TOWARDS A TRANSFORMATIONAL GOVERNMENT FRAMEWORK FOR SUB-SAHARAN AFRICA

by

TENDANI MAWELA

Submitted in partial fulfilment of the requirements for the PhD in Informatics in the Faculty of Economic and Management Sciences

UNIVERSITY OF PRETORIA

STUDY LEADERS: PROF. NM OCHARA AND PROF. H TWINOMURINZI

FEBRUARY 2015

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

ABSTRACT

Title: Towards a transformational government framework for sub-Saharan Africa
Candidate: Tendani Mawela
Promoters: Prof. Nixon Muganda Ochara
Prof. Hossana Twinomurinzi
Department: Informatics
Degree: Philosophiae Doctor (Informatics)

The study aimed to understand the contribution of information and communication technologies (ICT's) towards socio-economic development. Electronic Government (e-Government) projects are pervasive within the African continent as seen with the numerous governments that have expressed strategies outlining plans for the implementation of a variety of e-government initiatives. However, despite the elaborate strategic plans and policies, the core challenge remains with the minimal successful implementations of e-government projects.

In the face of this disappointment, the sentiment that ICT's do hold the potential to transform the trajectory of development remains. This research study focused on investigating how e-Government programmes and the emergent area of Transformational Government (t-Government) are currently conceptualised for developmental impacts. The study concerned itself with the overarching question: How is Transformational Government conceptualised within sub-Saharan Africa for Developmental Impacts?

The study relied on a critical realist philosophical paradigm to offer an explanatory critique of current e-Government programmes. To do this, the study conducted research at the national, provincial and local government levels supported by methodological pluralism comprising of intensive and extensive approaches.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

The study showed that our current conceptualisation within ICT enabled development initiatives is limited and problematic for attaining t-Government. It is overly technically focussed and alternatively requires a socio-technical understanding. The study argued that t-Government may be driven by several generative mechanisms and these include participatory governance coupled with transparency and trust in government. It also requires transformative technology and infrastructure innovation. Furthermore, there is a need for public sector operational effectiveness to be addressed. Finally it argued that the current gap in understanding across the various tiers of government may need formal and informal feedback procedures supported by monitoring and evaluation frameworks.

The study contributes to the dearth of research in the nascent t-Government domain. Its main theoretical contribution is the proposed conceptual framework for t-Government towards socio-economic development. Methodologically it offers an example of how critical realist case studies supported by methodological pluralism may be used to understand the trajectory of ICT driven projects within a developing country. Practically it proposes several principles to guide implementation when undertaking t-Government initiatives.

Keywords: ICT for Development (ICT4D), Electronic Government (e-Government), Transformational Government (t-Government), Electronic Participation (e-Participation)

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

DECLARATION

I declare that the thesis titled: "**Towards a transformational government framework for sub-Saharan Africa**" which I hereby submit for the degree PhD (Informatics) at the University of Pretoria, is my own work and that all sources I have used have been indicated in the references and acknowledgements. It has not previously been submitted by me for a degree or examination at this or any other tertiary institution.

Tendani Mawela
February 2015

DEDICATION

To my family:

Lucas, **Tokelo**, **Tshwanelo** and **Tlotliso**

You are my inspiration.

Your faith in me carried me through this journey.

Thank you.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

ACKNOWLEDGEMENTS

A heartfelt thank you to all those that assisted me with this study. I would particularly like to acknowledge the following:

Firstly, I would like to thank God, from whom all wisdom and blessings flow.

My supervisors, Prof. Nixon Muganda Ochara and Prof. Hossana Twinomurinzi, thank you for challenging me and continuously asking the difficult questions. I truly appreciate your support, guidance and insight.

My mum, Prof. Cynthia Marivate, thank you for the immeasurable support and always being an excellent example of true wisdom.

My extended family, the Mawela's, Marivate's and Tseki's, and my friends who provided support and understanding throughout this process. Thank you for the many prayers and words of encouragement.

Prof. Alta van der Merwe and the Department of Informatics. Thank you for your support and the enabling environment for the completion of my studies.

The Vice Chancellors office, the office of the Vice Principal-Research and Post Graduate Education, and the Department of Research and Innovation Support. Thank you for awarding me the UP Academic Development Grant which allowed me the time to complete the writing of my thesis.

All the respondents, who shared their time, knowledge and experiences. Without you this study would not be possible.

TABLE OF CONTENTS

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

CHAPTER 7: CITIZEN FACTORS FOR T-GOVERNMENT 198

CHAPTER 8: TOWARDS A T-GOVERNMENT FRAMEWORK 229

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

LIST OF TABLES

LIST OF FIGURES

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

LIST OF ABBREVIATIONS, ACRONYMS AND INITIALISMS

Item	Description
ANC	African National Congress
ANT	Actor Network Theory
ASA	Access, Skills and Attitudes Framework
AU	African Union
COBRA	Cost, Benefit, Risk and Opportunity Framework
COSATU	Congress of South African Trade Unions
CR	Critical Realism
DMTN	Domestic Medium Term Note
DOC	Department of Communications
DOT	Department of Transport
DPSA	Department of Public Service and Administration
DST	Department of Science and Technology
e-Governance	Electronic Governance
e-Government	Electronic Government
e-Participation	Electronic Participation
e-Tolling	Electronic Tolling
GCIS	Government Communication and Information System
GFIP	Gauteng Freeway Improvement Project
GOVQUAL	E-Government Quality Based Methodology
G2B	Government to Business
G2C	Government to Citizen
G2E	Government to Employee
G2G	Government to Government
ICASA	Independent Communications Authority of South Africa
ICT	Information and Communications Technology
ICT4D	Information and Communications Technologies for Development
IS	Information Systems
MDG	United Nations Millennium Development Goals
M-PESA	M for mobile and PESA is Swahili for money
NDP	National Development Plan
NEPAD	The New Partnership for Africa's Development
NPC	National Planning Commission of South Africa

Item	Description
NPM	New Public Management
OECD	Organisation for Economic Cooperation and Development
OUTA	Opposition to Urban Tolling Alliance
PPR	Public Sector Process Rebuilding Model
SACP	South African Communist Party
SAHO	South African History Online
SANRAL	South African National Roads Agency
STATSSA	Statistics South Africa
TAM	Technology Acceptance Model
t-Government	Transformational Government
UK	United Kingdom
UNDP	United Nations Development Programme
UNPAN	United Nations Public Administration Network
UNSTATS	United Nations Statistics Division
US	United States of America
USAASA	Universal Service and Access Agency of South Africa

CHAPTER 1: INTRODUCTION & BACKGROUND

"Technological progress has merely provided us with more efficient means for going backwards".

Aldous Huxley

1.1 Introduction

We live in a world that has seen a multitude of scientific and technological innovations and advances. One arguably revolutionary innovation has been the advent and proliferation of the Internet. The Internet along with various other Information and Communication Technologies (ICTs) has drastically changed the modus operandi of private business, government and the non-profit sector. These organisations have chosen to utilise ICTs to survive in an increasingly dynamic, demanding and complex world. Furthermore, organisations have seen expectations for value and quality of services rise from their various stakeholders (Devadoss et al., 2003). In response, governments, businesses and charities alike have invested in ICT solutions with the hope of fulfilling some of the expectations of their manifold stakeholders.

In the public sector ICT investment primarily manifests itself as Electronic Government (e-Government) programmes. The world has witnessed numerous e-Government projects (Irani et al., 2008) and Africa is no exception in its commitment of financial, human and other resources to the e-Government agenda. However, for some scholars in the Information Systems (IS) arena, the question remains as to the impact of technology investments on the governance and citizenry of a country that represent the critical stakeholders of government (Irani et al., 2008, Janssen and Shu, 2008).

The dialogue on the benefits arising from implementing ICT for better governance resides within the ICT for Development (ICT4D) domain. The main tenets of the ICT4D discourse highlight the potential of ICT for bringing about broader developmental impacts (Jaeger and Thompson, 2003, Ndou, 2004, Heeks, 2010) particularly to countries that are seen to be developing and not yet fully industrialised.

This study concerned itself with the contribution that ICT's can make towards socio-economic development. The angle taken by this research study was to understand, critically analyse, assess and contribute to the growing body of ICT4D knowledge by investigating the concept of Transformational Government (t-Government), which has emerged in the literature as an alternative to how e-Government has been conceptualised to date.

1.2 Background and Motivation for the Research

It is acknowledged that the public sector faces unique challenges in delivering services to their constituents including: having a complex service offering for a variety of customers; standardisation as a prerequisite for integrated and user-focused service delivery; facing limited funding and technical resources; as well as a change resistant bureaucratic culture and other organisational impediments (Ho, 2002, Heeks, 2003, Janssen and Shu, 2008, Wang, 2009).

However, even with these challenges, much is still expected of governments and more so of those that are in the developing world whose constituents are in need of basic services such as health, education and social care. Thus failure to deliver in these instances has the most impact on people that are historically neglected. Looking at specifically the African context it has been found that there is growing commitment to utilising ICT within the public sector. Various governments have published policies toward implementing e-Government in the last decade. Examples of strategies of a few sub-Saharan countries are outlined below:

Table 1: ICT Policy Focus Areas (Adapted from IST-Africa, 2012)

Country	Focus of ICT Policy
Botswana	• Economic, social, political and cultural transformation
Burundi	• Reinforce the capacities of the human resources • Improve the legal and authorized environment • Promote and reinforce the development of the required infrastructures

Country	Focus of ICT Policy
	• Promote good governance • To promote and encourage private investment • Promote the development of the content and applications
Cameroon	• Support the country's poverty reduction efforts • Capacity and skills enhancement to achieve socio-economic growth
Kenya	• Infrastructure development • Human resources development • Stakeholder participation • Establish appropriate policy and regulatory framework to achieve a prosperous ICT society
Lesotho	• Coordinate all stakeholders (public and private) and attract necessary investment
Mauritius	• Focuses on transforming the ICT sector into the fifth economic pillar (joining manufacturing, sugar, tourism and financial services) • Position Mauritius as a regional hub for ICT • Leverage ICT to support socio-economic growth through increased productivity and efficiency
Mozambique	• Poverty reduction • Provide citizens with access to global knowledge • Improve the efficiency of governmental institutions and their capacity to deliver public services • Improve governance • Position Mozambique as a producer of ICT and as a partner in the global information society
Namibia	• ICT as contributor to national economic progress • ICT sector is elevated as the most important sector in the development of the country
Senegal	• ICT as an instrument to improve the productivity of public services, develop quality services and modern communications • Accelerate economic growth
South Africa	• Advancement of ICT research, development and innovation • Create an inclusive information society • Human capital (e-skills)
Tanzania	• Enable the country to become a hub for ICT solutions that contribute to socio-economic development locally and internationally
Uganda	• ICT as a tool for modernisation and developing a national ICT business sector • Capacity building • Socio-economic development

Even though the countries cited above have different contexts and vary with regards to infrastructure, human resources capacity and financial assets there is a commonality within the issues that the ICT policies seek to address (IST-Africa, 2012). From the above ICT Policy examples (Table 1), a common focus area that may be highlighted is

the use of ICT in achieving socio-economic development goals. This commitment to utilising ICT has been supported by financial investments. It is noted that approximately US$800bn is allocated to ICT projects annually by developing countries (Heeks, 2010). This study acknowledges the strategic commitments made by various African governments such as those reflected in Table 1 above but seeks to focus on understanding the impacts thereof. There is a need to focus on the transformative power of ICT initiatives - as voiced by the former Deputy Minister in the Department of Communications South Africa, Mr. Obed Bapela (Department of Communications, 2011 : 6) :

> *"Faster and more lasting development must flow from the use of ICTs with the emphasis on wiping out disparities and acting as an equalising force, rather than exacerbating the divide between the powerful and advantaged on one side, and the disempowered and poor on the other side."*

In addition, Heeks (2010) indicates that there is an over-emphasis on the issues of technology design, innovation, diffusion and implementation and not on the actual outputs and impacts of e-Government projects on socio-economic development. As expressed by Irani et al (2007b) there is a gap in e-government research since it "continues to privilege the technology and transactional side of e-Government at the expense of transformation and social inclusion" (Irani et al., 2007b: 7). The literature also raised a concern on the lack of theory based evidence of the impact of ICT (Heeks, 2010, Irani et al., 2008) and this study echoes and is motivated by this concern.

1.3 Context of the Study

The sub-Saharan Africa region commonly refers to countries that geographically lie south of the Sahara desert (United-Nations, 2014). The study acknowledges that the region comprises of countries that have varying histories, demographics, economic, political, cultural and social experiences. However, the study also notes that through for example trends in globalisation driven by economic integration efforts, increasing trade, political factors, improving transport systems, mobility of human resources, infrastructure investments, telecommunications revolution and growth of ICTs (Santos, 2002, Giddens,

2002, Mazilu, 2010) the continent is becoming increasingly interdependent and interlinked in a highly complex manner. This increasing integration of the region is recognised by this study and may influence development efforts (Lawal, 2006). The study reflected on sub-Saharan Africa but drew data from primarily South Africa as an example of a developing country. The following section thus accordingly provides a brief overview of the South African context to position the study.

1.3.1 Historical Background

The country is based at the southern tip of the African continent. Historically the country was inhabited by the San, Khoi and over time the Bantu indigenous groups. The country experienced European and British colonisation beginning in 1652; and was later ruled by Afrikaners (see GCIS, 2013a, Ross, 1999, SAHO, 2013). From the early 1900's institutionalised segregation between the majority black and minority white residents began to emerge. The official policy of the Afrikaans Nationalist Party for institutionalised segregation originated in 1948 in the form of "apartheid". Apartheid continued until it was resisted globally and a negotiated settlement was reached in the 1990's culminating in the first democratic elections in 1994 (GCIS, 2013a). The country developed and adopted a new constitution by 1996 and is currently led by the African National Congress majority government (SAHO, 2013).

South Africa is a country of contrasts. According to the Department of Statistics, the middle income country has a population of approximately 54 million (STATSSA, 2014b). In 2011 45.5% of the population was categorised as poor and living on less than R620 per person per month (STATS-SA, 2014). The country has an estimated GDP of R891 billion (STATSSA, 2014a) and an unemployment rate of about 25.5% (STATSSA, 2014c). It is nation of diversity with a fusion of languages, cultures and religious beliefs. The majority of the population is Black at 79.2% with approximately 9% Coloured , 9% White and 2.5 % Indian/Asian members of society (GCIS, 2013a). There are 11 official languages namely isiNdebele, isiXhosa, isiZulu, Sesotho, Sepedi, Setswana, siSwati, Tshivenda, Xitsonga, Afrikaans and English (GCIS, 2013a).

1.3.2 Government Structure

South Africa currently operates as a constitutional democracy and has three tiers of government: National, Provincial and Local government. National government is responsible for defining the laws, legal frameworks and policies for the nation. Provincial governments are focused on the matters that occur on a provincial scale, while Local government is the primary level of government and is responsible for the local service delivery (Gauteng Province Online, 2011, GCIS, 2013a). There are nine provinces, each with their own legislature, premier and executive councils. These include Western Cape, Eastern Cape, KwaZulu-Natal, Northern Cape, Free State, North West, Gauteng, Mpumalanga and Limpopo (GCIS, 2013a).

Government in South Africa, undoubtedly faces various challenges in delivering services including: slow response rates to citizens requests, lack of customer service orientation from public sector staff, limited and inconvenient hours offered by government institutions and long distances to reach government offices (particularly in rural areas) (Nkosi and Mekuria, 2010). It is argued that local government is at the forefront of understanding citizen's needs and are the "delivery arm" of government. The importance of this level of government can be seen in the recent spate of so called "Service Delivery Protests" that are primarily against poor service delivery and the absence of accountability by local councillors (Alexander, 2010). Citizens across South Africa have undertaken these protests to ensure that government listens to them and in the hope that they will implement changes for the benefit of citizens. It is at local government that significant changes that impact the lives of the community can be initiated. Hence, this study made a concerted effort to not only focus on national and provincial government but also gain understanding of ICT implementations at this "tactical" level of government within municipalities. The interest of the study was not merely on the technology, but on the tangible improvements it can bring to constituents. "The real benefit of e-Government lies not in the use of technology per se, but in its application to processes of transformation" (UNPAN, 2005:xii) (UNPAN, 2008).

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

1.3.3 South Africa as a Developmental State

Developing countries such as South Africa have immense resources and are poised to use these assets for social and economic improvements. Development is a global priority with organisations such as the United Nations Development Programmes (UNDP) drafting the Millennium Development Goals (MDG) which has become a key driver of development agendas throughout various countries tackling issues such as education, gender empowerment and poverty (UNDP, 2011) and similarly South Africa has heeded this call.

Since the inception of democracy in 1994, the country has developed a range of strategic initiatives to address the legacy of apartheid through accelerating development and growth aimed at benefiting the entire population and defeating poverty, illiteracy and unemployment. Currently the country has adopted the National Development Plan (NDP) as its blueprint for achieving socio-economic development (Zarenda, 2013). Due to its history, the notion of development is embossed into the South African society. The government itself explicitly acknowledges its role as a developmental state. The NDP is not without its critics (for example see: COSATU, 2013, Zarenda, 2013). For this study the NDP represented what South Africa means when referring to development and "what development should be" for South Africans. The plan is based on the capabilities approach to development and believes it to be a non-linear and multidimensional process (NPC, 2012). It views the attainment of development as all South Africans having a decent standard of living through eliminating poverty and reducing inequality (NPC, 2012). Thus it is understood that for South Africa development is equated to the achievement of a decent standard of living for every citizen. The vision is that for a decent standard of living South Africans should have the following in place (see Figure 1 below):

Figure 1: Elements of a decent standard of living (adapted from (NPC, 2012)

The main goals of the NDP to be achieved by 2030 are (NPC, 2012):

- Reduce the proportion of households with a monthly income below R419 per person (in 2009 prices) from 39% to zero.
- The Gini coefficient should fall from 0.69 to 0.6.
- Employment to increase from 13 million in 2010 to 24 million in 2030
- Per capita income to be increased from R50000 to R120000 per annum
- The share of the national income by the poorest 40% of the population to increase from 6% to 10%

The NDP highlights that "technology can also be leveraged to solve some of the biggest challenges" in society (NPC, 2012:23). Technology is a "potentially powerful means of fostering social inclusion" and thus ICT's need to be better structured (NPC, 2012:23). There are seemingly opportunities for government to adopt ICTs to drive social and local economic development (Abrahams and Newton-Reid, 2008). This study sought to understand these opportunities better in the realm of t-Government.

1.4 Problem statement

e-Government projects are a reality for the African continent as seen with the numerous governments that have expressed strategies outlining plans for the implementation of a variety of e-government initiatives. However, even with elaborate strategic plans and policies, the core challenge remains with the minimal successful implementations of e-government projects (Irani et al., 2007a, Irani et al., 2008, Heeks, 2010).

Various researchers have raised concerns at the success rate of e-Government initiatives of which the majority have unfortunately been cited as not delivering on the expectations of stakeholders. Researchers have studied the failure rates of various ICT led projects in the public sector (Heeks, 2003); (Robin, 2007); (Irani et al., 2008, Heeks, 2010) and several have questioned the actual impacts of ICT on the development of countries (Oghogho and Ezomo, 2013, Sein and Harindranath, 2004, Harindranath and Sein, 2007). In the face of this disappointment, the sentiment that ICT's do hold potential to transform the trajectory of development remains. The United Nations maintains that e-Government can "provide significant opportunities to transform public administration into an instrument of sustainable development." (UNPAN, 2014: 2)

It is noted that in response to the challenges within e-government there have been proposals of models and frameworks aimed at assisting the planning, implementation and assessment of e-government projects. These include models such as GovQual (Batini et al., 2009), COBRA (Osman et al., 2014) and e-government maturity models to track the progress of countries (Andrade and Joia, 2011). However, this research study focused on investigating how e-Government programmes are currently conceptualised for citizen impacts. There was a need to review the notion of e-Government and how it can contribute towards achieving transformation and benefits for citizens.

Moreover, this study explicitly focused on the African context. The researcher lives and works in South Africa and as an emerging IS scholar is continuously faced with questions of how the field may contribute to addressing some of the problems society faces daily. Secondly, the continent's socio-economic conditions are vastly different from their

Western counterparts, consisting of a myriad of competing issues such as establishing a new democracy while delivering the required services to their citizens. In reviewing the literature, there was a deficiency of an e-Government conceptualisation that takes into account the history, the constraints and aspirations of African people as they undertake often highly ambitious and challenging e-Government programmes. These programmes are undertaken with the hope that they will drive towards transforming for the better, the lives of the society in which these programmes are deployed. Consequently, various scholars have called for a research agenda focusing on building knowledge within the emerging area of Transformational Government (Irani et al., 2007b) and this study aimed to contribute to this area.

This study concerned itself with the following overarching question:

How is Transformational Government conceptualised within Sub-Saharan Africa for Developmental Impacts?

This shift in focus to t-Government is the "result of a logical realisation that the IT trajectory of legacy e-Government systems and programs will not solve the lingering problems with public service delivery" (Irani et al., 2007b: 2). In addition Harindranath and Sein (2007) contend that the "extent of success or failure of ICT interventions to enable development will depend on how national and local governments, national and international development agencies, non-governmental organisations and public agencies conceptualise ICT and development" (Harindranath and Sein, 2007:2). The problem that was pursued in this research was the need for conceptual clarity on the notion of Transformational Government so as to highlight if and how it is achievable in the African context. This study supported the call by Fernando et al (2010) who lamented that "there has been very little description on what t-government means in the academic literature" (Fernando et al., 2010:55). The study also aligned to the Yildiz (2013) challenge for IS scholars to focus on the "big questions of e-Government research" in that it sought to understand e-Government programmes and their impact on citizens (Yildiz, 2013, Yildiz, 2012).

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

1.5 Objectives and Scope of the Research

This research was rooted in the ICT for Development arena and the purpose of the study was to understand t-Government for the African context. The study investigated how t-Government is conceptualised in government departments using South Africa as its source of data. The study undertook the following:

- Determine how transformational government is conceptualised in a developing country.
- Contribute towards a conceptual framework of transformational government.

1.6 Research Approach and Methodology Overview

This research was fundamentally anti-positivist and critical in nature. The nature of the research problem and objectives of the research study lent themselves to this approach and the reasoning behind this is discussed in the Philosophical Foundation and Research Methodology chapter (Chapter 3). The study sought to provide an explanatory critique of the views held about e-Government initiatives. It aimed to understand how e-Government is impacting society and also explore and understand how transformational government is conceptualised and therefore may be adopted in Africa.

The research approach and methodology comprised of the following key steps:

1. A review of the literature to understand issues pertaining to ICT4D, e-government and the emergent t-government;
2. A consolidation of the findings from the literature that informed the research instruments which enabled the researcher to distil the views on aspects of e-Government;
3. An analysis of data, the literature and a process of synthesising underpinned by a critical realist perspective to obtain emergent themes and lessons on the proposed concept of t-government;

4. The compilation of a conceptual framework of t-government that may address the pertinent realities faced by African Governments in delivering ICT led transformation.

1.7 Research Questions

The central research question that drove this study was:

- How is Transformational Government conceptualised within sub-Saharan Africa for Developmental Impacts?

The following sub-questions assisted in unearthing the emergent t-Government:

- How do the strategic plans of Government departments reflect transformational government ideals? (Chapter 4)
- How does the existence (or lack) of the t-government mindset affect the sustainability of e-government initiatives? (Chapter 5)
- How may t-Government be manifested in Municipalities? (Chapter 6)
- How can e-participation as the basis for t-Government be enhanced using mobile technology for socially excluded citizens in a developing world context? (Chapter 7)

1.8 Delimitations of the Study

Delimitations represent the boundaries of the study. The following delimitations apply:

- The research collected primary data from the South African e-Government domain.
- Urban based research respondents were consulted (as opposed to rural areas).

1.9 Contributions to the Study of ICT for Development

This thesis is aimed at several groups. Firstly scholars that are interested in the disciplines of Information Systems (IS), ICT for Development (ICT4D) and also Electronic Government (e-Government). The academics that are specifically grounded in the African and developing country context will also find value in the discussions of the thesis. Thirdly it is for those academics that study the e-Government domain from a critical perspective. It will be of interest to scholars that consciously seek to move beyond a description of e-Government experiences towards a deeper understanding of the mechanisms that drive them. Public sector and e-Government practitioners may also find value in engaging with the concept of Transformational Government. The framework offered can inform future endeavours within the e-Government domain.

Theoretically the thesis provided an alternative definition and conceptualisation of t-Government. The study additionally presented an example of how critical realist case studies may be used as the basis for undertaking ICT4D research. The thesis also contributed theoretically by further exposing the application and value of Actor Network Theory within ICT for Development research. Methodologically, the thesis shows how methodological pluralism may be utilised to understand the research problem from different perspectives. It also provides insight into the use of both a deductive and inductive thematic analysis. Practically, the study offers both scholars and practitioners a framework that may be considered for t-Government projects for developmental outcomes. The framework is also coupled with several principles to guide implementation when undertaking t-Government initiatives.

1.10 Thesis Outline

This thesis is organised in the following manner:

Chapter 2 reviews the pertinent literature on the key themes related to the problem namely: ICT for Development issues and e-Government implementations, the African context and introduction to the concept of Transformational Government.

Chapter 3 sets the philosophical foundations of the study. The research relied on a critical realist perspective to assist in unearthing a fresh conception of e-Government for developmental goals. This chapter discussed how critical realism shaped the research study. Additionally the chapter outlines the research methodology employed in the research. This was a case study of South African e-government programmes and it drew on data from national, provincial and local government to investigate the notion of t-Government.

In Chapter 4 secondary data from the wider South African national ICT policy context is analysed and presented in the argument for t-Government.

Chapter 5 also relies on secondary data to present the trajectory of a provincial e-Government project that was considered to be an example requiring t-Government conceptualisation.

Chapter 6 presents the analysis and findings of primary data from interviews with local government representatives on the role of ICT towards the support of socio-economic development and citizen impacts.

Chapter 7 focuses on the citizen level and studied the influence of citizen's access to ICT's, citizen ICT skills and citizen attitudes on e-Government adoption and use.

A synthesis of the findings from the data analysis is outlined in Chapter 8. It builds on the lessons from Chapter 4, 5, 6 and 7 to offer a framework for understanding t-Government.

Chapter 9 concludes the thesis by reflecting on how the research question was addressed. It also evaluates the contributions made by the study, acknowledges its limitations and proposes several opportunities for future research. The last section incorporates several appendices. Figure 2 below encapsulates the thesis structure and how the chapters are related.

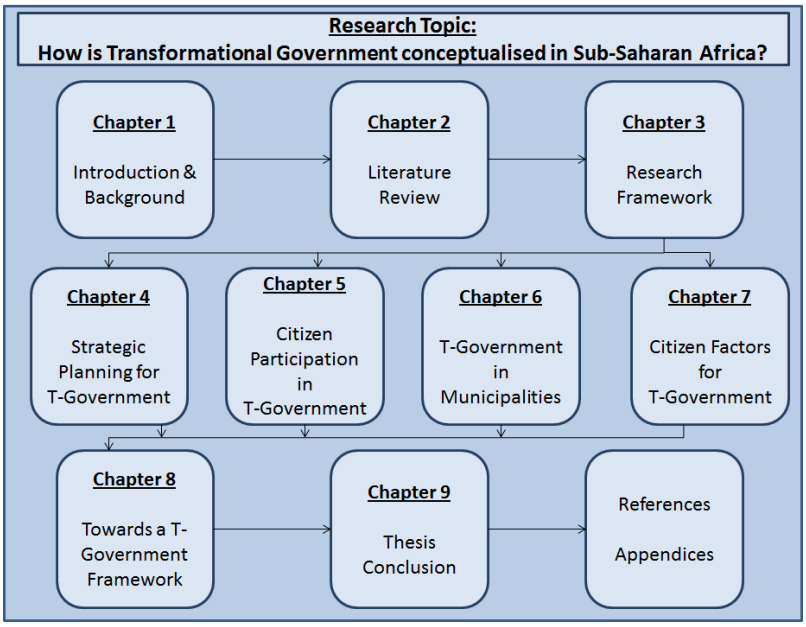

Figure 2: Thesis Outline

1.11 Summary

This chapter offered an introduction to the thesis. The chapter outlined the context of the study, the problem statement and applicable research questions. The chapter also provided an overview of the research approach and contributions of the study. This research project aimed to offer an alternative to how e-Government is currently conceptualised in the public sector for developmental purposes through exploring the emergent transformational government arena. The central question of the thesis was: "How is Transformational Government conceptualised within sub-Saharan Africa for Developmental Impacts?" The project contributes to the discourse on ICT4D. The thesis sourced data primarily from South Africa and offers a t-Government framework for ICT supported socio-economic development impacts. The next chapter provides a review of the literature relevant to the research and further positions the research problem.

CHAPTER 2: LITERATURE REVIEW

"Teach thy tongue to say 'I do not know, and thou shalt progress."

Maimonides

2.1. Introduction

This chapter focuses on the literature relevant to the research problem. The chapter provides a review of the prior and current discussions within the e-Government domain. It explores related fields including the public sector, ICT for development, and the emergent transformational government.

2.2. ICT in the Public Sector

The study focused on ICT within the public sector which manifests as e-Government. Almarabeh and AbuAli (2010) highlight that an initial understanding of the public sector is paramount if researchers and practitioners are to grasp the concept of e-Government (Almarabeh and AbuAli, 2010). Accordingly, this section begins with a brief reflection on the essence and role of government.

2.2.1. The Role of Government

It is acknowledged that the concept of government is complex. It comprises of an amalgamation of objectives, institutions, functions and stakeholders (Pardo, 2000). Government represents the method of managing a state or is viewed as the collection of people that are given the responsibility of controlling a country (Hornby, 2010). A government may be founded on two main systems, either based on a totalitarianism system or constitutionalism (Yong and Koon, 2003). Countries vary in the form of totalitarianism and constitutionalism they adopt. The central difference between the two is that constitutionalism promotes individual freedoms while placing limits on the extent of

Government control on individuals. Alternatively, totalitarianism sees government controlling a significant portion of citizens' lives typically led by dictators (Yong and Koon, 2003).

The United Nations provides a classification for the functions of government which apply to countries generally, regardless of the system in place. According to this classification the role of government includes: General public services, defence, public order and safety, economic affairs, environmental protection, housing and community amenities, health, recreation, culture and religion, education, and social protection (UNSTATS, 2014). Within constitutional democracies the functions are extended to include protection of citizen freedoms and regulation of elections (Yong and Koon, 2003). Governments are required to fulfil the functions based on statutory powers and may do so to varying degrees in the face of numerous pressures (Bevir et al., 2003). One central pressure has been the technological revolution and the requirements of the evolving knowledge economy. e-Government may be viewed as an extension of this revolution and is necessitated by the emergent knowledge society. The following section delves into the concept of e-Government.

2.2.2. e-Government

e-Government is an evolving discipline and broadly encapsulates the governmental activities that are influenced by and make use of ICT's (Brown, 2005). e-Government programmes are common throughout the developed and developing world (Saxena, 2005). Thus it follows that e-Government is an area that is growing within the information systems research domain (Irani et al., 2007b, Dwivedi et al., 2011b). The definition of e-Government varies amongst researchers (Scholl, 2003). Several definitions are provided in Table 2 below:

Table 2: e-Government Definitions

Definition	Focus	Source
"E-Government projects aim to provide electronic information and services to citizens and businesses"	Service and transaction quality and increased availability (transactional)	(Chen and Gant, 2001)
"E-Government involves the automation or computerization of existing paper-based procedures that will prompt new styles of leadership, new ways of debating and deciding strategies, new ways of transacting business, new ways of listening to citizens and communities, and new ways of organizing and delivering information."	Encapsulating vision, mission and strategic intent (holistic) Advancing the relationship with stakeholders (relational)	(Basu, 2004)
"E-Government is a cost-effective solution that improves communication between government agencies and their constituents by providing access to information and services online."	Gains in efficiency and cost savings (transactional)	(Chen et al., 2006)
"E-Government uses the Internet and other information and communication technologies (ICTs) as enablers to deliver their public services in a smarter way, improve citizen-state relations, and transform the scope of administrative actions and political processes."	Advancing the relationship with stakeholders (relational)	(Chou et al., 2008)
"The electronic delivery of governmental information and services, 24 hours per day, seven days per week. E-government is provided principally, although not exclusively, via the Internet. E-government is also distinct from prior generations of information technology applications in government because it is mainly outward facing — that is, government to citizen (G2C), government to business (G2B), and government to government (G2G) — rather than inwardly facing (i.e., the automation of routine governmental functions such as finance and accounting and record keeping)."	Advancing the relationship with stakeholders (relational)	(Coursey and Norris, 2008)
"E-Government is a system of ICT enabled innovation policies for the Public Administration and Governmental functions."	Impact on government (transactional)	(Batini et al., 2009)
"E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet and mobile computing) that	Advancing the relationship with stakeholders (relational)	(Worldbank, 2011b)

Definition	Focus	Source
have the ability to transform relations with citizens, businesses and other arms of government. These technologies could serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions."		

