourably for citizens by minimising stressful situations such as queuing for lengthy periods of time, dealing with uncooperative or unethical employees, and so forth. Furthermore, it was evidenced from the results that service coverage and performance of e-government systems are related and can profoundly influence the citizens' perspectives of an e-government service. A well-performing e-government service would eliminate the need for citizens to travel long distances just to access services. For example, a businessman in Mbeya importing goods from Malawi has to travel to Dar es Salaam and back to process documents. This time-consuming exercise creates additional costs. But if e-government systems throughout the country are performing well, the accessible e-services will save citizens both time and money.

With regard to citizens' health concerns, the performance of e-government has a significant impact: a well-performing service will increase citizens' confidence and assurance that at any time they will be able to communicate with and access health centres without travelling, easily making an appointment. Citizens who are sick can seek and set an appointment without

travelling to and appearing physically at the clinical health centre. For example, according to one interviewee:

> *This kind of service (online) could also be the solution to the traffic jams on the roads. If the people could have access to service online then they will be no much traffic jams, people going to town to get some services. (Interviewee 5, 2013)*

There were further benefits related to the optimal functioning of e-government systems which citizens perceived as having a positive effect in their lives. A reference to the TRA Custom system by one of the interviewees highlights how corruption is negated:

> *With this system we have reduced a lot of cheating, because you can do your payment at any point of cargo entry. (Interviewee 8, 2013)*

> *It helps to avoid forgery, normally before CAS they were using certificate to apply to different institutions, for some of them, they used forgery certificates but now they don't have to use certificates; instead the system gets their results directly from National Examination Council of Tanzania (NECTA), since the system is linked with examination database (NECTA) and The National Council for Technical Education (NACTE). (Interviewee 12, 2013)*

Other issues relating to system performance honed in on the improvement of organisational efficiencies. For instance, one interviewee related the annual problem of registration of multiple selections of students in higher learning institutions:

> *We have been able to avoid multiple selections because before Central Admission System CAS, you could find these applicant applied in more than one institutions, which can even be 7-8 institutions, sometimes, these students can be able to be selected in all those institutions so at the end you find about 8 slots have been occupied by one applicants which you can feel that a certain program is full which in real case is not full, because one*

> *applicant supposed to appear in only one programme. (Interviewee 8, 2013)*

The respondents were also of the opinion that the performance of the system would assist in saving time and money, as exemplified by the following quotes:

> *CAS helps them not to travel from one region to another, from one institution to another institution in search of admission. But now they can go to the Internet or they can use their mobile phone to apply and check if they are admitted. This means that they don't have to travel far away to seek for admission. (Interviewee 8, 2013)*

> *This helps them a lot to saving their money and time, because all of them now regardless of their financial status they can just apply for admission. (Interviewee 12, 2013)*

All of the foregoing align with *performance expectancy* which Venkatesh *et. al.,* (2003) described as the "degree to which an individual believes that using the system will help him or her to attain gains in job performance" in their technology adoption model (Unified Theory of Acceptance and Use of Technology). Adequate performance of the e-government system results in appropriate levels of service, which in turn appears to be a key indication of a citizen's usage intentions. The outcomes suggest that the intention to use e-government services is likely to increase if citizens perceive the services to be performing well. These results are in accordance with other studies, like that of Alawadhi and Morris (2008). Carter and Bélanger (2005) also confirmed that citizens' intention to use the e-government service is influenced by the performance of service through ease of use.

These findings indicate that it is imperative that the performance of e-government services should be attractive to citizens, meaning that services are easy to navigate and responses to enquiries come quickly. Citizens will not be enticed to use a service if it does not allow for quick and easy usability, thereby decreasing user intention to utilise e-government services.

Service quality was also considered one of the ingredients linked to service performance. The following section discusses the components of service quality in service performance.

### 5.3.2 Service quality

*Service quality,* in this study, is described as the comparison of expectations of the service with the performance.

The data shows that service quality is the antecedent to satisfaction with the services provided. Citizens considered service quality as a primary dimension influencing their intention to use e-government services. Some participants believed that if the quality of the service was good, many citizens would use the service. Service quality—comprised of issues such as characteristics of information, ease of website, and other general service issues—is deemed as involving a comparison of expectations of service with the actual performance of the service (Jiang *et al.,* 2012).

For excellence in service quality, information should be current, regularly updated, and have relevance at the time a citizen is seeking information. Websites also must be up to date as the alternative, poorly maintained websites with outdated information and dead links reduce citizen utilisation. During the analysis, an unfortunate fact was outlined: websites lacked information that would have been useful for the ordinary citizens of Tanzania - progress on retirement benefits, for example. Instead, much of the information focused on speeches and budgets, and names of Ministers and other leaders. Moreover, the information provided is difficult to use, because it is written in English, while Kiswahili is the most widely spoken language in Tanzania. Several respondents commented on language:

> *It is hard to understand because of the language. (Interviewee 14, 2013)*

> *Language is another big issue, most of our websites are in English. People do not understand the language of the website. (Interviewee 6, 2013)*

Other issues include information obsolescence and incompleteness, as this

quote exemplifies;

> *Yah! Service quality, up to date information, you see some time, you may even visit one of government websites and you will see or you find that it was updated one or two years ago, and that means all the information is useless, you have seen it one year ago and it is still the same. (Interviewee 9, 2013)*

With regard to the general characteristics of the service delivery, there were several issues that emerged: responsiveness, usefulness and convenience. Poor response to user emails engendered great concern and may explain why citizens would avoid using e-government services. Convenience, we must note, is an important factor in electronic service delivery.

### 5.3.3 Interoperability of systems

*Interoperability of the systems* was another issue emerging from the data analysis. Interoperability or harmonisation of e-government systems is the linkage or integration of all e-government systems, enabling the various systems to 'talk to each other', so to speak. Interoperability, therefore, directly impacts on performance of services.

Government officials, in particular, confirmed the importance of harmonising e-government services. They believed that their e-government services should be interoperable with other services, even external services. For example, they should be able to exchange information over a heterogeneous networking system in a meaningful and useful manner. The government in Tanzania has a large number of government departments which, if able to communicate with each other, could assist in resource utilisation as well as simplification of service delivery. These findings justify the need to evaluate e-government in Tanzania to devise ways to improve the interoperability of systems.

Citizens observed that the implementation of e-government in Tanzania has been carried out in 'silos', with few or no interoperability standards for e-government services to follow. Different government agencies are designing and implementing systems on their own, for example NIDA (National Identification Authority), BRELA (Business Registrations and Licensing

Agency) and RITA (Registration, Insolvency and Trusteeship Agency). All these are government entities prepared to serve Tanzanian citizens. However, the lack of interoperability of these systems is detrimental, as some of the respondents commented:

> *We need to have a way whereby all the systems we build could talk to each other. All these systems, which we have, were built in silos. At the apex there should be the engineering of these e-government systems. (Interviewee 10, 2013)*

> *There are a lot of services but they are not harmonised, there's no harmonisation. There are so many entities, which deal with ICT, but every entity moving on its own direction, we have NIDA coming up with a system one would think that they must have relation with those registering RITA, BRELA, passport system so one will think that at list one day all these will be harmonised. (Interviewee 6, 2013)*

The findings reveal that there is a need to have a unique identifier that would link together communication among all governmental services. This is exemplified by several interviewees:

> *All the systems (e-government services) were built in silos in Tanzania, the implementation of these systems is in silos for example National ID Are there any platforms that we have prepared to host this? How many Government institutions have put in place systems, can this systems talk to each other, and can National ID link to this systems? (Interviewee 10, 2013)*

> *Any government institution which acquired a system should at list have a common field for verification as its minimum requirement. That could have been a starting point. That means it is supposed to have data model. Every government institution should have a data model. For example the license system in TRA (Tanzania Revenue Authority, should have linked with customs system. So data model is very important because we will be able to have some identifier on whichever system is built" (Interviewee 4, 2013)*

> *We need to have a unique identifier, when you put a system in place, you should be able to link with other systems. This idea came during a period when we were designing our system and were expecting that NIDA when was completed it was going to provide unique identification for each citizen, which will be used anywhere. (Interviewee 9, 2013)*

Different systems from different departments must link to each other to improve the overall performance of service. Improving the performance of the system reduces duplication of data and diminishes inconveniences for users. From the findings, participants indicated that when systems were linked this further enhanced their work performance. This finding is consistent with Venkatesh, Morris, Davis and Davis (2003) who affirm how capabilities of a system enhance an individual's job performance. For example, one of the participants explained that though the government had systems in place, they were only stand-alone systems and as a result, much work was duplicated:

> *The existing situation of the land systems is not fully computerised… some service which are computerised, are in isolation for example computerisation system of land Management called Management of Land Information System (MOLIS) the system is a web based one and it has information for Land Administration… survey and mapping processes have also computerised but is not web based, is stand-alone… their processes, to generate title deeds you need information from both systems, now it is a very difficult thing to do. There's duplication of data and work, for example if you want a title for your plot, they will start to enter your details in another system while all your particulars are in another system, where these two systems do not talk (link) at all. An integrated system simply allows you to have all your data at one point. (Interviewee 4, 2013)*

Another example is that of issuing a passport:

> *If you are apply for a passport, it takes you a lot of weeks to get it… for example the department that deals with passport must have a system that is well integrated for their work. But also for them to be able to give you a passport they must make some*

*decisions about who you are, this means that they must be able to correspond with other government departments like NIDA the National ID to verify who you claim to be*. *(Interviewee 2, 2013)*

The findings give evidence of the inordinate length of time involved in the service delivery process and the concurrent rise in levels of dissatisfaction of the citizens. Citizens expected that when systems were computerised that performance should improve, as this would assist them in enhancing their jobs or businesses. Instead, there were delays in services delivery and widespread dependency on onerous paperwork in several government departments. The quotes below exemplify this:

*Because you wouldn't expect such an organisation like TRA, which has lots of resources, all resources are at their disposal. Everything, and the staff are motivated, their connectivity is good, whatever programme they need they get it easily, but they are still using a lot of paper, a lot of papers! Yaani! Ina kera, Mimi sipendi hata kwenda pale, huwa namtuma mtu (Actually is disgusting! I really don't like, and I don't even like to go there, I usually send someone). (Interviewee 3, 2013)*

A*nother criterion of progress is quality improvement and less use of paper, but we are using a lot of papers, I just wonder what those computers are for at TRA, what are they for? They are just like a fashion! (Interviewee 3, 2013)*

Such performance underscores how deficiencies in interoperability have a negative impact on e-government performance. The above example demonstrates that interoperability is a critical factor in relation to citizens' intention to use e-government services. Thus, by assessing the level of interoperability, one could gauge effectiveness of e-government service.

*Interoperability of systems* in this study was identified as an important determination of usage of e-government services. On the implementation side, some of the agencies acknowledged that interoperability has been a problem, leading to an absence of coordination of e-government service throughout Tanzania. Given that there is now a newly established coordination agency, however, the interoperability problem may be

addressed.

## 5.4 Motivation to use e-government services

*Motivation to utilise* e-government service is, simply put, a category that measures the degree to which citizens are motivated to use the services. Motivation is usually accompanied by an expectation to gain, to procure some advantage from the e-government system performance. Examples of anticipated gain include performing better in a career, knowing more about technology, or even getting promoted for using the system.

Motivation encompasses a number of aspects: ease of use and access, ICT skills and knowledge, and trust of e-government services (Table 5.2). Sometimes people don't utilise services because they don't have motivation to do so (Deursen *et al.,* 2006), but the findings of this indicate that people did have the motivation to use the service, but couldn't easily access it. Thus, this category is a direct determinant of citizens' intention to use and satisfaction of the service. If the citizens have motivation to use the service, they will definitely use the service. Thus motivation influences citizens' intention to use and, in turn, helps determine levels of user satisfaction.

### 5.4.1 Ease of use

The overall perception of participants in the study was that e-government services were easy to use if support was provided. However, it should be noted that these results were from respondents who already possessed the capability of using electronic services. Thus *citizens' preparedness* is an important precursor to *ease of use*. This confirms that motivation significantly influences citizens' intention to use (behavioural intention and use behaviour) as was explained by Venkatesh *et al.* (2003) in their amended model of technology acceptance.

The level of Internet experience and ability to access the Internet enables people to *use* e-government services. Citizens with higher levels of experience with the Internet are more likely to find it easy to use the service compared with those citizens with low levels of experience, or no Internet experience whatsoever. Unfortunately, the latter comprises the majority of

Tanzanian citizens. Citizens who used the Internet frequently, those who were working within government offices in fact, were much more likely to use the services than those who were not Internet-experienced.

According to the Tanzania Communication Regulatory Authority (TCRA), Internet usage in Tanzania is relatively low: only 17% of Tanzanians had accessed the Internet by 2012[9]. Because of this, the usage of e-government services is also low. The issues that have contributed to this low usage of Internet are inadequate ICT knowledge, poor infrastructure and low availability of Internet services in the semi-urban and rural areas. For the strategy of e-government to flourish, there must first be a programme designed to reduce the illiteracy rate in Tanzania and a concomitant strategy to make the Internet accessible and train citizens in basic technological skills. This would allow for greater ease of use of e-government services so that *all* citizens (users) would benefit from such services, even those with limited Internet experience. This finding is similar to the findings around Internet experience and its relation to behavioural intention to use, as reported by Cater and Belanger (2005). Carter and Belanger (2005) and Phang, Sutanto, LI and Kankanhalli (2005) all found that ease of use is apparently a significant determinant of the intention to use of people with limited Internet experience.

### 5.4.2 Trust in e-government systems

Trust is another aspect in which participants showed concern. Although there are difficulties in defining trust and identifying the elements that construct it, in this study *trust* refers to the degree to which citizens believe the e-government system is secure, will help them to perform their work faster, and will put them in contact with government officials and services.

Findings reveal that citizens who trust an e-government service expect that it will help them to do their job more efficiently. The respondents trusted the technology and were quite optimistic, believing that with automated public services their job performances would change for the better and that the services would be faster; therefore, serve more and earn more. Such findings

[9]The Guardian on Sunday 2nd February 2014
http://www.ippmedia.com/frontend/functions/print_article.ph... accessed 20/09/2014 06:02

demonstrate that trust in e-government influences usage and is a direct determinant of intention to use the service and, consequently, user satisfaction. This finding aligns with the study by Warkentin, Gefen, Pavlou and Rose (2002) who determined that trust in the supplier of a service and trust in the systems or technology are important indicators of the intention to use the service.