Definitions in the literature typically highlight several themes namely:

- Encapsulating a vision, mission and strategic intent of e-Government;
- Gains in efficiency and cost savings for government;
- Improvement in service and transaction quality coupled with increased availability of services;
- The resultant impact on government operations; and
- Advancing the relationship with government's stakeholders (citizens, business, government agencies); (Scholl, 2003)

Therefore, the use of information technology to drive administration, governance and support the relationship between government, its citizens, business organisations and also other government agencies is essentially what e-Government entails (Ndou, 2004). e-Government goes beyond the computerisation of government departments and is rooted in the belief that technology has the ability to bring improvement to government and its stakeholders (Dada, 2006).

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

2.2.3. e-Government vs. e-Governance

This section focuses on the contrast between "e-Government" and "e-Governance". In certain cases in the literature the terms are seemingly used interchangeably however there is a distinction between the two. The basis for the distinction is rooted in the difference between Government and Governance. Governance emphasizes how decisions are made, while the term government focuses on how decisions are implemented (Peristeras and Tarabanis, 2004, Saxena, 2005). Hence, service delivery is a government issue whereas the decision on which services to offer is governance (Marche and McNiven, 2003, Saxena, 2005). Leading from this, e-governance is considered as a "technology-mediated relationship between citizens and their governments from the perspective of potential electronic deliberation over civic communication, over policy evolution, and in democratic expressions of citizen will" (Marche and McNiven, 2003:75). e-Government is the "provision of routine government information and transactions using electronic means" (Marche and McNiven, 2003:75). e-Governance is concerned with fresh perspectives on decision making involving power sharing and is underpinned by technology (Allen et al., 2001). Moreover, it involves linkages with various stakeholders who are able to provide input to public policies with the objective of improving the decision making and trust in government (Torres et al., 2005).

In essence, e-Governance represents how the decision and policy making processes may be supported by ICT's. e-Government is about how ICT's enable the delivery of government services. In this study both e-Governance and e-Government were of relevance due to the aim of understanding the impacts of ICT for citizens with regards to services obtained from government and also channels for providing feedback to government for policy and decision making. Effective governance is believed to be a requirement for development and poverty reduction and e-Government a tool for attaining good governance (Abrahams and Newton-Reid, 2008).

2.2.4. The Purpose of e-Government

The oft cited driver behind e-Government is the increasing expectations of citizens stemming from their e-commerce experiences (Edmiston, 2003) thus pushing the public sector to offer electronic services, enhance democratic processes and improve efficiency. The objectives of e-Government vary, however a common thread was found. Essentially, governments sought to better their relations with citizens, monitor public sector performance, and reorganise administrative functions (Ciborra and Navarra, 2005) as demonstrated in Table 1 earlier.

The foundations of e-Government are found in interaction of three main influences namely: technological innovations, management evolution and public sector reforms (Brown, 2005, Torres et al., 2005). Technology advancements such as telecommunications, distributed computing, the internet and mobile offerings have not only been immersed into daily life but have been adopted in Government operations as well (Brown, 2005, Singh et al., 2007). Also, alternative ideologies regarding how the public sector should be managed arrived with the New Public Management discourse (Brown, 2005, Torres et al., 2005, Ngulube, 2007). Lastly, governments were under pressure to change and meet the demands of the public, coupled with technologically skilled staff entering the public service and thus politicians started adopting ICT's due the promise ICT's held (Brown, 2005). These forces fuelled the e-Government agenda.

2.2.5. e-Government Perspectives

Having briefly positioned the objectives of e-Government the discussion turns to how the area has been conceptualised to date through a review of the perspectives and models of the e-Government trajectory. Scholars have derived models and frameworks in an attempt to better understand this dynamic phenomenon.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

2.2.5.1. Relationship Perspective

e-Government may be understood through a stakeholder relationship perspective. Here e-Government is important in light of the relationship that the public sector maintains with different parties.

The Government to Citizen (G2C) perspective encapsulates e-Government supporting the relationship with citizens and enabling interactions and service delivery often powered by a one stop shop (Siau and Long, 2005). The Government to Business (G2B) perspective is where e-Government provides opportunities for business and government to partner in service provisions (Yong and Koon, 2003). Additionally, facilitating businesses to operate in a technology enabled environment that supports business growth e.g. reducing red tape for small businesses. The Government to Government (G2G) perspective looks internally within the public sector with regards to how government agencies interact, share information and conduct transactions (Yong and Koon, 2003). Lastly, there is also the Government to Employee (G2E) dimension which revolves around specific services for public sector employees (Hafkin, 2009).

2.2.5.2. Evolutionary Perspective

The evolutionary perspective views the e-Government trajectory as linear and consisting of stages that government must progress through towards maturity. A widespread view of conceptualising e-Government implementation in this manner is the Layne and Lee (2001) four stage model. The model which is mainly used to track a government's progress in e-Government highlights that e-Government implementations follow a path that initially begins with the government offering basic cataloguing functionality through an online presence of websites. The e-Government program progresses to a transaction phase where citizens and businesses are able to complete transactions online. Citizens' increasing demands will push government to integrate processes and systems ultimately resulting in a one stop shop for citizens representing a mature e-Government (Layne and Lee, 2001). Andersen and Henriksen (2006) offered the Public Sector Process Rebuilding model (PPR model) as an extension of the Lee and Layne model. The PPR

model focuses on the customer whereas the Layne and Lee model focuses on technological aspects. Regardless, both are normative and have a linear progression view of e-Government development. Other models include the World Bank stage Model of e-commerce, and the United Nation's e-Government maturity model (Worldbank, 2011b, Andersen and Henriksen, 2006). Coursey and Norris (2008) compared further examples of models following a similar evolutionary perspective as highlighted in Table 3 below:

Table 3: Comparison of Model Steps (Coursey and Norris, 2008)

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Layne & Lee (2001)		Catalogue	Transaction	Vertical Integration	Horizontal Integration	
Baum & Di Maio (2000)		Presence	Interaction	Transaction	Transformation	
Ronaghan (2001)	Emerging presence	Enhanced presence	Interactive	Transactional government	Seamless	
Hiller & Belanger (2001)		Information dissemination	Two-way communication	Integration	Transaction	Participation
Westcott (2001)	Email and internal network	Enable inter-organizational and public access to information	Two-way communication	Exchange of value	Digital democracy	Joined-up government

Evolutionary models although widely cited in the literature have also received several criticisms. The models are accused of promoting a normative view which believes that "more e-Government is better" (Coursey and Norris, 2008: 525). There is a lack of evidence to support the notion that all changes brought by e-Government are positive. Furthermore, the models do not take into account the complexity and dynamism

(Andersen and Henriksen, 2006) nor the barriers faced by implementers of e-Government. They lack guidance on how to address barriers thus assuming progressive adoption of the ICT's. Lastly, the models are challenged as being speculative since implementation experience fails to show that progressing through these stages actually results in a transformation for the relationship between the public sector and its constituents (Coursey and Norris, 2008).

Additionally, the maturity models have been criticized as reinforcing the technocratic and technology bias that often underpins the e-Government discourse (Andersen and Henriksen, 2006). Andersen and Henriksen (2006) offer a substitute view of e-Government maturity assessment through focusing on activities from the perspective of the customer or citizen (Andersen and Henriksen, 2006). However, e-Government researchers are cautioned on overly relying on maturity models (Lee, 2010). Brown (2007) indicates that e-Government researchers should consider an adaptation perspective to understanding the development, performance and outcomes of e-Government projects. The adaptation model acknowledges that innovations such as e-Government can happen at rapid tempos, they are non-linear, nor hierarchical (Brown, 2007). Furthermore the innovations occur due to active and wilful action in response to external pressures (Brown, 2007).

Alternatively it may be useful to view the e-Government implementation through the innovation model offered by Ebbers and Van Dijk (2007). It emphasises that in understanding the complexity of e-Government programmes, one should be aware of two processes. It is contended that models often overlook these processes and thus lose the intricacies and difficulties of implementing e-Government. The processes are as follows:

- **Process of innovation** – which includes an initial phase where project needs are outlined and planning for the project; and

- **Processes of implementation** – including the involvement of top management, changing the design of the innovation based on project needs, changes to the organisational structure, updating of policies, clarification and communication to

stakeholders, deployment of the necessary financial resources and lastly deploying the information system (Ebbers and Van Dijk, 2007).

Moving from government to e-Government has been inescapable for many governments (Davison et al., 2005). e-Government has had a tremendous impact on public administration (Brown, 2005). Therefore, governments are changing their goals to become more citizen focused, accountable and efficient (Ndou, 2004); (Pina et al., 2007) (Davison et al., 2005). This impetus can also be traced to New Public Management ideological roots.

2.2.6. New Public Management and e-Government

The public sector has been inundated with various ways of thinking regarding appropriate management models. One of the prominent voices emanates from proponents of New Public Management (NPM). NPM is an approach that emerged in the 1980's as an alternative to traditional and bureaucratic models and called for a more "business-like" approach to public administration (Pollitt and Dan, 2011). The push for NPM came from the belief that governments were lacking in legitimacy coupled with administrative inefficiency and insufficient opportunities for citizens to participate in decision making (Christensen and Lægreid, 2011).

2.2.6.1. Foundations and Objectives of NPM

The theoretical bases for NPM are found in managerialism, public choice theory, principal-agent theory and model of transaction cost economics for restructuring the public sector (Gruening, 2001, Andrews and Van de Walle, 2013, Bach and Bordogna, 2011). The objectives of NPM included a more efficient and effective government, better quality of service and budgetary savings (Brown, 2005). There seemingly exists a lack of agreement with regards to the foundational components of NPM (Pollitt and Dan, 2011, Mongkol, 2011) however two main streams of thought have been evidenced. On the one hand, NPM is about enhancing management through restructuring, decentralisation, disaggregation and rationalizing (Mongkol, 2011). Alternatively NPM focuses on markets

and competition through the adoption of commercial management practices that are applied in the public sector (Mongkol, 2011). This is sometimes referred to as the 4 M's of public sector reform involving : Maintaining, Modernizing, Marketizing, and Minimizing government operations (Bouckaert and Pollitt, 2000).

Pollitt and Dan (2011) view NPM as a two-tier phenomenon involving, firstly a generic overarching theory and belief that the public sector can be advanced through business values and methods. Secondly, it consists of specific behaviours such as putting an emphasis on performance measurement and tracking; disaggregated and flat organisational structures; and employing market mechanisms such as competitive tendering and performance related salaries (Pollitt and Dan, 2011). In essence NPM is a reform movement calling for public sector management accountability, effectiveness and efficiency through mimicking private sector models (Zafra-Gómez et al., 2012). Some key characteristics of the NPM movement are outlined below:

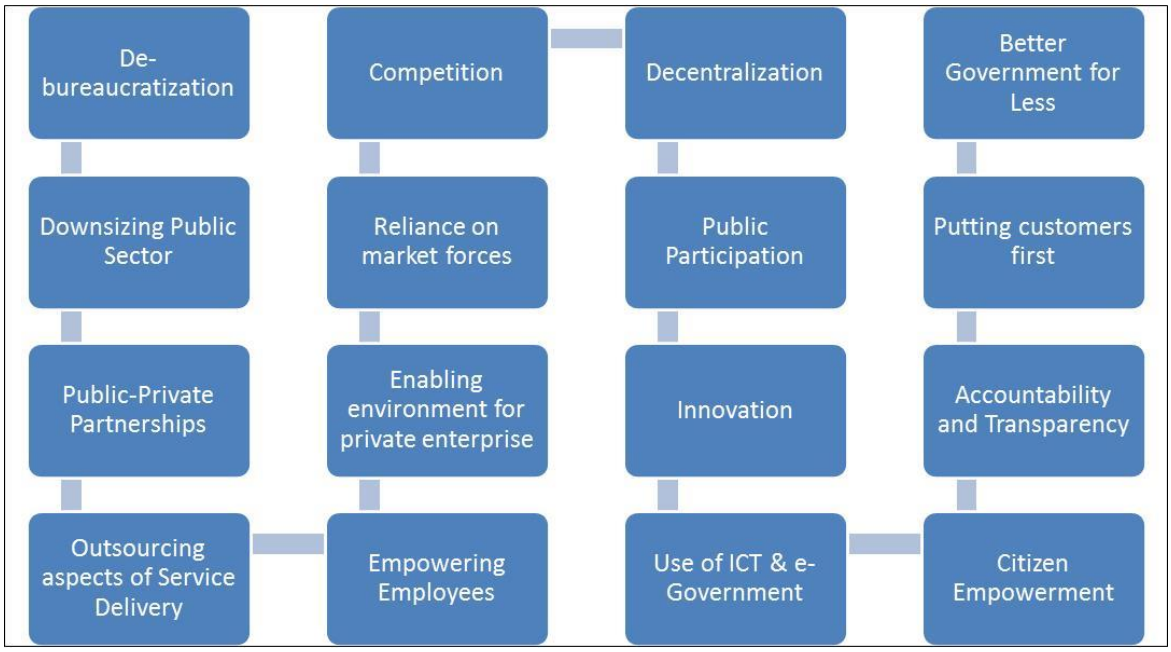

Figure 3: NPM Characteristics (adapted from Dzimbiri, 2008)

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

2.2.6.2. New Public Management in the Developing World

NPM principles stem from the Western developed world such as the United States of America (US) and the United Kingdom (UK) (Gruening, 2001). Nevertheless, NPM thinking has filtered into the developing world. There are studies regarding NPM driven reforms within Africa (see Dzimbiri, 2008, Antwi et al., 2008) since the continent has also, similar to its western counterparts, made great efforts towards transforming public management. It is however, claimed that the NPM is perhaps not suited to the African context. In the early discussions on NPM for the developing world, Balogun and Africa (2003) were already harbouring strong views indicating that "in the African context, the performance improvement claims of NPM rest on a tenuous foundation" (Balogun and Africa, 2003: 3). More recently similar sentiments were found in the literature. Kumar (2013) debates that although the NPM philosophies have permeated developing countries, it has hardly been adopted in its entirety. Sometimes the countries even have reforms that are opposite to the NPM agenda (Kumar, 2013). The African context in particular shows NPM to be insufficient since it does not capture the magnitude and complexity of social transformation required by African governments (Balogun and Africa, 2003). Subsequently, public sector managers are cautioned to keep in mind the specific needs of their country and carefully consider what may or may not apply for them (Kumar, 2013).

2.2.6.3. e-Government and NPM Philosophies

The embracing of ICT's to deliver government services has become a worldwide movement in public administration (Torres et al., 2005). It was observed in the early years of NPM that public sector reforms were not progressing as initially imagined and the public sector sought a tool that might advance the desired reforms (Yong and Koon, 2003). One of the tools identified was ICT. The adoption of ICT's was thought to be an effective remedy for achieving the NPM reform goals (Cordella and Bonina, 2012). e-Government can be viewed as bolstering public administration modernisation and effective governance efforts such as those brought by the NPM wave. Warkentin et al

(2002) contend that e-Government is an essential element for the attainment of an efficient New Public Management (Warkentin et al., 2002). e-Government is viewed as an enabler of NPM and has thus inherited the administrative reform policies inspired by NPM reforms (Torres et al., 2005: 531). This infusion of NPM principles into public sector ICT initiatives is noted in the discussions on how e-Government is driving the public sector further away from its former bureaucratic identity. Ho's (2002) comparison of the bureaucratic paradigm to e-Government paradigm in Table 4 below serves as an example of this:

Table 4: Comparison of the Bureaucratic and e-Government Paradigms (Ho, 2002)

	Bureaucratic paradigm	e-Government paradigm
Orientation	Production cost-efficiency	User satisfaction and control, flexibility
Process organization	Functional rationality, departmentalization, vertical hierarchy of control.	Horizontal hierarchy, network organisation, information sharing
Management principle	Management by rule and mandate	Flexible management, interdepartmental team work with central coordination
Leadership style	Command and control	Facilitation and coordination, innovative entrepreneurship
Internal communication	Top down, hierarchical	Multidirectional network with central coordination, direct communication
External communication	Centralized, formal, limited channels	Formal and informal direct and fast feedback, multiple channels
Mode of service delivery	Documentary mode and interpersonal interaction	Electronic exchange, non face to face interaction
Principles of service delivery	Standardization, impartiality, equity	User customisation, personalization

2.2.6.4. Criticism of NPM and the Emergence of Post-NPM Philosophies

It is noted that NPM philosophies are not without their criticisms. It remains doubtful if NPM has indeed resulted in a more accountable public sector. Studies on NPM have highlighted several weaknesses in the ideology. Firstly, NPM fails to consider that in government there lacks a single element such as profit that may be used to compare public sector programs and their outcomes. The public sector is driven by a different and complex set of values such as the need for fairness, protection and equity (Bao et al., 2013). Secondly, the NPM fails to deliver productivity at the macro and micro levels of government (Christensen and Lægreid, 2011). Also, NPM due to its private sector

principles has resulted in a fragmented public sector that has made it difficult to link objectives to performance measures (Bao et al., 2013, Christensen and Lægreid, 2011). NPM elevates management and loses sight of politics in the pursuit of targets (Stoker, 2006). NPM purports treating citizens as customers which is problematic since utility in the public sector is contested and highly political (Bao et al., 2013). Davison et al (2005) lament at the notion of equating citizens to customers in that "to suggest that citizens are equivalent to and should be treated as customers not only grossly oversimplifies the nature of the relationship between government and citizen, but it perverts it" (Davison et al., 2005: 281). Lastly, where citizens are relegated to consumers they may not be encouraged to question the objectives of service delivery and only asked for ideas on the quality of the service (Stoker, 2006).

The shortcomings of NPM have resulted in a counter-movement. This movement is referred to as post-NPM although others may use different terminology such as "New Public Governance" or "Digital Era Governance" or "Joined-Up-Government" or "Whole-of-Government" (Christensen and Lægreid, 2011, Dunleavy et al., 2006, Bao et al., 2013). The essence of post-NPM thinking seeks a more holistic view of government. It aims to deal with the perception of increased fragmentation and a loss of political control to bring forth better integration and more capacity in the public sector. The post-NPM discourse asserts that complicated policy challenges may be addressed by a reversal of the NPM trends of disaggregation for better coordinating capacity within governments (Hansen et al., 2012). However, we are cautioned that Post-NPM calls should not be judged to be a return to the previous bureaucratic style of public administration. It should rather be viewed as a governance style that connects with society allowing citizens to obtain policy information and have a voice in decisions and implementation.

Interestingly, despite the criticisms of NPM principles and limited evidence of its impacts on service delivery and the calls for Post-NPM thinking, some sectors remain optimistic regarding the potential of NPM to lead to improvements in the public service (Dan and Pollitt, 2014, Andrews and Van de Walle, 2013). As Yong and Koon (2003) reflect "over the past two decades, a series of initiatives to transform government processes,

"reinvent the government", create the "new public management (NPM)" or set up "Government 2.0" has been widely discussed and selectively adopted in an attempt to address perceived shortcomings and generally make government "work better" (2003: 7). The literature therefore suggests that regardless of the pursuit of NPM or post NPM the overriding notion that the public sector needs to be "fixed" remains and e-Government is seen as one instrument available for public sector reforms.

2.2.7. Public Value Principles

Several researchers however envisage public sector management to be better understood from a Public Value perspective. Stoker informs that "public value is an emerging new management paradigm" (Stoker, 2006: 46). Some proponents of public value management turned to this thinking due to the limitations of NPM that draws private sector principles into the public sector where they are inappropriate (Stoker, 2006). The notion of public value was explored for purposes of further positioning and understanding e-Government developments.

2.2.7.1. Defining Public Value

Public value may be defined as the "value created by government through services, laws, regulation and other actions" (Kelly et al., 2002: 4). The central argument from proponents of public value thinking is that it involves the deployment of public resources in a manner that maximises value for the majority of citizens (Williams and Shearer, 2011). However, this value is not defined by government but by citizens who hold various preferences and give elected public official powers to implement their preferences (Kelly et al., 2002). Public value thinking elevates an ongoing discourse between public sector leadership and their constituents (Coats and Passmore, 2008). The challenge for government is to create value which is the difference between benefits accrued to citizens and the resources and powers given to the state (Kelly et al., 2002). Public value places importance on improving public sector decision making, understanding priorities for citizens but also engaging with them on the constraints towards delivery (Coats and

Passmore, 2008). Furthermore the notion of public value can operate as a tool for measuring the performance of government institutions and the impact of their policies (Karunasena and Deng, 2012, Kearns, 2004). For citizens to consider something to be of value they should be willing to sacrifice something in return and thus the concept of opportunity cost is linked with public value. Citizens value outcomes, services and trust (Kelly et al., 2002). Lastly public value is linked to organisational values since the values of an institution influence how that organisation pursues the creation of value and where values are not aligned it may indeed destroy public value (Kelly et al., 2002).

2.2.7.2. Public Value and e-Government

This research study links e-Government to public value in as far as e-Government is a tool for supporting government interventions. “Public interventions are defined by the search for public value” (Stoker, 2006: 46). The perceived ability of technologies to create value causes public sector policy makers and managers to adopt ICT (Ho and Ni, 2004). Stoker(2006) argues that in the public sector, governance is comprised of “networks of deliberation and delivery in pursuit of public value” (Stoker, 2006: 46). Understanding the value these ICTs bring for citizens is a necessity (Karunasena and Deng, 2012). In this study, e-Government is seen as an important element in the networks towards the attainment of public value. Karunasena et al (2011) explain that public value may be created through a myriad of ways including the implementation of e-Government. They offer a framework of the sources of public value through e-Government:

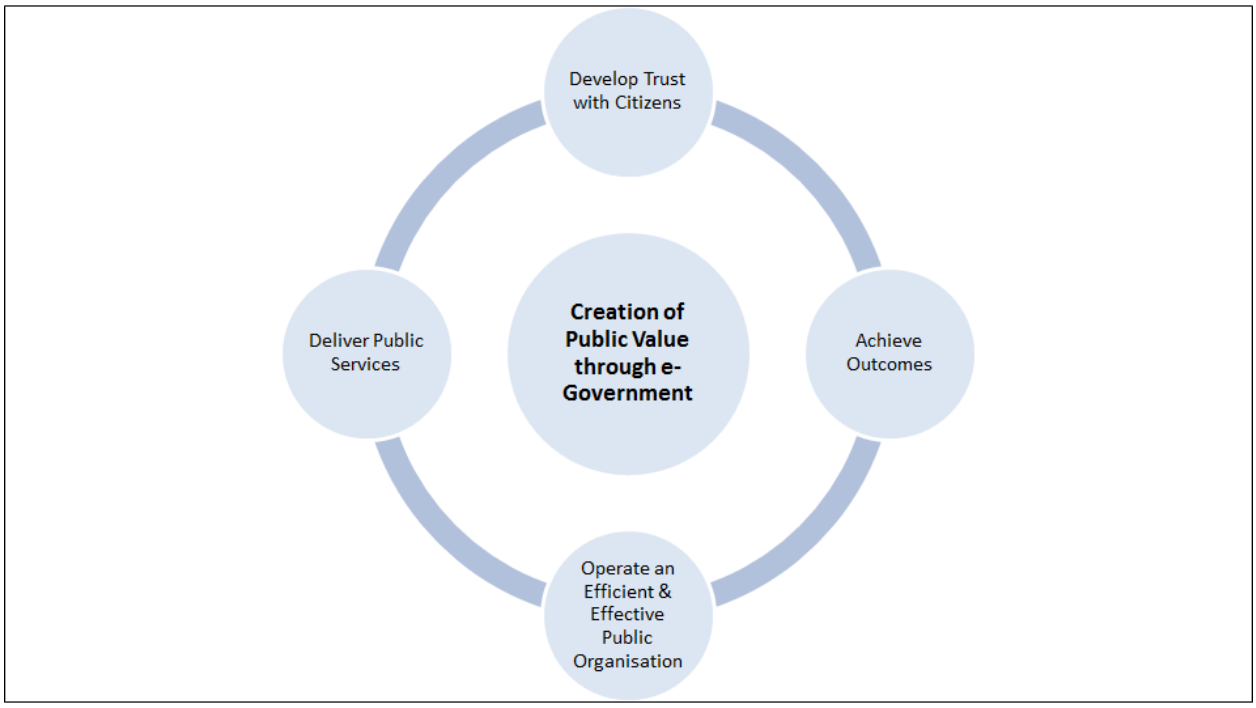

Figure 4: Creation of Public Value Through e-Government (adapted from Karunasena et al., 2011)

e-Government may enable innovations that can facilitate the efficient delivery of government services which creates public value (Karunasena et al., 2011). e-Government may empower public sector organisations to operate better and achieve desired goals which also represents an attainment in public value. Also, e-Government can enable the building of trust between a government and citizens thus increasing public value (Karunasena et al., 2011). However, public value is not put forth as a remedy for public sector problems. Governments where necessary may need to combine various management principles to achieve the outcomes desired for citizens (Stoker, 2006). It offers an alternative view to the traditional or NPM perspectives that is based on a broader view of humanity (Stoker, 2006).

2.3. e-Government and Socio-Economic Development

The following section explores the area of ICT4D since the research problem of conceptualising t-Government is situated in this area. An understanding of ICT4D provided the foundation for understanding t-Government better.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

2.3.1. Development

The concept of "development" is contested and has a variety of meanings in the literature. In the past many have equated it to an increase in GDP or what is essentially economic development (Walsham, 2005). Arguments for alternative views of development exist. For instance, some argue that that development is a much broader concept. They support the notion that development is about people having freedom of choice and a holistic perspective to what an individual or community needs (Andrade and Urquhart, 2010). The integrative perspective looks at more than income but also areas such as health, education and life expectancy and individuals having options in life (Andrade and Urquhart, 2010). There is also a perspective that is rooted in post-modernism and questions "development" in its entirety as a concept designed by the West to further dominate the developing world.

The debates around the concept of development are on-going and the researcher acknowledges that they will continue to do so. However several views of development are shared. The World bank indicates that development is the "improvement in the welfare and quality of life of individuals and also involves changes in societies – in their norms and institutions – that make development more equitable and inclusive for all members of a society" (Worldbank, 2004). It is the betterment of socio-economic conditions of humans (Avgerou, 2009). Alternatively, Amartya Sen's Capability approach to development assesses the wellbeing of individuals in society (Alexander and Phahlamohlaka, 2006). The Capabilities Approach focuses on what people are able to choose, do and ultimately become (Sen, 1999). An improvement in wellbeing represents development and includes not only basic needs but also the right to live in dignity, freedom, have choice and participate in decision making (Alexander and Phahlamohlaka, 2006). Max-Neef's work on the Human Scale Development approach also provides a holistic quality of life view on development (Cruz et al., 2009). It views development as the process of empowering citizens to grow and help themselves (Max-Neef et al., 1991).

The United Nations view on development is captured in the widely cited Millennium Development Goals (MDG's) which indicate that development represents:

- Reduction in poverty and hunger
- Promotion of gender equality
- Reduction of child mortality
- Improving maternal health
- Combating diseases such as HIV/AIDS and malaria
- Environmental sustainability
- Developing global partnerships for development (United-Nations, 2014)

On the other hand the African Union (AU) also outlines development as a central concern for the African continent (African Union, 2014). Accordingly some of the AU's stated goals align to development ideals. For example Goal 10 is to promote sustainable development at the economic, social and cultural levels. Goal 11 refers to the requirement of raising the living standards of African people whereas Goal 13 focuses on achieving development through the advancement of research in science and technology (African Union, 2014). Similarly the New Partnership for Africa's Development (NEPAD), a structure of the AU, outlines that African countries need to take control of their development agendas (NEPAD, 2014). NEPAD considers development through six thematic areas:

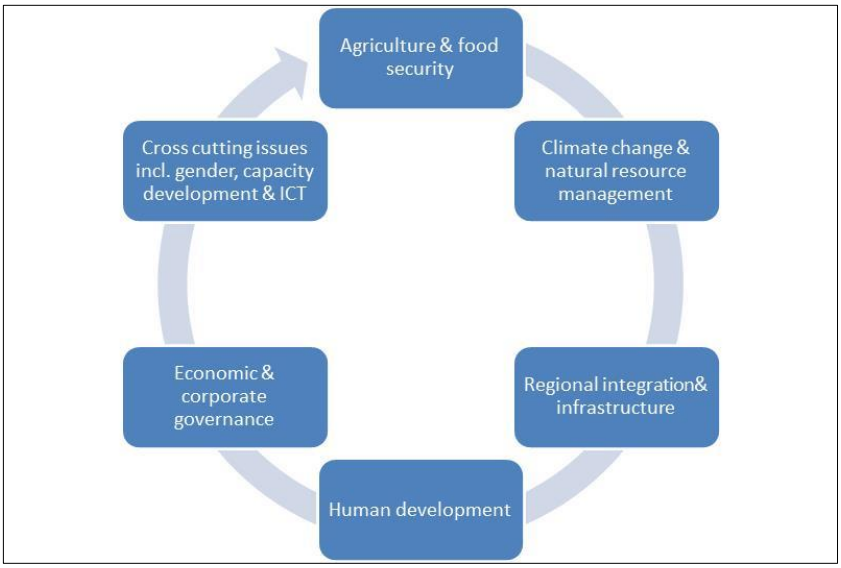

Figure 5: NEPAD Focus Areas for Development (NEPAD, 2014)

It is interesting to note similarities in the African perspective on development priorities as compared to Western organisations such as the UN. However, this is unsurprising since several of the African countries are signatories to agreements such as the UN's Millennium Development Goals. In sum, the literature shows that it is generally accepted that no meaningful development of a country can be achieved without the necessary improvement of the quality and standard of living of the disadvantaged and poor (Bhuiyan, 2011).

2.3.2. The Contribution of ICT's to Development

If one agrees with the broader capabilities perspective of development and views it as allowing individuals the opportunity to choose their fate, then ICTs become relevant to the development discussion in as far as they are able to give people the tools that will allow them to make choices to improve their lives (Andrade and Urquhart, 2010). Information and Communication Technologies for Development are commonly referred to as ICT4D. The notion of ICT4D views ICT's as enablers of development and as such ICTs are receiving great attention within the development discourse (Thompson, 2008). Heeks (2010) highlights that developing nations spend over US$800bn on ICT projects annually. Furthermore, the World Bank supports a variety of ICT projects through loans and guarantees each year. The United Nations has also in various reports highlighted the importance of e-Government and ICT as integral to sustainable development (UNPAN, 2012).

There is a great amount of resources being invested in ICTs by governments and this is driven by the generally accepted view that ICTs hold various opportunities for implementers. The cited benefits include: cost reductions, improved quality of service to constituents, increased transparency and accountability of government, reduction in corruption, boost governments' capacity and efficiency, improved decision making, assisting in promoting the use of technology in various sectors of society (Ndou, 2004, Basu, 2004, Evans and Yen, 2006).

Governments face challenges of having to deliver more services with restricted resources. Also, due to their inherent focus on development, governments seek ways of reforming the public administration and delivery of services more efficiently and thus turn to technology to assist in the achievement of these goals (Madon, 2005).

The assertion of development being spurred on by the implementation of ICT has been discussed by various international agencies with the view that "developing countries are being deprived of the opportunities for economic growth and social development enjoyed by advanced economies because of a scarcity of ICT" (Madon, 2005 : 3) and therefore great investments have been placed in raising awareness and the profile of ICT in development initiatives.

The view that investing in ICT means a growth in the economy which thus equates to development is narrow. Heeks (2010) highlights that it is still not clear "whether ICTs can ultimately have a more transformational contribution" to development (Heeks, 2010:637). Haque (2002) expresses a similar sentiment and believes that "it is yet to be seen whether e-governance can eradicate poverty, reduce inequality and satisfy basic human needs" (Haque, 2002:247). Others believe we should be focusing on certain types of technology such as the mobile phone which hold greater potential to make a significant difference: "Instead of messing around with telecentres and infrastructure projects of dubious merit, the best thing governments in the developing world can do is to liberalise their telecoms markets, doing away with lumbering state monopolies and encouraging competition" (Thomas, 2009:29). These echo private sector sentiments, where increased competition and more efficient markets are viewed as beneficial for citizens. Notwithstanding, there are still unanswered questions on the actual impact and value of ICT investments and levels of pessimism remain (Sein and Harindranath, 2004).

Several examples of ICT led implementations in the developing world for developmental outcomes have been studied in countries such as Kenya (Ochara, 2009); South Africa (Lubbe and Singh, 2009) and (Twinomurinzi et al., 2012); Brazil (Andrade and Joia, 2011); and India (Basu, 2004). Heeks (2010) also outlines that investments that we have

seen in ICT have predominantly resulted in infrastructural development and an increase in the diffusion, access and use of ICT. For example, it is suggested that mobile usage rates are in excess of 80% of the populations of developing countries and as such the Internet and mobile phones are considered to be pervasive (Heeks, 2010). However, there is still a gap in the area of understanding the real impact of ICT on development and we are challenged to move beyond the preoccupation with the infrastructural achievements and focus on the tangible effects of these ICTs. However, we see that increasingly researchers have moved their attention to the developmental and transformational impacts of ICT (Heeks, 2010).

The case of e-Government should be seen in the context of the broader socio-economic impacts and not just simple system implementation with narrow impacts and as such these large investments that are seen in the ICT4D arena are the reasoning behind the need for a critical review and evaluation of these programmes.