### 5.4.3 Inadequate expertise to manage e-government

Inadequate ICT knowledge is recognised as a serious impediment to e-government services in Tanzania. It is observed from these findings that there is a wide gulf in ICT knowledge on the part of IT personnel employed in the public sector when compared with that of employees within the private sector, to the disadvantage of the former. Absence of IT specialists in government departments is regarded as a major reason for poor performance, or even failure, of e-government services. Expertise is imperative if the service is to be sustained and maintained. But the shortage of ICT-skilled human resources results in gradual underperformance of e-government services, a slow decline in efficiencies. IT-skilled personnel moving from government employment to the private sector critically paralyses the ICT initiatives in the government, as explained by one of the respondents:

> *We have very limited ICT professionals in the government, the problem is to retain them, because of that we are now reviewing the scheme of service of ICT cadre in the public services in order to make sure we can retain. (Interviewee 13, 2013)*

### 5.4.4 Perceived benefits

The phrase *perceived benefits* refers to the perceived value that citizens derive from using the system of e-government services. This is also a direct determinant of usage intention and user satisfaction as perceived benefits influence citizens' perspectives about such services. Citizens and other users of the e-government services have high expectations for benefits. For example, a reduction in time to obtain a service was one of the key benefits highlighted by citizens:

> *Because it is a quick access, things are taken within, … are done within a short time, you get what you want within a short time, and all that it has social and economic impact not only to those business and to citizens but the country as a whole. (Interviewee 15, 2013)*

Financial savings was another benefit that surfaced from the findings. This was a very salient subject, mentioned by the majority of the respondents, though from differing perspectives. One such example concerned money saved from no longer having to travel to obtain various services. The Central Admission Service exemplifies this: applicants are no longer travelling from one institution to another for admission, or even to buy application forms, as one interviewee indicated:

> *E-government services are important in terms of facilitating that kind of communication, it reduced the cost that is required in that communication in that partnership. (Interviewee 4, 2013)*

Some benefits concerned productivity. The findings indicated that with e-government services, an increase in production is experienced. Citizens reported greater productivity because the services were delivered timeously. Although the e-government services are not accessible throughout Tanzania, in the areas where these services are accessible, a number of benefits were mentioned by participants:

> *It increases the efficiency as you use e-government because as you access e-government services, there is the issue of increase productivity, so in that case with e-government you can be able to produce more…, the people who are providing the services are likely to be more productive also. The citizens and business people that are receiving service are likely to be more productive for whatever they are doing because the service are quick and easy to access. (Interviewee 5, 2013)*

Findings furthermore showed that citizens perceived that by using e-government services they themselves became more efficient and effective. Citizens who had used the services several times became competent in using the system, and also more innovative. Their efficiency increased, as they completed transactions in shorter timeframes. The customs system in

the Tanzania Revenue Authority (TRA) exemplified this. Previously, it took a long time (even months) to complete customs transactions, but with government modernisation through e-government services, it now takes only two to three days to clear the cargo, regardless of port of entry.

Another benefit that citizens perceived concerning e-government was time saving. The findings indicate that as a result of established online services, citizens were spending less time trying to access the services. These quotes exemplify the subject:

> *Also this kind of service (online) could also be the solution to the traffic jams on the roads. If the people could have access to online services, then there will be not much traffic jam, movement of people going to town to get some services will reduce. (Interviewee 5, 2013)*

> *Because people want to save their time, they want convenience; they want simplicity, and the government sometimes does not offer this kind of services which are provided by few organisations. (Interviewee 1, 2013)*

Yet another identified benefit related to a reduction in corruption as well as needless bureaucracy. For example, the majority of the respondents felt that implementation of online services would entail the end of time-intensive government service processes (bureaucracy) and the unnecessarily complicated procedures involved in accessing government services. Participants complained about the length of time required to obtain the services because they required following long and complicated procedures. Almost all the government officials agreed with this perception, adding that government service delivery was associated with burdensome paperwork which magnified inefficiencies in service delivery. The findings show that the majority of citizens voiced their hope that newer alternative electronic services would bring about radical changes, improvements such as reaching more citizens at times and places convenient to them (*Where you are, the service is there*).

On the other hand, other participants were sceptical, admitting that they perceived that the current inefficient performance of e-government services

proved that the bureaucracy would just be replicated in an online format. For example, one of participant said the following:

> *Me, I see, there more and more bureaucracy if it was under one Ministry may be the Ministry of Science and Technology that the e-government is there then it could be easy because is the one provide National ICT policy, then the agency will be to implement the ICT policy as far as e-government is concerned. (Interviewee 4, 2013)*

This finding is similar to that of Silcock (2001) who expressed concerns about e-government information and services being no better than traditional services, with bureaucracy simply transitioning from the old to the new.

The perceived benefits of using e-government systems is therefore one of the effectiveness dimensions that have a strong influence on intention to use and user satisfaction. This aspect is broad, as it presents a range of direct and indirect benefits from all stakeholders involved in e-government services. There have been studies undertaken to identify the benefits of e-government, for example Foley (2005) and Zhang *et al. (*2004), but most of these were based on the supply-side and undertaken in developed countries. Benefits cannot be generalised, because different citizens in different situations have different perspectives on e-government, and therefore different perceived benefits. Hence, benefits that are identified from developed countries may or may not be identified with benefits in developed countries.

## 5.5 Infrastructure

The infrastructure for the e-government system is an imperative dimension that influences the utilisation of electronic services in Tanzania. This study defined this *infrastructure* dimension as the capability required in terms of equipment, power, and networking, including data centres for providing electronic services to citizens and businesses. Challenges such as inadequate availability of computers and deficiencies of access to networks are issues related to Tanzania's infrastructure and economic situation. This situation plays a crucial role in accessing Internet and using e-government services. This issue impacts on user intention to use e-government services.

### 5.5.1 Inadequate ICT infrastructure

Tanzania undeniably lacks ICT infrastructure, a fact which contributes to citizen limitations in accessing the electronic services. *Infrastructure* in this instance refers to all software and hardware (ICT) infrastructure available to citizens for them to use e-government services, including networks, software, hardware and electricity.

Inadequate infrastructure impacts the utilisation of e-government services. Participants suggested that inadequacy of infrastructure jeopardised the utilisation of the e-government systems. It was also ascertained that there was a lack of optimisation of the existing infrastructure. For example, the installed fibre-optic cable network, The National Fibre Network backbone ("Mkongo wa Taifa"), is not fully utilised, as mentioned by one participant:

> *I heard that installation of the national fibre cable network is 99% completed, but I think it is underutilised, we are not ready! So another issue is we are not ready. (Interviewee 4, 2013)*

There is a critical need for reliable infrastructure in Tanzania, as far as e-government services are concerned. Considering that Tanzania is geographically very wide (945,087km$^2$), the need for sound infrastructure is a fundamental necessity for citizens to use online services. This is exemplified by the following comments:

> *E-government initiatives require infrastructure that is ICT enabled, and anything ICT enabled requires strong and sound infrastructure including power, when you don't have power your ICT will be weak, so power is inclusive*." *(Interviewee 8, 2013)*

> *Our biggest challenge is infrastructure. When I say infrastructure, it also includes data centre, if you go to the government exhibition you will find that every government institution with the server room we want to have a common data centre, we have very big problem in power that is why you find most of the government services are offline. (Interviewee 4, 2013)*

> *We must have infrastructure as a road to deliver services. We can have very good e-government services but if we don't have*

*infrastructure to Rudewa for example, we don't have infrastructure to Ngara, we won't help someone from Ngara, and he/she will be forced to come to Dar es Salaam to get services, so we must have proper infrastructure up to the remote level, for the citizens to be able to access these services. (Interviewee 13, 2013)*

### 5.5.2 Multichannel delivery of e-government services

*Multichannel access* is another component related to infrastructure which impacts on citizens' utilisation of e-government services. Multichannel access or multiple access points provide a variety of delivery channels through which the citizens can choose to access e-government services. This will likely escalate the use of e-government services, because different citizens in different situations will be able to access services through any of the multiple channels available. These channels include the Internet, mobile phones, text messaging, television, telephones and traditional face-to-face communication. Most of the participants were of the opinion that the government needed to be innovative in its provision of channels for accessing these services. This can be done, however, in collaboration with telecommunication companies. As one participant said:

*It is important for the government to be innovative and a typical example is the use of mobile phones, there are some services that government can deploy, they can access them through mobile phones as well. Much as you can develop some services that are accessible to smart phones or computers or other. (Interviewee 1, 2013)*

Another issue observed from the data is that developments in the telecommunication sector have created a great infrastructure opportunity for government, so the government must avail itself of these existing infrastructure opportunities presented by the telecommunication companies (like M-pesa and Tigo-pesa) to deliver services to citizens and businesses. The following comments from respondents exemplify this point:

*So the government should be innovative and clever in making sure that it deploys services so that many people can access it, and the trick is to use well available equipment we have, currently*

> *in Tanzania we have about 26 or 27 million subscribers of mobile phone users which indicates that many people have mobile phones, with the nature of Tanzania, when you have a mobile phone it can be a mobile phone for the whole family or the whole village. This has happened in my home village, the first mobile phone in the village became a community phone so people could get services out of that phone. So in rural areas, such kind of innovation can be used to bring services to people, and it doesn't stop the government from deploying it the government is really committed to that. (Interviewee 1, 2013)*

> *One of the examples is m-pesa and others, my mother is over 72 years but she can use the cell phone, she is using it in the village, so it is possible to get services like your medical test results. If someone went to hospital, instead of waiting for the result at hospital, he/she can be informed later of the results through the test message, government should be able to do that. The penetration of mobile phone even in the villages, shows how people have accepted the technology. This automatically creates a very good infrastructure for service delivery, so the government has to use this opportunity to deliver services to citizens. (Interviewee 13, 2013)*

These findings highlight the effectiveness of multichannel service delivery. It is observed that government, through advanced technology (ICT), should provide services to citizens through multiple channels. Citizens' needs and demands for services vary; therefore, it is no longer sustainable for governments to deploy *only* one method of service provision. It is essential for government now to adapt and amend its way of delivering services, exploiting other possible delivery channels in order to reach as many citizens as possible, no matter how poor, or illiterate, or whether in rural or urban areas.

The availability of multichannel delivery will also have an economic impact, given that it assists citizens to be productive, using less time in accessing the service, and thereby saving their time for other productive activities. What is needed is for the government to raise awareness of availability of the e-

government services (24/7 availability) for citizens to appreciate. Along these lines, one of the respondents made this point:

> *Telling the community or the citizens that from now, if you want this service you can get it from this particular place, maybe you can put a mobile kiosk somewhere, people can just go there and get the services, may be you can just go to one of the banks counter and then get the services there if you want to pay your land rent you just go to the bank there's a counter where you just pay, then everything is done. If you want to do some transfers, you only need to go to your attorney or your own legal adviser to whatever required just once and get results, no coming back as it used to be. At least to reduce the number of people coming in there, and give more room to the people outside to work, that one will work. (Interviewee 4, 2013)*

## 5.6 Government preparedness

*Government preparedness* emerged as an evaluation dimension as a result of participants' concerns regarding the extent to which government was prepared to participate in the digital business era. As one citizen said:

> *Aha! It's a new concept! It is a new concept that needs a lot of awareness not only to the users even to the providers. To me, I said preparedness is very, very low, we are not ready although we can't stay aside and say that let's wait to be ready! So to that, I think more is needed to make the provider know the concept itself and be ready to change. (Interviewee 4, 2013)*

Perceived government preparedness thus refers to citizens' anxiety about the extent to which the government appears to be ready to serve them electronically. This affects citizens' usage attitudes concerning the preparedness of the government as the sole e-government service provider. The findings suggest that citizens will be enticed to utilise government e-services when they perceive that the government is sufficiently prepared to serve them electronically. Alternatively, if citizens perceive that government preparedness is low, then the usage of e-government services will be low. Therefore, it is important for government to demonstrate preparedness convincingly, so as to attract citizens to utilise e-services. The government

needs to assure citizens that it is actively and deliberately preparing to serve the people electronically. Citizens must perceive that the government can adequately provide services, handle services, and respond to their enquiries promptly in an electronic environment.

This dimension also encompasses the coordination of e-government services among different government agencies; the complicated business processes in the government structure that delays service delivery; and the commitment of top management. These three aspects of organisational preparedness can either facilitate or inhibit cohesion of e-government service within the government. Therefore, special attention is required with regard to these issues when implementing e-government service projects, especially since these will have an impact on citizen satisfaction. All these are classified under the heading of government preparedness.

### 5.6.1 Coordination of e-government services

Coordination of e-government services is an important issue, as it indicates the level of government preparedness, particularly when considering the web-like size and structure of the government, and its various agencies, ministries and departments. As it stands, each of these is implementing e-government services according to its own strategies. Coordination is necessary to harmonise this and is thus a very important aspect in the employment of e-government services in the country, as it indicates how well (or not) the government has prepared to facilitate the progress and success of e-government in the country.

The findings indicate the problem of inadequate government preparedness, this is further compounded by a lack of coordination. The majority of participants observed the need to harmonise services in the country, as this quote from one government official exemplifies:

> *The use of ICT in the government or as you called e-government has started quite some time particularly after the introduction of National ICT Policy 2003, quite a number of institutions have been adopting ICT in their core operations the only thing that was lack was guidance and coordination, so what you are seeing now is mostly ad-hoc e-government related initiatives in ministries,*

*departments, agencies and local government. (Interviewee 2, 2013)*

The participants noticed that lack of coordination in Tanzania has resulted in each agency deploying its own electronic services. There are a number of e-government services, which are deployed by several agencies in Tanzania, as one of the participants said:

*There are a lot of services but they are not harmonised, there's no harmonisation. There're so many entities, which deal with ICT, but every entity moving in its own direction. (Interviewee 6, 2013)*

Before the establishment of a coordination agency (e-Government Agency) in 2012, in Tanzania, the Presidents' Office Public Service Management (PoPSM) department was mandated with the coordination of e-government initiatives. The department facilitated e-government initiatives with no guidance and regulations in place. The main activities were funding and training, but these resulted in limited coordination, fragmentation and low value of the e-government systems in the country. Each agency attempts to deploy its own electronic services by using custom-made computer systems, complicating inter-departmental or agency functioning. In addition, many international development partners who are poorly coordinated, or not coordinated at all, are involved in implementing e-government in Tanzania. These development partners usually have the right to choose the necessary hardware and software requirements when making a donation to a project. This leads to even more complications in existing systems, and makes future integration between systems very difficult. One example is the new driving license systems, which in future will need to be linked with the National Identity system[10]. There is a definite need for coordination of e-government in Tanzania in terms of administration, communication and citizen convenience. This finding is similar to what has been proposed by various previous studies (Mille, 2007; Mutagahywa, Kinyeki & Ulanga, 2007).

[10] According to Deputy Police Commissioner, Issaya Mulungu, who said: *"The national identification card database will be linked to other national systems"* in *Balile, D,*

*2012 "Tanzania's New Identification Cards to Improve Security, Economy" http://sabahionline.com/en_GB/articles/hoa/articles/features/2012/07/12/feature-02*

The government, in order to be ready to provide services electronically, needs to have a foundation of proper coordination. Coordination is vital for the steering of e-government services in Tanzania. Only with proper coordination in place can administrative buy-in be sought, regulations be formulated, and policies and procedures be identified and reviewed. Only then can standards, plans, and strategic advocacy and publicity of e-government be accomplished. The degree of commitment and determination from government with regard to e-government services will be visible to all stakeholders. This then will contribute to citizen confidence that the government is prepared to serve them electronically.

### 5.6.2 Commitment of the management

Inadequate commitment of top management was another factor influencing citizens' utilisation of e-government services in Tanzania. Although there are some measures that illustrate government commitment to e-government (e.g. National e-government strategy, NICTP, Microsoft MOU, PSRP II), these are not readily apparent to citizens. At the level of individual agencies, it was also noticed that there were limited intentional efforts and a lack of willingness. For example, e-government implementation has received less senior management advocacy when compared with other initiatives countrywide, such as AIDS control projects. Citizens perceived lower levels of advertisement, discussion, formalisation and institutionalisation in e-government than was the perceived case for the AIDS control movement. Accordingly, citizens perceived that the government was less thoughtful, less committed with regard to e-government services:

> *I think we need the full commitment of top administration if you want IT to succeed, that is a must. (Interviewee 2, 2013)*
>
> *There is a need political and top management champion on e-government. (Interviewee 4, 2013)*

A commitment from the top management refers to the perceived support and energy exerted by senior government officials to implement and maintain e-government and its practices. This category suggests that the actions of top management play an important role in influencing citizens' utilisation of government e-services decisions. Citizens might be very well-informed about

electronic initiatives, but they are observing the actions of government to management concerning electronic initiatives. Citizens' convictions and confidence to use e-government services will burgeon with the perception that top government administrators take ownership of and push the ideas. When there is high and deliberate government administrative buy-in, officials will talk about, practice and advocate e-government services. As a result, citizens will perceive that the government is resolute in its commitment to work with citizens via an electronic environment. In turn, citizen awareness and confidence will escalate, as will use of, and demand for, e-services, thereby resulting in higher intention to use as well as satisfaction. Commitment of the management will clearly provide mutual benefits.

### 5.6.3 Government process change towards a citizen-centric mode

A government process change is one of the aspects that reinforce government preparedness. For the government to be prepared to deliver electronic services to its citizenry, it initially must undergo changes in its operations, perhaps most significantly changing the ways in which it serves citizens. The government must regard citizens as customers. Government is required to view citizens as people who need to be cared for, and who need to be invested in. Some of the respondents said the following:

> *It should not involve traditional ways of serving people that is government whether you like it or not, then if you want to take services it is okay! If you don't want it, then, it is up to you! It should now change, in such a way that it should now look at the citizens as customers, the people who need to be cared for, people who need to be investing upon, that kind of attitude need be adopted by the government. (Interviewee 1, 2013)*

Another aspect is involvement of all government stakeholders in e-government initiative projects. Lack of involvement of the users has been observed as a common government shortfall in Tanzania. The government must amend the way it operates, incorporating all stakeholders in its operations, including e-government initiative projects. They should involve all employees, with top management teaming-up with managers from other departments, while designing and implementing further e-government

projects. This will eradicate the stubborn resistance to change, which has proven to be a barrier to implementation of e-government, as found in previous research (Evans & Yen, 2006; Ndou, 2004; Heeks, 2002; Choudrie & Dwivedi, 2005). These findings, therefore, suggest that with the involvement of all stakeholders, the awareness of the services will become more prevalent, thereby increasing the use of the service. Failing the involvement of all stakeholders, low levels of usage of e-government services will persist.

The Tanzanian government has not been involving citizens in the development or deployment of e-government services which are specifically intended for citizens. It is not surprising, therefore, that the initiatives are processing, recording and responding to citizens' concerns in a timeous fashion. This suggests that the government has been deploying initiatives with little understanding of what citizens actually desire and need. Additionally, the Tanzanian government rarely advertises its electronically-available services to the public. It is noted that the services are mainly communicated during public fair events (Civil Servant Week and Sabasaba International Trade Fair, for example). This dearth of exposure not only contributes to low citizen awareness, but also signals a lack of seriousness and a lack of preparedness on behalf of the government to deliver e-government services.

### 5.6.4 Legislation and policies

The data revealed the presence of inadequate laws, policies, guidelines and strategies for e-government in Tanzania, as one of the interviewees stated:

> *The legal issue part of it! Our legal system as far as e-government services are concerned, is not supportive. I don't think they recognise e-communication, that means someone can send an email and be taken as a legal document! We are still there, we don't have a legal mechanism to support the e-services in the government we are still depending very much on paper. (Interviewee 6, 2013)*

This is imperative, because the government operates under established laws, policies, guidelines and standing orders. Each e-transaction between

agencies and other sectors requires a different legal and regulatory framework. Examples include e-payments and e-crime, the legal use of e-signature, and legal enforcement of data protection between governmental departments and citizens. Citizens are likely not to use e-government services if they perceive that e-government processes are not formalised or legalised. The presence of supportive laws, policy guidelines and strategies facilitate and define what should be implemented and when. The roles, procedures and legal accountability of the e-government services are also defined. This advances citizens' confidence to utilise e-government services.

It was also established that each agency or ministry in the country was tasked with establishing its own internal ICT policies. Currently, however, few agencies have formalised their ICT policies, with notable examples being the Ministry of Lands, Housing and Human Settlements Development, and the Ministry of Education and Vocational Training (URT, 2007). Whilst at the national level, the National Information and Communication Technology Policy (NICTP) (URT, 2003) is available, it is currently undergoing review. The same is true of the National e-government strategy (URT, 2008). The only law found to support electronic practice was the Written Laws (Miscellaneous Amendments) Act 2007. However, this law does not address government electronic operations.

It was observed that government procedures and practices are not yet ready for electronic business activities, as one of the respondents said:

> *In our feasibility study one of the area was… readiness to adopt e-procurement which was 40-50% low… we still have a long way to go, that is, we are not ready to do e-procurement and this means we can't do electronic business! (Interviewee 6, 2013)*

### 5.6.5 Funding

Funding of e-government projects also emerged as a crucial issue impacting the implementation of e-government services in Tanzania. Respondents from government intimated that the financial resources available to fund the e-government projects are insufficient, and that without proper financial support projects cannot be fully implemented or maintained. Some concerns

presented related to the salaries in the public sector and to the high cost of Internet usage, which makes the utilisation of e-government services difficult:

> *We need proper funding, right now we are not financially independent. We are independent in operations but not financially. We need enough funds to be able to develop systems, and secondly it is about employment, we need to recruit the right people for the right job that is skilled one. Because the issue of funds go hand and hand with the skills development, you may find for the last two years people don't go for training or seminars, keep them updated with technology. (Interviewee 13, 2013)*

### 5.6.6 Awareness of services

Awareness of e-government services is another aspect which impacts on e-government service use and end-user skills. Citizens who are aware of e-services are more likely to use them. Lack of awareness can result in low utilisation of services, despite the possession of the necessary education or skill levels by the citizens. Quite frankly, if people don't know about it, they won't be using it. The following comments exemplify the importance of awareness:

> *User awareness; this is very important, we can have very nice service up to the village levels, but if users are not aware they will not use it, so we must create awareness through public education, advertisements via different media so that people can be aware and use the services. (Interviewee 13, 2013)*

> *The are some services which are online but most of the citizens are not aware of that, for example, few days ago, like a week I went to PPF (Public Pension Fund), you know PPF they have this online, you can be able to look at your contribution. (Interviewee 5, 2013)*

Other examples indicated lack of awareness of e-government services in Tanzania:

> *We didn't know that the services are existing. (Interviewee 15, 2013)*

*The services are not well known, it needs awareness creation. (Interviewee 15, 2013)*

*There is a strong need of awareness, people are not aware. (Interviewee 15, 2013)*

The findings reflect the deficiency of awareness of the existing e-government services, leading to low or no utilisation of government online services. The lack of awareness about certain services was blamed on those who are responsible for its implementation, for not sensitising citizens to the services and their benefits. Likewise, the fact that most communications concerning e-government transactions were driven by IT professionals rather than by the owner of the relevant business services highlighted the need to increase awareness of the e-government services being delivered to the public, thereby increasing acceptance and use of e-government services by the citizens. As one participant said:

*The only thing we are supposed to do is to create awareness, and inform the people. (Interviewee 15, 2013)*

## 5.7 Towards an evaluation framework: synopsis of key findings

The above findings provide a synopsis of the issues which impact on evaluation of e-government services. Although some of the findings have been identified in other studies pertaining to developed countries, there are others which appear to be typical of a developing country like Tanzania.

The following are key issues gleaned from the findings which inform the development of an e-government evaluation framework:

- Empirical results have shown that there is some evolution of e-government in Tanzania; that is, there are some e-government services currently up and running in the country. Most of the services, however, have been designed, developed and deployed by individual agencies for their own goals and needs, meaning that these e-government services exist in silos. Most of these services are stand-alone, and are not integrated to communicate with or operate in conjunction with e-services provided by other departments. This has

resulted in duplication in terms of resource materials, data and funding.

- Lack of awareness of e-government services was determined to be important. Since e-government services are not publicised, there is low uptake of the services. It is only through publicity that citizens will become aware of and hence interact with the government through these e-services. Interaction with the citizens will strengthen the communication between government and citizens and therefore citizen needs and expectations will be taken into account with greater frequency.
- Lack of infrastructure in Tanzania was also highlighted, in spite of the 90% completion of a national network (optical fibre cable). Infrastructure, particularly the ICT infrastructure, is not sufficient to enable all citizens to make use of the services. Numerous power breakdowns and power shortages hindered citizens' use of the e-government services, even if they were aware of them and educated in their use. Therefore, lack of infrastructure or poor ICT infrastructure, including electrical power, needs to be addressed in Tanzania to promote the uptake of e-government services among the citizens.
- There are also problems in respect of usage of e-government service in different areas. For example, the usage of e-government services is low due to lack of awareness in some areas, and in other areas, due to lack of knowledge, while in yet other areas, uptake is low due to access and network limitations. This is the result of poor e-government coordination. With an appropriate citizen-centric evaluation in place, the government could identify the specific areas requiring more attention and attend to them.

In summary, the current level of e-government service implementation in Tanzania is typically low to moderate. The digital interaction with citizens is relatively low, with limited or no online transaction capability. Most of the government departments and agencies do not have a formal e-government strategy in place for implementing e-services. Rather, each department has implemented its own approach and strategy and service in ad hoc fashion.

Although almost all the agencies have goals and objectives—to enhance customer services, empower citizens, involve citizens in decision-making—the findings shows that the majority of the agencies and departments have failed to consider (or failed to *even intend* to consider) citizens' needs and expectations in their approach to e-government services.

The foregoing supports the need for an e-government service evaluation framework. The implementation of evaluation as a standard component of e-government management will assist government to evaluate the ongoing challenges and successes, and more importantly, evaluate citizen satisfaction with service. This in turn will aid in future service improvements.

## 5.8 The E-government Citizen Satisfaction Framework (ECSF)

The lack of evaluation of e-government initiatives in Tanzania and the low numbers of citizens utilising e-government services indicate that delivering an evaluation for solutions is unlikely to be successful without taking into consideration the citizens' perspectives. This thus supports the objective of developing an E-government Citizen Satisfactory Framework (ECSF) based on a full understanding of citizens' perceptions of the electronic services that the Tanzanian government provides, highlighting citizen expectations, the current way e-government services function, and the government's relationship with its constituents.

The conceptual framework developed in Chapter 3 was used to organise the outcomes of this research and to help in understanding the various dimensions, their inter-relationships and their influences on the citizens, for the purpose of utilising government electronic services and their satisfaction therewith. The outcomes of this research are summarised in Table 5.3. The table presents the two key dimensions under which the findings were organised: Citizens' Expectations (citizen-related dimensions) and Facilitating Conditions (government-related dimensions). The dimensions are described to the extent to which each dimension was determined to be influential on e-government success.