As much as ICT is seen as a positive influence for governments in the developing world it would be simplistic to not recognize that this tool which has great potential also brings with it various challenges and also it is recognised that ICT projects pose a significant risk for the countries which undertake them (Heeks, 2002); (Ndou, 2004). Therefore guiding principles are offered for those implementing ICT for development projects to increase the likelihood of success (Heeks, 2010). Such guiding principles do not guarantee successful implementation but highlight the depth of the need that exists in the public sector to find solutions that will turn around the disappointing implementation success rates.

2.3.3. Development and Sustainability

This section elevates the issue of sustainability in development projects and particularly ICT4D. The literature on ICT4D often refers to the notion of sustainability (see Ali and Bailur, 2007, Kumar and Best, 2006, Ochara, 2012). Sustainability of an ICT4D project refers to its “ability to work in practice, over time, in a given setting” (Sanner and Saebo,

2014:1). ICT4D projects are often critiqued for lacking longevity as seen by their reported failures. Therefore this study deems it important to consider how we can make such projects socially sustainable in relation to t-Government calls. Social sustainability, as a key element of the wider notion of sustainability as it relates to ICT4D, needs a concerted focus on citizen participation in governance. It also requires the acknowledgement of local customs, cultural differences within communities and the emancipation of marginalized sections of society. Another requirement is the sharing of goals with local people while adapting to the ever changing community needs (Avgerou, 2010, Silva and Westrup, 2009, Hayes and Rajão, 2011).

2.3.4. Perspectives on ICT and Development

A view of ICTs and development was found in a study by Sein and Harindranath (2004) which was later extended (see Harindranath and Sein, 2007, Harindranath and Sein, 2008). They were concerned with the lack of conceptual clarity on the notion of how ICT's affect development. Sein and Harindranath (2004) outlined that clarifying the issue would require a review of development theories and the conceptualisation of the ICT artefact. This results in three dimensions of ICT in development: how ICT is used, viewed and its impacts (Sein and Harindranath, 2004) as outlined in Figure 6 below.

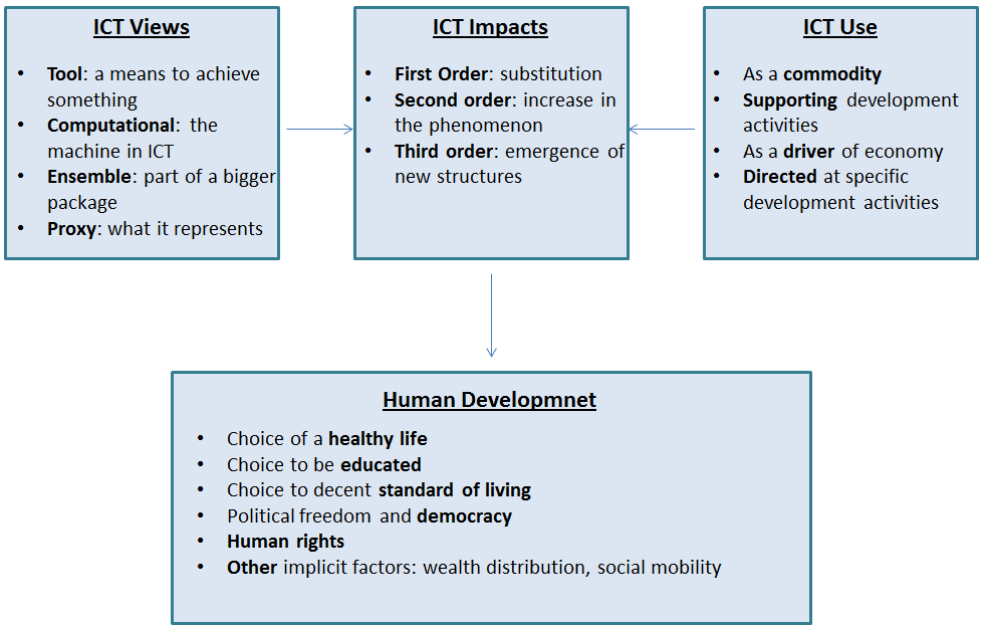

Figure 6: Framework of ICT in Development (adapted from Sein and Harindranath, 2004)

ICT can be viewed as a tool, a computational machine, an ensemble or proxy for what it enables. The preoccupation with ICT as a tool is blamed for the failures we see in ICT4D projects. ICTs can be used as commodities, to support general development activities, as a driver of economy or targeted at specific development projects. Albeit the difficulty in tracking the impacts of ICT have been categorised into three groups. Firstly, primary impacts where old technology is replaced by the new. Or, secondary impacts which involve an increase in the phenomena supported by the technology. Lastly, tertiary impacts are those that result in new technology related businesses or changes in societal structures (Sein and Harindranath, 2004). Thus the aim is to conceptualise ICT's in a different manner so as to gain tertiary impacts that fundamentally change society and contribute to human development (Sein and Harindranath, 2004).

Avgerou (2008) highlights that different perspectives exist for reviewing the contribution of ICT to development. These are outlined in Table 5 below:

Table 5: Perspectives on Socio-Economic Development and IS (Adapted from (Avgerou, 2008)

Approach	Focus
Transfer and Diffusion	Assumes technology is beneficial to developing countries. Developing world is concerned with "catching up" with technologically rich economies. Developing world transfers technologies and emulates institutions from developed economies and adapted to the conditions of developing countries. It examines IS innovation as the diffusion of IS knowledge transferred from advanced economies and adapted to the conditions of developing countries.
Social Embeddedness	Assumes that IS innovation in developing countries is about constructing new techno-organizational structures within a given local social context. Places research emphasis on exploring local meanings and working out locally appropriate techno-organizational change. Innovation is studied as a locally constituted process of technology construction and organizational change. Its purpose arises from local problems and its course is determined by the way local actors make sense of it and accommodate it in their lives.
Transformation	Views IS innovation to be primarily concerned with creating possibilities for the improvement of life conditions in a particular locality amidst the global socio-economic order. Is interested in the processes through which IS innovation leverages large-scale and deep socio-economic change. Considers IS innovation as a transformative socio-economic process.

In review of the above, this research study fits within the Transformation approach since it was interested in understanding the local social context and the contribution of IS to socio-economic development and the resultant impacts on citizens.

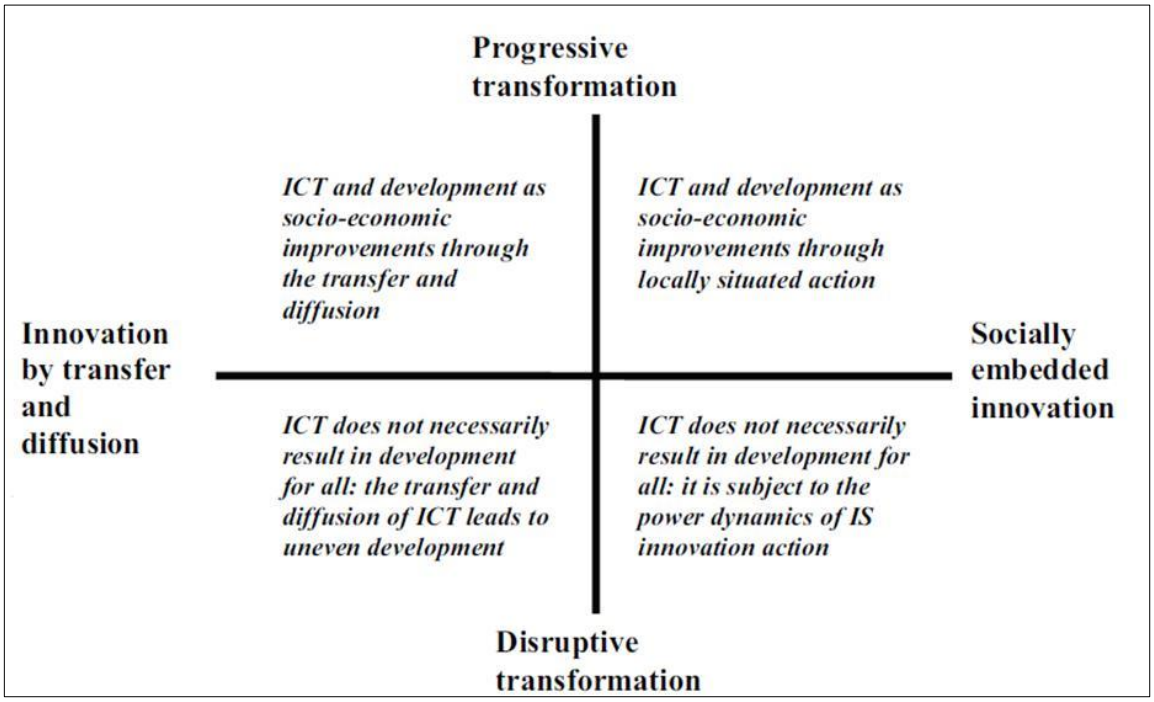

Figure 7: Four Discourses of IS Innovation (Adapted from Avgerou, 2009)

T-Government concerns itself with the direct impact that ICT's have on society beyond the preoccupation with infrastructural readiness that e-Government has historically focused on. T-Government is also underpinned by socio-technical principles which neither elevate the technology or the societal perspectives but aims to understand both views in how ICT is developed and implemented. The t-Government agenda is about the benefits accrued to constituents through ICT (Avgerou, 2008).

There is also a dissatisfaction with the prior ICT4D trajectory (referred to as ICT4D 1.0) and Heeks (2008) believes there is a shift towards a new phase which addresses the dismal outcomes experienced thus far. Referred to as ICT4D2.0 this phase focuses on sustainability, scalability and impact evaluation of ICT4D projects and is bolstered by the

increasing uptake of mobile phones and the advent of Web2.0 innovations to ensure benefits for citizens (Heeks, 2008, Silva and Westrup, 2009).

Regardless of the perspective that one takes, the development discourse is one that is critical and should not be ignored. The World Bank highlights that development based on economic equity and social inclusion is necessary if poverty is to be eradicated (Worldbank, 2004) .

2.4. e-Government Challenges

The Governments of today operate in a highly complex environment and globalisation sees increased competition in trade and investment. Thus, having a public administration that is efficient, effective and accessible is considered a necessity rather than a luxury (Tripathi, 2007). Citizens expect that their governments deliver services with the same effectiveness, quality and efficiency perceived to be found in the private sector (Ebrahim and Irani, 2005). One of the results of this stiff competition is an increased investment in ICT to enhance government administration (Ayanso et al., 2011)). Disappointingly even though e-Government initiatives are widespread, many of these investments have not yielded the expected benefits (Saxena, 2005). Researchers indicate that where there have been successful e-Government projects these are actually in the minority. Based on the limited evidence that is available it is viewed by some that there are “high rates of e-Government project failure in Africa” (Heeks, 2002: 11). It is noted that some studies have previously found that in developing countries failure of IS projects is not limited to e-Government but is a trend for IS in general (Dada, 2006).

2.4.1. Implementation Challenges

Various reasons are cited for this phenomenon of seemingly failing African and developing world e-Government interventions. These include: e-Government projects are inherently risky, complex, non-linear and very technical in nature (Brown, 2005, Ebbers and Van Dijk, 2007). The ongoing threat of the digital divide has also been cited where

certain groups in society lack access to ICT's (Davison et al., 2005, Cloete, 2012, Mutula, 2005). Also, there is insufficient funding to spend on ICT and high operational costs (Heeks, 2002, Ebrahim and Irani, 2005); (Ho, 2002); partnership and collaboration across public, private and non-profit sectors is lacking (Ndou, 2004); a lack of e-readiness necessary for implementing e-Government initiatives. e-Readiness incorporates the necessary technical infrastructure, data systems, policy issues and legal environment, human capital and skills, as well as a supporting strategy and leadership commitment (Heeks, 2002); (Ndou, 2004) (Mutula and Mostert, 2010) (UNPAN, 2012). Other reasons for failure are that often e-Government initiatives are driven by external and mostly western agendas (Heeks, 2002); there is a complex and turbulent global political environment coupled with change management issues (Ndou, 2004); (Chou et al., 2008). Additionally citizen trust is cited (Warkentin et al., 2002, Alsaghier et al., 2009). Lastly, the resistance from public sector employees (Chou et al., 2008) and a lack of integrated project planning and effective management along with relevantly skilled IT staff and project managers are also cited (Reffat, 2003); (Ebrahim and Irani, 2005); (Thomas, 2009); (Andrade and Joia, 2011) (Chen and Gant, 2001) (Cloete, 2012). Table 6 below is included to further highlight and acknowledge the range and complexity of issues that may plague e-Government projects.

Table 6: e-Government Challenges (adapted from Almarabeh and AbuAli, 2010)

Challenge	Description
Infrastructure Development	Countries have struggled to develop basic infrastructure to take advantage of new ICT tools. Many developing countries even if possessing the will do not have necessary infrastructure to immediately deploy e-Government throughout their territory.
Law and Public Policy	The application of ICT to government may encounter legal or policy barriers.
Digital Divide	Represents that gap between people who have access to the internet and those who do not. Those that cannot learn essential computer skills, cannot access information for economic opportunities and thus fail to benefit in e-government.
E-Literacy	Refers to groups unable to utilise ICT due to a lack of computer literacy. This may result in two groups: the "information rich" and the "information poor".
Accessibility	Government should serve all citizens regardless of physical capabilities (e.g. the disabled, the aged) and thus e-Government should be designed with applicable interfaces.
Trust	e-Government success requires trust between government and

Challenge	Description
	various constituent groups (citizens, business, NGO's)
Privacy	Governments are custodians of large volumes of personal data and information. It is essential that the privacy of citizens is protected.
Security	Security should be designed into e-Government systems such that security breaches are avoided. Issue of security also links to building trust with stakeholders.
Transparency	There is a lack of transparency regarding government decision making thus the public fails to actively participate in government processes. Lack of transparency may also conceal corruption, favouritism and other negative practices.
Interoperability	Overhauling legacy systems is a challenge and often the systems are not compatible.
Records Management	Poor information management poses a threat and a lack of it prevents policy makers from accessing useful data and analysis on social and economic development.
Permanent Availability and Preservation	Historical documents are very important to governments and thus ICTs should be utilised to ensure its cost effective storage and easy retrieval.
Education and Marketing	Often the targets of e-Government are unaware of the service available and thus education programs are needed.
Public/Private Competition and Collaboration	The question of the relationship between government and the private sector is often elevated through e-Government. The challenge is in reformulating the linkages for partnerships and collaboration.
Workforce Issues	Restructuring the government human resources is needed since e-Government requires a well-trained and motivated workforce.
Cost Structures	Governments continuously face cost pressures and e-Government projects are often costly. The programs should be deigned to ensure savings can be achieved.
Benchmarking	Government need to regularly evaluate their progress and assess effectiveness of e-Government investments.

2.4.2. The e-Government Myth

Alternatively the disappointing outcomes of e-Government implementation may be linked to the myths associated with e-Government (Bekkers and Homburg, 2007). These myths are rhetoric found in policy statements that provide reasoning for e-Government and inspire action towards investing in e-Government. Examples of myths cited include the argument that e-Government is inevitable and will result in better governments. Also that e-Government will bring rational information planning and empowerment of citizens as consumers (Bekkers and Homburg, 2007).

However, the actual experiences of e-Government implementations do not align to these myths and there has been a distinct lack in the achievement of their utopian ideals. A

study found that few governments reported actual changes attributable to e-Government particularly with regards to changes to cost impacts (Coursey and Norris, 2008). Margetts and Dunleavy (2002) also identify myths which may be the basis for the barriers to e-Government. The four myths are applicable to the supply side of e-Government and the demand side of e-Government and put forward various ways of framing the technological world (Margetts and Dunleavy, 2002).

Another study identified four reform propositions that underpin e-Government and assessed these against implementations in the US. The study found that the US experience with IT in government fails to support the reform hypotheses (Kraemer and King, 2003). These reform hypotheses are outlined below:

Table 7: Reform Propositions (adapted from Kraemer and King, 2003)

Reform Proposition	Research Findings
Computers have the potential to reform public administrations and their relations with their environments.	Experience with information technology and administrative reform has shown technology to be useful in some cases of administrative reform, but only in cases where expectations for reform are already well-established. IT application does not cause reform.
Information technology can change organizational structures, and thus is a powerful tool for reform.	IT application has brought relatively little change to organization structures, and seems to reinforce existing structures.
Properly used, information technology will be beneficial for administrators, staff, citizens and public administration as a whole.	The benefits of information technology have not been evenly distributed within government organizational functions: the primary beneficiaries have been functions favoured by the dominant political-administrative coalitions in public administrations, and not those of technical elites, middle managers, clerical staff, or ordinary citizens.
The potential benefits from information technology are under-realized due to a lack of managerial understanding of what the technology can do, and unwillingness of managers to pursue the potential of the technology when they do understand it.	Government managers have a good sense of the potential uses of IT in their own interests and in cases where their interests coincide with government interests, they push IT application aggressively.

Reviews of statements from e-Government proponents such as the United Nations indicate the existence of myths fuelled by cyber-optimism. For example “e-Government holds tremendous potential to improve the way that governments deliver public services and enhance broad stakeholder involvement in public service” (UNPAN, 2014). Other

stakeholders believe that there are many opportunities for e-Government indicating that this may involve the "provision of information, handling complaints and queries electronically, processing applications for permits/licences electronically, paying taxes, duties, fees electronically" (Davison et al., 2005: 282).

However, opposing views regarding the validity of such statements are raised. It is said that the reform propositions often fail to clarify the necessity of reform i.e. why reform and what is actually lacking in Government (Kraemer and King, 2003). The state may need improvements however this does not necessarily mean they are performing poorly in achieving their objectives. Furthermore, the bureaucratic structures have been developed over many years and have performed reasonably well in delivering complicated duties realistically on a sustained basis (Kraemer and King, 2003). In addition it is purported that although management in government are experts in the bureaucratic form they are not against improving the efficiency and effectiveness of the state. Also, it is claimed that "even in cases where there are good reasons to reform government, the application of IT has a poor record as a lever for change" and the impacts of ICT's have not matched what they were envisioned to be (Kraemer and King, 2003:11). Thus this questions if the myths are indeed serving a positive purpose in governments or only serving to reinforce the status quo.

2.4.3. e-Government Outcomes

Scholars have purported that e-Government projects have seen more failures than successes (Heeks and Molla, 2009, Guha and Chakrabarti, 2014, Nurdin et al., 2012). For example the, World Bank has acknowledged that a significant portion of their ICT related investments have been largely unsuccessful (World Bank, 2011). The organisation indicates that "with respect to ICT applications, 74 percent of World Bank projects had ICT components, but the Bank Group's record has been modest, reflecting the intrinsic high risks in the implementation of information technology (IT) projects" (World Bank, 2011:vii). In their paper, Mutula and Mostert (2010) cite some South African examples of e-Government projects that did not meet stakeholder expectations. These

include the Golaganang project that was to provide government employees with cost effective ICT resources and address their digital literacy needs however it failed to launch. Alternatively a project for the National Welfare Agency which did start with an intention to rollout over three years was found to have only reached 40% of their goals in the sixth year of the project with higher than anticipated costs (Mutula and Mostert, 2010). Heeks (2005), highlights that there are three main types of outcomes for e-Government projects namely : Firstly, a total failure: the initiative was never implemented or was implemented but immediately abandoned. Secondly, a partial failure: major goals for the initiative were not attained and/or there were significant undesirable outcomes. Finally, a successful project: where most stakeholder groups attained their major goals and did not experience significant undesirable outcomes. Further to this although there is limited data; it is estimated that approximately 35 per cent of e-Government projects are total failures, 50 per cent are partial failures, and 15 per cent are successes (Heeks, 2005). The question arises: why do e-Government projects fail? There are mainly two streams of thought that attempt to tackle this question. One group focuses on the factors that cause e-Government projects to fail and compile various categories of this, another group attempts to build theories that can help us understand the issues far more deeply.

Heeks (2002) on the other hand proposes another perspective by attempting to make available a framework that not only highlights the underlying issues in e-Government failure but also practical steps that can be taken to address the challenges. This framework highlights that the success or failure of an e-Government project is dependent upon the gap that exists between where the organisation is today (the current reality) and where it needs to be, based on the design of the e-Government solution (future or changed systems and organisation) (Heeks, 2002). It is argued that the larger the gap the higher the risk of failure of that intervention. It was found that “designs based on plans, procedures, methodologies and strategies are developed from a rationalistic perspective, which rarely capture the ‘here and now’ of e-Government implementation” (Ochara, 2009:89).

This high failure rate is disappointing particularly from the perspective of the poor that rely on their governments to utilise resources in the most efficient manner to benefit society. As seen above, the notion of e-Government cannot be denied in Africa and as highlighted by Heeks (2002), African governments have been using information technology for over 40 years thus e-Government should be seen as "evolutionary not revolutionary" (Heeks, 2002: 4). A new frame of thinking is required if the current scenario is to change. This new thinking is a paradigm shift towards transformational government.

2.5. Focus on Benefits and Impacts of e-Government

Essentially the call for t-Government is about a commitment to benefits and impact realisation for development. As mentioned earlier there are various schools of thought regarding what development is (e.g. economic development, focus on sustainable livelihoods or a focus on an individual's freedom of choice and capabilities). It is put forward that regardless of the underlying view on development, the focus of t-government should still be to enhance benefits and impacts for citizens. Historically, developing worlds have failed to capture these benefits and e-Government projects "have not ventured into the complex areas that transcend the efficiency and management concerns of government" and rather put in place "programmes addressing quality of life issues" (Tripathi, 2007:200).

In other words, to date we have not seen sufficient benefit realisation and impacts on societies for the investment that tax payers, donor agencies and the public sector have sacrificed. We need to move away from the focus on "we have implemented a system" even if it is on time, within budget and has relevant functionality to thinking around "how does this system impact and change the lives of our constituents for the better". This change in thinking is aligned to the broader developmental goals of e.g. poverty eradication, health care and education rather than of a project management methodology check list. This adjustment in thinking is focused on seeing benefits for citizens.

This study took into account both the views of detractors and proponents of e-Government as a potential resource towards public sector reform and attainment of benefits for citizens. The study leaned towards the perspective that views e-Government as holding certain benefits albeit these benefits are considered differently. The benefits are no longer viewed from a maturational perspective that has dominated prior thinking but rather from a synthetic model or adaptation perspective (Brown, 2007). This perspective widens the lens through which we look at gains from e-Government in a non-linear and uneven adoption pattern where tailoring efforts for a particular context and need is at the fore (Brown, 2007). Within the synthetic model the "technology solution becomes neutral, and value is predicated on the ability to render needs, promote transparency, and encourage efficiency" (Brown, 2007:194). In this model the value of the technology services is defined by stakeholders of government (Kelly et al., 2002). Furthermore the model would acknowledge that progress should not be necessarily slowed down by time and that flexibility may enable benefit attainment (Brown, 2007). Also, research is cited as consistently showing that technological sophistication is a poor substitute for understanding benefit attainment (Brown, 2007, Coursey and Norris, 2008). An alternative is to consider how more benefits can be expected from technology in a more timely fashion through a different direction of questioning. The central question is thus "How can governments facilitate and encourage timely gains?" and is aligned in this study to the transformational government paradigm.

2.6. Towards Transformational Government

This section provides preliminary thoughts on the emergent need for alternative views on e-Government and reflects on the t-Government literature.

2.6.1. Alternative Conceptualisation

There is a recurrent theme in the literature that ICT's have not yet changed how governments interact with citizens. The Pina et al (2007) study of 19 OECD countries found that technologies allow for the attainment of restricted modernisation goals

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

however, they do not significantly alter citizen relations (Pina et al., 2007). e-Government may not necessarily result in reforms but rather bolster the interest of those in power (Coursey and Norris, 2008). Indeed it reinforces pre-existing social and political structures (Pina et al., 2007). e-Government is not expected to yield any immediate or dramatic results (Coursey and Norris, 2008). If this is the case then it raised the need for an alternative route of conceptualising e-Government. It is puzzling that technology in the public sector with all its innovation has not been able to convincingly show its value, impact and benefits for citizens. This study aimed to understand different ways of understanding e-Government under the banner of t-Government.

2.6.2. Understanding Transformation

With the advent of the Internet and the growth in various ICTs, there was also a hope and promise of the revolution that would follow from these technologies in business, the public and non-profit sectors. However, this revolution, particularly in terms of developmental impact, is yet to be realised. The promises have unfortunately not been fulfilled (Heeks, 2010, Andersen et al., 2011, Bhuiyan, 2011) and we have seen more rhetoric than actual delivery. Madon (2005) highlights that to date there has been "little serious analysis of these initiatives in terms of their long-term developmental impact and that a more focused approach is needed to ensure that citizens derive true benefits from such investments" (Madon, 2005:2).

According to Avgerou (2009), there are two views to ICT Development impacts namely the progressive transformation as well as impacts that may be considered to be disruptive transformation. Progressive ICT projects are considered to have a significant impact in the society however they do not change the dynamics and underlying structures of the market and development. Disruptive ICT projects result in a complete overhaul for development such that the results are for example new business models or changes in power dynamics in society (Avgerou, 2009).

ICT has transformative power in countries that employ it in public administration processes (UNPAN, 2012). The challenge is in how it is deployed and the involvement of citizens. As highlighted the transformative power of ICT for governments has been supported by some scholars however not all agree with the promise of ICT led transformation. Bannister and Connolly (2011) highlight a study that reviewed ICT led government change over a 30 year period in the U.S. which revealed that ICT programmes did not bring about transformation but only strengthened existing structures, processes and power relations (Bannister and Connolly, 2011). This view was supported in the study by Pina et al (2007).

Also, the definition of transformation is challenging (Bannister and Connolly, 2011) . The concept is accused of being poorly defined (Janssen and Shu, 2008). There is no agreement on what transformation is (Weerakkody et al., 2011) in other words how much change and what type of change must the ICT programme bring for it to be viewed as transformative. Janssen and Shu (2008) define transformational government as government that is transparent, accountable, efficient, and agile. Weerakkody et al (2011) define t-Government as : "ICT-enabled and organization-led transformation of government operations, internal and external processes and structures to enable the realization of services that meet public sector objectives such as efficiency, transparency, accountability and citizen centricity" (Weerakkody et al., 2011:321). Weerakkody et al (2011) refer to the need for radical and incremental changes. Irani et al's (2007b) definition of t-Government incorporates a shared services culture to maximise value added to clients, the effective delivery and management of resources and skills within government and elevates citizen-centric delivery of public services (Irani et al., 2007b).

However, for Bannister and Connolly (2011) definitions such as the one offered by Janssen and Shu (2008) and other similar definitions present us with the challenge of 'conceptual generality'. This means that "Transformation is expressed in terms of desirable qualities rather than concrete changes in processes and structures" (Bannister and Connolly, 2011:138). Bannister and Connolly (2011) continue to question whether

these qualities are absolute or relative – thus how much agility is actually transformational? Also, is a more efficient government a transformational government? It therefore appears that "transformation is a continuum; in general there is no clear point at which something ceases to be a minor change and becomes a radical one" (Bannister and Connolly, 2011:138). There is often no reference to practical changes to real people and real organisations only the use of "feel good" words (Bannister and Connolly, 2011:144). Weerakkody et al (2011) also concede that: "The main limitation of this research is the lack of consensus about what constitutes definitions of transformational government and the shortage of empirical studies." (Weerakkody et al., 2011:327). It was with this limitation and gap in definition, conceptualisation and implementation of t-Government that this study concerned itself.

Beyond the challenges with conceptualisation several barriers to achieving t-Government have been cited. One study reflected on the existing e-Government literature and t-Government case studies to elevate obstacles to attaining t-government (Van Veenstra et al., 2011). These included governance related barriers, organisational and managerial barriers and also technological barriers (Van Veenstra et al., 2011).

A serious inspection of how we understand and implement e-Government is required if we are to continue justifying public sector ICT investments and see the envisioned impacts become a reality. It is proposed that this new thinking may be found in transformational Government (t-Government). An earlier paper offered an evolutionary view of e-Government towards t-Government based on the UK government's policies (Murphy, 2005). Weerakkody et al (2009) have taken the discussion on the evolutionary approach to e-Government further. They indicate that the e-Government implementation programmes have evolved to such an extent that currently most developing countries are now working towards realising transformational government. The t-government phase which represents a substantial difference in approach to the preceding phases is not yet accomplished and it may also be followed by yet another phase which is unknown (Weerakkody et al., 2009). This view is illustrated in Figure 8 below:

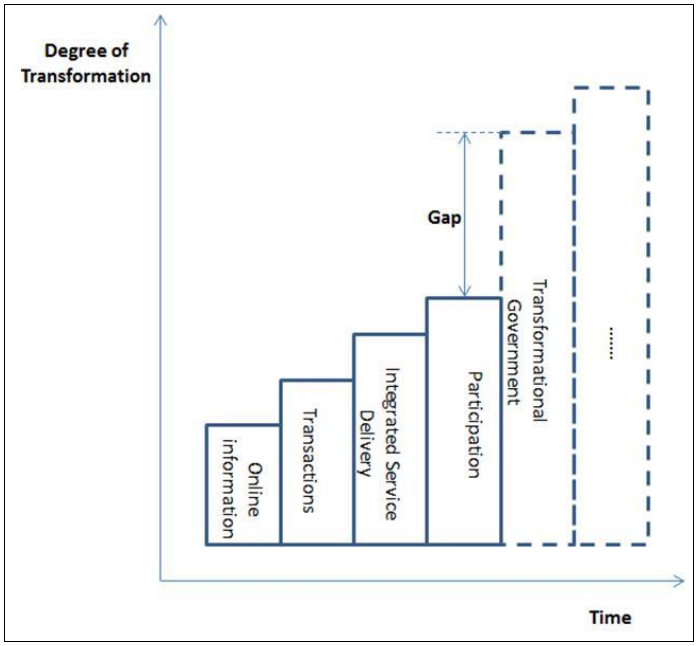

Figure 8: Progress towards transformational government (Weerakkody et al., 2009)

Scholars have attempted to address the area of t-Government. Weerakkody et al (2011) and Weerakkody and Dhillon (2008) studied t-Government from a business process reengineering perspective. In another study Reinwald & Kraemmergaard (2012) review t-Government from a stakeholder angle indicating that managing different groups of stakeholders is the key to t-Government success. IT Governance was found to be important for t-Government (Montazemi et al., 2010). Also, a framework of trust and t-Government has been considered (Bannister and Connolly, 2011). King and Cotterill (2007) offer readers a customer relationship management approach for t-Government based on citizen co-production and conclude with a four stage maturity model (King and Cotterill, 2007). Joseph and Johnson (2013) push for attaining t-Government through the exploitation of big-data to improve government services. Jones (2012) compiled a framework of t-Government based on the prior work of Hackney and Jones (2006) which identifies barriers, objectives and priorities for t-Government implementation as per Figure 9 below.

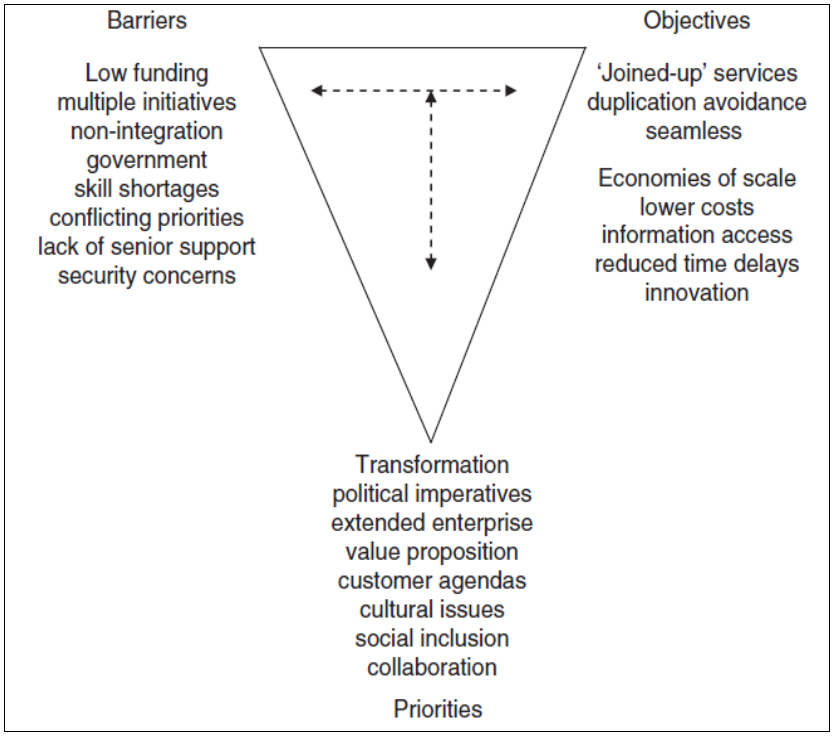

Figure 9: t-Government Framework (Jones, 2012)

Considering these studies and prior discussion in the literature it is proposed that an opportunity exists to consider Transformational Government not from the normative, linear, stepwise, or maturational perspective (see section on e-Government perspectives). In the researcher's view, figure 8 is in contrast to what t-Government should be focusing on i.e. not mapping progress through phases but rather impacts for citizens in the "here and now". T-Government is about meeting citizen's needs (Sipior et al., 2012). As Sharif (2008) laments : "… the current t-Government approach simply may not be sustainable in its present form as it only concentrates on the IT/IS component" (Sharif, 2008: 74). In essence t-Government "has a soft focus and is people orientated" (Jones, 2012: 608) and more research is needed that focuses our thinking towards a citizen centric approach for public services (Irani et al., 2007b).