**Table 5.3 Dimensions for e-government evaluation**

| Dimension | Description | Finding |
|---|---|---|
| Citizens' Expectations | | |
| Performance | Performance is an important challenge in e-government service implementations, given that performing well will help the citizens to do their jobs faster and more efficiently. | Low performance of e-government systems in the country that reduce the likelihood of citizens using e-services. |
| Service quality | Service quality involves comparison of expectations with performance; meeting the citizens' needs that influence intention to use. | Service quality is low in terms of the information not being up-to-date and untimely responses to citizen queries. |
| Interoperability | Interoperability is a great challenge in e-government service implementation. Given the systems integration and information exchange required between functional units and agencies.<br>It represents the extent of cooperative work among the government agencies in terms of service in different development environments that implement and deploy procedure. It is measured by the degree of supported standards and regulation. | There is no interoperability as many of the systems are standalone, no harmonisation of services from different agencies or department. |
| Ease of use | Ease of use perceived after the citizens have used the services. | Although there is low or limited access, few who access the e-government services perceived ease of use. |
| Awareness of existing system | Awareness of existing services is a precursor to citizen using, interact and participating in e-government. | Low awareness of the range of online services and information offered by the government. |
| Inadequate expertise to manage e-government | Lack of ICT knowledge and skill strongly affect citizen use of e-government services. | Lack of ICT skills and knowledge is prevalent. |
| Trust | Trust in e-government is linked to perceptions of the security and privacy of personal information.<br>Public trust in government is an important determinant of public cooperation and determines the level of confidence among stakeholders in the service execution. | Trust in e-government service is generally good. |
| Benefits | There are benefits in using the services in terms of time saving, cost cutting and the reduction of bureaucracy. | There are currently perceived benefits in using e-government services in terms of time and cost saving, reduction of time-consuming processes. |
| Facilitating Conditions | | |
| Infrastructure | Infrastructure, particularly ICT infrastructure including network, broadband, speed and power are vital enabler of effective e-government service. | Inadequate ICT infrastructure is perceived as a concern in employment of e-government services. |
| Access limitation | Internet connections or networks are very important for citizens in different locations to access | Access limitation due to unequal Internet connectivity, particularly in the rural areas |
| Multichannel delivery of e-government services | Ensuring that there are a number of channels through which citizens can access e-government services. | Limited number of channels through which the citizens could access the service prevents the citizens from using e-government services. |
| Coordination | Coordination of e-government services implementation in government cycles is very important, as it sets standards and guidelines and removes duplication and misuse of | Perceived lack of coordination of e-government services and number of similar stand-alone e-government services. |

| | | |
|---|---|---|
| | resources. | |
| Commitments of management | A commitment of top management is an essential dimension of implementation, use and success of e-government services. | There is support from top management, though not in all agencies. |
| Government process change towards a citizen-centric mode | Government services reforms are important in the successful adoption and use of e-government services. | There is evidence of government service reforms which include business process changes in the government. |
| Legal and policy | Legal and Regulation frameworks in implementation of e-government initiatives is required in a broad and complex manner. These are laws and norms that regulate the provision of electronic services and their use. | Legal and regulatory deficiencies also seen as contributing factors in the lack of uptake of e-government services. |
| Funding | For successful implementation of government electronic services, adequate financial resources are vital. | Inadequate financial resources have been the trend in e-government projects. |

Based on the above, the following summarises the salient issues in respect of e-government in Tanzania, thereby providing a critical overview of the elements for a future evaluation framework. The summary below offers a narrative description of the dimensions in the foregoing table:

In relation to the dimensions influencing the citizens' utilisation of e-government services in Tanzania, the main barriers to usage appear to be the gap between the citizens' *expectations* and the *performance* and *service quality* of electronic services offered by the government. Citizens' *awareness* of the range of government services and information that is available electronically motivated the usage of the system and benefits are perceived, although some citizens in some areas may be aware and yet still reluctant to use the service because of lack of knowledge or skills. The perceived significance of the *benefits of using e-government services* appears to be comparatively clear to citizens and a good level of *trust in e-government services* exists. The *ease of use* of e-government services was perceived by citizens, although very few citizens were aware of and able to access the e-government services. Nonetheless, the advantages of e-government services in relation to service quality delivered to citizens and others have still to be fully realised. In relation to government agencies, the implementation of e-government services appears to be subdued by a lack of guidance and *coordination,* to the extent that there is very limited inter-agency collaboration. There is a need for appropriate *adequate expertise* (*ICT skills) to manage e-government*. The perceptions of government business processes appear to be relatively clear to government officials for successful

e-government service. Generally, inadequacy of financial resources was considered to be an insurmountable obstacle to e-government service deployment, while *commitment from the top management* was generally perceived to be supportive. *Legal issues* also appear to influence the usage of e-government service in Tanzania, as the inadequacy of laws and policies for e-government was perceived as a problem. *Inadequate ICT infrastructure*, which included *limited network access* and lack of *multichannel* delivery is generally perceived to be the strongest negative influence on citizens' utilisation of e-government services. Unequal access to the Internet and lack of multichannel access points appears to be strongly related to lack of access to e-government services among rural or geographically remote populations in Tanzania. The need for *interoperability* of e-government services was identified. The dimensions derived in this study are dimensions for evaluation of e-government services as used in Tanzania.

## 5.9 Summary

The findings from the government official interview programme, the focus groups with citizens, and the analysis of documentation and government websites were all utilised to provide answers to the questions framing this research. The research outcomes were discussed in this chapter and were appropriate. The results were compared with prior studies to see whether or not they aligned with previous findings. The framework for evaluation of e-government services developed earlier in the study and used to analyse the research outcomes were summarised and discussed in this chapter as well. In the coming chapter, the contributions of the study and its limitations, together with suggestions for further research, will be presented.

# CHAPTER SIX

# RECOMMENDATIONS AND CONCLUSIONS

## 6.1. Introduction

This chapter builds on the research findings to generate and share the resultant framework for the evaluation of e-government services. In this capstone chapter, the research objectives are reviewed, against which pertinent conclusions from this exploratory research are presented. This chapter also justifies the research in terms of its contribution to the extant body of knowledge in a number of interrelated fields. Although every effort has been made to address the research objectives of the study as they pertain to e-government evaluation from the citizens' perspectives in the context of a developing country, it is acknowledged that no single study can claim to adequately address every unknown during the research process.

## 6.2. Response to the key research questions

The principal research aim of the study was **"**to investigate the key components of e-government which, when viewed holistically from the perspective of citizens within a developing country, provides a basis upon which the success of e-government services may be evaluated in Tanzania**".** The associated research question was framed so that the principal aim of this research could be achieved:

*What are the dimensions of effectiveness of e-government services which, when jointly considered, would lead to maximum citizen use and satisfaction?*

The concomitant research sub-questions were as follows:

- What are the various evaluation models for e-government services?
- What are the approaches and measures for evaluating Information System (IS) effectiveness and which approaches are relevant for evaluation of effectiveness of e-government services?
- What are the relevant service quality dimensions that may be applied in the evaluation of e-government from the perspective of citizen?

- How do these dimensions relate to each other, and how could they be presented cohesively as a framework for evaluation of the effectiveness of citizen-centric e-government ?

These questions have been answered, culminating in dimensions of e-government effectiveness (Table 5.3) and the resultant E-government Citizen Satisfaction Framework (ECSF) is presented in Figure 6.1. The following paragraphs provide a more detailed description of how these four questions were answered.

A review and analysis of previous studies within the existing literature regarding e-government evaluation models addressed the first question, as evidenced in Chapter 2. In addition, reviewing the various IS effectiveness models within the extant IS literature provided the basis for comparison later needed to answer the second research question. It should be noted that the literature review provided the basis for the formulation of the second and third research questions.

From the literature analysis, an overall understanding of e-government evaluation was gained. It was found that the majority of existing research was based on the experiences of developed countries. Fewer but more recent studies have indeed focused on the evaluation of e-government systems in developing countries. However, very few studies regarding the dimensions for evaluation of e-government from the citizens' perspectives in developing countries have been conducted. Yet, dimensions have been identified which are dynamic and effective for evaluation within other fields of IS (Section 2.9).

Research was reviewed concerning both developed and developing countries in order to develop a preliminary understanding of dimensions for evaluation of e-government services. These dimensions were categorised, at a high level (key components), into *Citizen Expectations* and *Facilitating Conditions*. The expectations of citizens in respect of e-government services were found to depend on the citizens' personal situation, as different citizens from different societal and economic contexts have different expectations and needs. Therefore, service expectations which influence citizens' usage intentions in developing countries may or may not differ from those of developed countries. Facilitating conditions are elements that support the

smooth functioning of the e-government system for access by citizens via the Internet. Therefore, facilitating conditions are reliant on a government's ability to create a conducive and enabling environment for the delivery of e-services. This may differ across countries due to different governmental structures, cultures and resources.

## 6.3. The E-government Citizen Satisfaction Framework (ECSF)

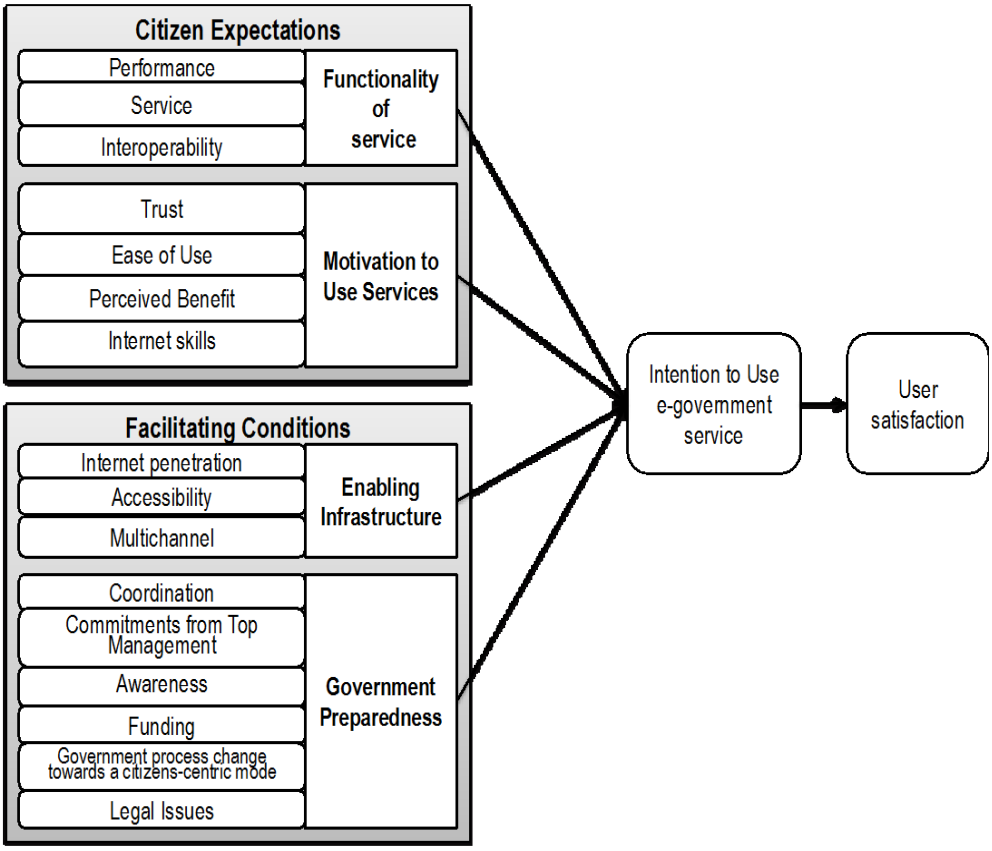


**Figure 6.1: E-government Citizen Satisfaction Framework (ECSF)**

The development of the E-government Citizen Satisfaction Framework (ECSF) is rooted in both the initial literature review and the empirical data that was collected and analysed in this study. In this regard, e-government services can be evaluated in terms of two key components or broad dimensions, as previously noted: *Citizens' Expectations* and *Facilitating Conditions.* The latter are direct determinants of citizens' *intention to use* (Figure 6.1). E-government service use should flourish if citizens' expectations, facilitating conditions, and intention to use are appropriately managed, as this will result in overall user satisfaction.

From the findings, out of two key components, four key dimensions of e-government effectiveness were established, elaborated upon below:

### 6.3.1. Citizens' expectations

Citizens have high expectations of services that are being offered by government, as they believe these will aid in meeting their needs and improving their quality of life. They expect that with the government offering services electronically, economic benefits will be derived, so they anticipate savings in money and time, allowing them to attend to other productive activities. The findings suggest that while e-government services in Tanzania seem to be progressing, their capabilities with regard to electronic service delivery are lagging far behind citizens' expectations. This is supported by MORI (2002) and Van Zyzin (2004) who indicate that in respect to the benefits of using e-services, expectations of users serve as a comparative indicator to measure service performance at the actual time of use. If the experience surpasses the expectations that users have of the services, then there will be high user satisfaction. These are dynamics that influence utilisation of e-government services. Hence, to encourage citizens to utilise e-government services, governments need to understand the citizens' needs and expectations and meet these expectations by providing e-services which, at a minimum, match their expectations, but should aim to exceed them.

Hence, citizen expectations are a key effectiveness dimension that has direct bearing on citizens' intention to use, and eventual satisfaction with, e-government services. The citizens' expectation dimension is comprised of two sub-dimensions: *functionality of e-government services* and *motivation to use e-government services.*

**Functionality of e-government services** is defined as the extent to which e-government services are expected, by citizens, to perform. Thus it is measured by the *performance* of the services, which signifies how quickly a service request can be completed. Citizens tend to base expectations of e-government on their experiences in the business environment, which is advantageous, given that entities in this sector have been early adopters of

electronic channels. As with business, citizens expect to carry out all transactions or to access all government services at a single access point. This is because of the high cost of accessing the Internet. If all services can be accessed from one access point, people will spend less time on the Internet and hence the cost will be reduced. Therefore, there is an expectation of *interoperability.* All services from different agencies or departments should be harmonised such that they work seamlessly with each other, so that it is quick and easy for citizens to access several services, if not all, at a single point with minimal operations required.

Another component that made up citizens' expectations is *service.* Service is related to various aspects that explain the extent to which citizens are confidently utilising government ICT-based services. The issues identified in respect to service include the availability of the services and the ease of accessing the e-service at any point in time. The expectations regarding services also influence the utilisation of e-government.

**Motivation to use e-government services** is the second sub-dimension of citizens' expectations. It has a direct impact on a citizen's intention to use e-government services and consequently, user satisfaction. Motivation is a precursor to citizens' utilisation of e-government services. Citizens will want to utilise the e-government service because it is perceived that they will benefit or achieve value outcomes. Thus, this study defines *motivation to use the service* as a perception of citizens that e-government services will result in attaining value outcomes, such as improved job performance, better pay or even promotion. Motivation to use e-services encompasses trust in e-government, ease of use, perceived benefit and adequate expertise to manage e-government (refer to Table 5.3 for detailed definitions of each).

### 6.3.2. Facilitating conditions

Facilitating conditions encompass the combination of factors, including environmental issues that enable the use of e-government services to be accessible and easy to accomplish. This is aligned with the description by Venkatesh *et al.* (2003), which is the degree to which citizens expect that government and technical infrastructure is there to enable the use of system.

*Facilitating conditions* are defined as the extent to which enabling infrastructure and government preparedness support the use of e-government services. This comprises two sub-dimensions. First, *enabling infrastructure* is the ICT infrastructure, including Internet penetration, multichannel delivery and accessibility. All these jointly support the use of e-government services and directly influence intention to use and consequently, user satisfaction. Secondly, *government preparedness* is the extent to which the government is ready to serve its constituents in this digital era. It explains the attitudes of citizens with regards to the preparedness of government to deliver services electronically. With rapid technological advancements becoming a driving force of change, governments must be prepared to deliver services to citizens and other stakeholders electronically. Citizens are more likely to utilise the e-government services if they are convinced that the service provider (government) is ready and able to serve them electronically. This is considered a direct influence on intention to use, because it includes the administrative buy-in of top management, the extent to which the service is coordinated on the government side, as well as the adequacy of processes, policies, and standards.

### 6.3.3. Intention to use e-government service

The foregoing four key dimensions, when viewed holistically, provide a basis by which the success of e-government may be assessed through citizens' perspectives. These four dimensions jointly determine *citizens' intentions to use* e-government services. Citizens' intention to use e-government systems is one of the new emerging behaviours, particularly in developing countries. The advance of electronic service delivery in the private sector could be among the motivating factors. Recently, there has been an increase in mobile technology penetration, especially in Africa. M-Commerce, for example, is gaining prominence, given the constantly descending device costs. The private sector has already been innovating and taking advantage of the boom in mobile communication infrastructure in developing countries to deliver services. M-Pesa, for example, is provided by telecom companies like Vodacom, to send and receive money through mobile phones. Such trends are likely predictors of future citizen behaviour. This dimension has been applied in diverse contexts such as technology acceptance to measure users'

behaviour towards the system. *Intention to use* represents the desire to utilise e-government services. Hence intention to use e-government services is a good indicator of future citizens' use of e-government service, ultimately leading to *user satisfaction*.

### 6.3.4. User satisfaction

Having discussed all identified components for e-government service success, the *user satisfaction* dimension represents the overall citizen satisfaction with e-government use. User satisfaction is a surrogate measure of e-government service effectiveness. Based on the preceding dimensions of the proposed model, use of e-government services should result if citizens' expectations, facilitating conditions, and intention to use are all appropriately managed. To increase the use of e-government services in any country, government should strive for a bottom-up user-centred design approach in the development of G2C e-government services. This will effectively ensure that services meet the needs and expectations of citizens. This in turn will influence citizens' desire to use government electronic services, ultimately resulting in user satisfaction.

## 6.4. Application of the E-government Citizen Satisfaction Framework (ECSF)

Given the current prevalence of advances in telecommunications and associated networks, there are probably very few government agencies which do not offer any type of electronic service whatsoever. Whilst many agencies have yet to offer a complete array of electronic services, most have been offering at least some kind of online service, even if it is just static websites with information made available. What is clear, however, is that an increasing number of governments are committed to rolling out even more interactive e-services, and thus evaluation of these, especially from the customer or citizen perspective, is vital, as it helps the relevant government agency assesses its progress in delivery.

The ECSF in the first instance provides a framework which provides a coherent understanding of how governments may achieve effectiveness in delivering e-services to its citizens. Given the underlying research objectives which informed the development of the ECSF, governments should be guided by the multi-dimensions of the framework to guide both planning, implementation and ongoing evaluation of the e-government service.

Primarily the objective of the E-government Citizen Satisfaction Framework (ECSF) is to provide a framework for governments to assess the effectiveness of their e-government services. The ECSF is a generic framework that can potentially be extended to multiple instruments that may then be used to evaluate e-government effectiveness through a citizen-centric perspective. The ECSF has been designed in such a way that practitioners are at liberty to select individual dimensions and apply these for a more detailed assessment of their e-government environment. As such, it provides a basic framework through the citizen expectation and facilitating conditions dimensions.

The framework, when necessary, can be adapted to fit the characteristics of a particular aspect of e-government. However, it is important to note that the value of the ECSF is to provide a holistic perspective of those dimensions of e-government which, when considered together, provide an integrated view of success.

## 6.5. Evaluation of the research

According to qualitative practice, the major evaluation methodology that was adopted in this research is that of confirmability of the research, rather than arguing for reliability and validity, as is usually the case in the quantitative school. This encompassed several research tactics to enhance the credibility, transferability and dependability of the research outcomes.

### 6.5.1. Credibility of the research

In this research, credibility can be attributed to the use of triangulation, referential adequacy and member checks strategies.

As outlined by Ritchie (2003:43-44), *triangulation* is referred to as extending understanding, or adding broadness and depth of analysis through the use of multiple perspectives. In this research, the primary source of data was the focus group and in-depth interview transcripts. Numerous items of data were also obtained from government documents and information garnered from various government websites. In addition to this, the information obtained from the documents was also used to cross-check interview and focus group transcripts.

Another evaluation strategy enhancing research credibility is *referential adequacy*, the provision of proof of existence of the data that has been collected. All the electronically recorded documents from various government agencies, and the transcripts, have been retained and are available for the determination of an audit.

Member checks refer to the checking of collected data by members of the researched group. This was conducted with practitioners of e-government in Tanzania. During collection of data, summarised notes of important aspects of the interviews were provided to informants for comment. Thus the member check process improved the quality of the interview data.

The research was also presented at various stages as peer-reviewed papers at two conferences. In addition, the work was presented at the CPUT Postgraduate Student Conferences of 2012 and 2014.

Based on the above, it should be noted that research credibility strategies were employed, not only at the finishing stage, but also while the research was in progress. The input from the research community was helpful insofar as it has assisted the researcher in improving understanding of the outcomes.

### 6.5.2. Research transferability

The outcomes of the research are transferable only when the findings of the study can be applied in a different context. This is facilitated by reporting the outcomes with sufficient detail, using *thick description* (Ritchie & Lewis, 2003:268). In this study, the discussions presented in Chapter Five meet the requirement for thick description. The explanation of ECSF is deeply rooted in the evidence that was collected. Excerpts from the interviews throughout support the explanations and reinforce the discussions, thereby securing the basis for the outcomes to have a degree of transferability.

### 6.5.3. Research dependability

*Research dependability* can be demonstrated by the use of an audit trail as a strategy (Babbie & Mouton, 2001:278). This concept is borrowed from the accounting and auditing professions for validation of values of organisations, particularly those in accounting books. This is a process designed to inspect

final values of accounts and the manner in which they have been entered into the accounting system.

In the world of research, on the other hand, the audit trail involves researcher's methods and data documentation, choices made during the research as well as its end results. For dependability, auditing requires rich and elaborative data and research description. A physical and an intellectual audit trail are two common types of audit trails applied to research. An intellectual audit trail shows how the study progressed, starting with the researcher's original interest to the final declaration that something of value has been added to the body of knowledge. On that ground, the outline of this study's intellectual audit is portrayed in Figure 6.2 below.

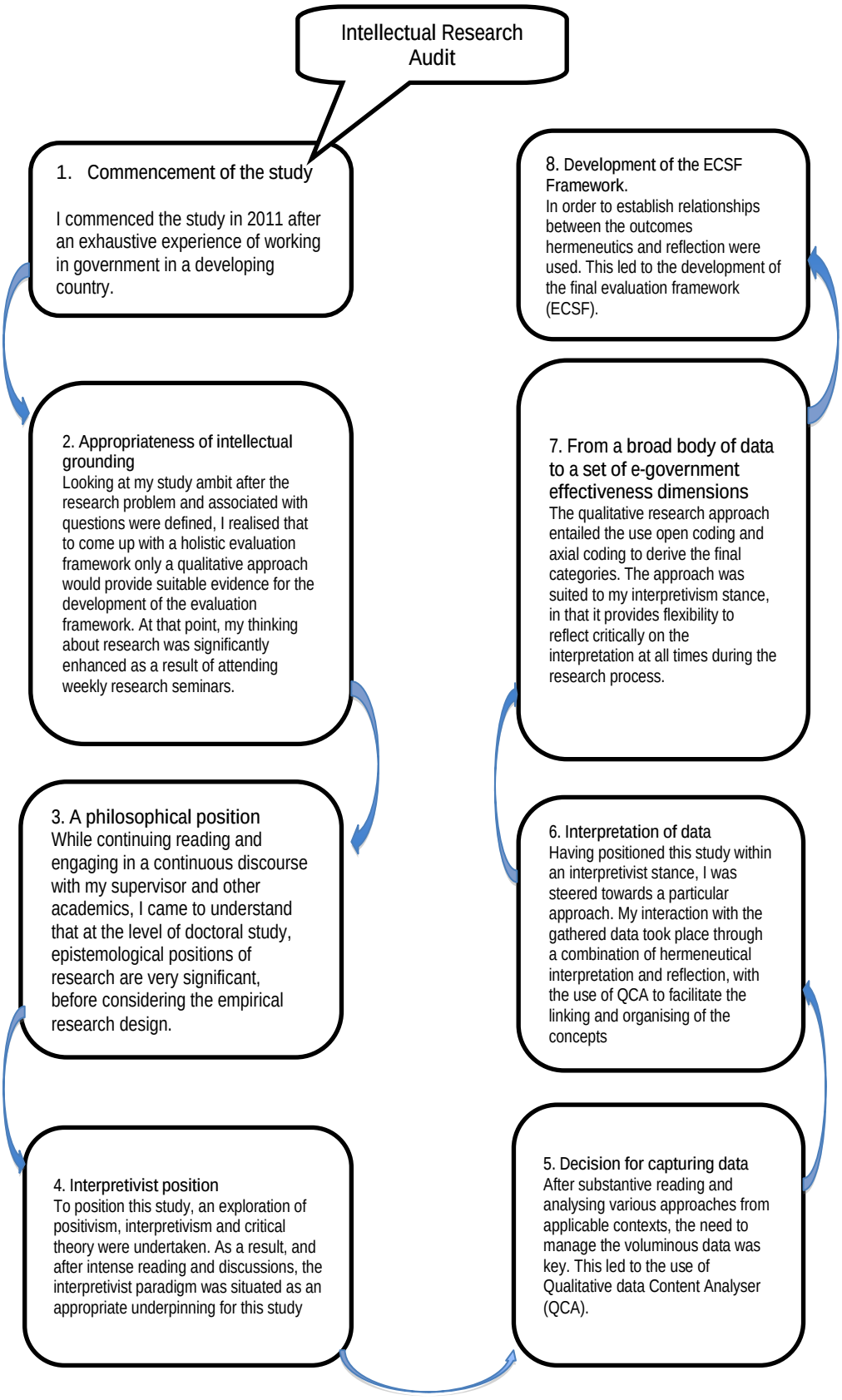


**Figure 6.2: The intellectual audit trail**

A physical audit trail outlines a synopsis of the key stages of the research,

from inception to the final evaluation framework, as presented in Figure 6.3.

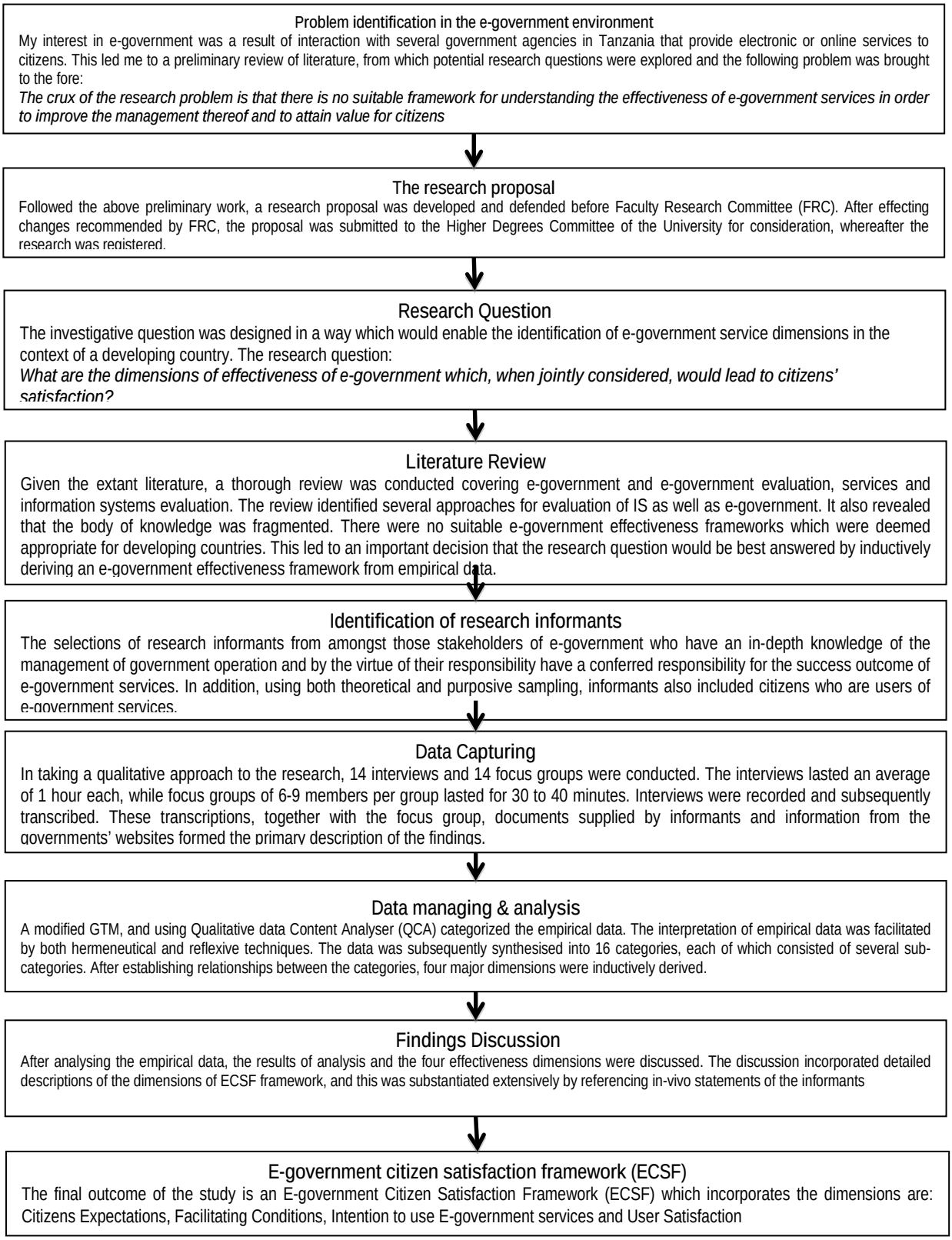


**Figure 6.3: Research physical audit trail**

## 6.6. Contributions of the research

The research outcomes of this study offer a useful contribution to the body of knowledge regarding the success of e-government services and the dimensions for evaluation of e-government effectiveness in the context of a typical developing country. Apart from furthering our understanding of e-government in the Tanzanian context, the research makes a number of broader theoretical and methodological contributions.