Furthermore Irani et al (2007b) offer a conceptual model and the following comparison of e-Government versus t-Government:

Table 8: Comparison of e-Government and t-Government (Irani et al., 2007b)

	e-Government	t-Government
Focus	Putting government services on-line	Making the government transformational through IT
Citizen Involvement	Access & Accessibility	Build Social capital
Business Involvement	On-line transacting	Supply chain integration
Service Delivery	Push-model	Pull-model
Evaluation	Stage model growth	Benefit realisation
Resource Management	Resource allocation	Professionalism
Integration	Shared service platform	Shared service culture
Business model	Technological capability	Strategic governance
IT role	Enabling on-line delivery	Enabling the transformation of the business of government

The table above highlights the change in focus required by governments seeking transformational Government. As put forth by the OASIS Committee what is required is "a vision that is not just about transforming government through technology. It is also about making government transformational through the use of technology" (Oasis-Committee-Note01, 2012: 7). T-Government is concerned with improving government services through ICTs supported by increased citizen participation (Fernando et al., 2010). To be transformational there needs to be a consideration of the political context, culture and business processes bearing in mind the multi-actor environment and organisational setting (Weerakkody et al., 2009). For this study, this meant understanding what t-Government equates to for the sub-Saharan Africa context.

2.7. e-Participation of Citizens

e-Government holds the promise of changing people's lives. It can assist government to be more responsive to the requirements of their constituents (Seifert and Chung, 2009). Contrastingly, e-Government research has predominantly targeted the supply side rather

than the citizen demand side of e-Government implementations (Reddick, 2005). This study elevates the position of citizen and thus sees electronic participation of citizens (e-Participation) as being relevant to the t-Government research.

The United Nations highlights that, powerful new technologies can be used to progress sustainable development efforts for all people across the world while including them in the process (UNPAN, 2012). e-Participation programmes have various purposes including: informing citizens, generating support among citizens, utilizing citizens' feedback in decision making, and exploring citizens' needs from government. Furthermore, it is suggested that e-Participation is a critical element in the betterment of people's socio-economic circumstances where Government becomes a facilitator of information and services and not a controller thereof (UNPAN, 2012). This brings to the forefront the significance of e-Participation in ICT4D. e-Participation involves communication, feedback and involvement in decision making which is supported by citizens having access to technology and a culture and leadership that is open to involving citizens in the political processes (UNPAN, 2012).

Macintosh (2004) highlights that there exist different levels of e-participation including: *e-Enabling* – which is concerned with how technology can be used to reach a wider audience by providing a variety of technologies to cater for the diverse technical and communicative skills of citizens and as such, more citizens have access to information in a format that is understandable. Secondly, *e-Engaging* is around the matter of consulting a wider audience to enable deeper contributions and support constructive debate on policy issues. Thirdly, *e-Empowering* refers to supporting active participation and facilitating the flow of bottom-up feedback to influence the political agenda such that citizens become "producers and not just consumers of policy" (Macintosh, 2004: 3).

Furthermore, although a UN report reveals that very few countries have high e-Participation scores, the UN highlights that more governments are increasingly pursuing partnerships with citizens for shared answers to the challenges faced by society (UNPAN, 2012). As an example, a review of the South African Department of

Communications' strategic document reveals that one of the key focus areas is to implement an e-Skills programme in South Africa since they "recognise that ICT also offers improved information exchange between citizens and Government, thus affecting democratic quality as well as improving the service delivery experience" (Department of Communications, 2011:6). Also, it is believed that "citizens who are e-literate are able to transmit participatory inputs to Government in a variety of formats, while Government, that is technologically savvy is able to process these inputs in order to advance the democratic process" (Department of Communications, 2011:6). Thus e-Participation is gaining visibility on various governments' ICT agendas.

How the relationship and interaction between governments and citizens is conceptualised was of relevance to this study and may contribute to the discourse on e-Participation towards t-Government. Chadwick and May (2003) provide three models of how e-Government may shape the government-citizen relationship (Chadwick and May, 2003). The Managerial model of interaction views ICT's as tools to make the public sector more efficient, with reduced costs and faster service delivery (Chadwick and May, 2003). The Consultative model offers a "pull" scenario where ICT's enable the communication of citizens views to government (Chadwick and May, 2003). The Participatory model allows a more complex multidirectional interaction with a discursive flow of information between citizens and government. This research study sought an understanding of transformational government aligned to the participatory model of e-Participation since the relationship with citizens is at the core of t-government.

The South African context in particular calls for an analysis of the role of e-Participation in enabling transformation since the current Government has made a commitment to putting the people first as is manifested in the Batho Pele policy principles (DPSA, 2009). The term "Batho Pele" when translated means "People First" in Sesotho. Batho Pele was initiated in 1997 through the White Paper on Transforming Public Service Delivery which was later adopted as a formal policy position in 2002 (DPSA, 2009). The eight Batho Pele principles which endorse the Bill of Rights that are entrenched in the South African constitution highlight the need for a citizen centric and participatory

approach to public sector engagement with citizens in local government. The principles aim to ensure that citizens have access to information and the public sector has an improved service delivery track record. The principles are outlined below:

Table 9: Batho Pele Principles (DPSA, 2009)

	Principle	Description
1	Consultation	People must be consulted about the level and quality of public services they receive and wherever possible be given a choice.
2	Service standards	People should be told what level and quality of public services they will receive so that they know what to expect.
3	Access	All citizens should have equal access to the services to which they are entitled.
4	Courtesy	All people should be treated with courtesy and consideration.
5	Information	People should be given full, accurate information about the services they receive.
6	Openness and transparency	People should be told how government departments are run, how much they cost, and who is in charge.
7	Redress	If a promised standard of services is not delivered, people should be offered an apology, an explanation and a speedy remedy. When complaints are made, people should receive a sympathetic and positive response.
8	Value for money	Public services must be provided economically and efficiently.

Thus this engagement between government and its citizens through e-Participation cannot be divorced from the concept of transformation. If we are essentially, to support the need for transformational government and the pursuit of Batho Pele there needs to be an elevation of the engagement with and e-participation of citizens. e-Participation platforms may enable a shared vision, of what transformation means and how it can be achieved.

Torres et al (2005) indicates that trends show citizens becoming increasingly dissatisfied and disengaged with their governments and subsequently there is a search for new styles of governance through the engagement of citizens. This is viewed as an option towards altering citizens opinions and enhancing citizen trust in governments (Torres et al., 2005). Thus if governments are to re-focus on the citizen then it is suggested that they leave behind the “build it and they will use it” thinking that has plagued some approaches to e-Government (Burn and Robins, 2003) and reconsider a focus on meeting citizen’s needs through participatory principles.

2.8. Citizen Adoption Factors

e-Government has challenges internally within government such as the organisational and policy changes required to support a move towards t-Government (Fernando et al., 2010). There are however, challenges external to it such as citizen digital exclusion where the intended audience for e-Government do not have the access or skills to use the technologies (Fernando et al., 2010, Kumar et al., 2007). Fernando et al (2010) indicate that this contributes to citizens being perpetually involved in a disadvantage cycle where the digital exclusion drives social exclusion and thus the inability to obtain benefits that ICTs may bring such as exposure to job opportunities that are increasingly advertised online (Fernando et al., 2010).

Adoption of e-Government is the "intention to engage in e-Government to receive information and request services from the government" (Warkentin et al., 2002: 159). Citizens face various obstacles in adopting e-Government and these include: skills, access, the digital divide, and trust considerations (Carter and Bélanger, 2005, Patel and Jacobson, 2008, Kolsaker and Lee-Kelley, 2008). As indicated in the previous section e-Participation is an essential component of trying to understand how ICTs can impact and benefit citizens. The issues of access, skills and attitudes of citizens are used to expand this discourse on e-Participation. In an earlier study Edmiston (2003) found that one of the reasons for the slow implementation of e-Government was the difficulty in selling e-Government to citizens. For e-Government to succeed it requires that citizens accept and adopt it (Carter and Bélanger, 2005, AlAwadhi and Morris, 2008). Others have extended the argument to question if there is citizen demand for e-Government. For example, a study found a lack of citizen and business demand and cited that often governments build applications devoid of an understanding of citizen demand (Coursey and Norris, 2008). Furthermore e-Government programmes are implemented in a top-down fashion which is surprising since public sector officials admit that there is a deficiency in demand (Coursey and Norris, 2008). The argument behind t-Government is that it is a refocus on citizens and thus the factors influencing the adoption of ICT based solutions by citizens requires consideration. e-Government can only be successful if

there is widespread access to it by skilled and willing citizens (Deakins and Dillon, 2002, Zouridis and Thaens, 2003). The following section considered the issues of the digital divide as well as citizen access, skill and attitude towards attaining t-Government.

2.8.1. Digital Divide

Although various governments have invested in ICT foundations and infrastructure, to date the issue of the digital divide still plagues nations particularly in the developing context. The digital divide is generally defined as "the divide between those included and those excluded from the digital age" (Hilbert, 2010: 758). The digital divide has been cited as a key problem for extending the reach of ICT's to citizens. For example, access to ICT infrastructure is still considered to be costly, while relatively low ICT skills levels and unfavourable economic environments hinder the leveraging of the potential of ICT infrastructure for socio-economic development (Bilbao-Osorio et al., 2013). Sipior et al (2011) lament that citizens that may be the most impacted by t-Government often have the least access to it (Sipior et al., 2011). Debates that push for advancing e-Government also call for a need for equity among all citizens in accessing the Internet and emerging technologies (Sipior et al., 2011).

Research on the influence of the digital divide on ICT adoption is not novel and has been investigated across the developed and developing world (Molina, 2003, Joia, 2004, Ryder, 2007, Venkatesh and Sykes, 2013). Sipior et al (2012) studied the digital divide and t-government and highlight that the attainment of t-government will require that governments address the digital divide (Sipior et al., 2012). In this section the focus is on relating the digital divide to citizen access, skills and attitudes towards t-Government.

2.8.2. Access

The World Economic Forum highlights that despite the fact that ICTs are becoming increasingly widespread, the problem of access and usage remains important (WEF, 2013). The developing world moreover lags behind developed nations. For example the

ITU indicates that Africa has 7 % internet penetration as compared to Europe which sits at 77% (ITU, 2013). Access to ICT or lack thereof is an important area of research. As Warren (2007) argues we live in a knowledge driven society, where access to information, that enables one to make economic and social decisions, provides a clear advantage (Warren, 2007).

Several attempts have been made to address the issue of user Access to ICT's. For instance, Sipior and Ward (2012) conducted research on the digital divide within a public housing community. Their study showed the significance of a community organizing plan aimed at gaining internet access supported by training to advance e-Government participation among the techno-disadvantaged (Sipior et al., 2012). Hilbert (2010) conducted research into the access aspect of the digital divide. The research project sought to understand the financial feasibility of offering universal ICT services in the Latin American context. Hilbert's paper concludes by highlighting that the "long-standing structural characteristics of the developing world could be about to deepen the vicious circle between inequality and technology diffusion; the numbers have shown that the challenge of breaking this circle is a formidable one" (Hilbert, 2010:768). Thus research on practical solutions for addressing the matter of access are becoming increasingly necessary (Hilbert, 2010). Yates et al (2010) on the other hand indicate that there is a lack of research, that offers explanations for the digital divide and the effects of policies that aim to increase citizen access to ICT (Yates et al., 2010).

2.8.3. Skills

One of the key issues central to the conceptualization of the persistence of the digital divide is the shortage of ICT skills (Van Deursen and Van Dijk, 2010). Van Dijk and Hacker (2003) have previously warned that "the fundamental task of future societies will be to prevent structural inequalities in the skill and usage of ICTs from becoming more intense." (Van Dijk and Hacker, 2003: 324). Skills are important in enabling citizens to utilize ICT's and thus participate in a variety of social arenas. The World Economic Forum (2013) indicates that skills are critical for knowledge-based, information-rich

societies and these are crucial for employment and development (WEF, 2013). A study on internet skills offers a framework for categorizing skills as either Operational Skills: "The skills to operate computer and network hardware and software"; Information Skills: "The skills to search, select, and process information in computer and network sources" and Strategic Skills: "The capacities to use these sources as the means for specific goals and for the general goal of improving one's position in society." (Van Deursen and Van Dijk, 2010: 894). These various skills may be viewed as an essential driver of the usage of ICT's (WEF, 2013) and a weak skills base can hinder a country's capacity to exploit ICT's for developmental purposes.

Gomez et al (2013) researched the barriers to ICT use within marginalized communities. The study found that addressing the lack of technical skills coupled with emotional barriers was critical to ensuring that the communities are enabled to use technologies so as to fulfil their information and development needs (Gomez et al., 2013). Khan et al (2010) indicate that a main challenge of e-Government within the developing world context is the low ICT literacy and skills of e-Government users (Khan et al., 2010). The Khan et al (2010) study showed that skills required for the sustainability of e-Government are not merely technical, however they included a broader set of skills to enhance e-skills (Khan et al., 2010). Alternatively, Wolcott et al (2008) found that IT user skills were a major limitation towards the adoption and use of ICT by micro-enterprises (Wolcott et al., 2008). Similarly, Mutula and Van Brakel (2007) found that Botswana, considered a developing country, had an acute shortage of high-skilled ICT personnel to take advantage of the emerging digital economy in the country. The study also indicates that further research is required to provide a holistic understanding of the ICT skills needs of developing nations (Mutula and Van Brakel, 2007)

2.8.4. Attitude

Research on user attitude towards various ICT's is growing, however as Wunderlich et al (2013) highlight there is limited research in this area thus necessitating further research (Wünderlich et al., 2013). A diverse set of studies have been conducted on the area of

attitude of users towards ICT's. For instance Edmunds et al (2012) looked at the attitudes of students towards using ICT's in their studies, work and social environment. The study, using the Technology Acceptance Model (TAM), found that attitudes to the technology are influenced by the usefulness and ease of use of the technology. It also highlighted that ICT is perceived most positively in the work environment and technology use at work is an significant driver for technology use in other environments (Edmunds et al., 2012).

Heikkinen et al (2012) conducted research with the objective of understanding the behaviour of mobile phone users towards energy consumption. They utilized questionnaires and usage monitoring to study the behaviours and attitudes of the users. Another study aimed to understand the attitudes of users toward e-book reader technology (Lai and Chang, 2011). The research puts forward a causal model that explores how convenience, compatibility, and media richness affect users' attitudes towards the e-book readers for reading (Lai and Chang, 2011). Zhang and Sun (2009): argue that "Despite the theoretical importance of attitude, it has not achieved consistent attention in IS research on ICT acceptance and continued use" (Zhang and Sun, 2009: 2048). Thus the issue of user attitude towards the use and acceptance technology is an on-going area of relevance for ICT studies and for e-Government in particular.

In summary, within the context of aiming to understand e-Government and its impact on citizens (transformational Government) the areas of access, skills and attitude proved to be acutely important.

2.9. Mobile Government

The diffusion of the mobile phone has seen much growth in the last decade within developing contexts and thus at this juncture the literature review seeks to focus on e-Government services offerings through the use of mobile phones in particular. This was supported by Irani et al (2007b) who argue that t-Government research should "examine the emerging paradigms in mobile and communication technologies in improving citizen involvement in the working of Government" (Irani et al., 2007b: 8).

In South Africa it is quoted that there are more active SIM cards, than there are citizens (Bidwell et al., 2011). ITU (2011b) reports that for South Africa, the mobile cellular subscriptions per 100 inhabitants was 91.2 in 2008 and grew to 100.5 in 2010. This trend is similar across the developing world and for the African continent specifically. Mobile phones are continuing to transform daily life in Africa (Bailard, 2009); (Nkosi and Mekuria, 2010). The diffusion of mobile phones and the impact thereof particularly in developing contexts, has been the subject of various studies (see (Donner, 2006); (Singh, 2008); (Bailard, 2009); (Gamboa and Otero, 2009); (Bidwell et al., 2011) and (Mtingwi and Van Belle, 2013)). Furthermore, Bailard (2009) highlights that the African mobile telephony sector has grown at high rates and as such supply cannot keep up with the demand (Bailard, 2009).

Mobile government (m-Government) represents the opportunity for governments to deliver services in an effective and cheaper way (Ghyasi and Kushchu, 2004) through the use of mobile channels. Mobile government aims to improve benefits for citizens, businesses and government agencies through the application of wireless and mobile platforms (Nkosi and Mekuria, 2010). Mobile government holds the potential to leap-frog developing countries where e-Government has failed to deliver due to the lack of fixed communication infrastructure (Mtingwi and Van Belle, 2013).

m-Government programmes and the use of mobile technologies for the benefit of citizens has been argued for in several studies (see (Ghyasi and Kushchu, 2004); (Antovski and Gusev, 2005); (Al-Khamayseh and Lawrence, 2006, El-Kiki and Lawrence, 2007); (Nkosi and Mekuria, 2010) (Mutula and Mostert, 2010)). m-Government may enable governments to communicate with citizens (mG2C), business (mG2B), employees (mG2E) and other governmental agencies (mG2G) (Ntaliani et al., 2008). It is highlighted that m-Government is not a substitute for e-Government however it can enhance the e-Government offering (Ghyasi and Kushchu, 2004); (Ntaliani et al., 2008) allowing government to provide information to more citizens due to the proliferation of the mobile phone.

Nonetheless, m-Government has its limitations (Ghyasi and Kushchu, 2004) since mobile phones are for example constrained with regard to the volume of information they can transfer. Even with limitations, the mobile phones still represent an important tool for governments to engage with citizens since there is a growing demand for multiple channel service delivery (Ntaliani et al., 2008). It was deemed important to keep the m-Government opportunity in mind in the review of the route towards transformational government since the high penetration rates of mobile phones may contribute to the broadening of ICT impacts which was the focus of this study.

The next section seeks to provide a brief overview of African e-Government initiatives since the study was situated in sub-Saharan Africa.

2.10. e-Government in Sub-Saharan Africa

A popular model for comparing various nations' e-Government programmes is found in the United Nation's e-Government Survey. The survey seeks to assess and compare countries according to their level of e-Government preparedness and also reviews the extent to which citizens participate and interact with e-Government programmes (UNPAN, 2012, UNPAN, 2014).

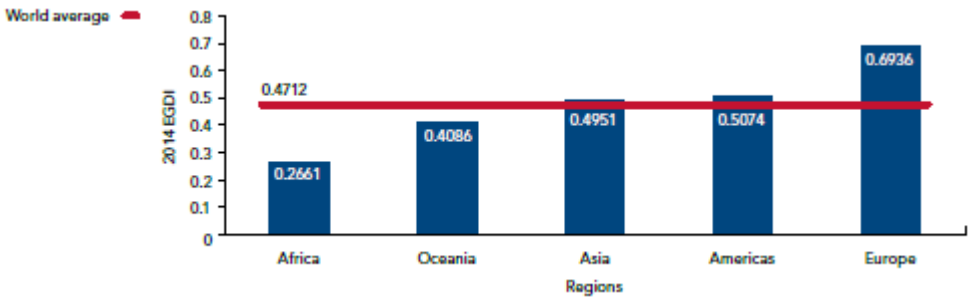

Figure 10: 2014 Regional Comparisons of e-Government Development (UNPAN, 2014)

The comparison of regions within the United Nations report indicates that Africa although steadily improving is lagging behind other regions with regards to e-Government development. The concern about African countries lagging behind has even seen the formation of an organisation with the objective of improving ICT development in Africa (Evans and Yen, 2006) namely the African Information Society Initiative.

Another comparative study is the EIU's Digital readiness report that reviews the use and development of ICT in various countries in the world. The study assesses a country's availability and acceptance of ICT, as well as the "social, cultural and economic building blocks necessary" for the effective use of ICT (EIU, 2010:7). Other reports are available; in essence the message is that Africa is on a path of competing with other nations (developed in particular) with regards to e-Government implementation albeit it is still a long road ahead.

Heeks (2002) highlights that the e-Government arena in Africa has shifted from a former model where ICT systems were mainly used to automate government's internal processes to a current model which sees government using technology to also change their interactions externally with their customers through the collation, processing and communication of relevant data (Heeks, 2002).

It is reported that in the African context the roll out of e-Government is often slow and centred around urban metropolitan cities and thus isolating those in the rural areas (Evans and Yen, 2006). The United Nations highlights that "the key challenge for the e-Government development of Africa remains the widespread lack of infrastructure and functional literacy. Despite recent expansion in mobile telephony, most countries in Africa remain at the tail end of the digital divide. These challenges have translated into a lower than world average e-government development for all sub-regions".(UNPAN, 2012). Therefore, as Schuppan (2009) explains e-Government strategies and projects for Africa need to be adapted to account for factors such as illiteracy, rural area problems, and weak infrastructure, through the development of adequate access methods (Schuppan, 2009). Furthermore, Schuppan (2009) also warns that although the e-Government

rhetoric from developing countries is often quite similar to that originating from industrialized countries, the problems that need to be addressed by e-Government are not automatically the same thus the exporting of e-Government models from developed countries to developing countries is not favourable (Schuppan, 2009). However, Bwalya (2009) argues that the African continent cannot be excluded from the paradigm shift of e-Government and many African leaders have accepted the concept of e-Government (Bwalya, 2009).

2.11. Researcher's Reflections on the Literature

The following thoughts and questions raised below prevailed throughout the study and drove the research project. They are not provided in any specific order but hopefully capture what lingered long after the articles, books and websites had been read.

1. The literature shows a growth in the e-Government domain. There are a multitude of articles, books, conferences and events committed to e-Government. However, there is also a need for much more research to help us understand this complex concept.
2. In revisiting the role of Governments and understanding the South African context, the importance of citizens as stakeholders became very clear. Citizens are the primary stakeholders and they provide governments with powers to act on their behalf. So how are Governments using that power and responsibility for the benefit of the citizens?
3. In considering t-Government both e-Government and e-Governance are relevant if we are to understand the impact and benefits for citizens.
4. The prevailing normative view of e-Government is unsettling since "how" e-Government impacts people is lacking therein. There is a need to understand "what works" and less of a preoccupation with achieving certain phases of e-Government deployment.
5. There is still a technocratic view and technology bias in e-Government literature and practice. Where is the citizen in all of this?
6. Public value highlighted the power of the citizen and connecting with them for decision making. T-Government conceptualisation may learn from this.

7. Public value principles teach that citizens value outcomes, services and trust. T-Government asks: what are the outcomes and where are they?
8. The values that a government holds influence what they focus on and how they implement policy. In South Africa, for example, “Batho Pele” principles encapsulate public sector values. The values aim to “put people first”. The call for t-Government requires the recognition of a set of values that will influence progression towards t-Government.
9. The link to development is relevant due to South Africa’s history and that of various sub-Saharan nations. Also, the general role of government in improving people’s lives is elevated hence the positioning of this study in ICT4D. The researcher in conducting this study supports that ICTs may contribute to development however the literature has some gaps in showing scholars “how” this may be achieved.
10. As this study is rooted in the African context, the role of the mobile phone within the continent cannot be ignored. What does this pervasive technology mean for us in e-Government? However, it is noted that m-Government is not a replacement for e-Government.
11. There is disappointment with e-Government outcomes and success rates and the literature keeps calling for solutions.
12. It is clear from the literature that it is not only the developing world or Africa that fails at e-Government although a large section of the literature may position it that way. The researcher’s focus is on a developing country context since it is the researcher’s home and academic context.
13. Social sustainability is important for t-Government for the longevity of the impacts that are often called for.
14. There are definitional challenges and debates on development, impact, outcomes, benefits with numerous perspectives rooted in different disciplines. How may scholars in Africa define t-Government?
15. Understanding the social local context and contributions of ICT to development was important for t-Government conceptualisation.

16. South Africa (and other similar developing nations) comprising of a 3-tier government structure warrants the question of how t-Government may manifest at National, Provincial and Local levels of government.
17. There are beliefs sometimes referred to as myths that push the e-Government agenda forward. There is a need to understand how they influence our view on t-Government.
18. T-Government is not a normative proposal, it is not the next phase of e-Government as some suggest in the literature. Perhaps t-Government is better viewed as a piece of the puzzle in this large complex problem? Thus the adaptation and synthesis perspective should be considered.
19. E-Participation as a concept is relevant to the study since it is viewed as elevating citizens participating in government's democratic processes and service delivery.
20. Literature shows that those that may be most impacted by e-Government have the least access to it. So considering adoption of e-Government is important and also what influences this adoption. Various issues exist such as skills, access and attitude of citizens. How are these areas understood for t-Government?

In summary, the literature supports the call for Transformational Government as found in the disappointment with the outcomes of e-Government to date. However what is not clear is how this transformation is defined and what it looks like. This needed a linking of t-Government with socio-economic development discourses. T-Government is not put forth as the panacea of the problems highlighted by e-Government research. It was evident that there is potential being identified for ICT4D to become more accessible and more citizen focussed. However, in the developing country context there is a need to understand what this potential entails, how ICT's are viewed and used and what type of impacts have been gained as compared to the impacts that are desired. It was believed to be an opportune time to engage in an alternative way of thinking about e-Government and the emergent t-Government.

In this study, the thinking involved a review of a selection of elements. Firstly, the restlessness and dissatisfaction at the lack of promised impacts and benefits for citizens

resonates in the literature. The issue of challenges with the sustainability of our e-Government programmes in light of the ICT4D promises also came through. Secondly, the influence of NPM philosophies in the current e-Government domain is clear and thus acknowledging these is central to advancing our thinking on e-Government. Also, the myths that continue to underpin e-Government need to be challenged and not necessarily accepted in defining e-Government projects. If citizens underpin the thinking in t-Government do they have the necessary toolbox to engage in e-Government? This toolbox may contain several resources central to these being access to ICT, their skills levels and attitudes held. E-Participation of citizens also resonated in the discourse and it is essential to link this to any pursuits of transformational government. What was also important was that the e-Participation was to be considered for citizen contribution to policies and decision making (e-Governance) and also contribution towards service delivery matters (e-Government). They were both important in the reorientation towards the citizen for t-Government ideals.

Furthermore, from a public value perspective, there is a lack of clarity on what citizen's value within e-Government and the opportunity costs they are willing to forego. The public value aspect requires citizens that are willing to engage with the services offered and this may mean sacrificing something in return, thus linking it to the notion of opportunity costs.

Thus the context from which this study departs is important in that it is in the developing world. There is a dearth of e-Government understanding for this particular environment. The researcher was acutely aware of the need to acknowledge some of the dynamics this context brings to the study.

Figure 11 below traces the literature review journey towards the resultant research question:

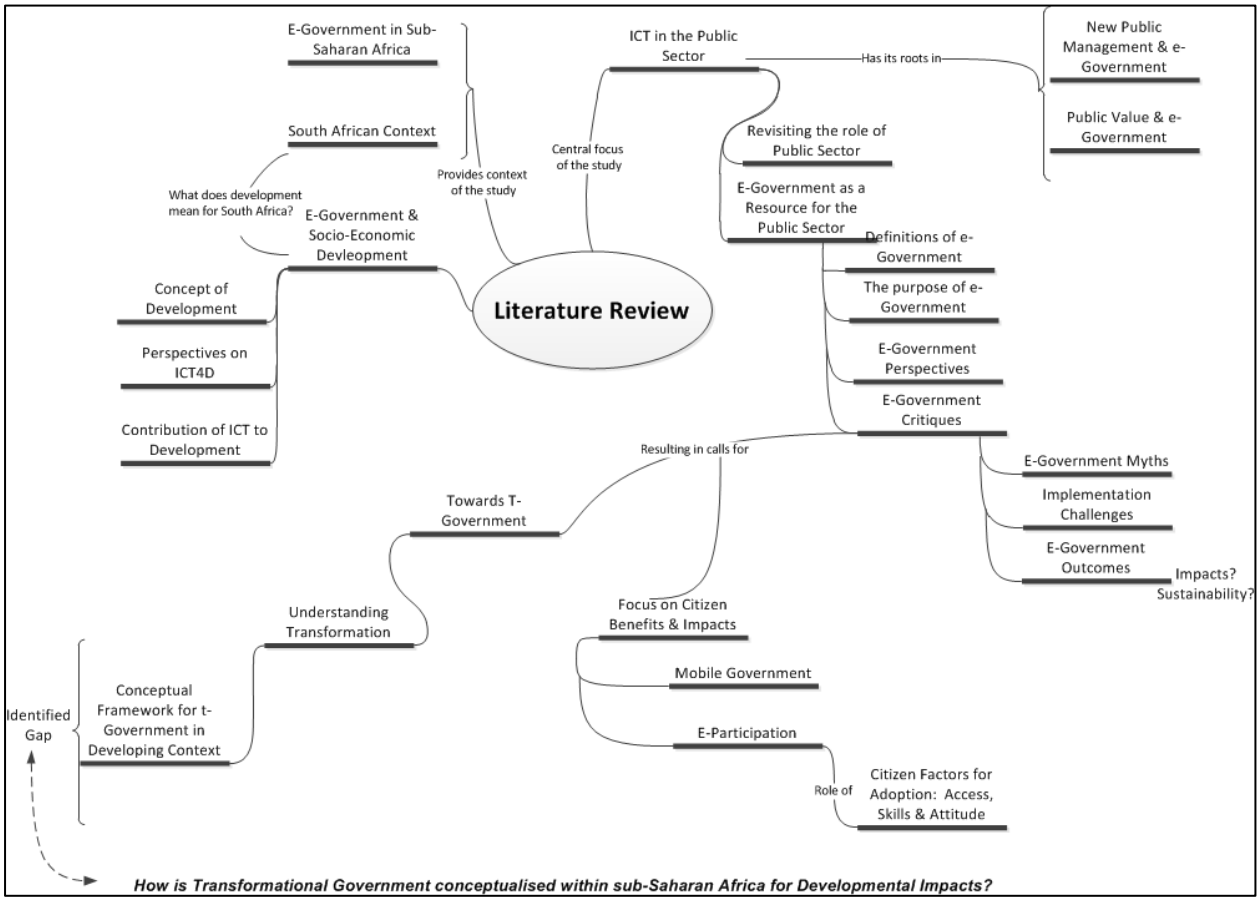

Figure 11: Literature Mind Map

2.12. Summary

This chapter aimed to provide an overview of the literature that pertains to the broader concept of ICT for Development. The issues around e-Government and the emergent t-Government were covered. Also, a brief overview of the context within which the e-Government study unfolds was reviewed. It concluded with a brief reflection on the central takeaways from the literature review that was undertaken to understand the gap in the knowledge base. The upcoming chapter tackles the theoretical foundations of the research study.

CHAPTER 3: RESEARCH FRAMEWORK

A good part of the answer to the question "why philosophy?" is that the alternative to philosophy is not no philosophy, but bad philosophy. The "unphilosophical" person has an unconscious philosophy, which they apply in their practice - whether of science or politics or daily life."

Andrew Collier

3.1 Introduction

The research philosophy paves the way for a research study. The foundation for any research project is the philosophical paradigm which influences research decisions and the manner in which the study is tackled (Cibangu, 2010). Research is "the creation of new knowledge, using an appropriate process, to the satisfaction of the users of the research." (Oates, 2006:7). The search for knowledge is primarily what research is about. This search for knowledge is rooted in a need to understand and explain the world around us. How we understand and explain the world depends principally on the concepts we form of it, in essence how we conceptualise reality (Danermark et al., 2002).

This chapter presents the research philosophy that supported the study and framed the project's understanding of reality. The chapter begins by providing a contrast of three philosophical paradigms and their role within science. Next, the critical realist paradigm that was applied is presented. It offers a reflection on the critiques of critical realism and argues for its applicability. The research methodology is also discussed and elaborates on how the study sought knowledge about the emergent t-Government. It outlines the research procedures employed in this study to collect, analyse and present the data and associated findings. The chapter closes by reflecting on the role of theory in IS research and how this influenced the study.

3.2 Philosophical Paradigms

A paradigm embodies a way of thinking, a philosophy, worldview and values utilized to support a research study and argue for its priorities and choices (Cibangu, 2010). The philosophical paradigm assumes certain things about how the world is structured and how one can gain knowledge about the world (Myers, 2009, Oates, 2006). Whether we are aware of it or not all researchers operate from a particular paradigm thus it is practical and sensible for researchers to not only take cognizance of their paradigm but to explicitly indicate this. Transparency with the selected research philosophy may assist in avoiding a frustrating research environment or the research outputs being misunderstood (Cibangu, 2010).

There are three generally accepted paradigms: Positivist, Interpretivist and Critical. The research paradigm adopted has various implications for the research process (Myers, 2009, Oates, 2006, Ponterotto, 2005). The positivist researcher assumes that "reality is objectively given, can be described by measurable properties, which are independent of the observer and his or her instruments" (Myers, 2009:37). The function of a researcher in this domain is to observe and measure the said single and absolute reality in an objective and unbiased manner (Edwards and Skinner, 2009). The researcher is independent, does not affect and is not affected by the research subject (Edwards and Skinner, 2009). The interpretive researcher assumes that "access to reality is only through social constructions such as language, consciousness, shared meanings and instruments" (Myers, 2009: 38). The researcher aims to understand the manifold interpretations that exist on the research subject. Critical researchers, assume that "social reality is historically constituted and that is produced and reproduced by people" (Myers, 2009: 42). The objective of the researcher is to challenge the status quo, illuminate inequalities and restrictive conditions in society (Edwards and Skinner, 2009).