### 6.6.1. Theoretical contribution

A comprehensive literature review of prior work on the dimensions for evaluation of e-government service from citizens' perspectives was undertaken. This enabled the conceptualisation of an e-government effectiveness framework which can potentially be deployed to inform the analysis and understanding of a citizen-centric perspective of e-government success in Tanzania. The research, based on analysis of its empirical data, contributes to the field of e-government by presenting a framework for assessing the effectiveness of e-government service success based on citizens' perspectives. The framework encompasses citizens' expectations, which accommodate the functionality and the motivation to utilise the e-government services, as well as facilitating conditions, which encompass both enabling infrastructure and government preparedness.

This is a holistic, complete and multi-perspective approach to assess the effectiveness of e-government and its application in this empirical study of evaluating e-government service effectiveness in Tanzania, offering a degree of confidence in its applicability and practicality as a framework to understand the potential impact of e-government services. E-government researchers using this framework for assessing e-government effectiveness will facilitate a holistic analysis of this complicated phenomenon and avoid partial and inadequate understandings that arise from studies focusing on only a specific aspect or dimension.

Methodologically, this research is a useful example of the qualitative research approach, applying a multi-method approach which may inform other e-government researchers who hope to conduct similar studies. The holistic

evaluation of e-government services in Tanzania included not only multiple dimensions of analysis but also multiple methods for exploration of those dimensions, including interview transcripts, focus group discussions, and documentation and website analysis. Based on the particular research requirements and the conditions under which the research was conducted, all methods were deliberately and carefully chosen. The interviews, focus groups and documentation analysis enabled the obtaining of pertinent dimensions for the effective delivery of e-government services. Thus, the combination of these primary and secondary sources of data has made a significant contribution to the arena. To the current body of knowledge, this research adds not only the synthesis of dimensions for e-government effectiveness from the citizens' perspectives but also introduces a holistic perspective for assessing e-government success.

### 6.6.2. Practical contribution

The outcomes of this research have imperative practical implication for implementing e-government services in Tanzania. The e-government citizen satisfaction framework (ECSF) developed in this research will enable government to conduct evaluations of e-government service in the country and establish an overarching strategy for monitoring and evaluating e-government systems.

To the arena of e-government, the research has contributed a framework that bridges the gap between the government and citizens who are the users of the e-government services in Tanzania. Closing this gap will widen the scope of e-government systems evaluation to include multi-dimensions which embody citizens' perspectives. To managers and project sponsors, this framework contributed a foundation to build on by considering citizens' expectations and facilitating conditions when conducting e-government project evaluation.

Furthermore, this research contributed to the ongoing debate of the impact of dimensions for evaluation of e-government services by constructing existing work and presenting summaries, analysis and key dimensions as outlined below:

- Table 2.3: a summary of available comprehensive e-government evaluations that describe context and evaluation models (section 2.8.1).
- Table 2.7: with regard to ECSF dimensions, the analysis of existing dimensions for evaluation of service dimensions (section 2.9.7).
- Table 5.3: dimensions to include in an evaluation of e-government programmes that might have an impact on utilisation of e-government services by citizens in developing countries.

Finally, given that this research was conducted in the context of developing countries, the approach posited by this study serves as a template for e-government evaluation in this context. Further, the approach taken in this study exposes ways to benefit from evaluations of e-government services for success and to motivate utilisation of services by citizens. Furthermore, it provides a basis for obtaining efficiency and returns on investment of e-government systems.

## 6.7. Future research

In the course of this exploratory research that focused on developing a citizen-centric framework of e-government effectiveness, a number of issues that needed more attention were brought to light. Addressing these issues will advance the understanding of e-government and e-government evaluations, and the ways to evaluate e-government initiatives in developing countries. However, not all were addressed in this study because of time and resource limitations; thus, this section presents outstanding issues worthy of consideration for future research.

The outcomes of the study underscore the significance of providing e-government services which align with citizens' expectations. The scope of the study was central government and only three e-government services in the country were selected.

- Future research should investigate the importance of the dimensions on a larger scale that includes more selected e-government services.
- An important next step in the research will also entail the development of multi-item instruments, aligned to the ECSF dimensions to assess perceptions of citizens at different points in time of an e-government

programme. This will enable a government to measure the success and effectiveness of the initiative on an ongoing basis, thereby having a basis on which to undertake remediation in areas which do not meet citizens' expectations.

- Since the study was limited to central government, future research should focus on local government, e-government projects at local council level in Tanzania, which would also be valuable in extending the scope of citizens' utilisation of e-government services.
- Furthermore, as the improvement of citizens' expectations and facilitating condition dimensions helps to increase usage of e-government services, there is a need to understand their impact on society from the social, economic, and governance perspective; hence, evaluation of e-government remains vital.

## 6.8. Conclusion

As in other developing countries, implementation of e-government services in Tanzania has been a continuing process with differing levels of support. The establishment of a national e-government strategic plan and an agency that oversees the implementation of e-government is evidence of this. In Tanzania, high profile initial results have been achieved and support has been easy to find. Nevertheless, the activities of e-government in the next stage are more likely to include the development of lower-profile services which in turn are likely to be less apparent to both users and policy-makers. In view of that, it is suggested that monitoring and evaluation strategies in e-government planning and management are very important.

With no robustly calculated costs and benefits of e-government services in Tanzania, e-government projects will increasingly have difficulty obtaining political and public support. In that view, sound e-government service evaluation that is based on citizens' perspectives is necessary to allow policy-makers to compare benefits alongside other demands from public funds. This will highlight benefits and challenges of e-government services from different citizens in different situations, as different citizens from different situations have different perspectives on e-government services. Furthermore,

efficiency gains or expenditure savings will be highlighted, so that resource allocation will share elements of good practice.

This last chapter has provided answers to the initial research questions. In addition, new dimensions identified within the Tanzanian context have been incorporated with those in the existing literature that were found to be present within the Tanzanian context into an E-government Citizen Satisfaction Framework (ECSF), as depicted in Figure 6.1.

A number of recommendations by which the effectiveness of Tanzanian e-government services can be assessed were presented. What this research adds to the body of knowledge was presented in terms of several issues: the aforementioned evaluation framework; the research methods used in this research; and the way in which these research methods were applied.

Future research in this field of e-government services and the principal limitations to the present research, as identified by the researcher, were presented. Finally, the researcher's point of view is that the provision of and evaluation of e-government services are highly complex processes, requiring a strong strategy that is cognisant of the fact that dimensions of effectiveness change over time.

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# APPENDICES

## Appendix A: Letters

### Appendix A.1: Interview Request letter

Annastellah O Sigwejo
P. O. Box 13324
Dar es Salaam
Tanzania

Date:……..

Evaluating e-government services: Citizen-Centric framework in Tanzania

Dear, Prof./Dr./Mr./Mrs. ……

I am a doctoral student in the Department of Information Technology at the Cape Peninsula University of Technology (CPUT) in Cape Town, South Africa. I am conducting a research on evaluating e-government services citizen-centric framework in Tanzania.

Recent researches reveal limited recognition of the public value of e-government services. This in turn impacts on how citizens use and benefit from the use of e-government services. Unless we know what informs the current patterns of e-government service adoption and utilisation, we may never know the full extent of the potential value to citizens. It can be a self-defeating exercise to invest in e-government services that may not be used to their optimum potential to achieve intended objectives. **The aim of this research is to explore the means of evaluating the effectiveness of G2C e-government services, and to develop an evaluation model for e-government services in Tanzania.**

I kindly request your participation in an interview to share your experiences and your views of citizen-oriented e-government services in our country.

**Interview details**

The interview will take between 30 and 45 minutes, at a date, time and venue convenient to you. There no known risks or dangers to you associated with this study. The researcher(s) will not attempt to identify you with the responses to the interview questions or to name you as participant in the study; nor will they facilitate anyone else's doing so. Findings will be used principally for academic purposes but are also expected to contribute to policy-making, development and implementation of e-government by government agencies in Tanzania.

Thank you in advance for your participation.

Sincerely

**Annastellah Sigwejo**

**(Doctoral Candidate IT Department, CPUT)**

## Appendix A.2: Focus group request letter

Annastellah O. Sigwejo
P. O. Box 13324
Dar es Salaam
Tanzania

Evaluating e-government services: Citizen-Centric framework in Tanzania

Dear, Prof./Dr./Mr./Mrs. ……..

I am a doctoral student in the Department of Information Technology at the Cape Peninsula University of Technology (CPUT). I am conducting a research study that seeks to establish a means of evaluating the effectiveness of citizen-oriented e-government services in Tanzania.

Recent research reveals limited recognition of the public value of e-government services. This in turn impacts on how citizens use and benefit from the use of e-government services. Unless we know what informs the current patterns of e-government service adoption and utilisation, we may never know the full extent of the potential value to citizens. It can be a self-defeating exercise to invest in e-government services that may not be used to their optimum potential to achieve intended objectives. **The aim of this research is to explore the means of evaluating the effectiveness of G2C e-government services, and to develop an evaluation model for e-government services in Tanzania.**

**How you can help**

The purpose of this latter is to request you participate in a group interview to share your insight on e-government service and your experiences with e-government services.

**Interview details**

The Group interview (the focus group) will take place at the……,

From……., Friday, ……., You will received Tsh ……. For Participation, refreshment will be provided.

The study is for a doctoral degree qualification and data will be used solely for academic purposes. There no known risks or dangers to you associated with this study. The researcher(s) will not attempt to identify you with the responses to your questionnaire, or to name you as participant in the study nor will they facilitate anyone else's doing so.

Let me thank you in advance for your participation

Sincerely

_____

**Annastellah Sigwejo**

**(Doctoral Candidate IT Dept., CPUT**)

Research Participant: I acknowledge that I am participating in this study of my own free will. I understand that I may refuse to participate or stop participating at any time without penalty. If I wish, I will be given a copy of this consent form.

I _____ hereby accepted the invitation to participate in this focus group research interview as outlined above. Signed at _____ on this _____ day of _____. 20__.

SIGNATURE:-_____

## Appendix B: Research tool

### Appendix B.1: Interview questions

**Interview questions to executives/managers/ICT in the organisation that deliver online services**

Q1 How involved are you in e-government as (organisation), in Tanzania?

Q2 Would you please tell me why as (an organisation) opted for online services?

Q3 What do you think is the progress of online services in your organisation?

Q4 Where is that progress to be seen, and how can it be measured?

Q5 Do you think service quality management is needed in online services you have?

Q6 Are there specific service quality aspects that you would like to be considered during development of online services?

Q7 From the point of view of your (name organisations) would you describe the (name of service provided online) a success?

Q8 From your own personal point of view would you regard (name organisations) online service a success?

Q9 How do the (citizens) see the organisations?

Q10 Do you have and system or way where (citizens) give their comments, views, or needs for the services?

Q11 What must the (organisation) do to sustain the quality of the services?

Q12 What are your opinions for improving the quality of services delivery?

Q13 Are there specific service quality aspects that you would like to be improved?

Q14 What do you think are the benefits of online services?

**Appendix B.2: Interview questions to expert**

Q1 How involved are you in e-government, in Tanzania?

How long have you been using internet/compute?

What sort of activities you usually do when browser the net?

Q2 Why do you think Tanzania opted for e-government?

Q3 What do you think is the progress of e-government services in Tanzania?

Do current e-government services (website) introduce full necessity service for you?

Q4 Where is that progress to be seen, and how can it be measured?

Q5 E-government can be seen as a service – do you think service quality management is needed in e-government services in Tanzania?

Q6 Are citizens' requirements were/are properly embodied in e-government initiatives in Tanzania?

**Appendix B.3: Focus Group Guide**

**Evaluation of e-Government Services: Citizen-centric framework in Tanzania**

**Ground Rules**

1. Please talk one at a time in a voice as audible as possible.
2. Avoid side conversations with your neighbours.
3. We need to hear from everyone in the course of the discussion, but you don't have to answer every question.
4. Feel free to respond directly to someone who has made point. You don't have to address your comments to me to get them on the table. This includes asking for clarity on points other participants made.
5. Say what is true for you and your school of thought and have the courage of conviction. Don't let the group sway you and don't "sell out" to group opinion.
6. Organise yourself into group of four each. Each question will be put on the board, and you will have five minutes to discuss the question as a group. We will then all discuss the answers.

   Remember there is no right or wrong answer.

**Self-intros**

Please introduce yourself to the group and tell us

- Your name and occupation/course.

**Question One:**

is becoming essentials and beneficial to the government.