Outlined below (Table 10) are the central principles of each philosophical paradigm in the context of information systems' implementation. They are tabulated in terms of three areas: the ontology, epistemology and the role of theory in practice. The ontological highlights assumptions made regarding physical and social reality. The epistemological

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

involves assumptions about knowledge and how it is attained. Lastly, the focus on the role of theory in practice explicates the assumptions about the relationship between knowledge and the empirical world for each paradigm.

Table 10: Research paradigms in information systems (adapted from Orlikowski and Baroudi, 1991)

	Positivism	Interpretivism	Critical
Ontological Principles	Objective physical and social world that is independent of humans. Nature of the world can be observed and measured. Utilises modelling and measurement, constructs, variables and instruments to capture nature of reality. People's actions are intentional and rational. People behave in stable and logical ways and that conflict is not prevalent in organisations. Conflict is seen as dysfunctional and should be prevented.	Reality and our knowledge of it are social products. Reality is only understood through the social actors that construct and maintain the reality. Highlights the importance of subjective meanings. Focuses on how and why people give the world certain meanings. Social reality is not "given" it is reproduced through on-going actions and interactions of people.	Social reality is historically constituted thus people are not confined to a particular state since they have the potential to act. Capacity to act can be constrained by prevailing systems of economic, political or cultural authority. Social reality is produced and reproduced by humans but this reality also has objective properties that are likely to influence people's experiences. Social relations continuously change. Society has inherent contradictions.
Epistemo-logical Principles	The aim of research is empirical testability of theories. Search for universal laws. The objective is to explain, predict and control. Collect data mainly through sample surveys and controlled experiments. Relies on statistical analysis to analyse data, infer and produce causal laws.	The researcher gains knowledge about social processes through getting involved in their world. Language used by people to describe social practice creates the practices. Understanding social reality requires obtaining knowledge about how practices and meanings are formed and informed by language and norms. Examine human agents	Knowledge is situated in social and historical practices of humans. There is no theory-independent collection of data Researcher interprets data to substantiate or falsify a theory. Knowledge is not only limited to redescribing and interpreting how people perceive phenomena in society. The researcher has a duty to question inequalities and substantial conditions of power

	Positivism	Interpretivism	Critical
	Highly structured methodologies with a preoccupation with validity, reliability and measuring instruments	within their social settings.	and dominance.
Role of Theory in Practice	The relationship between theory and practice is technical. Scientific research is seen as value free thus researchers as independent observers can objectively evaluate and predict actions however they do not make moral judgements or provide subjective opinions.	Interpretive studies are not value-neutral thus the researchers' prior assumptions, beliefs and values influence their investigation.	Social research and social theory are expected to be viewed as social critique.

The paradigms above are not without their critics. Positivism is accused of being focused on the status quo and ignoring history and the contextual environment that influence how people act. Positivism is deterministic and thus may not be appropriate for studying continuously changing social phenomena. Positivism provides no meaning to the observations under study (Bryman, 1984). On the other hand interpretivism does not explain the conditions that result in certain meanings and human practices. Interpretivism does not address the inequalities and contradictions evidenced in society. It only tries to understand society without changing it for the better (Bhattacherjee, 2012). Critical research is alleged to often be insufficiently critical of its concepts and theories. Also the form that knowledge takes in this domain is often unclear (Orlikowski and Baroudi, 1991).

3.3 The Philosophical Basis of this Study

Orlikowski and Baroudi (1991) indicate that researchers need to "adopt a perspective that is compatible with their own research interests and predispositions, while remaining open to the possibility of other assumptions and interests" (Orlikowski and Baroudi, 1991: 24). In addition researchers should note how the research paradigm selected will drive

their attention to certain aspects of the phenomena and overlook others whilst bringing in bias to how the phenomena under examination is viewed.

When commencing the journey of researching the e-Government domain the researcher continuously asked: What is really going on here? or What is the real issue? The researcher also reflected on the different research paradigms. The researcher's interest was not necessarily in counting observations or only wanting to describe what it is. Nor did the researcher limit to reflecting on the meanings attached by actors to e-Government implementation. There was a need to understand the underlying dissatisfaction with the e-Government domain and "what the real issue" was (Orlikowski and Baroudi, 1991).

Thus the search for these underlying issues progressively steered the researcher towards the philosophical principles of critical realism. Both the researcher and this thesis found a research home within the critical realist ontology and epistemology. The research enquiry pertained to how transformational government is conceptualised. The objective was not only to understand and document "what is" but also provide a critical analysis of the structures and relations that may be contributing to the challenges experienced in making ICT led government programmes transformational. These constraints within the existing systems of an objective and independent reality that scholars may not be able to fully capture were of keen interest (Myers and Klein, 2011) (McEvoy and Richards, 2006). The aim was to question the current thinking and socially constructed assumptions so as to unearth the emergent t-Government concept. Thus the critical realist philosophy was deemed appropriate for this research undertaking.

It is acknowledged that the majority of IS research has been dominated by positivism and interpretivism (Wynn and Williams, 2012). It is also conceded that the phenomena of e-Government could have been studied from different philosophical paradigms in a satisfactory manner. However the critical realist perspective allowed the researcher to understand the e-Government arena and how human agency and societal mechanisms that are independent of human thoughts are influencing the current manifestation of t-

Government (Sims-Schouten et al., 2007). The next section discusses the central tenets of critical realism.

3.4 Critical Realism

A summary of the key assumptions within the realm of critical realism are tabulated below and followed by a discussion thereof:

Table 11: Critical Realism Summary (adapted from Wynn and Williams, 2012)

Critical Realism Overview	
Ontological Assumptions	**Epistemological Assumptions**
- Independent and objective reality - Stratified reality - Emergence - Society as open systems	- Mediated knowledge - Objective is to explain not predict - Gain knowledge of unobservable mechanisms - Knowledge is fallible and there are multiple possible explanations

3.4.1 The Ontology and Epistemology of Critical Realism

Proponents of critical realism believe that the world is structured, stratified, differentiated and changing (Armet, 2013). Danermark et al (2002) highlight that the main characteristic of critical realism is that it involves a shift in focus from the epistemology to the ontology and within the ontology a move from events to mechanisms. Critical realism pays attention not only to events in the world but seeks to understand the mechanisms that generated those events. Thus if one is to understand the “real issue” there must be a focus on mechanisms and not solely on empirically observable events (Danermark et al., 2002:5). There needs to be an ontological supremacy underpinned by a shift from data and methods to the real problems faced in society and their underlying causes (Mingers et al., 2013, Armet, 2013).

These events are part of an "existing causally efficacious reality" (Mingers et al., 2013: 795) independent of human consciousness. However, as humans we have a socially determined, theory dependent knowledge about this reality (Danermark et al., 2002, Mingers et al., 2013). Critical realism purports that this objective reality cannot be observed objectively (Oltmann and Boughey, 2012). Furthermore we cannot reduce this objective reality to our human perceptions and experiences (Wynn and Williams, 2012).

Critical realism also refers to the notions of a transitive and intransitive world. The intransitive world is stable and independent of our knowledge of it while the transitive world is reliant on how we understand it (Oltmann and Boughey, 2012, Hostettler, 2010). As Oltmann and Boughey (2012) explain the natural world that we study can be considered to be intransitive, it does not change. However, the researcher conducting the study may be affected and changed by the research and is thus considered to be transitive object (Armet, 2013). Similarly the objective independent reality is an intransitive object of science while the theories that scientists formulate and employ to understand reality are transitive, they can be revised and new theories can be derived (Danermark et al., 2002).

The stratified reality that is emphasized within critical realism views the world in a hierarchical manner made up a set of logical levels or strata. These strata include the physical level, biological level, psychological level and the social level. A particular strata is emergent from another strata below. Thus a lower strata creates the conditions for a higher strata (Blom and Moren, 2011). The stratified reality is also viewed as consisting of three domains: the empirical; the actual and the real (Leca and Naccache, 2006). In the empirical domain there are events that we directly experience and observe, in the domain of the actual are all the events occurring regardless of whether we experience them or not and lastly in the domain of the real are mechanisms with generative powers that may be active (i.e. causing events) or dormant (Jeppesen, 2005, Blom and Moren, 2011). There is thus a causal measure for existence and not a perceptual one since in critical realism if there is a causal effect it points to existence whether we are able to perceive or not (Mingers et al., 2013).

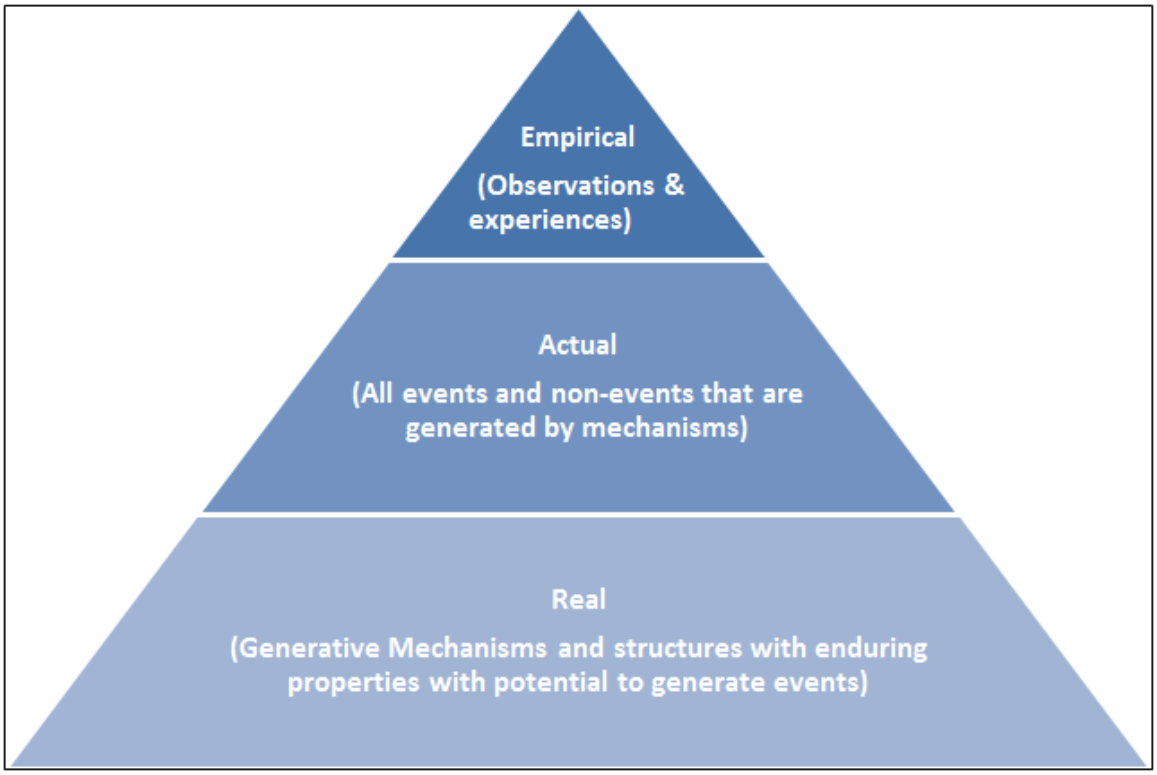

Figure 12: Domains of the stratified reality

Critical realism elevates the domain of the generative mechanisms and understanding these mechanisms is of more importance than events and observations. The mechanisms may generate events, new structures, forces and powers (Yirenkyi-Boateng, 2010). The preoccupation with mechanisms is aligned to the need to ask "why" and "how" in research studies. The idea in critical realist research is to explain by means of mechanisms. Mechanisms also, may not always and in every instance result in a specific event or outcome however there may be a tendency for the mechanism to yield a particular result or event (Oltmann and Boughey, 2012, Fleetwood, 2011). Mechanisms may also counterbalance each other in the real domain and thus result in either the presence or absence of certain events (Mingers et al., 2013).

At this juncture the notion of structure is highlighted. Structure represents a "set of internally related objects or practices" (Danermark et al., 2002: 47) that make up the entities under investigation. Structures may be part of a larger structure or be comprised of substructures (Wynn and Williams, 2012). Various types of structures exist such as

social and physical structures. In the context of Information Systems (IS) research social structures may include people, organisations, technical artefacts, coupled with rules and discursive practices such as language (Wynn and Williams, 2012). Social structure may facilitate or restrain social activities and are reproduced by those very activities (Price, 2014).

Another characteristic of critical realism is that it seeks to understand what properties people and society possess that make them possible objects of knowledge and research (Danermark et al., 2002). It is a transcendental argument where the starting point is the acceptance of particular phenomena and then questioning what reality must be like for the phenomena to be possible (Mingers et al., 2013, Wynn and Williams, 2012). Central to the philosophy is the acknowledgement that being knowledgeable about an aspect of the world does not necessarily mean that what we know is actually reality, this would indicate the “epistemic fallacy” (Oltmann and Boughey, 2012:335).

In trying to understand unexplained phenomena research studies often seek to establish causality. Causality defines the connection between an action and the outcomes it generates (Harwood and Clark, 2012). In the positivist paradigm researchers explain by hypothesising a connection between conceptual objects and garner support for the hypothesis by using repeated observations supported by statistical calculations (Wynn and Williams, 2012). In the interpretivist paradigm the focus is rather on generating explanations of how participants view and interpret their roles in a particular context (Wynn and Williams, 2012). Critical realism alternatively aims to offer unambiguous and empirically supported statements of causality with regards to how and why the phenomenon transpired (Wynn and Williams, 2012). Causality is rather described in relation to the processes by which events are generated by structures and actions in a particular context (Martins, 2011).

The issue of society as open systems is also noted (Harwood and Clark, 2012). Critical realism has historically been opposed to the use of only statistical methods as a tool for understanding social reality since they require that society be viewed as a closed system which critical realisms argues is seldom the case (Mingers et al., 2013). Critical realism

views the world as an open multi-dimensional system that is beyond our direct realm of control (Morgan, 2014). Social systems unlike natural systems are complex and open and thus you cannot isolate causes of an event through a structured laboratory experiment (Wynn and Williams, 2012, Danermark et al., 2002). Social structures and their composite entities are constantly changing due to their open nature, fluctuating contexts and different enacting mechanisms. In accepting the world as open, Critical realism allows for a focus on identifying potential mechanisms at play in society (Danermark et al., 2002).

3.4.2 Critiques of Critical Realism

Critical Realism is a framework not a research method (Oltmann and Boughey, 2012) and has been applied in various disciplines. Some examples of critical realist based studies have been found in: Management Accounting (Modell, 2009); Logistics (Aastrup and Halldórsson, 2008); Information Systems (Allen et al., 2013) and (Volkoff and Strong, 2013); Nursing (Angus et al., 2006); Medical (Bhaskar and Danermark, 2006), Gender studies (Bergin et al., 2008) and Economics (Fine, 2006).

Notwithstanding the growth of the critical realist movement, there have been some criticisms of the philosophical paradigm (Baert, 1996). Some perceive an incongruity in the critical realist claim for the existence of independent reality and that the knowledge we have of this reality is observer dependent (Monod, 2004, Klein, 2004). The philosophy is limited in its concepts on the nature of knowledge (Klein, 2004). It has also been misunderstood as ignoring peoples beliefs and actions in providing explanations (Monod, 2004). However it could be counter argued that in order to provide a critical realist based explanation of phenomena one needs to understand what people believe and how they behaved in those phenomena (Mingers, 2004a). The philosophy is said to lack a theoretical basis for the analysis of values (Klein, 2004). It is also limited and has failed to realize its emancipatory agenda convincingly (Klein, 2004).

In sum critical realism goes beyond simple description to tackle the “why” and “how” of phenomena that is observed (Oltmann and Boughey, 2012). Critical realism essentially

seeks to know "What must reality be like in order for this event to have occurred" (Wynn and Williams, 2012:794)? Critical realism is argued as reconciling ontological realism, epistemological relativism and judgemental rationality. Meaning that reality is stratified, differentiated, structured and changing. Our knowledge of this reality is fallible and can always be challenged. However, it is not equally fallible (Smith, 2006) and there exists tools that may be used to assess the ability of theories and methods to enlighten us about this objective reality (Danermark et al., 2002). Thus critical realism is said to be open to epistemic relativity but rejects judgmental relativity (Mingers et al., 2013: 797).

3.4.3 Application of Critical Realism to the Research Study

The critical realist philosophical paradigm is gaining increased acceptance in the Information Systems field and was deemed applicable to this research study since it offered a facility to examine a complex organisational phenomena such as e-Government in a holistic manner (Wynn and Williams, 2012). The research study leaned on critical realism to move beyond the surface of reality and deeply understand the area of e-Government towards transformational outcomes. The study aligned to critical realism in the manner outlined below:

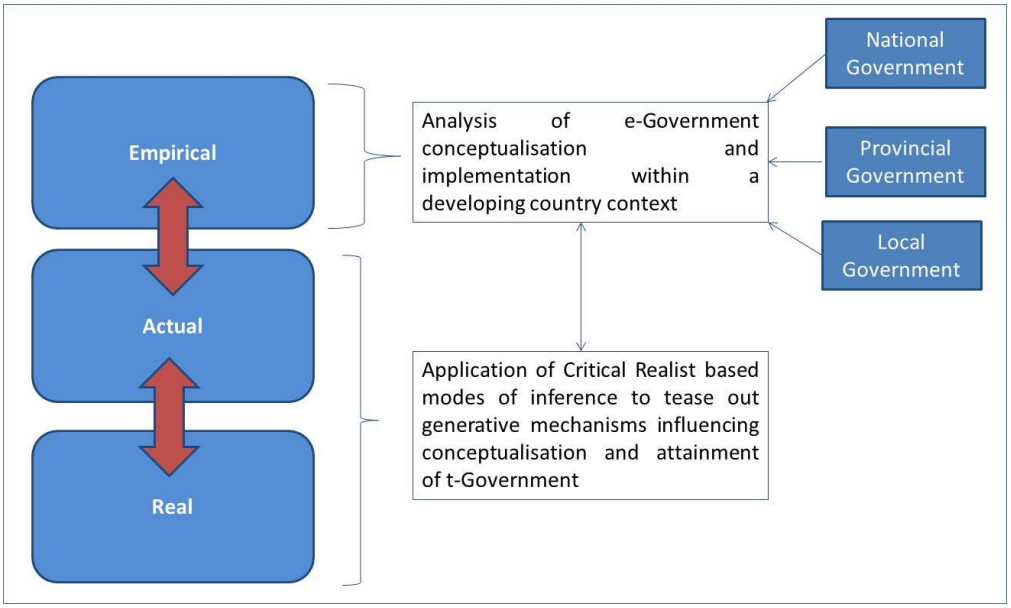

Figure 13: Alignment of research study to Critical Realism

The study was an explanatory critique of social phenomena and the goal was to address a societal problem in the e-Government implementations (the empirical and actual domains). The aim was to offer an alternative way to conceptualise e-Government through highlighting structures and mechanisms (the real domain) that drive what is manifest in e-Government and how these may influence the conceptualisation of t-Government.

The study was acutely aware that the social world within which e-Government resides, is open and complex. The study did not aim to address the entirety of e-Government. As per critical realism the objective reality cannot be captured in its entirety (Jeppesen, 2005) however certain cases from National, Provincial and Local Government (within the empirical domain) were studied in the search to explain the how and why of t-Government. Furthermore, the research reflected on historical occurrences to understand what may be driving current e-Government outcomes and constraints toward t-Government. It aimed to study how mechanisms (within the real domain) manifest in concrete contexts and empirical phenomena of e-Government implementations and offer potential avenues for addressing the problems highlighted.

Additionally the context of the study supported the inclination towards critical realism. The study is based in Africa and is about e-Government within a developing country context. By nature critical realism is in direct contrast with Western and developed country philosophies such as positivism that are underpinned by rational choice theory (Njihia, 2011). Critical realist based research has an emancipatory inclination that allows the researcher to unearth the relationship of information systems with societal structures and the human condition (Wynn and Williams, 2012). African scholars may find value in critical realist based research since it inherently elevates the values of freedom and emancipation of people (Njihia, 2011) which is what ICT4D seeks to support.

The following section elaborates on the methodological implications of adopting a critical realist philosophy for the study.

3.5 Research Methodology

Philosophical paradigms have implications for research method choice and application (Cibangu, 2010). Critical realism purports a diversity of method in research since the underlying mechanisms that are of interest may take a variety of forms necessitating the use of different methods to capture and understand them (Mingers et al., 2013).

3.5.1 Research Approach

Brynard and Hanekom (2006) outline that two basic research approaches exist: qualitative and quantitative methodology. Quantitative methodology is analytical in nature and is concerned with counting or measuring things, with the result that data are then produced. Qualitative methodology is research that produces rich descriptive data with usually no numbers or counts allocated to the subjects or observations (Brynard and Hanekom, 2006). Essentially, the qualitative research seeks to indicate what types of things exist whereas quantitative research focuses mainly on calculating the frequency of things (Walker, 1985).

The critical realist researcher prefers to look beyond the classical debate regarding qualitative versus quantitative approaches to research. Danermark et al (2002) propose a critical methodological pluralism consisting of intensive and extensive empirical research approaches (Danermark et al., 2002). In relating the intensive and extensive procedures to the traditional debate they highlight that “intensive empirical procedures contains substantial elements of data collecting and analyses of a qualitative kind” (Danermark et al., 2002: 163). Whereas, the “extensive procedures has to do with quantitative data collecting and statistical analysis” (Danermark et al., 2002: 163). The procedures have their foundation in the critical realist meta-theoretical context. The intensive and extensive research procedures are combined in the pursuit of generative mechanisms, thus it is not an “either-or” approach rather a “both-and” approach (Danermark et al., 2002).

This study was in essence anti-positivist, descriptively rich and employed both intensive and extensive research procedures. This research study was not overly preoccupied with frequencies or measuring variables but was rather seeking to unearth a gap in the e-government knowledge base as it pertains to initiatives that result in transformation in the societies in which they are deployed. It acknowledged that to do this it would need to rely on a range of empirical procedures. Critical realism is a robust framework however it does not dictate a particular method. The philosophy is viewed as eclectic (Mingers et al., 2013). In many cases depending on the research problem a mixture of methods may be applicable (McEvoy and Richards, 2006). A variety of strategies were available to the researcher to find data about the phenomena of interest. The main strategies include: Surveys, Action Research, Case Study, Ethnography and Grounded Theory (Myers, 2009). The encapsulating strategy for this research was the case study method and is elaborated on in the following section.

3.5.2 Case Study Strategy

A case study is a strategy that explores a contemporary phenomenon within its real life context (Yin, 2013). It is generally applicable where the boundaries between the phenomenon and context are not clear. Case studies are suited to the how and why questions regarding phenomena (Easton, 2010). They allow one to obtain an in-depth and holistic understanding of the phenomena of interest. Case studies rely on several sources of data and evidence in the analysis (Yin, 2013). Unlike historically believed, case study research can also utilise quantitative evidence in addition to the qualitative evidence (Yin, 2013). Case study research has been criticised as suffering from researcher's bias and not being objective. It is also criticised as lacking rigor and structure (Yin, 2013). It is also said that the outcomes are not generalizable (Yin, 2013). However in critical realist based case studies the objective is not to generalise in pure statistical terms as envisioned by positivists. The aim is to understand and explain open, complex, social phenomena. Thus the research rather generalises to theory (Yin, 2013). The purpose is to validate the explanations of causal mechanisms within a particular context and refine the theories regarding reality (Wynn and Williams, 2012).

This study was a case study of e-Government in developing country which employed both intensive and extensive procedures to understanding the research problem. The research desired to understand issues within e-Government through connecting evidence from a variety of perspectives and levels of analysis in order to explicate the current outcomes of South African e-Government and constraints towards attaining t-Government. It relied on several sources of data from the different levels of analysis. Yin (2013) highlights four types of case studies:

- Type 1 : the single case (holistic) design
- Type 2: the single case (embedded) design
- Type 3: the multiple case (holistic) design
- Type 4: the multiple case (embedded) design

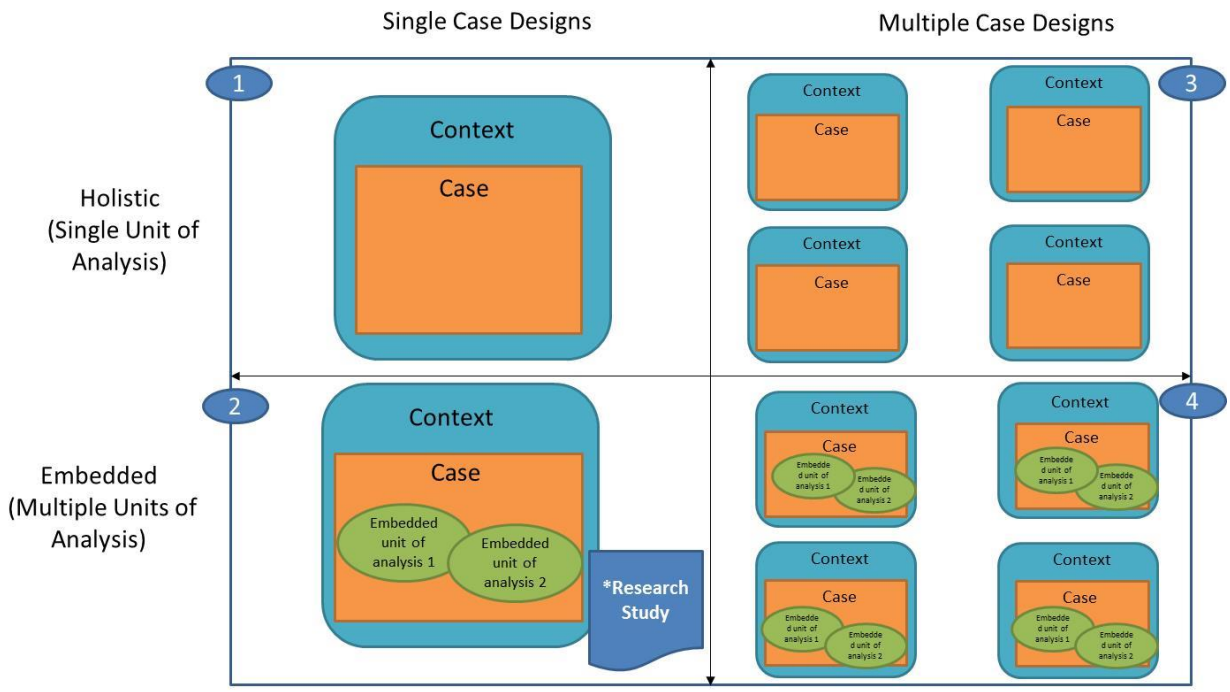

Figure 14: Case Study Types (adapted from Yin, 2013)

This research project represented Type 2 as per Yin's categorisation. It was a "single case embedded" study relying mainly on the South African e-Government context. This

case study was an iterative research process (Easton, 2010) and included data from different levels of analysis. The study focused on the three layers of government in South Africa namely national, provincial and local. Due to the proposal that t-Government was a re-orientation to the citizen (see Chapter 2) the study also sought feedback from groups of citizens. Thus there were four distinct embedded units of analysis all within the same context (Yin, 2013):

- Embedded Unit of Analysis 1: National Government (Chapter 4)
- Embedded Unit of Analysis 2: Provincial Government (Chapter 5)
- Embedded Unit of Analysis 3: Local Government (Chapter 6)
- Embedded Unit of Analysis 4: Citizens (Chapter 7)

This amalgamation of the macro, meso and micro levels allowed for the conceptualisation of t-Government where the events we see and our experiences are linked back to invisible mechanisms that drive everyday phenomena. The combination of intensive and extensive procedures (Danermark et al., 2002) that was used to support the critical realist case study is outlined below in Figure 15:

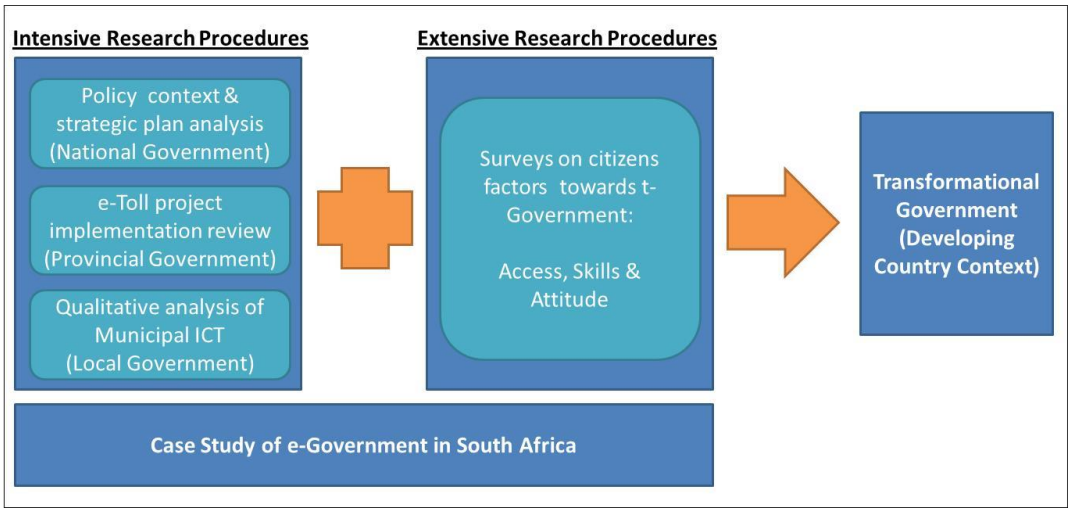

Figure 15: Critical Realist Case Study Based on Methodological Pluralism

3.5.3 Methodological Pluralism

The following section outlines how methodological pluralism was applied. It touches on the data collection techniques, data analysis process, the population that was considered and the sample that was selected for inclusion.

Within the intensive procedures (Table 12) the research utilised qualitative analysis methods to assess orientation towards t-Government. This included the analysis of secondary data in the form of publicly available documents including policies, strategic plans and government communication. There was also primary data that resulted from interviews and workshops with local government representatives. The data was analysed thematically using both inductive and deductive approaches (refer to Chapters 4, 5 and 6). On the other hand the extensive research procedures (Table 13) involved primary data collected via a citizen survey with self-administered questionnaires. The data was analysed descriptively and statistically to assess factors influencing citizens in the adoption of t-Government (refer to Chapter 7).

Table 12: Intensive Research Procedures

INTENSIVE RESEARCH PROCEDURES					
Overarching Research Question: How is Transformational Government Conceptualised?					
Thesis Reference	**Research Sub-Question**	**Data Collection Technique**	**Data Analysis Method**	**Population**	**Sample**
Chapter 4	How do the strategic plans of South African Government departments reflect transformational government ideals?	Review of Policy documents and Strategic Plans (Secondary Data)	Deductive Thematic Analysis	National Government of South Africa	3 ICT related Government Departments

Chapter 5	How does the existence (or lack) of the t-government mindset affect the sustainability of e-government initiatives?	Review of project documents, media reports, government communication (Secondary Data)	Deductive Thematic Analysis	e-Government Projects of South Africa	Gauteng Province e-Toll Freeway Improvement Project
Chapter 6	How may t-Government be manifested in South African Municipalities	Transcripts of Interviews with Local Government Representatives & ICT Managers Transcripts of a workshop with municipal representatives (Primary Data)	Inductive thematic analysis	All Municipalities in South Africa	Two Municipal ICT Managers One SA Local Government Authority Representative (SALGA) Two Local Government Consultants Workshop with 40 municipal representatives

Table 13: Extensive Research Procedures

EXTENSIVE RESEARCH PROCEDURES					
Overarching Research Question: How is Transformational Government Conceptualised?					
Thesis Reference	**Research Sub-Question**	**Data Collection Technique**	**Data Analysis Method**	**Population**	**Sample**
Chapter 7	How can e-participation as the basis for t-Government be enhanced using mobile technology for socially excluded citizens in a developing world context?	Survey supported by questionnaire (Primary Data)	Descriptive and statistical analysis	All citizens in South Africa	120 citizens focusing on those that are socially and digitally excluded

It is noted that within the rest of the thesis each data analysis chapter also reflects further on the research method, population, and sampling. The chapters also explain the research instrument, procedures for data collection, analysis and interpretation.

3.5.4 Quality of the Research

The quality of the research design is an essential component for acceptance of its outcomes. Scholars have previously raised concerns about the rigour and quality of case study research (Gibbert et al., 2008). There are various criteria that may be used to assess the quality of a research study namely internal validity, construct validity, external validity and reliability (Yin, 2013, Brynard and Hanekom, 2006). Every research project should pay careful attention to matters of validity and reliability if it is to make a contribution to the knowledge base (Morse et al., 2002).

The areas that are of concern to the researcher are Internal Validity, External Validity, Construct Validity and Reliability. Internal validity examines the causal relationship between variables and the research outcomes (Gibbert et al., 2008). Of importance is how the researcher argues for and the logical reasoning that is behind the research conclusions. It is essentially concerned with the credibility of the research and how believable the research is. Alternatively, external validity is a focus on the generalisability or transferability of the research study. Thus how applicable are the conclusions drawn to similar problems found elsewhere (Brynard and Hanekom, 2006). Construct validity represents the degree to which the measurement technique uncovers the information which it was designed to uncover. It captures how the concepts of the study are operationalized (Gibbert et al., 2008). Lastly, reliability pertains to the accuracy and consistency of measures (Brynard and Hanekom, 2006), and is focused on the accuracy and precision of the measurement procedure. The objective is to show that the research process can be repeated with the same results (Yin, 2013).