*In your view how can the Internet be of benefits to you?*

**Question Two**

"Our government has implemented a number of services which can be access via Internet"

*What are your views about Government providing services via the Internet? Do you support this way of service delivery?*

**Question Three**

*In using an e-government service what do you expect from this experience (prior to, during the actual use, and after)?*

**Question Four**

*Should government be doing this any differently?*

**Question Five**

*Are there any benefits from using e-government services? What are they?*

**Question Six**

*Anything else that we have not covered you think we could also discuss about it?*

**Appendix B.4: Document Analysis Form**

**Title:** Evaluating E-government Services. A Citizens- Centric Framework

Document Type: _____ Date received: _____

Site: _____ Written by: _____

Contact Persons: _____

Document Summary Form:

Name and Description of the Document:

Significance of the document:

Summary of the contents

Any other things

Issue to focus at in the next document analysis or document to search for:

## Appendix C: Analysis

## Appendix C.1: Quotation List

| Dimension | Quote No. | Sample Quote | Source: 2013 |
|---|---|---|---|
| Performance | Q1 | *"this kind of service (online) could also be the solution to the traffic jams on the roads. If the people could have access the service online then they will be no much traffic jams, people going to town to get some services."* | Interviewee 5 |
| | Q2 | *"With these systems we have reduced a lot of cheating, because you can do your payment at any point of cargo entry."* | Interviewee 8 |
| | Q3 | *"it helps to avoid forgery, normally before CAS they were using certificate to apply to different institutions, for some of them, they used forgery certificates but now they don't have to use certificates instead the system gets their results directly from National Examination Council of Tanzania (NECTA), since the system is linked with examination database (NECTA) and The National Council for Technical Education (NACTE)."* | Interviewee 12 |
| | Q4 | *"we have been able to avoid multiple selections because before Central Admission System CAS, you could find these applicant applied in more than one institutions, which can even be 7-8 institutions, sometimes, these students can be able to be selected in all those institutions so at the end you find about 8 slots a been occupied by one applicants which you can feel that a certain program is full which in real case is not full, because one applicant supposed to appear in only one programme."* | Interviewee 8 |
| | Q5. | *"CAS helps them not to travel from one region to another, from one institution to another institution in search of admission. But now they can go to the Internet or they can use their mobile phone to apply and check if they are admitted. This means that, they don't have to travel far away to seek for admission."* | Interviewee 8 |
| | Q6 | *"help them a lot to saving their money and time, because all of them now regardless of their financial status they can just apply for admission."* | Interviewee 12 |
| Service Quality | Q7 | *"It is Hard to understand because of the language* | Interviewee 14 |
| | Q8 | *"Language, is another big issue, most of our websites are in English, people do not understand the language of the website"* | Interviewee 6 |
| | Q9 | *Yah! Service quality, up to date information, you see some time, you may even visit one of government websites and you will see or you find that it was updated one or two years ago, and that means all the information is useless, you have seen it one year ago and it is still the same."* | Interviewee 9 |
| Interoperability | Q10 | *"We need to have a way where by all the systems we build could talk to each other. All these systems, which we have, were built in silos. At the apex there should be the engineering of these e-government systems* | Interviewee 10 |
| | *Q11* | *"There are a lot of services but they are not harmonised, there's no harmonisation. There are so many entities, which deal with ICT, but every entity moving on its own direction, we have NIDA coming up with a system one would think that they must have relation with those registering RITA, BRELA, passport system so one will think that at list one day all these will be harmonised."* | Interviewee 6 |
| | *Q12* | *"All the systems (e-government services) were built in silos in Tanzania, the implementation of these systems is in silos for example National ID Are there any platforms that we have prepared to host this? How many* | Interviewee 10 |

| | | | |
|---|---|---|---|
| | | *Government institutions have put in place systems, can this systems talk to each other, and can National ID link to this systems?"* | |
| | *Q13* | *"Any government institution which acquired a system should at list have a common field for verification as its minimum requirement. That could have been a starting point.. That means it is supposed to have data model. Every government institution should have a data model. For example the license system in TRA (Tanzania Revenue Authority, should have linked with customs system. So data model is very important because we will be able to have some identifier on whichever system is built* | Interviewee 4 |
| | *Q14* | *"We need to have a unique identifier, when you put a system in place, you should be able to link with other systems. This idea came during a period when we were designing our system and were expecting that NIDA when was completed it was going to provide unique identification for each citizen, which will be used anywhere."* | Interviewee 9 |
| | *Q15* | *"The existing situation of the land systems is not fully computerised… some service which are computerised, are in isolation for example computerisation system of land Management called Management of Land Information System (MOLIS) the system is a web based one and it has information for Land Administration… survey and mapping processes have also computerised but is not web based, is standalone… their processes, to generate title deeds you need information from both systems, now it is a very difficult thing to do. There's duplication of data and work, for example if you want a title for your plot, they will start to enter your details in another system while all your particulars are in another system, where these two systems do not talk (link) at all. An integrated system simply allows you to have all your data at one point."* | Interviewee 4 |
| | *Q16* | *"if you are applying for a passport, it takes you a lot of weeks to get it… for example the department that deals with passport must have a system that is well integrated for their work. But also for them to be able to give you a passport they must make some decisions about who you are, this means that they must be able to correspond with other government departments like NIDA the National ID to verify who you claim to be*." | Interviewee 2 |
| | *Q17* | *"Because you wouldn't expect such an organisation like TRA, which has lots of resources, all resources are at their disposal. Everything, and the staff are motivated, their connectivity is good, whatever programme they need they get it easily, but they are still using a lot of paper, a lot of papers! Yaani! Ina kera, Mimi sipendi hata kwenda pale, huwa namtuma mtu (Actually is disgusting! I really don't like, and I don't even like to go there, I usually send someone)."* | Interviewee 3 |
| | *Q18* | "*… another criterion of progress is quality improvement and less use of paper, but we are using a lot of papers, I just wonder what those computers are for at TRA, what are they for? They are just like a fashion!'* | Interviewee 3 |
| | *Q19* | *"So if you have proper ICT applications in the inter correspondent between this department and the departments that are responsible for issuing passports and the other department like the national ID, the police and the other one, if all of them have a system working this processes will be in a matter of minutes because the systems will talk and make decision of issue passport* | Interviewee 3 |
| Ease of use | *Q20* | *"I have been using Internet for long, it helped me to use* | Interviewee 15 |

| | | | |
|---|---|---|---|
| | | *online government services* | |
| | *Q21* | *"Accessed easily and easy to use"* | Interviewee 14 |
| Trust on e-government | *Q22* | *"I think people are now coming up to some extent. People are opening up now, if I say I send someone money, and the money I think it had reach to where I send. People realise things are happening. And on the other side they trust government…"* | Interviewee 4 |
| Inadequate expertise to manage e-government | *Q23* | *"we have very limited ICT professionals in the government, there were times we had very good ICT professionals in the government, but the problem is to retain them, because of that we are now reviewing the scheme of service of ICT cadre in the public services in order to make sure we can retain* | Interviewee 13 |
| Perceived Benefit | Q24 | *"… because it is a quick access, things are taken within, … are done within a short time, you get what you want within a short time, and all that it has social and economic impact not only to those business and to citizens but the country as a whole."* | Interviewee 15 |
| | Q25 | *"e-government services are important in terms of facilitating that kind of communication, it reduced the cost that is required in that communication in that partnership,"* | Interviewee 4 |
| | Q26 | *"… it increasing the efficiency as you uses e-government because as you access e-government services, there is the issue of increase productivity, so in that case with e-government you can be able to produce more…, the people who are providing the services are likely to be more productive also. The citizens and business people that are receiving service are likely to be more productive for whatever they are doing because the service are quick and easy to access*" | Interviewee 5 |
| | Q27 | *"instead of making people travel all the way from Mwanza to Dar es Salaam, just to collect or fill some forms, the forms can be filled in five minutes online, and then people will go on their actual business activities which make them more this is very productive, more effective and allows them time for other needs"* | Interviewee 13 |
| | Q28 | *"Also this kind of service (online) could also be the solution to the traffic jams on the roads. If the people could have access to online services, then there will be not much traffic jam, movement of people going to town to get some services will reduce."* | Interviewee 5 |
| | Q29 | "*Because people want to save their time, they want convenience; they want simplicity, and the government sometimes does not offer this kind of services which are provided by few organisations."* | Interviewee 1 |
| | Q30 | *"… me I see, there more and more bureaucracy if it was under one Ministry may be the Ministry of Science and Technology that the e-government is there then it could be easy because is the one provide National ICT policy, then the agency will be to implement the ICT policy as far as e-government is concerned."* | Interviewee 4 |
| Inadequate infrastructure | Q31 | *"… I heard that installation of the national fibre cable network is 99% completed, but I think it is under- utilised, …we are not ready! So another issue is we are not ready…"* | Interviewee 4 |
| | Q32 | *"…e-government initiatives require infrastructure that is ICT enabled, and anything ICT enabled requires strong and sound infrastructure including power, when you don't have power your ICT will be weak, so power is inclusive"* | Interviewee 8 |
| | Q33 | *"… our biggest challenge is infrastructure. When I say infrastructure, it also includes data centre, if you go to the government exhibition you will find that every government institution with the server room we want to have a common data centre, we have very big problem* | Interviewee 4 |

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| | | *in power that is why you find most of the government services are offline."* | |
| | Q34 | *"we must have infrastructure as a road to deliver services. We can have very good e-government services but if we don't have infrastructure to Rudewa for example, we don't have infrastructure to Ngara, we won't help someone from Ngara, and he/she will be forced to come to Dar es Salaam to get services, so we must have proper infrastructure up to the remote level, for the citizens to be able to access these services* | Interviewee 13 |
| Access limitation | Q35 | *''There is a need for reliable power for the country to have reliable network"* | Interviewee 15 |
| | Q36 | *"… there is unequal distribution and access to Internet and unequal distribution of infrastructure"* | Interviewee 15 |
| | Q37 | *"there is unstable/poor/weak network in Tanzania"* | Interviewee 15 |
| | Q38 | *"The services are limited to urban and Internet literate people* | Interviewee 15 |
| Multichannel delivery of e-government services | Q39 | *"…it is important for the government to be innovative and a typical example is the use of mobile phones, there are some services that government can deploy, they can access them through mobile phones as well. Much as you can develop some services that are accessible to smart phones or computers or other…"* | Interviewee 1 |
| | Q40 | *"So the government should be innovative and clever in making sure that it deploys services so that many people can access it, and the trick is to use well available equipment we have, currently in Tanzania we have about 26 or 27 million subscribers of mobile phone users which indicates that many people have mobile phones, with the nature of Tanzania, when you have a mobile phone it can be a mobile phone for the whole family or the whole village. This has happened in my home village, the first mobile phone in the village became a community phone so people could get services out of that phone. So in rural areas, such kind of innovation can be used to bring services to people, and it doesn't stop the government from deploying it the government is really committed to that"* | Interviewee 1 |
| | Q41 | *"one of the examples is m-pesa and others, my mother is over 72 years but she can use the cell phone, she is using it in the village, so it is possible to get services like your medical test results. If someone went to hospital, instead of waiting for the result at hospital, he/she can be informed later of the results through the test message, government should be able to do that. The penetration of mobile phone even in the villages, shows how people have accepted the technology. This automatically creates a very good infrastructure for service delivery, so the government has to use this opportunity to deliver services to citizens."* | Interviewee 13 |
| | Q42 | *"telling the community or the citizens that from now, if you want this service you can get it from this particular place, may be you can put a mobile kiosk somewhere, people can just go there and get the services, may be you can just go to one of the banks counter and then get the services there if you want to pay your land rent you just go to the bank there's a counter where you just pay, then everything is done. If you want to do some transfers, you only need to go to your attorney or your own legal adviser to whatever required just once and get results, no coming back as it used to be.. At least to reduce the number of people coming in there, and give more room to the people outside to work, that one will work."* | Interviewee 4 |
| Coordination of e-government | Q43 | *"Aha! it's a new concept! It is a new concept that needs a lot of awareness not only to the users even to the* | Interviewee 4 |

| | | | |
|---|---|---|---|
| services | | *providers. To me, I said preparedness is very, very low, we are not ready although we can't stay aside and say that let's wait to be ready! So to that, I think more is needed to make the provider know the concept itself and be ready to change."* | |
| | Q44 | *"The use of ICT in the government or as you called e-government has started quite some time particularly after the introduction of National ICT Policy 2003, quite a number of institutions have been adopting ICT in their core operations the only thing that was lack was guidance and coordination, so what you are seeing now is mostly ad-hoc e-government related initiatives in ministries, departments, agencies and local government."* | Interviewee 2 |
| | Q45 | *"There are a lot of services but they are not harmonised, there's no harmonisation. There're so many entities, which deal with ICT, but every entity moving in its own direction,"* | Interviewee 6 |
| Commitments of Management | Q46 | *"I think we need the full commitment of top administration if you want IT to succeed, that is a must."* | Interviewee 2 |
| | Q47 | *"There is a need political and top management champion on e-government"* | Interviewee 4 |
| Government process change towards citizens-centric mode | Q48 | *"it should not involve traditional ways of serving people that is government whether you like it or not, then if you want to take services it is okay! If you don't want it, then, it is up to you! It should now change, in such a way that it should now look at the citizens as customers, the people who need to be cared for, people who need to be invest upon, that kind of attitude need be adopted by the government,"* | Interviewee 1 |
| Legislation and Policies | Q49 | *"The legal issue part of it! our legal system as far as e-government services are concerned, is not supportive. I don't think they recognise e-communication, that means someone can send an email and be taken as a legal document! We are still there, we don't have a legal mechanism to support the e-services in the government we are still depending very much on paper."* | Interviewee 6 |
| | Q50 | *"… in our feasibility study one of the area was … readiness to adopt e-procurement which was 40-50% low … we still have a long way to go, that is, we are not ready to do e-procurement and this means we can't do electronic business!"* | Interviewee 6 |
| Funding | Q51 | *"We need proper funding, right now we are not financially independent. We are independent in operations but not financially. We need enough funds to be able to develop systems, and secondly it is about employment, we need to recruit the right people for the right job that is skilled one. Because the issue of funds go hand and hand with the skills development, you may find for the last two years people don't go for training or seminars, keep them updated with technology."* | Interviewee 13 |
| Awareness of existing system | Q52 | *"User awareness; this is very important, we can have very nice service up to the village levels, but if users are not aware they will not use it, so we must create awareness through public education, advertisements via different media so that people can be aware and use the services."* | Interviewee 13 |
| | Q53 | *"The are some services which are online but most of the citizens are not aware of that, for example, few days ago, like a week I went to PPF (Public Pension Fund), you know PPF they have this online, you can be able to look at your contribution."* | Interviewee 5 |
| | Q54 | *"… we didn't know that the services are exist, …"* | Interviewee 15 |
| | Q55 | *"The services are not well known, it needs awareness creation"* | Interviewee 15 |

| | | | |
|---|---|---|---|
| | Q56 | *"There is a strong need of awareness, people are not aware,"* | Interviewee 15 |
| | Q57 | *"The only thing we are supposed to do is to create awareness, and inform the people."*<br>*"All these system, which we have, they were building in silos".* | Interviewee 15 |
| | Q58 | *"… no infrastructure, transport problem, we thought one of approach is to create a website which through Internet café and telecentres and town centres they can they can down load and fill in and bring to us."* | Interviewee 7 |