This study addressed issues of validity and reliability in the following manner:

Table 14: Research Quality Measures

Case Study Quality Criteria	Research Measures Taken (Brynard and Hanekom, 2006, Gibbert et al., 2008, Yin, 2013)
Internal Validity	Researcher listened to the recorded interviews through several iterations prior to the data analysis and interpretation process to try and minimise the impact of time and memory on the study. Triangulation through adopting multiple perspectives of the research subject.
External Validity	To enhance transferability the study maintained a focus on the "real world" of e-Government through collecting data from a variety of sources and respondents involved in such implementations. The study reviewed different levels of e-Government (national, provincial and local government). It also canvassed citizens. The report also provides details regarding the context of the study (developing country namely South Africa) such that other scholars may see how the study compares to and may be applied to their context.
Construct Validity	Questionnaires and interview guides were based on the literature review and earlier studies that had been conducted in the same domain. The study collected data from different sources and looked at the research problem from different levels. Utilised previously validated instruments.
Reliability	Interviews were conducted by one researcher, to avoid variations in approach. The same interview guide and questionnaires were used for the specific areas of data collection.

The researcher as per the critical realist principles was aware of their fallibility and made an effort to remain aware of the issues around validity and reliability throughout the research to ensure that this study was not compromised and would deliver high quality research.

3.5.5 Ethical Considerations

There were three areas considered for the ethical aspects of the research study namely: informed consent, protection from harm and the right to privacy. The principle of informed consent was paramount in this study (Hankinson et al., 2007). The respondents were introduced to the research and were provided with information regarding objectives of the research. The respondents were also assured that participation was voluntary. They had a choice not to participate or stop participating at any point without any negative consequences. Additionally through explaining the goals of the study, and that the results would be published in academic journals, respondents were assured that their involvement in the study would not bring harm to them. Lastly, with regards to privacy it was highlighted to respondents that the data would be handled in the highest confidence and they would remain anonymous throughout the process of analysing and documenting the findings.

3.6 The Role of Theory

In the next section the role of theory particularly for IS research is explored. It also delves into how theory was utilised within the study.

3.6.1 Theory and Information Systems Research

Information systems design, development and deployment is essentially about solving complex problems and as such needs a multidimensional approach (Mumford, 2000). In reviewing the literature it appears that various scholars have concluded that there is no consistent and universally acknowledged definition of the concept “theory” (Haynes and Carroll, 2010, Doty and Glick, 1994). There are varying thoughts on what constitutes a theory. It is highlighted that how one defines “theory” is most likely to be determined by the principal philosophical paradigm that is subscribed to, such as positivist, interpretivist or critical (Gregor, 2006). Such that in the natural sciences a theory is defined as a universal statement that is testable and can explain and predict phenomena. Whilst from

a more interpretivist perspective a theory would be considered to focus more on furthering our understanding of the world and appreciating and recognizing other people's perspectives and experiences (Gregor, 2006). Doty and Glick (1994) highlight that even though there are varying views on what a theory is, it is accepted that a theory must highlight a set of particular constructs and the relationship that exists between those constructs and also those relationships must be testable (Doty and Glick, 1994).

DiMaggio (1995) is of the view that there are various types of theory and all have some validity (DiMaggio, 1995). These include theories that are "covering laws" consisting of generalisations that describe the world, there are also theories that are for "enlightenment" and show us new insights. Lastly there are theories that are "narratives" and these tell a story about a social process but are supported by empirical testing (DiMaggio, 1995).

In her paper Gregor (2006) offers what may be viewed as an amalgamation of various definitions: "theories are abstract entities that aim to describe, explain, and enhance understanding of the world and, in some cases, to provide predictions of what will happen in the future and to give a basis for intervention and action" (Gregor, 2006: 616). Essentially theories are tools that can help us understand and solve problems (Truex et al., 2006, Haynes and Carroll, 2010).

The significance of theories cannot be underestimated. Theories play a critical role in academia. They are a sense-making mechanism and allow us to understand our very complex and dynamic world (Truex et al., 2006). Theories are "lenses" that influence "what we see and what we don't see" (Truex et al., 2006: 800) and thus influence the outcomes of research on which we base decisions and actions on (Haynes and Carroll, 2010). Theories represent a manner of storing knowledge so that it is easily communicated and shared. Thus theories enhance the research process in a variety of ways.

Furthermore, "theories provide the conceptual 'glue' to integrate otherwise disconnected knowledge into explanations and predictions of a particular domain" (Haynes and Carroll, 2010: 2). It is argued that all types of theories may add value to the IS discipline (Gregor,

2006) and therefore one type of theory should not be viewed as more important than another. The theories that "analyse" have an important role and similarly those that "predict" also have a role to fulfil (Gregor, 2006). Theories are also useful in providing ideas in problem solving or even the design of a new IT system, in addition theories can provide a researcher with methodologies and highlight potential knowledge gaps (Haynes and Carroll, 2010).

3.6.2 Critical Realist Reflections on Theory

The researcher chose to reflect on the use of theory within this specific chapter since social science is about analysing, developing and using theoretical language in empirical analysis (Danermark et al., 2002). From a critical realist perspective the relationship between observations, method and theory is important since the choice and value of a method depends on how the research object has been theoretically defined (Danermark et al., 2002). The critical realist scholar views the link between theory and data as being bolstered by several principles:

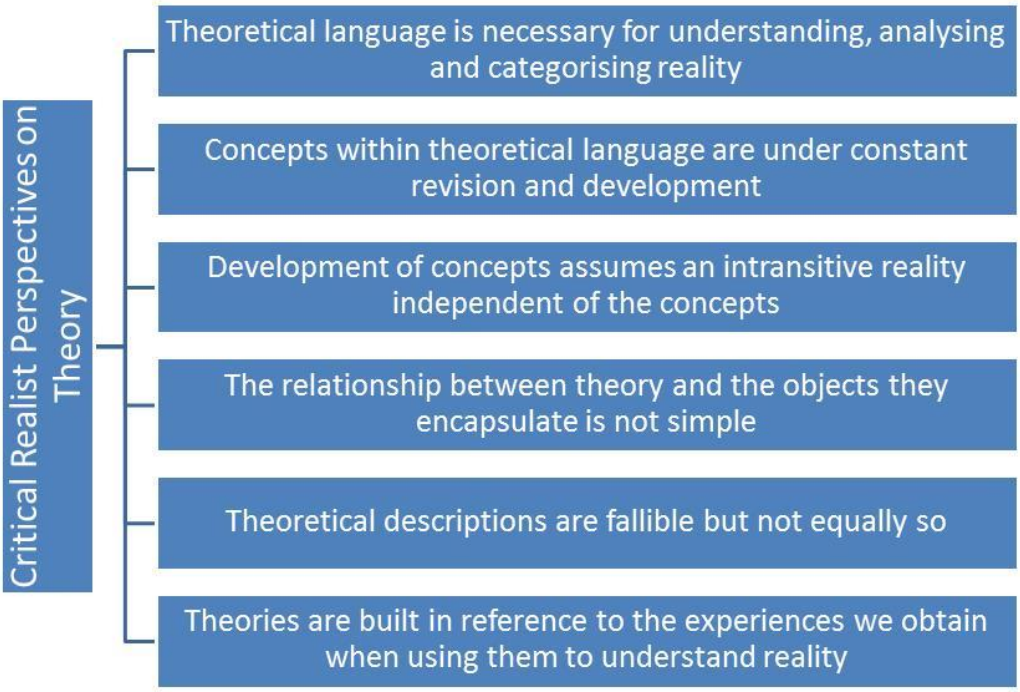

Figure 16: Critical Realist Perspectives on the Role of Theory (adapted from Danermark et al., 2002)

Further to these principals the following types of theory are identified:

Table 15: Categories of Theory (Danermark et al., 2002)

Theoretical Category	Fundamental Principles
Meta-theory	Build on different ontologies and epistemologies Carry foundational assumptions and preconditions of science
Normative theory	Encapsulates an argument for how certain aspects of reality should be
Descriptive theory	Claim to be able to describe properties, structures, internal relations and mechanisms. May include: Ordering framework which order a relationship between observations of phenomena Conceptualisation which aims to isolate the fundamental qualities of phenomena events and highlighting their internal relations and mechanisms.

3.6.3 Application of Theory

This study acknowledged the role of theory in research practice as important for understanding reality, however there may be competing ways (theories) of viewing the phenomena of e-Government. Theories were utilised in this thesis to describe and explain events and actions towards t-Government. The study relied on multiple theories within the framing and also data analysis chapters.

The entire thesis may be seen as relying on a metatheory of Critical Realism. Metatheories encapsulate foundational principles for the nature of science by building on a particular ontology and epistemology (Danermark et al., 2002). Critical Realism was the foundation of this research study and allowed for a pluralistic approach to understanding the IS research problem (Mingers et al., 2013).

Chapter 4 relied on a simple descriptive theory which acted as an ordering framework of t-Government as proposed by Irani et al (2007b) and Jones (2012). This was used to

support a deductive or theoretical thematic analysis which aimed to tease out the prevalence of t-Government principles within the strategic plans of national government departments.

Chapter 5 employs Actor Network Theory (ANT) to understand the roles of the various stakeholders within a provincial government project. ANT was used as an analysis lens that allowed the researcher to move away from a technical perspective of the research problem and rather apply a more dynamic, holistic and interdisciplinary view to the research study.

Chapter 6 did not utilise a specific theory but rather focused on an inductive interpretation of data collected at the local government level from interviews and workshops with municipal representatives to discuss the enablers and barriers of t-Government.

Chapter 7 leaned on a descriptive theoretical framework derived from Verdegem and Verhoest (2009). It was used to understand citizen factors enabling citizen e-Participation as the basis for t-Government.

It was believed that the use of the theories offered the researcher an integrative toolbox that illuminated the issues surrounding the definition, conceptualisation and implementation of t-government.

The following section considers the role of the researcher in the quest to understand e-Government through a critical realist lens.

3.7 Axiology

A researcher is an inherent part of the research study. Unlike in positivism where the role of the researcher is limited and there is no role for values (Ponterotto, 2005) the researcher was conscious of the values they brought to the study. A researcher is not a separate or objective entity in the research project. Thus it is only judicious that a researcher reflects upon their role and examine it from the perspective of a research

participant (Myers, 2009). As Orlikowski and Baroudi (1991) suggest, all researchers regardless of the research paradigm they have adopted need to reflect on their research perspective. In particular the critical realist researcher needs to recognize their own fallibility and the fallibility of others as they examine the phenomena under study (Oltmann and Boughey, 2012). This was important since, although as a critical realist this researcher accepted that reality exists independent of her or other humans, the researcher's perceptions of this reality were grounded in her history and experiences. Oltmann and Boughey (2012) offer a few questions to keep in mind through the research project. These include: "What are the research questions, Who is asking the research questions, What is the relationship between the person asking the questions and the ontology" (Oltmann and Boughey, 2012). The researcher aimed to reflect on these as she progressed throughout the research process as highlighted in the figure below:

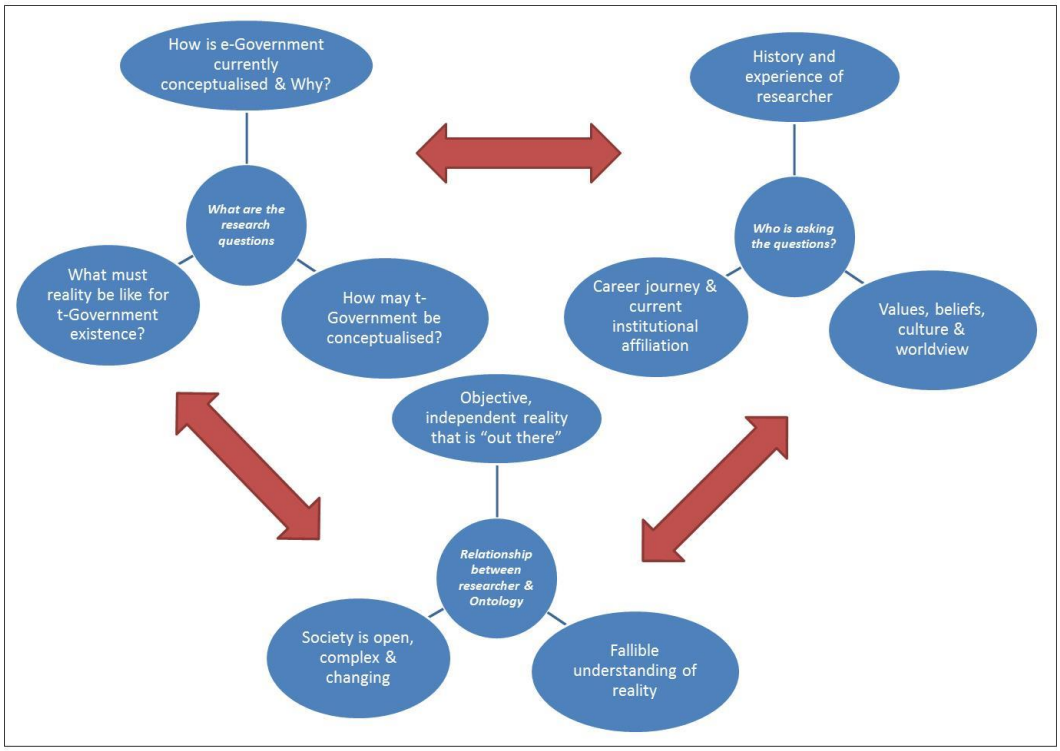

Figure 17: Towards an understanding of the role of the researcher in the research process

The preoccupation was with the underlying mechanisms and real issues within e-Government. As the person asking the questions the researcher brought an

amalgamation of beliefs, values, culture and experiences to the research study. Research is not learned and appropriated in a vacuum (Orlikowski and Baroudi, 1991) thus it was also pragmatic to be aware that the researcher is a product of the university institution where she studied as a PhD student. The researcher's mentors and the departmental research agendas coupled with access to certain resources constitute who the researcher is. They influence the questions of interests and how the researcher chooses to answer the questions. Also the ontological inclinations that emerged highlighted that the researcher was convinced that there is a reality "out there" that is objective and would exist despite her existence and the existence of humans. The researcher's understanding of this reality varies and changes with her day to day experiences. It is acknowledged that the researcher is predisposed to see some things and not others due to her personal history. Thus, she accepted that what she "knows" or perhaps "believes she knows" may not be a full picture of the independent reality or in fact it may be completely incorrect (Jeppesen, 2005). The researcher assents and welcomes her fallibility as a researcher. However; this does not negate the pursuit of knowledge and undertaking research studies. This study was undertaken with an awareness and appreciation of this.

3.8 Summary

Critical realisms provides scholars with a way for examining society and evaluating the contribution of information systems as elements of social structure (Wynn and Williams, 2012). In this chapter the philosophical foundation of the research was presented. It reviewed and contrasted the widely accepted research paradigms. A discussion on the elements of critical realism and its associated shortcomings were used to position this school of thought as the central entry point for the research thesis. The implications of the critical realist paradigm for methodology were discussed. The chapter also reflected on the role of the researcher within this research project specifically from a critical realist perspective. It also outlined the application of theory to support the understanding of e-Government in a developing country context. Finally it also highlighted the importance matters of validity and reliability for the quality of a research project.

CHAPTER 4: STRATEGIC PLANNING FOR T-GOVERNMENT

"*The one who adapts his policy to the times prospers, and likewise that the one whose policy clashes with the demands of the times does not*".

Niccolò Machiavelli

4.1 Introduction

The thesis aimed to understand the conceptualisation of Transformational Government (t-Government) within a developing country context. This chapter focused on understanding how t-Government is manifest in the current ICT policy and strategic commitments of the South African government. It endeavoured to address the research sub-question: "*How do the strategic plans of Government departments reflect transformational government ideals*". The chapter provides the outcomes of a thematic analysis conducted on the strategic documents of three government departments to assess their alignment and support for t-Government. The chapter begins by providing a synopsis of the ICT context in South Africa. Understanding the context was important since the outcomes that we observe are driven by underlying mechanisms which are contextually determined (Danermark, 2002). This is followed by a background to public sector planning and the process followed in the South African public sector. It also provides a discussion on the theoretical framework that was used to support the thematic analysis. The chapter closes with the lessons from the strategic documents towards attaining t-Government.

4.2 South African ICT Landscape

South Africa's ICT sector is growing and is increasingly becoming an important contributor to the country's GDP at 6% (GCIS, 2013a, Gillwald et al., 2012). The ICT industry consists of hardware, software, networking and related professional products

and services. Various international ICT companies operate subsidiaries from South Africa and the industry is considered to be innovative leaders in areas such as electronic banking (IST-Africa, 2014). The country's ICT infrastructure has seen several important investments. For instance there are under-sea cables such as African Coast to Europe (ACE) and Eastern African Submarine System. The nation has a network that comprises fixed line, wireless and satellite communications.

A key characteristic of South Africa's ICT landscape is the rapid growth of the mobile telephony market (Abrahams and Newton-Reid, 2008). However, broadband access is low and the costs of communication remain high as compared to other developing nations (Gillwald et al., 2012, Ponelis and Britz, 2008). The most recent 2011 national census reports that about 60% of the population had no access to the internet (STATSSA, 2012). The country has various ICT projects including Digital Terrestrial Television Migration, Square Kilometer Array, Schools Connectivity Project and Wireless Mesh Network Technology Demonstrator (IST-Africa, 2014, Department of Science and Technology, 2014, Department of Communications, 2014a).

Despite these projects the policy environment does not support investment and the current institutional structures are accused of limiting the sector's growth (Gillwald et al., 2012). Some scholars describe the current policy framework as confused and detrimental to the goal of universal access (Duncan et al., 2014). The policies are outdated having been adopted in 1996 soon after the advent of democracy (Department of Communications, 2014b). The policies have also resulted in an uncompetitive market and the country falling on several global ICT indices (Gillwald et al., 2012, Duncan et al., 2014). The sector has also experienced an acute shortage of leadership manifest in the changes in the Minister of Communications five times since 2009 (Gillwald et al., 2012). Additionally, the institutional independence of the telecommunications regulator, ICASA, has been undermined (Duncan et al., 2014, Ayogu and Bayat, 2010). The challenges and outcomes derived from the current policy environment include the following (Table 16):

Table 16: Results of South Africa's ICT Policy Environment (Adapted from Gillwald et al., 2012)

Result	Description
Poor institutional arrangements	There has been a deficiency of leadership and institutional capacity in the Communications ministry resulting in lack of vision on key ICT issues. Thus the country has seen delays in policy reviews, broadcasting digital migration and a lack of an integrated e-strategy. Organisations that should be supporting ICT policy implementation such as the Universal Service and Access Agency of South Africa (USAASA) and the Independent Communications Authority of South Africa (ICASA) have also faced a leadership vacuum, institutional weaknesses and lack of delivery.
Ineffectual regulatory environment	There are generally negative views about the effectiveness of the regulatory environment in South Africa. This negative sentiment is due to for example the policy of managed liberalisation which has hampered the entry of new competitors in the market entrenching a few dominant players.
Limited infrastructure extension and bottlenecks	There has been inadequate investment into the provision of open access broadband infrastructure. Institutions such as Broadband Infraco (the state owned broadband infrastructure company) have also faced limited financing resulting in delays in the rollout of infrastructure.
High wholesale pricing	Leased line pricing remains expensive in comparison to other middle income countries. Also, Mobile termination rates although recently regulated and reduced are higher than in other African countries.
High mobile and fixed retail prices	The prices for prepaid mobile services in South Africa are high when compared to other developing nations. This impacts negatively on the citizens particularly the poor.
Mobile broadband cheaper than fixed	Even though South Africa's mobile broadband prices are relatively high they are actually cheaper than fixed line broadband services.
Mobile broadband speed faster than ADSL	Mobile broadband is both cheaper and faster than fixed broadband. However, because of its inconsistency, mobile is unlikely to be fully substituted for fixed-line connectivity, particularly for customers that require a stable, reliable and consistent internet connection. If South Africa is to obtain a higher uptake of broadband then that will need further investments in fixed line infrastructure.
Spectrum allocation bottlenecks	The regulator, ICASA, has been very sluggish in the spectrum allocation process. South Africa needs efficient assignment of spectrum that is suited to the deployment of high-speed wireless broadband services using 4G technologies. This is crucial for delivering the next-generation of broadband services and to address the "digital divide" between broadband-connected

Result	Description
	urban citizens and those living in rural areas that often lack connectivity.
Telkom has weak financial performance	The future of Telkom which is majority state owned is unclear. This is not good for growing the ICT market. The organisation is the dominant player in the fixed line space but faces service decline and mobile substitution.
Unaffordable access and suboptimal use	There is a high mobile phone ownership amongst South Africans but affordability still remains a major deterrent. Considering that mobile phones are the main tool of communication for example in the informal business sector the country needs to ensure this is addressed.

These outcomes have resulted in the country missing opportunities to focus on ICT as an enabler of development.

4.2.1 Towards a New ICT Policy

The current African National Congress (ANC) led government started a process of defining an ICT strategy (named: ICT Vision 2020) in 2009 with the objective of compiling the Integrated National ICT Policy Framework (Department of Communications, 2014a). The process was delayed due to a leadership void and recently in 2012 the ICT policy review panel was set up to review the country's ICT policy (Duncan et al., 2014). The Department of Communications released the ICT Review Framing Paper in April 2013 to begin public discussions on the relevance of existing policies. During the editing of this chapter, Government had recently released the ICT Policy Green Paper for discussion and public comment (Department of Communications, 2014b). This was to be followed by a Discussion Paper that would encapsulate different options in addressing the limitation of the current policies. This would then form input into the final White Paper that would be the governments formal policy position on ICT and the basis for new ICT legislation (Department of Communications, 2014b). Some scholars are sceptical however and express that "it remains to be seen whether or not it will be effectively implemented" (Duncan et al., 2014: 4).

4.2.2 Departments Influencing e-Government

ICT activities are currently spread across several public sector departments, research institutions, universities and the private sector (IST-Africa, 2014). In this chapter the focus is on government departments that are most relevant to the e-Government domain: Department of Communications (DOC), Department of Science and Technology (DST) and Department of Public Service and Administration (DPSA). The Department of Communications is responsible for ICT Policy whereas the Department of Science and Technology is in charge of the ICT Research, Development and Innovation Policy. The Department of Public Service and Administration is responsible for the operations of the public service and e-Government within the public sector (GCIS, 2013a). A brief introduction to the three departments is tabulated below:

Table 17: Overview of Departments (Adapted from: Department of Communications, 2014a, Department of Science and Technology, 2014, Department of Public Service and Administration, 2014)

	Department of Communications	Department of Public Service & Administration	Department of Science & Technology
Vision / Mission	South Africa as a global leader in the development and use of information and communication technologies for socio-economic development	A professional, productive and responsive public service and administration	To create a prosperous society that derives enduring and equitable benefits from science and technology.
Values	Transparency; Respect; Accountability; Fairness; Integrity; Excellence; and	Value statement provided: We Belong, We Care, We Serve	Professionalism; Competence; Integrity; and Transparency.

	Department of Communications	Department of Public Service & Administration	Department of Science & Technology
	Innovation.		
Current Principal Programmes	Broadband Broadcasting Digital Migration ICT Policy Review SA Accreditation Authority Child Online Protection Community Broadcasting Internet Protocol Version 6	Administration HR Management & Development in Government Management of Compensation Information and Technology Management Service Delivery Improvement Governance Centre of Public Service Innovation	Corporate Services & Institutional Planning Support Technology Innovation International Cooperation and Resources Research Development Support Socio-Economic Innovation Partnerships

The draft e-Government policy of South Africa was initially proposed in 2001 (Department of Public Service and Administration, 2012a). The policy aimed to use ICTs to support government initiatives towards citizen service delivery and improve the internal operations of government. The main pillars of the e-Government policy were attainment of economies of scale, reducing costs, interoperability, minimising duplication and bolstering the security of information. The implementation of that e-Government policy has been inconsistent (Abrahams, 2009) and the country has not seen much results. The policy has been under revision for quite some time and at the time of writing this chapter the updated e-Government policy had still not been finalised. However, several e-Government frameworks have been published. According to Cloete (2012) these are however "general statements of commitment towards e-government…that do not contain concrete steps to take this initiative further" (Cloete, 2012: 132).

There are nevertheless several pockets of success in working towards e-Government such as the South African Revenue Services (SARS) e-Filing initiative, National

Automated Archival Information Retrieval System (NAAIRS) to facilitate access to public archived records and the National Government Portal (www.gov.za) that provides access to government information and services (Cloete, 2012).

It is noted that there are various institutions in South Africa that have an important role within the ICT sector and support the above outlined government departments in achieving their legislative and constitutional mandates. For example the DPSA includes organisations such as the State Information Technology Agency (SITA) which provides infrastructure and systems to support service delivery. There is also the Government Information Technology Officers Council (GITOC) which includes all the Chief Information Officers from various government departments. Another organisation is the Office of the Government Chief Information Officer which is seen as the leader of the actual implementation of e-Government in South Africa (Department of Public Service and Administration, 2014, Abrahams, 2009). These structures have not assisted in advancing e-Government implementation consistently.

Having positioned the overarching policy environment in South Africa the next section reviews the role of strategic planning in the public sector.

4.3 Public Sector Strategic Planning

Strategic planning consists of determining the direction that an organization will take and making decisions on how resources will be allocated to achieve the selected strategy. Therefore, strategic planning is an administrative process for defining and executing organizational goals. Strategic planning is widespread within the public sector (Poister, 2010) and it may assist governmental organizations in responding effectively to the continuously changing environment (Bryson, 1988). The literature has a variety of models for strategic planning (Bryson, 2010). According to Bryson et al (2007: 702) “an important key to success for public organizations is identifying and building strategic capacities to produce the greatest public value for key stakeholders at a reasonable cost”. The advantages of undertaking strategic planning are captured in the figure below:

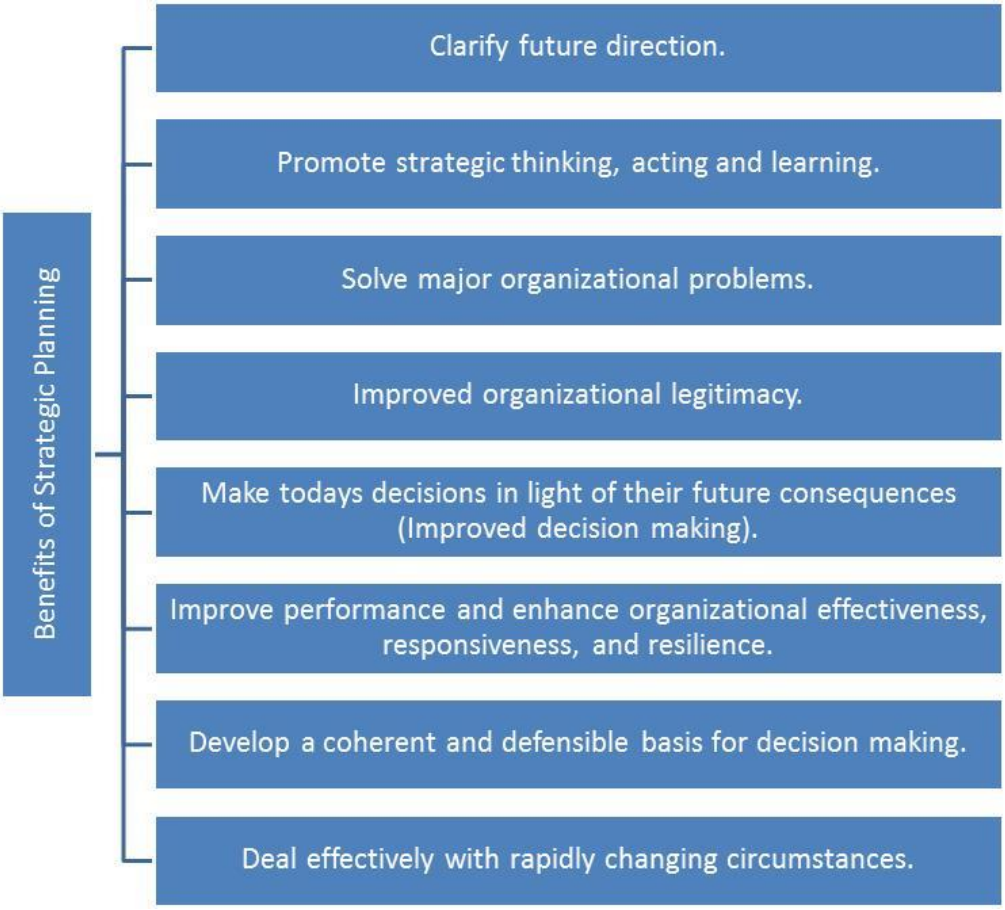

Figure 18: A sample of the benefits of strategic planning (adapted from Bryson, 1988, Bryson, 2010)

4.3.1 Challenges of Public Sector Planning

While recognising the benefits of strategic planning, it is important to highlight the context within which strategic planning occurs in public sector in comparison to the private sector. To begin with, the public sector may find itself inhibited by a culture that supports managing from a day-to-day perspective (Poister, 2010) along with a bureaucratic nature that may resist change. An additional challenge is that governments deal with a wider scope and thus their strategy is expected to impact a much broader environment (Hendrick, 2003). Businesses utilise strategic planning to anticipate and respond to competitor actions whereas in the public sector the challenges are more complex than

addressing competitor behaviours and are often ambiguous (Stewart, 2004). The goals and policies of the public sector are unclear and are subject to continual changes constraining the planning process in the public sector (Stewart, 2004). Governments have unpredictable demands for public services and face overwhelming challenges (Llewellyn and Tappin, 2003). A lack of information to support the planning is also mentioned as a barrier (Stewart, 2004).

It is accepted that government face a plethora of challenges however if the public sector fails to gain strategic capacity it may find it difficult to deliver services, respond to ever changing market dynamics and even defend their role and existence (Bryson et al., 2007). This chapter focused on strategic planning outputs and argued that they are potential contributors to the achievement of the developmental goals of the public sector. This thesis focused on South Africa as a case for analysing the orientation towards t-Government, therefore the following section briefly outlines the strategic planning process of this country building on the context that was provided earlier.

4.3.2 Strategic Planning in South Africa

The South African constitution includes several rights for the citizens of the country. The constitution highlights the role, authorities and functions of government (ETU, 2012). The structure of government, including legislation and policies are also based on the Constitution (ETU, 2012). A policy defines the goals of a particular ministry and explains the methods and principles to be used to achieve the goals (ETU, 2012). The National Treasury of government explains that an important part of developing policies is the identification of strategic outcomes which consequently necessitates “high quality planning to accomplish” (National Treasury, 2010:vi). Additionally, the office of the South African Presidency has championed the adoption of an outcomes focused monitoring and evaluation approach throughout the three levels of government. There are currently 12 outcomes articulated which essentially focus on improving education, security, health and the economic wellbeing of citizens. The process which underpins the outcomes approach is highlighted in Figure 19 below:

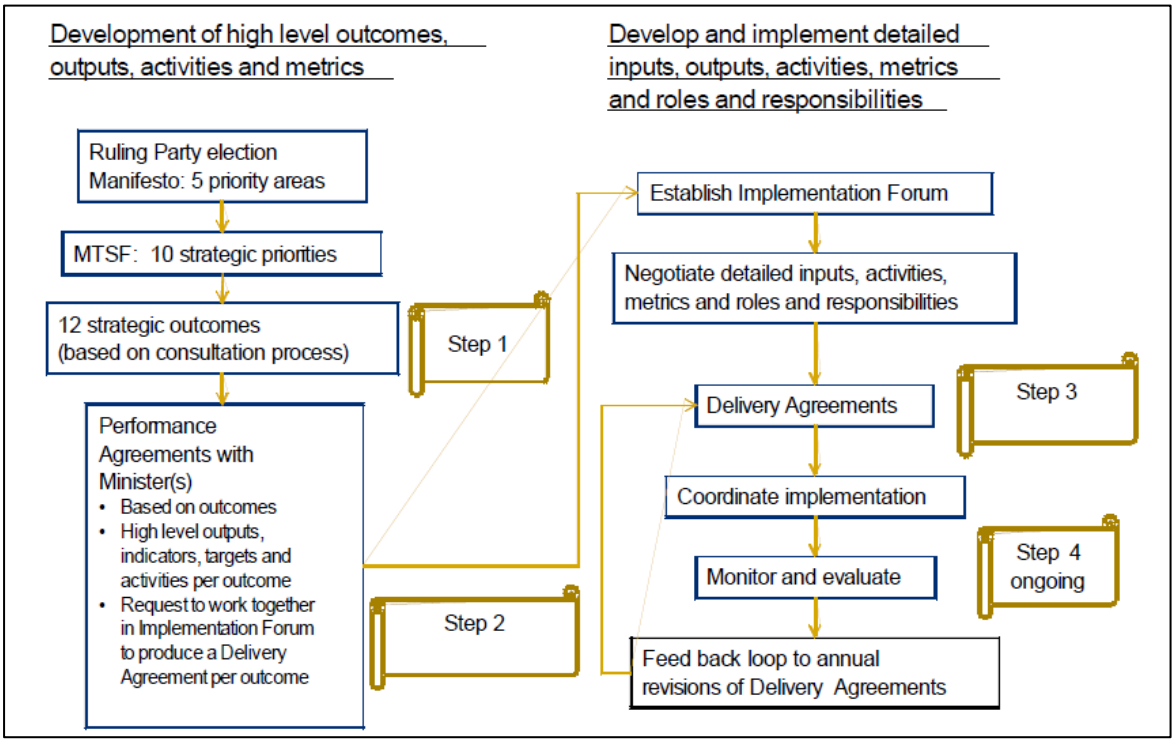

Figure 19: South Africa Outcomes Approach Process (South African Presidency, 2010)

The outcomes focused approach is expected to guide the development of strategic plans of the respective government ministries. For the South African government, a strategic plan represents policy priorities, programmes and project plans for a duration of five-years (National Treasury, 2010). The outcomes approach aims to ensure that the public sector remains focused on achieving "the expected real improvements in the life of all South Africans" (South African Presidency, 2010:9) The key pillars of this approach include:

1. *Planning for outcomes and impact* – which involves identifying the outcome that is desired and then planning backwards to see how to best achieve that outcome.