## Appendix C.2: Websites Analysis Appendices

### Government websites List

| | Organisation | URL |
|---|---|---|
| 1 | Prime Minister's Office | www.pmo.go.tz |
| 2 | Prime Minister's Office Regional Administration and Local Government | www.pmoralg.go.tz |
| 3 | President's Office, Public Service Management Department | http://www.utumishi.go.tz/ |
| 4 | Ministry of Finance | www.mof.go.tz/ |
| 5 | Ministry of Agriculture, Food, and Cooperative | www.agriculture.go.tz |
| 6 | Ministry of Land Management and Human Settlement Development | www.ardhi.go.tz |
| 7 | Ministry of Health and Social Welfare | www.moh.go.tz |
| 8 | Tanzania National Electrical Company | www.tanesco.co.tz |
| 9 | Ministry of Natural Resources and Tourism | www.tanzaniaports.com |
| 10 | Ministry of Energy and Minerals | www.mem.go.tz |
| 11 | Ministry of Water | www.maji.go.tz |
| 12 | Ministry of East African Cooperation | www.mnrt.go.tz |
| 13 | Ministry of Education and Vocational Training | www.moe.go.tz |
| 14 | Ministry of East Africa Cooperation | www.meac.go.tz |
| 15 | Ministry of Community Development, Gender and Children | www.mcdgc.go.tz |
| 16 | Ministry of Communication Science and Technology | www.mst.go.tz |
| 17 | Ministry of Home affairs | www.moha.go.tz |
| 18 | Ministry of Justice and Constitution Affairs | www.sheria.go.tz |
| 19 | Bank of Tanzania | www.kazi.go.tz |
| 20 | Tanzania Parliament | www.parliament.go.tz |
| 21 | National Electoral Commission | www.nec.go.tz |
| 22 | Tanzania Investment Centre | www.bot-tz.org |
| 23 | Tanzania Revenue Authority | www.tra.go.tz |
| 24 | Tanzania Tourism Board | www.brela-tz.org |
| 25 | Tanzania Communications Regulatory Authority | www.tcra.go.tz |
| 26 | Unit Trust of Tanzania | www.tic.co.tz |
| 27 | Tanzania Bureau of Standards | www.tbs.go.tz |
| 28 | Tanzania Social Action Fund | www.tasaf.org |
| 29 | National Social Security Fund | www.nssf.or.tz |
| 30 | PPF Pension Fund | www.ppftz.org |

| | | |
|---|---|---|
| 31 | National Examinations Council | www.necta.go.tz/ |
| 32 | Public Procurement Regulatory Authority | www.ppra.go.tz |
| 33 | Tanzania Meteorological Agency | www.meteo.go.tz |
| 34 | Tanzania Commission for Science and Technology | www.costech.or.tz |
| 35 | National Council for Technical Education | www.nacte.go.tz |

## Appendix C.3: Analysis framework development

| | Stage | Features | Source | | |
|---|---|---|---|---|---|
| | | | Q | M | R |
| 1 | Information | Basic Information | ✓ | | |
| 2 | | News and coming events | ✓ | | |
| | | Email Address | ✓ | | |
| | | Multiple Language | | ✓ | |
| | Interaction | Service detail | ✓ | | |
| | | Service tracking | ✓ | | |
| | | FAQs | ✓ | | |
| | | Email Support | | | |
| | | GIS Map | | ✓ | |
| | | Online Form/application | | | ✓ |
| | | Registration for services online | | | |
| | | Download form | | | ✓ |
| | Transaction | Online payment | ✓ | ✓ | |
| | | Ordering facility | | ✓ | |
| | | Email payment/ ordering | ✓ | | |
| | | Transaction handling | | ✓ | |
| | Integration | Links to other Organisations/Business | ✓ | | |
| | | Bulletins boards | ✓ | | |
| | | Single payment (all services) | | | ✓ |
| | | Single application for all services | | | ✓ |

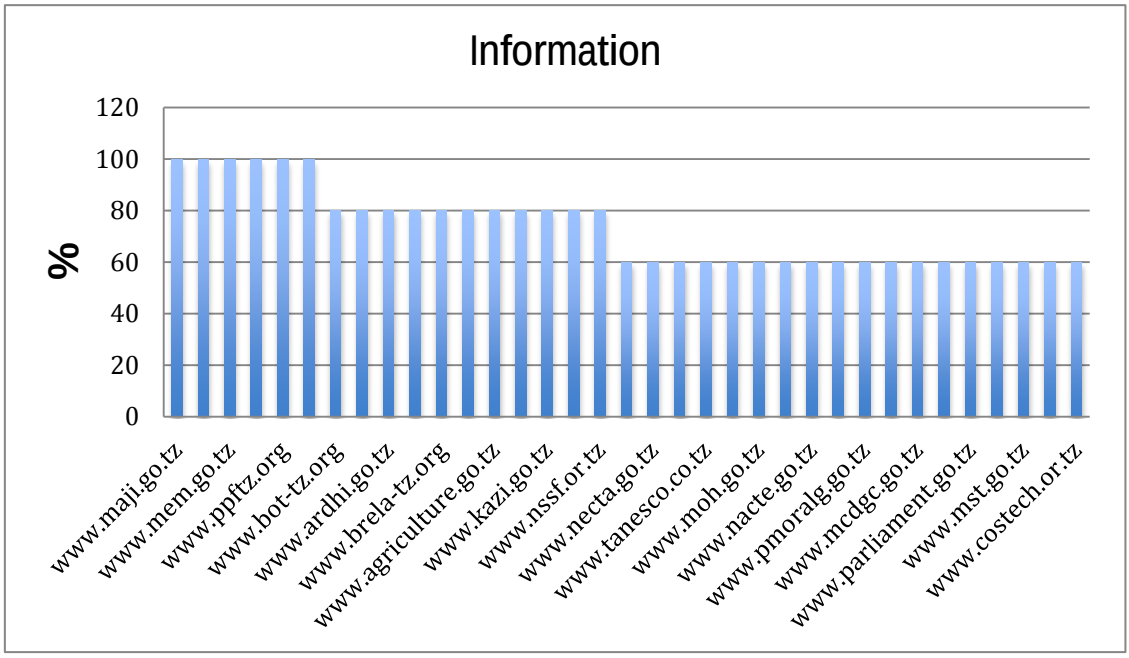
**Source Legend Q:**(Quirk, 2000; Peter Shackleton, Fisher, & Dawson, 2004)**, M:** (Abdelsalam et al. 2011)**, R:** The Author

## Appendix C.4: Website Analysis Framework

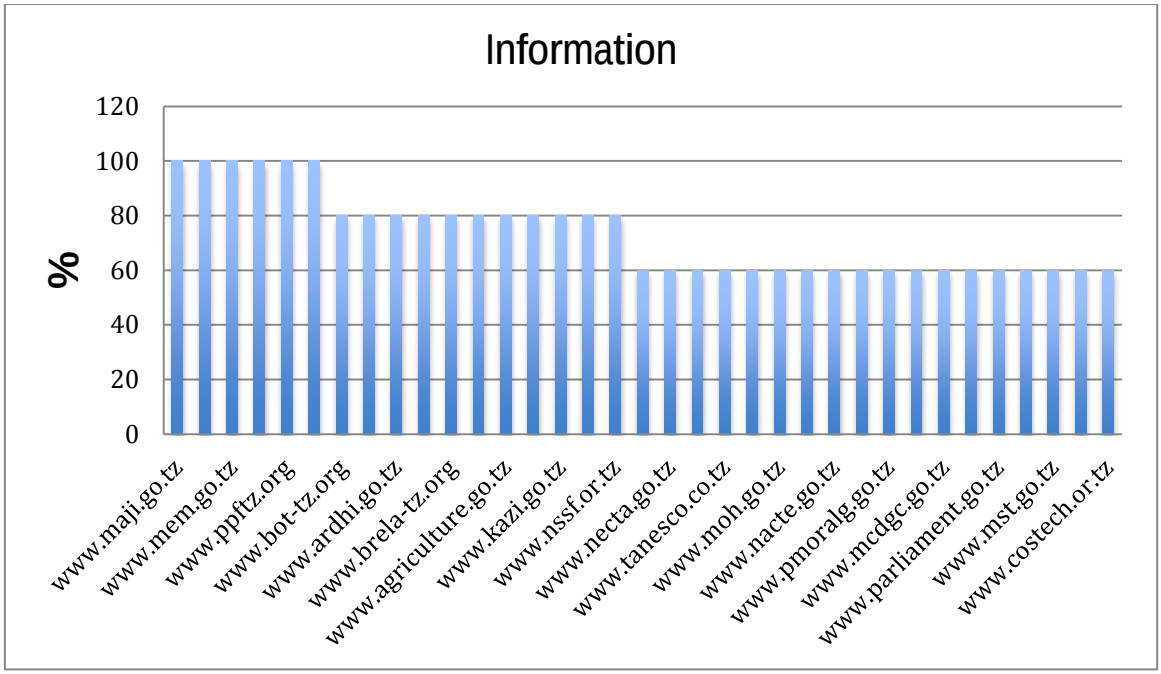
| Information |
|---|
| Basic Information |
| News and coming events |
| Email Address |
| Multiple Language |
| Interaction |
| Service detail |
| Service tracking |
| FAQs |
| Email Support |
| GIS Map |
| Online Form/application |
| Registration for services online |
| Download form |
| Transaction |
| Online payment |

| |
|---|
| Ordering facility |
| Email payment/ ordering |
| Transaction handling |
| Integration |
| Links to other Organisations/Business |
| Bulletins boards |
| Single payment (all services) |
| Single application for all services |

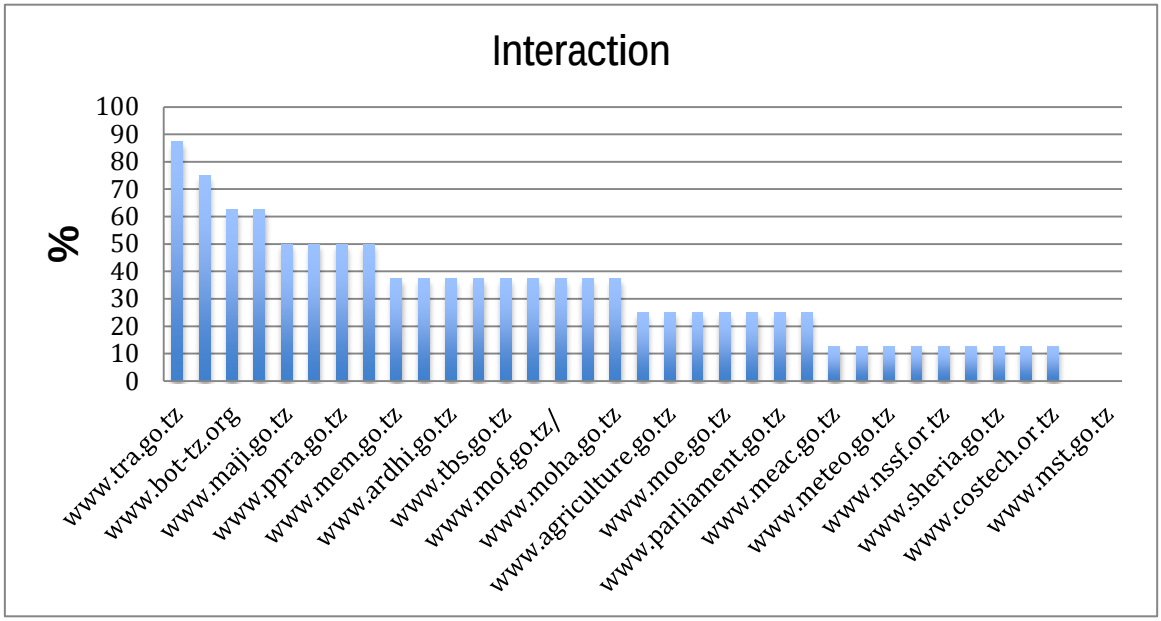
**Appendix C.5: Government websites score for all stages**




**Government website analysis score for the information stage**




**Government website analysis score for the interaction stage**



**Appendix C.6: Government websites analysis**

| Website | Total Score (max =21) | Information (max=5) | Interaction (max=8) | Transaction (max=4) | Integration (max =4) |
|---|---|---|---|---|---|
| www.tra.go.tz | 15 | 3 | 7 | 4 | 1 |
| www.maji.go.tz | 11 | 5 | 4 | 1 | 1 |
| www.bot-tz.org | 11 | 4 | 5 | 1 | 1 |
| www.necta.go.tz | 11 | 3 | 6 | 1 | 1 |
| www.tanzaniaports.com | 10 | 3 | 5 | 2 | 0 |
| www.utumishi.go.tz | 9 | 5 | 4 | 0 | 0 |
| www.mem.go.tz | 9 | 5 | 3 | 0 | 1 |
| www.tcra.go.tz | 9 | 5 | 3 | 0 | 1 |
| www.ppra.go.tz | 9 | 4 | 4 | 0 | 1 |
| www.ardhi.go.tz | 8 | 4 | 3 | 0 | 1 |
| www.tanesco.co.tz | 8 | 3 | 3 | 2 | 0 |
| www.mnrt.go.tz | 8 | 4 | 3 | 0 | 1 |
| www.brela-tz.org | 8 | 4 | 1 | 2 | 1 |
| www.tbs.go.tz | 8 | 4 | 3 | 0 | 1 |
| www.ppftz.org | 8 | 5 | 2 | 1 | 0 |
| www.mof.go.tz/ | 7 | 3 | 3 | 0 | 1 |
| www.agriculture.go.tz | 7 | 4 | 2 | 0 | 1 |
| www.moh.go.tz | 7 | 3 | 3 | 0 | 1 |
| www.moha.go.tz | 7 | 3 | 3 | 0 | 1 |
| www.nacte.go.tz | 7 | 3 | 4 | 0 | 0 |
| www.meac.go.tz | 6 | 5 | 1 | 0 | 0 |
| www.meteo.go.tz | 6 | 4 | 1 | 0 | 1 |
| www.pmo.go.tz | 5 | 3 | 2 | 0 | 0 |
| www.pmoralg.go.tz | 5 | 3 | 1 | 0 | 1 |
| www.moe.go.tz | 5 | 3 | 2 | 0 | 0 |
| www.mcdgc.go.tz | 5 | 3 | 2 | 0 | 0 |
| www.sheria.go.tz | 5 | 3 | 1 | 0 | 1 |
| www.kazi.go.tz | 5 | 4 | 0 | 0 | 1 |
| www.parliament.go.tz | 5 | 3 | 2 | 0 | 0 |
| www.nec.go.tz | 5 | 3 | 2 | 0 | 0 |
| www.tic.co.tz | 5 | 4 | 1 | 0 | 0 |
| www.nssf.or.tz | 5 | 4 | 1 | 0 | 0 |
| www.mst.go.tz | 4 | 3 | 0 | 0 | 1 |
| www.tasaf.org | 4 | 3 | 1 | 0 | 0 |
| www.costech.or.tz | 4 | 3 | 1 | 0 | 0 |

## Appendix D: Categories Appendices