2. *Focus on outcomes* – there is an overriding focus on the outcome and the role players required to drive specific outputs that will lead to an outcome.

3. *Measurement and evaluation of outcomes* – there should be a systematic approach to evaluate what has been achieved. This should be supported by clear

indicators, baselines and targets to measure change (South African Presidency, 2010:9)

This approach requires a clear chain between what the government invests in and what they achieve as captured in Figure 20 below:

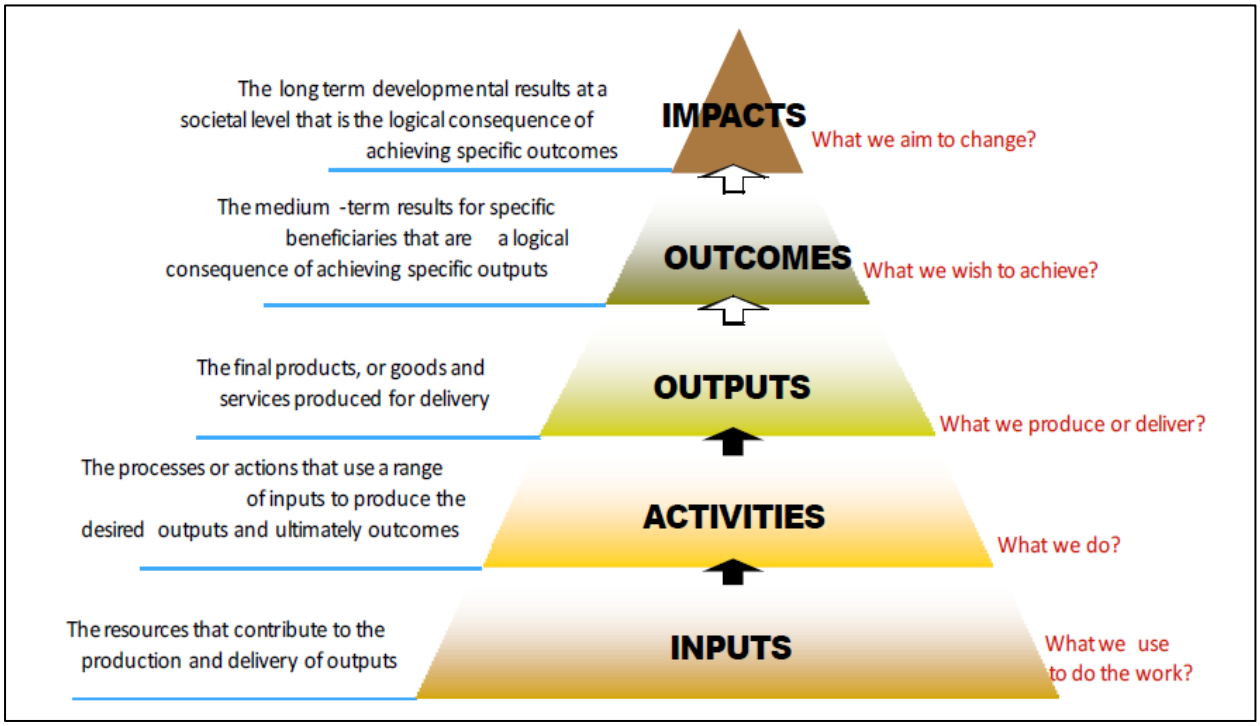

Figure 20: Outcomes Approach (South African Presidency, 2010)

Thus, the role of strategic planning in South African ministries is to "identify strategically important outcomes orientated goals and objectives against which public institutions' medium-term results can be measured and evaluated by Parliament, provincial legislatures and the public" (National Treasury, 2010 :1). In essence strategic plans give effect to the legal duties of government.

4.3.3 Strategic Planning for Transformational Government

This chapter explored the opportunity for harnessing the benefits of the strategic planning process for the attainment of t-Government. The call for t-Government is concerned with e-Government contributing towards socio-economic development and

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

benefits for citizens. The chapter thus reviewed the current strategic plans of three South African government departments for alignment to t-Government. It was noted that some earlier studies focused on the IT strategic plan (see Shu, 2008 for example) however within this study the organisational strategic plan is elevated. It argued that the strategic planning documents drive the short to medium term focus of government and highlight the activities to be undertaken by the departments in that period. Thus the contents of the strategic documents may be a critical source of evidence of the government's journey towards t-Government. It was asserted that if t-Government imperatives are embedded within the strategic plans this may result in an opportunity to deliver on the commitments made by government towards developmental results based on the achievement of specific outcomes. The chapter queried the visibility of commitments to transformational Government in the instruments (such as strategic plans) that are used to achieve public sector goals and are the basis for evaluating public sector performance. The following section reviews the theoretical foundation that supported the thematic analysis that aimed to assess t-Government prevalence.

4.4 Theoretical Framework

As reflected in Chapter 2 the notion of t-Government is nascent and thus the literature lacks agreement on the definition and models of t-Government. This thesis argues that the basis for t-Government is a reorientation to the citizen. The process for analysing the qualitative data in this chapter was the Thematic Analysis method consisting of coding techniques. The chapter relied on an amalgamation of the Irani et al (2007b) and the Jones (2012) frameworks for moving from e-Government to t-Government to support the deductive thematic analysis.

A model for t-Government is proposed by Irani et al (2007b) and it emphasizes that within the t-government domain, citizens and businesses are central to service planning, service design, service delivery and service evaluation for benefit realization (Irani et al., 2007b). The service evaluation allows citizens to provide feedback to government which is integral for understanding the impact of ICT driven services on their constituents.

Furthermore, Irani et al (2007b) argue that although numerous models for e-Government development exist, many of these are technically oriented with an overarching focus on technological capabilities. The model seeks to reiterate that citizens are an important stakeholder throughout the public service value chain.

The Jones (2012) framework comprises of barriers, objectives and priorities for t-Government implementation. The barriers that are most likely to impede the change towards t-Government include: a lack of funding, an overwhelming number of IT projects to deal with, lack of integration in the internal systems, lack of skills, poor management and cross-organisational coordination, conflicting priorities, Government's current approach, security concerns, organisational culture, and a lack of management and political support. The objectives that implementers of t-Government should have at the fore include: offering "joined up" and holistic services, avoiding duplication across government entities, working towards a seamless government, leveraging economies of scale, lowering costs of services, increasing information access for citizens, reducing time delays in information, transaction and response flows, and finding opportunities for innovation in services (Jones, 2012). Lastly the priorities include a key focus on transformation, political imperatives, extended enterprise and supporting partners, identifying the value proposition for different stakeholders and compiling customer agendas that reflect citizen's requirements from the t-services. There should also be priority towards collaborating with stakeholders and social inclusion whilst addressing cultural issues (Jones, 2012).

Table 18 below outlines the differences between e-Government and t-Government that drove the analysis.

Table 18: From e-Government to t-Government (adapted from Irani et al., 2007b, Jones, 2012)

Components and Key Questions for Comparison		e-Government	t-Government
Focus	What is the superseding goal of the ICT initiatives of the organisation?	Putting government services on-line	Making the government Transformational through IT

Components and Key Questions for Comparison		e-Government	t-Government
Objectives	What types of objectives have been identified for the short to medium term?	Technical ability	Joined up services Reducing duplication Seamless government experience Leveraging economies of scale Lowering costs Increasing access to information Reducing time delays Innovation in government services
Citizen Involvement	How are citizens being engaged? Are citizens offered access to ICT's or are citizens being enabled to create relationships and networks that have productive benefits for those citizens? Is the organisation citizen-centric?	Access & Accessibility	Build Social capital
Business Involvement	Refers to the relationship between government and businesses. Is the focus on allowing business to transact with government electronically? Or is there a focus on integrating government business processes with those of suppliers and their clients (vertically) and with other government organisations (horizontally) to allow for improved service delivery?	On-line transacting	Supply chain integration
Service Delivery	Are government services designed in collaboration with citizens (pull) enabling the citizens to define what they need and how it should be delivered? Or is the service design and delivery defined by the government (push)?	Push-model	Pull-model

Components and Key Questions for Comparison		e-Government	t-Government
Evaluation	How is the e-government trajectory evaluated? Is there a focus on achieving specific phases and technological milestones or is there a focus on benefits for and impacts on citizens?	Stage model growth	Benefit realisation
Resource Management	How are the organisation's resources utilised and deployed? Is there a focus on assigning resources to ICT based projects or is there a move towards creating capacity and improving skills for effective public administration?	Resource allocation	Professionalism
Integration	Is the organisation focused on enabling shared service technical infrastructure or is there an effort towards changing the underlying organisational culture for actual sharing of resources (information, people and processes) for improved service delivery?	Shared service platform	Shared service culture
Business model	Is the organisation concerned mainly with technical aptitude or is there a focus on utilising technology for governing to achieve specific outcomes? Is the focus on the technology or the outputs?	Technological capability	Strategic governance
IT role	What role is defined for ICT's? Do ICT's enable electronic delivery only or do they radically change the modus operandi of government for the benefit of citizens?	Enabling on-line delivery	Enabling the transformation of the business of government

T-Government requires governments to enable communication with the citizens such that they participate (electronically and otherwise) in defining objectives, tracking and evaluating impacts. The following section reviews the research method.

4.5 Research Methodology Overview

As per the discussion in chapter three, this thesis reflected on South Africa as a case study of e-Government. This chapter aimed to unravel the emerging themes within the strategic planning process of the Department of Public Service and Administration, Science and Technology, and Communications respectively. The chapter was in line with Irani et al (2007b) call for, principally exploratory and qualitative research to help in understanding t-Government. It was an exploratory qualitative study of t-Government in South African strategic planning processes. This typically aligns to the intensive empirical procedures of critical realist based research (Danermark et al., 2002). In relation to the overall South African case study, this chapter was an embedded unit of analysis at the level of national government. The objective was to analyse raw data in the form of words that have been "meaningfully pre-structured" (Myers, 2009) by three government departments as found in their strategic documents. The raw data was analysed through a thematic analysis. Thematic analysis is "a method for identifying, analysing and reporting patterns (themes) within data" (Braun and Clarke, 2006: 6). At the very least, thematic analysis arranges and describes the data in rich detail but usually it goes beyond simple description and interprets various aspects of data as it relates to the research topic (Boyatzis, 1998).

The thematic analysis was applied to assess how the strategic intents of the government departments were aligned to the t-government imperative. It was also selected due to the various advantages it brought to this research including: its flexibility as method; it is not tied to one particular theoretical framework and thus can be applied in different theoretical contexts and it is useful for summarizing a large body of data to generate unanticipated insights (Braun and Clarke, 2006).

A deductive, also referred to as theoretical, thematic analysis was selected due to the objective of the study which was to understand how government's short to medium term strategies aligned to the conceptual frameworks of t-government offered by Irani et al (2007b) and Jones (2012). The theoretical analysis was driven by the researcher's analytic interest in a specific area (Braun and Clarke, 2006) namely t-Government. The

themes that supported the coding and data analysis were centred on the key differences in focus areas for t-government versus e-government as outlined in Table 18 above. These themes include: strategic focus, objectives, citizen involvement, business involvement, service delivery, evaluation, resource management, integration, business model and the role of IT respectively.

The process that was followed is outlined in Table 19 below. It was guided by the approach offered by Braun and Clarke (2006) for thematic analysis.

Table 19: Data Analysis Procedures

	Description	Alignment to the Phases of Braun and Clarke, 2006
Step 1	Source relevant and latest strategic planning documents from department websites.	N/A
Step 2	General reading of the strategic documents to gain overall understanding of their contents.	Phase 1: Familiarising with data
Step 3	Review categories sourced from the Irani et al 2007 and Jones 2012 frameworks that are the basis for coding	Phase 2: Generating initial codes
Step 4	Rereading of each department document (several cycles for the three departments) Code data based on the categories	Phase 3, 4, 5: Reviewing, searching for and naming the themes
Step 5	Interpret the themes in light of the data in the strategic documents	Phase 6: Interpretive analysis and produce report
Step 6	Discuss the findings for each department	Phase 6: Interpretive analysis and produce report
Step 7	Synthesize the findings from the three departments	Phase 6: Interpretive analysis and produce report

Although the above table shows the process as a linear, step-by-step procedure, the analysis of the data was an iterative and reflexive process (Fereday and Muir-Cochrane, 2008).

4.6 Summary of Department Strategic Plans

A typical South African government department's strategic document includes an initial section outlining the vision and mission; legislative mandates; situational analysis and strategic goals. There is an additional segment of the strategy that outlines strategic objectives coupled with programmes to achieve the goals. Lastly there is a section that outlines the alignment to other plans. The analysis focused on the first two components of the strategic documents; looking at the strategic outcome oriented goals and strategic objectives. The analysis of the strategic documents yielded various learning's regarding the extent to which the strategic plans of South African Government departments reflect the migration towards transformational government. These lessons are grouped according to the expressed goals and discussed on the basis of each of the themes derived from the t-Government conceptual model.

4.6.1 Department of Communication

The DOC's strategic plan for the fiscal years 2013-2018 was included for review. The introductory section contains comments from the Minister, Deputy Minister and Director General of the DOC. The three leaders consistently reiterate the South African Government's stance that ICT's can be utilised to improve areas such as education, health, and economic activity. As acknowledged by the then Minister, Ms Dina Pule (Department of Communications, 2013 :3):

> *"We have realised in this strategic planning that we needed to have a paradigm shift in order to realise the requisite rates of development… We must also keep in mind that we are signatory to United Nations' Millennium Development Goals, the aim of which is to accelerate the development of under-serviced areas, especially in developing countries."*

The Outcome Oriented Goals and their associated Strategic Objectives for the said period are outlined in Figure 21 below. The detailed goal statements and strategic objective statements that support these were also reviewed in the data analysis.

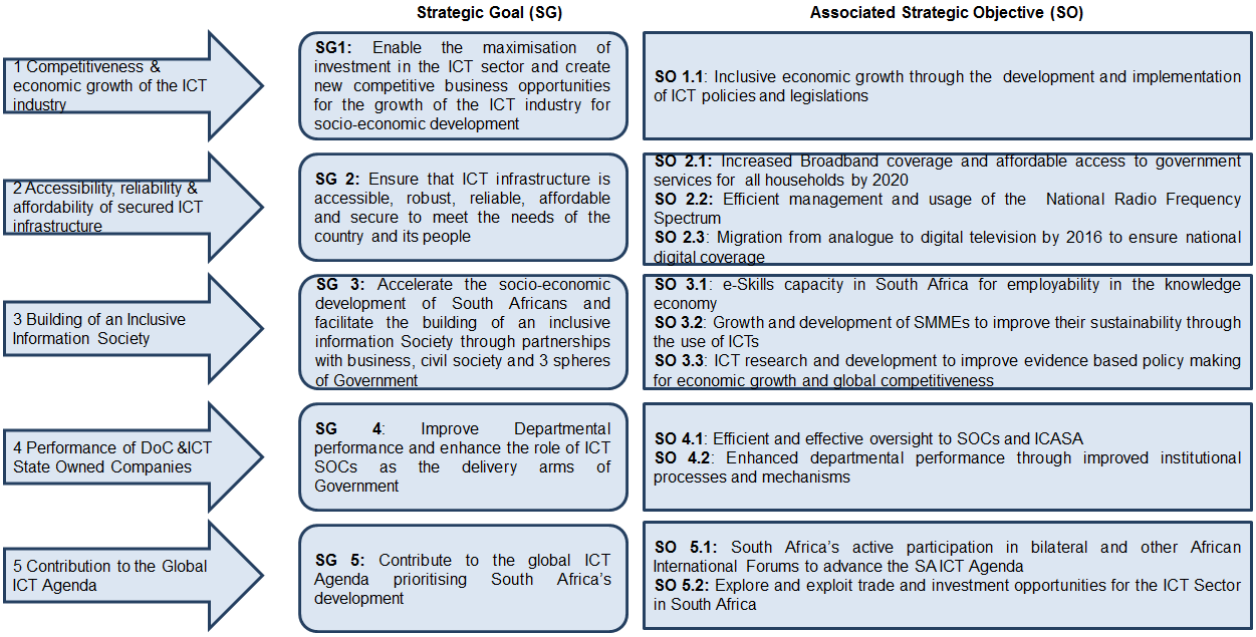

Figure 21: DOC Goals and Strategic Objectives (adapted from Department of Communications, 2013)

4.6.2 Department of Public Service and Administration

The DPSA's strategic plan for 2013 – 2015 was included in this chapter. The plan is introduced by the Minister, Lindiwe Sisulu, who outlines that the aim is to capacitate the public service to address South Africa's problems of unemployment, poverty, inequality and other socio-economic challenges (Department of Public Service and Administration, 2013). The introduction also notes that the DPSA intends to develop several new policies to support their initiatives. Amongst the list they have included the development of an e-Government Policy and IT Security Policy. The department has identified the following outcome oriented goals:

1. An efficient and effective public service and administration

2. A capable, equitable and professional public service and administration

3. Appropriate legislative frameworks for public service and administration

4. An ethical and clean public service and administration

5. Improved public administration in Africa and internationally

The DPSA further outlines six key programmes and aligns several strategic objectives to these programmes as observed below:

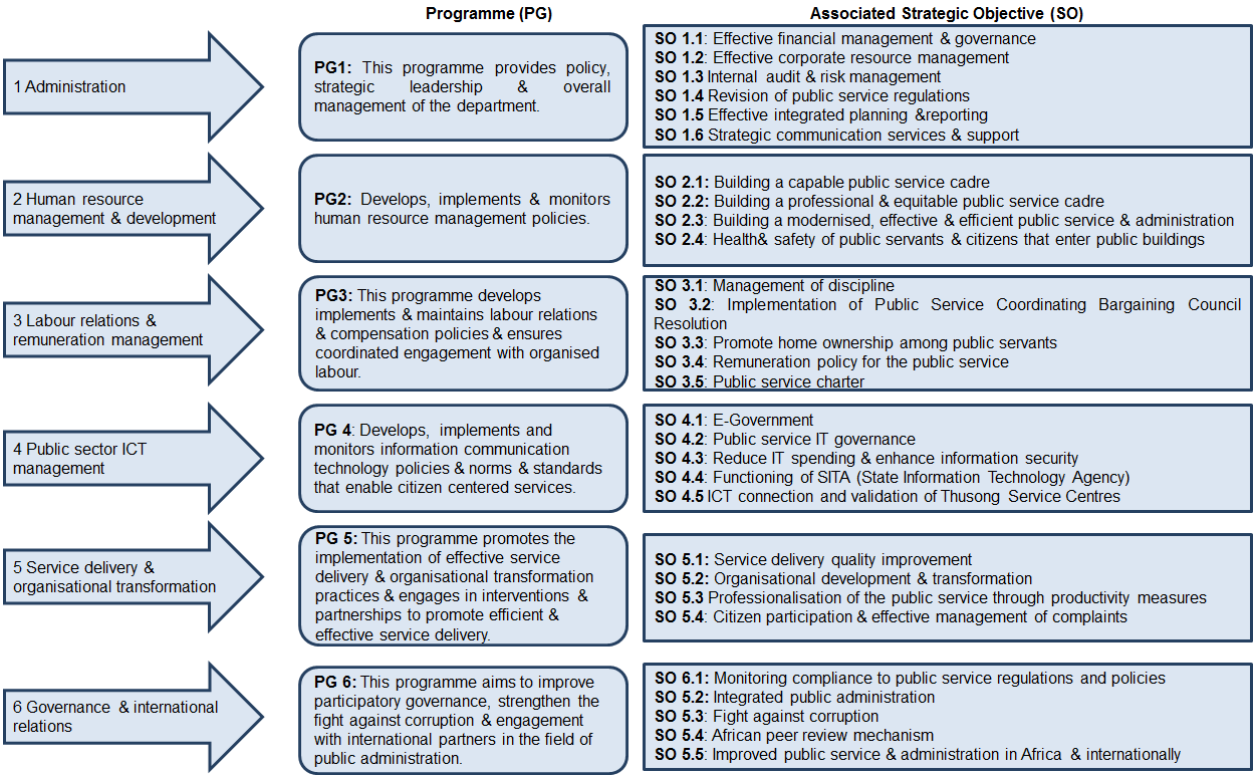

Figure 22: DPSA Programmes and Strategic Objectives (adapted from Department of Public Service and Administration, 2013)

4.6.3 Department of Science and Technology

The DST's strategic plan for the years 2011-2016 was considered for the data analysis. The strategic plan outlines Programmes that the department wishes to prioritise and

highlights strategic objectives that are linked to the programmes. Figure 23 below outlines the DST's programmes and objectives:

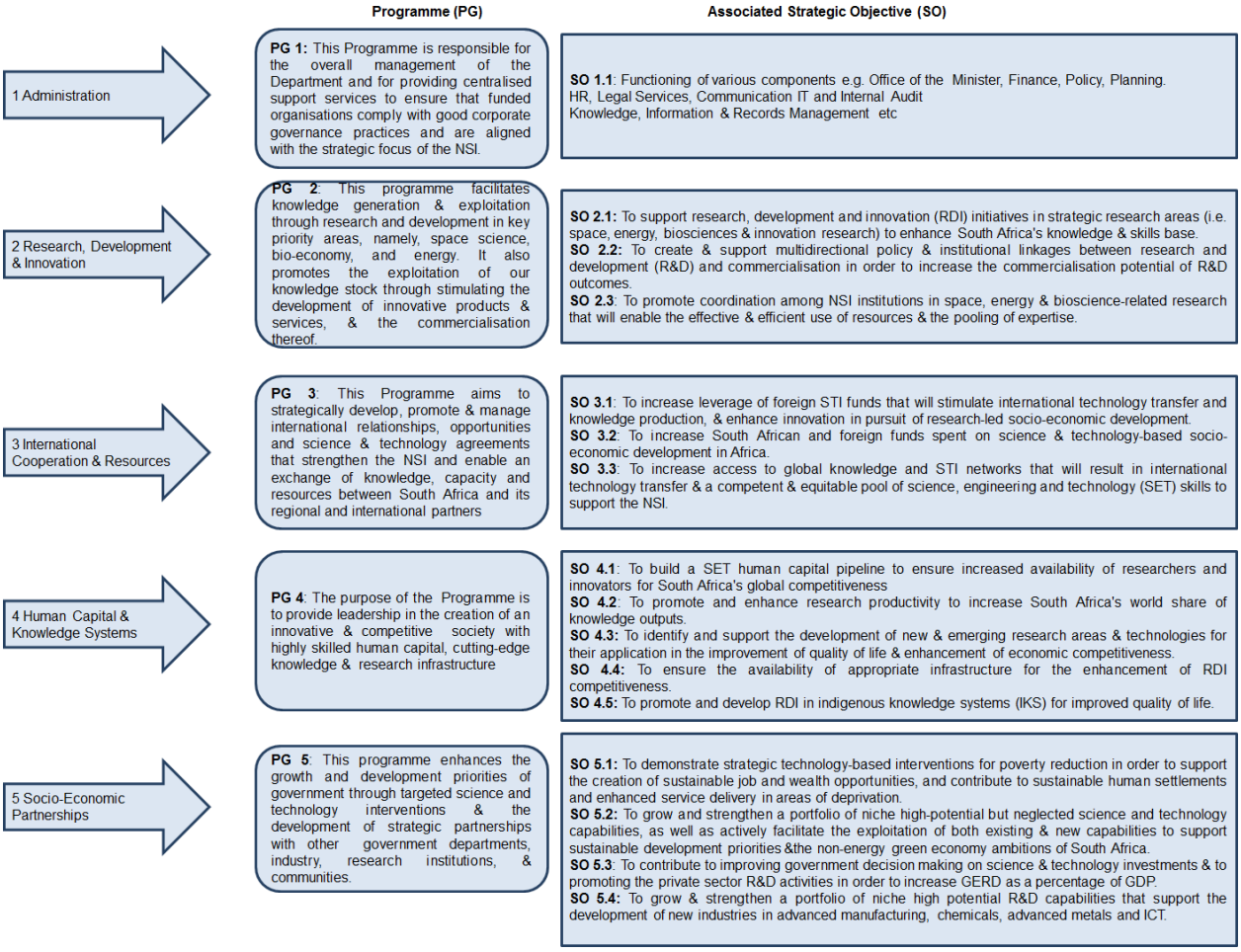

Figure 23: DST Programmes and Strategic Objectives (adapted from Department of Science and Technology, 2011)

4.7 Discussion of Findings

The following section offers a discussion on the alignment of the strategic documents to the theoretical framework of t-Government.

Table 20: Alignment of DOC Strategic Plan

DEPARTMENT OF COMMUNICATIONS (DOC)		
Ref	**Outcome Oriented Goal/ Programme**	**Alignment to theme(s)**
SG1	Enable the maximisation of investment in the ICT sector and create new competitive business opportunities for the growth of the ICT industry for socio-economic development	Focus
SG2	Ensure that ICT infrastructure is accessible, robust, reliable, affordable and secure to meet the needs of the country and its people	Focus Objectives Citizen Involvement Integration Business Model
SG3	Accelerate the socio-economic development of South Africans and facilitate the building of an inclusive information Society through partnerships with business, civil society and three spheres of Government	Focus, Objectives Integration Business Model
SG4	Improve Departmental performance and enhance the role of ICT SOCs as the delivery arms of Government	Objectives Resource Management
SG5	Contribute to the global ICT Agenda prioritising South Africa's development	Business Integration

A review of the DOC's strategic goals and associated objectives indicated that there exists a Focus on enabling government to transform the lives of citizens through ICT's. The thematic area around IT's role is also linked here due to the government's implicit expectation of ICTs contributing towards the improvement of the business of government for development. Goal SG1, Goal SG2 and Goal SG3 in particular have a strong affinity

towards the use of ICT for socio-economic development and changing citizens lives. For example one of the objectives in Goal SG2 specifically mentions the need to increase broadband access to include all households for improved access to government services. Goal SG3 discusses the improvement to economic development through initiatives such as increasing the skills base of citizens and supporting the growth of small business through ICT. This is further supported by the executive team's comments in the strategic plan. For instance the deputy minister highlights that (Department of Communications, 2013 :5):

> *"Without a doubt the overriding concern when drafting this Strategic Plan was to advance the course of positioning our people to take pride of place in a technology revolution aimed at achieving the country's developmental goals."*

Citizens' involvement also appears to be important to the DOC. It is expressed in Goal SG2 accordingly, however the sense is that there is still an e-Government perspective of citizens rather than from a t-Government orientation since the emphasis in this goal is on increasing access to and accessibility of ICT's for an inclusive information society. As an example, there is no explicit mention of moving from access to ICT as a goal towards a focus on enabling citizens through ICT to create relationships and networks that help build social capital.

The theme around Objectives was also touched upon. It was noted that the strategic plan voiced achieving outcomes that aligned to objectives such as lowering of costs for citizens, improving access to information and providing citizens with innovative services and a seamless government experience as reflected within the contents of Goal SG2, Goal SG3 and Goal SG4.

The Business Model and Integration themes are also highlighted since there are applicable examples in Goal SG2, Goal SG3, and Goal SG5 showing a predisposition towards strategic governance rather than technological capabilities. This points to an emerging t-Government perspective since the message in these particular goals and objectives, is on the use of ICT for specified outcomes and achievements. There was also evidence of the importance of relationships (for example with other government

agencies, civil society and private sector) to support the achievement ICT enabled change.

Also, the Resource Management theme is applicable within Goal SG4 and the DOC has expressed the need for performance improvement through the betterment of institutional capacity, processes and mechanisms that may result in professional ICT State Owned Companies (SOC). This was linked to the desire for professionalism which is deemed to support t-Government. Lastly, what was unclear in the goal statements was an indication towards an alignment with the themes of Business Involvement and Evaluation. Next is a review of the DPSA strategy.

Table 21: Alignment of DPSA Strategic Plan

DEPARTMENT OF PUBLIC SERVICE AND ADMINISTRATION (DPSA)		
Ref	**Outcome Oriented Goal/ Programme**	**Alignment to theme(s)**
PG1	Policy, strategic leadership & overall management of the department.	Resource management
PG2	Develops, implements & monitors human resource management policies	Resource management
PG3	Develops implements & maintains labour relations & compensation policies & ensures coordinated engagement with organised labour.	Resource management
PG4	Develops, implements and monitors information communication technology policies & norms & standards that enable citizen centred services	Service delivery Role of IT
PG5	Promotes the implementation of effective service delivery & organisational transformation practices & engages in interventions	Objectives Resource

DEPARTMENT OF PUBLIC SERVICE AND ADMINISTRATION (DPSA)		
Ref	**Outcome Oriented Goal/ Programme**	**Alignment to theme(s)**
	& partnerships to promote efficient & effective service delivery.	management Citizen Involvement
PG6	Improve participatory governance, strengthen the fight against corruption & engagement with international partners in the field of public administration	Resource management Integration

Within the DPSA document there is a strong emphasis on Resource Management as evidenced in Programmes PG1, PG2, PG3, PG5 and PG6. The department repeatedly elevates the need for a capable, effective and efficient public service cadre in the document. Although in Programme 1 it is more geared towards resource allocation only which aligns to e-Government, the overall alignment here is towards t-Government since the strategic document includes a discussion on the structure of the organization and the human resources being capacitated and strengthened for service delivery whilst dealing decisively with corruption within the workforce. The document further indicates that the organisations' resources need to be professionalised for effective public administration through supporting initiative such as training, remuneration and technical skills.

The Service Delivery theme is evident in Programme PG4. It is deduced that there is a t-Government perspective to the service delivery theme since there is a focus by the DPSA on ICT enabled government services being designed to meet the needs of citizens. However, what is not clear is if these services will be designed in consultation with citizens taking into account participatory governance principles. Thusong Service

Centres[1] are also highlighted with the goal of ensuring that the centres are equipped and have validated ICT connections. Programme PG4 and Programme PG5 link to the Objectives in that they reflect a need for lowering costs, increasing access to information coupled with attaining a seamless government experience for citizens.

Programme PG4 also highlights the needs for policies in e-Government and IT security for government. This is aligned to the IT Role thematic area and through the analysis of the strategic document showed a preoccupation with technical competence and implementation of a government wide architecture and system integration plan. This supports e-Government thinking rather than t-Government since it is limited to enabling online delivery.

The area of Citizen Involvement is reflected in the Programme PG5 where one of the objectives seeks to include citizens and communities through better communication and management of complaints. More weight is placed on access of citizens to government services and ICTs rather than moving beyond that to the building of networks that result in productive benefits for citizens also indicating support for e-Government thinking.

Integration is reflected within Programme PG6 along with its associated objectives. What emerges is the need for a sharing of not only resources but knowledge through lessons learned and best practices. The importance of building strategic relationships for the attainment of outputs was also identified. This supports the notion of t-Government and moving towards holistic shared services based culture. Lastly, a gap was found in the Business Involvement, Evaluation and Business Model thematic areas. Next is a review of the DST strategic plan.

[1] Thusong service centres are the South African Government's vehicle for the implementation of development communication and information and to integrate government services into primarily rural communities. Typical services found in these centres include those from the departments of Home Affairs, Labour, South African Social Security Agency (SASSA), Social Development, and the department of Health as well as telecentres, the Post Office, libraries, agricultural extension offices and municipal services. GCIS. 2014c. *Thusong Service Centre - Brief Background* [Online]. GCIS. Available: http://www.thusong.gov.za/about/history/index.html [Accessed July 2014]..

Table 22: Alignment of DST Strategic Plan

DEPARTMENT OF SCIENCE AND TECHNOLOGY (DST)		
Ref	**Outcome Oriented Goal/ Programme**	**Alignment to theme(s)**
PG1	Overall management of the Department and for providing centralised support services to ensure that funded organisations comply with good corporate governance practices and are aligned with the strategic focus of the NSI.	Resource management
PG2	Facilitates knowledge generation & exploitation through research and development in key priority areas, namely, space science, bio-economy, and energy. It also promotes the exploitation of our knowledge stock through stimulating the development of innovative products and services, and the commercialisation thereof.	Objectives Resource management Integration
PG3	Strategically develop, promote and manage international relationships, opportunities and science & technology agreements that strengthen the NSI and enable an exchange of knowledge, capacity and resources between South Africa and its regional and international partners.	Integration Business model
PG4	Provide leadership in the creation of an innovative & competitive society with highly skilled human capital, cutting-edge knowledge & research infrastructure	Resource management Objectives
PG5	Enhance the growth and development priorities of government through targeted science and technology interventions & the development of strategic partnerships with other government departments, industry, research institutions and communities.	Resource management Citizen Involvement Integration Focus

The DST strategic plan firstly also reflects a concern with Resource Management. As found in Programmes PG1, PG2, PG4 and PG5. It looks at resource allocation mainly in the Administration programme (PG1) but switches to the professionalization of researchers and technologists in PG2 and PG4. It also looks at how to improve the skills

base of members of society. This hinted at an affinity towards t-Government since the skills and knowledge base is desired for developmental purposes.

The area of Objectives was partly reflected in Programme PG2 and PG4 which indicated the need to increase access to information for research and development purposes. This was expected to improve the knowledge base and also have impacts on the lives of citizens.

Additionally, the strategic document mapped to the Integration theme. This was seen in Programme PG2, PG3 and PG5. The document highlights the need for a change in culture towards knowledge sharing across departments and sees a role in supporting other government departments towards the achievement of the country's socio-economic goals. Alignment to the Business Model area was found in the Programme PG3 where the importance of forming strategic relationships within South Africa and internationally for improving knowledge, capacity and resources toward development.

Citizen involvement was teased out in Programme PG4 which specifically refers to the development of an Indigenous Knowledge System. This is reflective of taking learnings from communities and using these in developing science and technology. In analysis it was thought to be an indicator of government acknowledging citizens as contributors towards solutions in the country. This aligned to t-Government ideals that elevate the role of the citizen. The theme of Focus is clear in Programme PG5 which explicates development as an outcome of the science and technology initiatives of the department supporting t-Government. Furthermore in Programme PG5 there is reference to developing partnerships with communities for research and development further bolstering t-Government. Lastly it was noted that there was a gap in the areas of Business Involvement, Service Delivery, Evaluation and the Role of IT.

4.8 Strategic Planning Insights

The critical realist foundations of this thesis supported the attempt to understand why and how t-Government is manifest in South Africa. The critical realist perspective is

particularly in search of "the real issue" by looking towards the underlying causes and mechanisms resulting in the phenomena observed (Mingers et al., 2013). In this chapter it helped unearth alignment towards t-Government in the phenomena of strategic plans (observations). The analysis indicated that several areas may be driving the findings noted in strategic plans:

Table 23: The main analysis findings

Area	Description of Main Findings
Policy Environment and t-Government Conceptualisation.	The structure of the policy and regulatory environment does not support ICT's for development The understanding of t-Government is nascent and the conceptualisation unclear.
Institutional Capacity	Organisations lack capacity and leadership to define and implement ICT enabled change.
e-Government Myths	There are lingering e-Government myths influencing policy and practice.
Public Sector Values	The citizen centric values that are underpinned by Batho Pele principles have not yet been internalised within all levels of government.
New Public Management	South Africa has an orientation towards NPM and requires consideration of some of the Public Value ideologies to support the transformation.

4.8.1 Policy Environment and T-Government Conceptualisation

From the analysis it appears that the key themes for t-Government are reflected to various degrees within the strategic documents of the DOC, DPSA and DST. A reason that may be highlighted for the lack of pervasive t-Government alignment in the strategic documents may be found in the current policy environment of South Africa. As noted in earlier sections, the current ICT policies have been in operation for over ten years and are currently undergoing a comprehensive review as initiated by the DOC at the recent

National ICT Colloquium (Department of Communications, 2014a). The DOC is reviewing the telecommunications, postal, broadcasting and information technology policies with the objective of drafting an integrated ICT policy. Similarly the DPSA is reviewing the e-Government and IT Security policies (Department of Public Service and Administration, 2014). The current policies were drafted during a phase when e-Government was being positioned as the universal remedy for public administration challenges and governance. As the chapter noted earlier, e-Government has failed to deliver on its initial promises (Heeks, 2010) and thus necessitating paradigm shift towards t-Government (Bannister and Connolly, 2011, Borras, 2012).

Furthermore, in assessing the current policy environment the researcher sought the underlying drivers resulting in the currently manifested national ICT framework. One area that is of relevance is the focus of our policies on technology and infrastructure achievements rather than human development outcomes (Brown and Brown, 2008). This may be traced to how the ICT artefact is conceptualised in the South African public sector. Scholars have argued that the conceptualisation of the e-government artefacts influences the outcomes thereof (Ochara and Van Belle, 2010).

When compared to the work of Sein and Harindranath (2004, 2008) on the role of ICT's in development it can be argued that in South Africa, ICT's are: *viewed* as tool and *used* as a driver of the economy and this results in inconsistent 1st order and 2nd order impacts. It is purported that this conceptualisation is limiting the results obtained in the South African context as supported by the research findings of Abrahams (2009), Cloete (2012) and Gillwald et al (2012).

In viewing ICT as a tool it has been reduced to a technical entity that is simply a means to a predefined end. However if policy makers were to consider an *ensemble* view of ICT it would broaden the understanding. It would require that ICT projects be understood from a socio-technical framing which neither elevates the technology or the societal perspectives but aims to understand both views in how ICT is developed and implemented (Avgerou, 2008). In this ensemble view ICT is part of a larger complex network of actors, social structures, people, organisations, technical artefacts, coupled

with rules and discursive practices such as language (Wynn and Williams, 2012). It is also important to note the outcomes of ICT are contextual (Sein and Harindranath, 2004) thus by having a limited "tool view" of ICT and not considering closely the context within which it is deployed may result in missing the benefits that are being sought for citizens. The rhetoric around advancing socio-economic development was found in the policy statements and strategic documents however it is purported that the inconsistent results (observations) point to a gap in the clarity of the actual role of ICT's therein. This is therefore linked to how the public sector (and perhaps business and non-profits) view the ICT artefact.

The use of ICT's has been conceptualised as a driver of the economy. The strategic plans reference several times the contributions that the ICT may have on the macro aspects of the economy. For instance the DOC plan indicates (Department of Communications, 2013 :16):

> *"Small, medium and micro enterprise development facilitates the growth and development of ICT SMMEs….This sub-programme is responsible for building capacity of ICT's to compete in export markets and to facilitate the involvement of SMMEs on the Set Top Box manufacturing value chain."*

Alternatively the DST outlines that (Department of Science and Technology, 2011: 3):

> *"Socio-economic progress is strongly linked to science and technology capacity in any modern economy. This is the case in South Africa, where research and development activities are increasingly being positioned for long-term impact on the economy and improving South Africans' quality of life. The Department has also supported projects demonstrating the application of technology in marine aquaculture, with a specific focus on empowering economically marginalised communities to establish viable commercial aqua-farming initiatives. These examples demonstrate the far-reaching impact of science and technology, as drivers of socio-economic development."*

These statements are reiterating the conceptualisation of ICT as a driver of the economy in that it can develop certain sectors of the economy such as agriculture, manufacturing and trade (Sein and Harindranath, 2004, Harindranath and Sein, 2008, Harindranath and Sein, 2007). This is not necessarily negative however when coupled with the limited view of ICT as a tool then the potential impacts may be missed. This is due to the pervasive view that technologies are simply tools for the purposes of improving public sector

effectiveness and efficiency (Kling, 2000, Basu, 2004, Batini et al., 2009). The tool view is cited one of the central reasons for "the as yet unrealised potential to achieve major developmental objectives" (Harindranath and Sein, 2007: 9). Further to this the use of ICT (beyond being a driver of the economy) may be broadened to outline initiatives where ICT's are used for specific ICT4D projects (Harindranath and Sein, 2008). Thus they are not focused on normative and technical phase achievements but an adaption and synthetic view (Brown, 2007) for localised development projects. The adaptation model acknowledges that innovations such as e-Government can happen at rapid tempos, they are non-linear, nor hierarchical (Brown, 2007).

Another perspective that may provide insight to the inconsistent preoccupation with t-Government is that it is an emerging field and has yet to resolve issues around definition and conceptualization. There is no agreement yet on what transformation is (Bannister and Connolly, 2011, Weerakkody et al., 2011) in other words how much change and what type of change must the ICT programme bring for it to be viewed as transformative. The challenge may be to first resolve issues of defining and envisioning t-Government for a specific context such that the ideals thereof are translated into practice within the public sector. The implication is that the public sector may have to apply a concerted and purposeful effort of translating the t-Government orientation for their core strategic planning processes since it is not yet obvious, deliberate and well entrenched. This effort towards t-Government will need to emerge taking into consideration the constraints highlighted as those faced by the public sector in the process of strategic planning.

4.8.2 Institutional Capacity

The policies that are in place have been shown to be detrimental to some areas of the ICT sector in South Africa causing it to stagnate as compared to other developing countries (Gillwald et al., 2012). Also, another study found that although South Africa's DPSA documents often reference "citizen centred service strategy", what is lacking is an unambiguous explanation of how these would be achieved (Abrahams, 2009:1021). This inclination was also seen in the strategic plans that were included in this chapter.

Furthermore, the ICT related organisations and structures in the public sector have been plagued by leadership problems (Cloete, 2012, Gillwald et al., 2012) resulting in an inconsistent attention towards the role of ICTs in the South African society. Additional factors that have been detrimental towards attaining e-Government and subsequently considering t-Government includes insufficient management commitment, with a lack of clear monitoring and evaluation mechanisms (Cloete, 2012).

It may be said that South Africa believes in the possibilities that ICT holds. For example the role of ICT is mentioned in the New Growth Path and National Development Plan of the government (Zarenda, 2013). However, the reality of ICT in South Africa reflects a different scenario. A central contributor to this is the institutional landscape that is rife with a lack of political support, ineffective governance frameworks and bureaucratic strife (Cloete, 2012).

The manifestations witnessed in the institutional landscape speak to a significant gap in the institutional capacity to deliver. Capacity is the potential for an organisation to deliver on its objectives (Morgan, 2006). It is broader than human resources including technical resources, institutional memory, strategic leadership and governance. This lack of capacity has been linked by some researchers to realities such as the high vacancy rates in government, particularly in local government senior management positions (Peters and Van Nieuwenhuyzen, 2012). The inconsistent alignment to t-Government may also be traced to a lack of holistic governance across the various departments and their views on the role of ICT (Abrahams, 2009). However, other underlying origins such as “a lack of accountability, cadre deployment and the flouting of credible recruitment processes” are also raised (Peters and Van Nieuwenhuyzen, 2012: 276). Essentially capacity enables the attainment of public value (Morgan, 2006) and where it is lacking the developmental impacts for citizens are compromised.

4.8.3 Lingering e-Government Myths

The discussion on the myths of e-Government that was initiated in Chapter 2 was also deemed relevant for this chapter. In the analysis one of the thoughts that arose

prominently for the researcher was that perhaps the current South African policy and strategic documents are still suffering from a legacy of e-Government myths that were the drivers behind many of the early e-Government policies and projects. Hence, the analysis shows a chequered alignment to t-Government ideals and a lack thereof in the South African experience. For example there is myth that says: "Information technology can change organizational structures, and thus is a powerful tool for reform" however a study by Kraemer and King (2003) showed that in practice ICT's have brought little change and reinforced existing structures. The South African institutional landscape has had several examples where change has been slow and non-satisfactory (even in the technology organisations themselves) leading this study to assert that such a myth lingers on since there are various references to resource management and changes in organisational structure, within the strategic plans, that still have not been delivered. Another myth that ICT's "will be beneficial for administrators, staff, citizens and public administration as a whole" may also be present. Kramer and King (2003) found in their study that benefits of ICT's have been uneven and they favoured those with the dominant political-administrative coalitions in public administration. Scholars of the South Africa's ICT sector lament the lack of benefits to various stakeholders (see for example: Abrahams, 2009, Cloete, 2012, Gillwald et al., 2012). This further supports the idea that the remnants of such a myth are a reality in South Africa.

4.8.4 In Search of Public Sector Values

In the literature review chapter, the role of Batho Pele principles was highlighted as important in the context of South Africa. The Batho Pele (which means People First) principles were adopted by the South African Government as part of the broader reforms that were undertaken in the post-apartheid and new democratic environment. In South Africa Batho Pele principles encapsulates public sector values. The values that a government holds influence what they focus on and how they implement policy. The values aim to "put people first". Batho Pele principles endeavour to strengthen accountability between citizens and government service providers (Worldbank, 2011a). South Africa thus needs to consider t-Government in light of this.

The review of the strategic documents did not reflect a convincing change in the culture and approach held by Government towards beneficiation of citizens. It is purported that the principles have not yet been deeply internalised as revealed by the inconsistent focus on citizens in the strategic plans. It is further argued that the adoption of the principles beyond the discourse level is an essential contributor towards t-Government thinking and practice in the public sector. It has been previously argued that organisational values are the foundational basis for organisational strategy (Williams, 2002). This potential held by assimilating supportive values is not realised fully in the strategic plans of the South African government. There is an opportunity to use these values to not only define the public sector identity but attain the transformational agenda that has been the content of much of the government's discourse.

It is believed that the strategic plans need to show more clearly how these Batho Pele principles may be implemented. For instance the principle of Consultation is centred on consulting citizens in defining the level and quality of services. For example, there is an opportunity for the DOC to involve citizens in Goal G2 (see Figure 21) with regards to defining the broadband service, prioritising coverage and clarifying the process for access. Alternatively, the DPSA in Programme PG4 (see Figure 22) has an opportunity to indicate how they may seek citizens' voices in defining the services delivery at Thusong Service Centres and particularly what they require from ICT enabled services. As a final example, the DST may indicate more on the role of citizen consultation in Programme PG4 (see Figure 23) around the development of Indigenous Knowledge Systems for the betterment of society. It is believed that the remaining eight principles of Batho Pele need to be addressed in a similar manner for a conscious migration to t-Government. Batho Pele should not be viewed as an additional perspective on the periphery of the public sector but it should be at the core of what is done and how it is done so as to realise t-Government.

4.8.5 New Public Management Ideologies

Through assessing the strategic plans of the 3 Government departments it was noted that there was alignment with the New Public Management thinking that has driven public sector reform not only in western countries but also on the African continent. The objectives of NPM included a more efficient and effective government, better quality of service and budgetary savings (Brown, 2005). The departments included in the review all indicated goals towards becoming more efficient and effective organisations. They highlighted the objective of improving performance and their plans were supported by specific performance measures (see Department of Communications, 2013, Department of Science and Technology, 2011, Department of Public Service and Administration, 2012b).

Furthermore, the ideologies that are associated with NPM were identified through the strategic plans. For example the DOC outlines in Goal G3 a focus on creating an enabling environment for SMME's thus aligning to the NPM principle of fostering a conducive environment for private enterprise (Dzimbiri, 2008). The push for integration with local and international agencies is also evidence of the DOC, DPSA and DST affinity towards the NPM principle of public private partnerships underpinning public sector change. There is also discussion of restructuring the public sector organisations towards improved performance from all three departments. This aligns with the NPM sentiments as well.

Further to this the NPM orientation of the government leads to the argument that the conceptualisation of the e-government domain is also dominated by economic rationality. The theoretical bases for NPM are found in managerialism, public choice theory, principal-agent theory and model of transaction cost economics for restructuring the public sector (Gruening, 2001, Andrews and Van de Walle, 2013, Bach and Bordogna, 2011).

Snellen (2002) indicates that public administration is driven by different types of rationality. The rationality may be economic, political, legal or scientific in nature

(Snellen, 2002). Economic rationality is concerned with efficiency and cost savings in the face of scarce resources (Zouridis and Thaens, 2003, Henriksen and Mahnke, 2005). On the other hand political rationality focuses on the issues of conflict, power, force and political decision making (Zouridis and Thaens, 2003, Henriksen and Mahnke, 2005). Legal rationality is concerned with the legal obligations that governments must satisfy in their activities and functions (Snellen, 2002, Zouridis and Thaens, 2003). Lastly scientific or professional rationality views the need for scientific knowledge to understand and evaluate the impacts of government programmes (Snellen, 2002, Zouridis and Thaens, 2003).

e-Government in this particular context is still plagued by economic rationality which is essentially about cost-benefit analysis calculations and being cost effective (Henriksen and Mahnke, 2005). There is a requirement to extend our thinking around e-Government towards including political rationality. Political rationality may allow governments to ensure that questions around “who gets what when and how” are negotiated and addressed collectively (Henriksen and Mahnke, 2005: 14). This approach involves stakeholders in project design and decision making and thus addresses potential conflict that may hinder the implementation and adoption of the e-Government solution (Henriksen and Mahnke, 2005).

e-Government needs to move beyond a technocratic approach (Andersen and Henriksen, 2006). If we do not broaden our view then we are likely to miss the manifold benefits that it promises. There is a requirement for a shift from the technical physical artefact to the ideology that is behind the technology (Zouridis and Thaens, 2003). This shift towards considering stakeholders through political rationality can be linked to the calls for a more holistic Public Value approach to government ICT projects.

It is acknowledged that the affinity towards NPM in South Africa is rooted in the country’s history and need for rapid transformation and development (Dzimbiri, 2008). However it is argued that it may be an opportune time to consider incorporating Public Value ideologies particularly in the ambit of e-Government implementations for developmental impacts. The public sector is driven by a different and complex set of values such as the

need for fairness, protection and equity (Bao et al., 2013). Thus broadening our public sector ideologies to take this into account is a necessity. The Public Value perspective may allow for a focus on creating value for citizens in the form of improved public services, a better relationship between citizens and government and the attainment of developmental outcomes (Karunasena and Deng, 2011). There is a need for an increased focus on creating public value as defined by citizens within the strategic intents of the government departments that were reviewed. Snellen (2002) indicates that "a government which, in its policy, ignores these elements of political rationality for any length of time, jeopardizes the quality and sustainability of the society" (Snellen, 2002: 328).

4.9 Summary

A study by Dada (2006) on e-Government failure highlighted that it is important to understand the context within which e-Government is being deployed to close the gap between the utopian design and the reality of implementation. This chapter aimed to understand this context through reviewing the South African policy landscape. The chapter reviewed the current strategic plans of South African government departments for alignment to t-Government. As highlighted by the Treasury of South Africa (National Treasury, 2010 :5):

> *"It is thus important to ensure that programme implementation will result in improving the lives of South Africans. This means that government's approach to planning should change, with a particular focus on the achievement of results."*

The chapter interrogated this call for a change in the approach to planning by reviewing the strategic planning documents for an inherent preoccupation with t-Government ideals. The results of the analysis highlight the importance of strategic plans for developmental transformation. Furthermore, the chapter supports the need for planning that is unequivocally biased towards citizens' benefits realization. The chapter is significant in light of the importance of public policy and their associated strategic plans. These are the instruments that define the role and responsibilities of the public sector

and drive their work. The consequences of these instruments have far reaching implications across different sectors of society and thus require careful consideration of their contents.

However, these instruments were found to have an inconsistent orientation to t-Government. This inconsistency was traced mainly to the conceptualisation of t-Government and the current policy environment. The current conceptualisation limits the view of ICT's to tools rather than broadening it to be viewed as part of an ensemble. The ICTs are used mainly to drive the economy. There is a deficiency in the conceptualisation of how ICTs may be used for specific ICT4D interventions. These limitations were elevated along with institutional capacity constraints, prevailing e-Government myths, new public management ideologies and economic rationality which drive a technocratic bias. Also, the lack of embedding Batho Pele values across government tiers was noted.

In contrast to this chapter which focused on the level of national government, the upcoming chapter delves into the provincial level of government in South Africa. It reflects on an ICT enabled project within the Gauteng Province towards the search for the meaning of t-Government for developing countries.

CHAPTER 5: ASSESSING THE IMPACT OF CITIZEN PARTICIPATION IN E-GOVERNMENT PROJECTS

"The most important political office is that of the private citizen."

Louis D. Brandeis

5.1 Introduction

This thesis was in search of the meaning and conceptualisation of t-Government within a developing country context. One of the central propositions is that t-Government represents a re-orientation of e-Government towards the citizen. It claimed to be in search of the voice of the citizen in the midst of all the e-Government noise. This chapter aligns to this objective of understanding the role of the citizen in t-Government. The focus is on citizen participation supporting the attainment of transformational Government ideals. The chapter sought to address the research sub-question: "*How does the existence (or lack) of the t-Government mindset affect the sustainability of e-Government initiatives".* The chapter explores the notion of citizen participation through analysing a case study from the Provincial Government level. It reviews the trajectory of the Gauteng Freeway Improvement Project (GFIP), an electronic-tolling project, based in Gauteng Province South Africa, to argue for the importance of shifting the mindset of implementers of e-Government to the concept of t-Government.

The chapter employs Actor Network Theory (ANT) to understand the roles of the various stakeholders within the project. The chapter highlights the need for public sector ICT enabled projects to move beyond a narrow focus on service delivery based on technical functionality but to also consider the service experience offered to stakeholders throughout the process of delivery, thus delivering sustainable t-Government.

5.2 Citizen Participation

The chapter begins with a reflection on the meaning of citizen participation. This is due to the overriding argument of the thesis that t-government requires the public sector to have a different view of the role and significance of citizens in the public service value chain.

5.2.1 Background to Citizen Participation

The area of public participation has seen much research and has had increasing interest from academics, governments, NGO's and practitioners alike (Rowe and Frewer, 2004). The notion of participation comprises of a variety definitions and understandings (Kotus, 2013). Public participation may be defined as "the practice of consulting and involving members of the public in the agenda-setting, decision-making, and policy-forming activities of organizations or institutions responsible for policy development" (Rowe and Frewer, 2004: 512). The idea of citizen participation is not novel and has been considered for different domains such as public administration (Yang, 2005, Coursey et al., 2012), health services reform (Tritter and McCallum, 2006), planning for development (Cornwall, 2003, Saxena, 1998), environmental projects (Luyet et al., 2012) and city planning (Kotus, 2013).

Furthermore, Luyet et al (2012) offer a synopsis of the benefits and risks of undertaking public participation. These are outlined below in Figure 24:

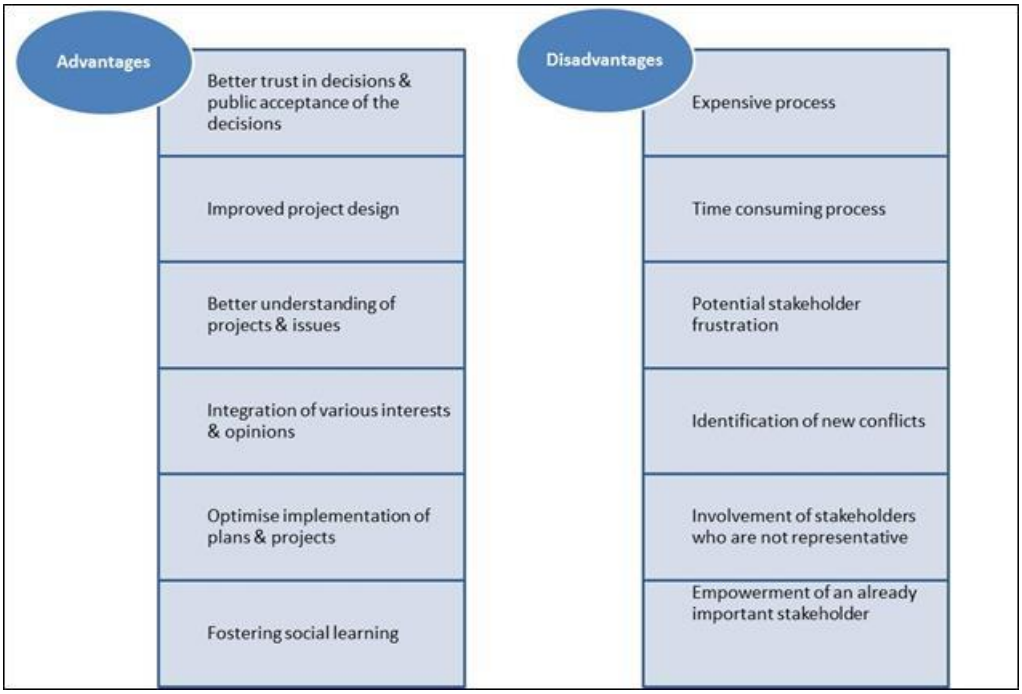

Figure 24: Benefits and Risks of Public Participation (adapted from Luyet et al., 2012)

5.2.2 Justification for Public Participation

The participation of citizens in policy discourse and implementation has been an on-going issue of concern worldwide (Collins and Ison, 2006). The reasons cited for the elevation of citizen participation includes the reduction in public confidence in the processes that formulate policy decisions and drive the implementation of public services (Rowe and Frewer, 2004). It has also been noted that citizens have less trust in the officials that have been entrusted with the process of policy decision making. Additionally it is becoming more accepted that a " non-consulted public is often an angry one" (Rowe and Frewer, 2004: 514), thus steps need to be taken to ensure citizens are involved and engaged in such processes.

A number of tools have been formulated to help in understanding public involvement in social, political, economic and other governmental processes. Due to the positioning of this doctoral study within ICT for Development the chapter focuses on the area ICT enabled citizen participation as discussed next.

5.2.3 e-Participation in the Public Sector

ICT's are recognized as tools that may enable the creation of jobs, increase income, provide access to information, enable e-learning and support electronic government (e-Government) (Bidwell et al., 2011). e-Government is believed to have the potential to change how government and citizens interact (Brainard and McNutt, 2010). Within the e-Government domain, electronic participation (e-Participation) is considered to be an essential pillar of ICT enabled governance (Ochara, 2012). The challenge is that "little is known about the extent to which government applies e-participation technology" (Feeney and Welch, 2012: 816).

Furthermore, globally, the public sector is recognizing the significance of e-Participation (Tambouris et al., 2007) and searching for ways to further engage with their constituents towards a "strengthening of the relationship known as G2C (Government to Citizen)" (Maciel et al., 2011: 3). e-Participation programmes have various purposes including: informing citizens, generating support among citizens, utilizing citizens' feedback in decision making, and exploring citizens' needs from government. e-Participation processes should have as a superseding goal, the improvement of citizen access to information and public services. This will assist in public decision making and influence the well-being of citizens and society (United-Nations, 2013).

5.3 The Relevance of e-Participation in South Africa

The services offered by public administration are complex and require a high service quality orientation. Accordingly, the South African Government has made a commitment to "Batho Pele" principles which aim at transforming the public sector through putting the citizens first in all aspects of service delivery (DPSA, 2009). The principles include: Consultation, Service Standards, Access, Courtesy, Information, Openness and Transparency, Redress and Value for Money. Thus, if we are to support the need for transformational government and the pursuit of Batho Pele there needs to be an elevation of the engagement with and e-participation of citizens. The United Nations highlights that powerful and innovative technologies can be used to progress sustainable

development efforts for all people across the world while including them in the process (UNPAN, 2012). This brings to the fore the issue of e-Participation. It is also suggested that e-Participation is a critical element in the betterment of people's socio-economic circumstances where government becomes a facilitator of information and services and not a controller thereof (UNPAN, 2012). Verdegem (2011) highlights the need to eradicate digital inequalities whilst promoting the participation of all citizens in the information society particularly those that are currently socially disadvantaged (Verdegem, 2011). Additionally, focusing on e-participation and e-inclusion can encourage social cohesion (Verdegem, 2011) through the empowerment and participation of citizens in the economy and provide "the possibility to individuals to involve and organize themselves in the information society"(Gatautis, 2010: 483).

Thus the view held through this chapter is that the call for a paradigm shift toward t-Government supported by e-participation is timely, particularly in the South African context. T-Government is therefore conceptualised not only as the use of technology in service delivery but also a radical change in the service experience of citizens (West, 2004). As argued by Irani, Elliman and Jackson (2007a) the disappointing outcomes of e-Government projects may be linked to the absence of citizen engagement and the lack of transformation of the citizen's public service experience. Thus in pursuing t-Government it is important for public sector leadership to consider the role of their manifold stakeholders in e-Government project design and delivery. This careful consideration may impact the outcomes and ultimate success of the projects.

Accordingly this chapter was centred on the following research question:

How does the existence (or lack) of the t-government mindset affect the sustainability of e-government initiatives?

5.4 Theoretical Framing of the Study: An Actor Network Perspective

In IS research one of the on-going debates is about the role of technology in the shaping of society and it is highlighted that at times when studying this role of technology it is

challenging to view technology as being as significant as people in society (Teles and Joia, 2011). The Actor Network Theory (ANT) is seen to provide an approach that allows researchers to bridge this enigma. This chapter draws on this socio-technical theory.

The basic tenets of ANT are that the world as we know it is constituted of social (human) and technical (non-human) elements and neither of which is more important than the other (McLean and Hassard, 2004). The non-human elements are created by human beings and are known as "artefacts". Both the human and non-human elements are seen as actors contributing to the formation and functioning of diverse networks in society. The difference between humans and non-human elements within ANT is that humans are seen as empowered with intentionality; while objects are not (Andrade and Urquhart, 2010).

Thus ANT has proved to be useful to IT research problems particularly those focused on understanding how the IT artefact which is created by humans influences the functioning and structures of society and how in turn this influences how humans design, deploy and use IT systems. Various IS researchers have used ANT to tackle a myriad of research problems such as an investigation into issues of privacy of data within management information systems (MIS) (Bonner et al., 2009); the assessment of the irreversibility of a Kenyan e-Government project (Ochara, 2009); the review of an ICT4D project in Peruvian Andes rural communities (Andrade and Urquhart, 2010); the evaluation of the implementation and adoption of an electronic health records system (Cresswell et al., 2011); and the assessment of digital inclusion in a municipality setting (Teles and Joia, 2011) to highlight a few examples.

5.4.1 Central Tenets of Actor Network Theory

The key concepts within the ANT are inscription, translation, problematisation, interessment, mobilisation, enrolment, obligatory passage points (OPP), and irreversibility.

Inscription is the construction of artefacts that reflect the main actor's interests.

Translation is the creation of the network. Essentially the main actors based on a specific vision would begin a process of creating a network that would serve their interests and this network would ideally have actors that agree that the network is valuable and that it should be created and supported or in other words "the translation process is a negotiation between actors about what the focus of the actions that the network will execute is" (Teles and Joia, 2011:193). It is through this negotiation that interests are aligned. The translation process is dynamic, and different groups of actors vie to establish their vision and solution for the problem (Rhodes, 2009). There are four moments of Translation represented by Problematisation, Interessment, Enrolment and Mobilization.

Problematisation refers to the process through which the actual problem is highlighted (during the translation phase) and a solution or vision for the network is created (Alcouffe et al., 2008). Actors define the problem in such a manner that other actors in the network identify with this problem as their own.

Interessment is also part of the translation process and it is essentially about raising the interest of other actors in the vision or project. Actors find mechanisms of locking allies into the problematisation (Rhodes, 2009).

Enrolment is when the various actors within the network begin showing their acceptance of the new vision or project. Also technical artefacts are produced and consolidated such that they secure the dominant interests of the main actors (Teles and Joia, 2011, Heeks and Seo-Zindy, 2013). Enrolment results in "black boxes" which are essentially things within the networks such as method, concept or even an institution that are entrenched and are not questioned (Teles and Joia, 2011). Enrolment happens on the basis of successful problematisation and interessment.

Mobilisation involves the on-going analysis of the various interests to ensure that they remain generally constant and have stability (Alcouffe et al., 2008, Haque and Mantode, 2013). The network is mobilised when there is a solid representation of the masses within the network and actors in the network become spokespeople for the vision (Dery et al., 2013).

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

An **OPP** is a component of the network where the main actor, has a situation where all the actors in the network accept the roles defined by the main actor and therefore all actors are supportive of the vision of the network. OPP's are the way in which "an actor-network makes its interests imperative for other actor-networks in the quest for their own goals" (Teles and Joia, 2011:193).

Irreversibility represents the point of no return when the actors in the network are unable to choose other options and are thus locked in the network (Ghazinoory and Hajishirzi, 2012).

5.4.2 Critiquing Actor Network Theory

Various criticisms have been directed at ANT including that the theory is a "flat ontology" and thus has no pre-existing layers (such as 'structure' and 'agency') (Greenhalgh and Stones, 2010). ANT is said to pay little attention to wider macro-environmental factors. Some scholars view it as not going beyond a description of social phenomena (Cresswell et al., 2011). The theory is also accused of reducing people to be equal to things whereas people have desires, emotions, and motives (Greenhalgh and Stones, 2010). It fails to take into account that human and non-human actors are different in that each have a history that has shaped them. It is also highlighted that there is difficulty in defining the boundaries of the network since any given network is indefinite (Cresswell et al., 2011). Furthermore, some view it as being overly goal directed and may ignore the unique factors that influence the development of the network (Andrade and Urquhart, 2010)

Despite these limitations, ANT's was seen to still be applicable to the study. As Greenhalgh and Stones (2010) highlight ANT has an "emphasis on the dynamic and relational aspects of a problem and it is a useful lens for studying nonlinear change and the unintended outcomes of technology projects" (Greenhalgh and Stones, 2010 : 1288). The discussion on its applicability is expanded on in the upcoming section.

5.4.3 Applicability of Actor Network Theory

ANT was deemed useful and appropriate for this study since ANT affords flexibility to the researcher, who has no a priori definition of who the actors in the study are (Teles and Joia, 2011). It allows for an open approach to the research process without presumptions since it encourages one to focus on "following the actors" and see what insights and meanings are brought to the fore regarding the network, its actors and roles of the actors. ANT also allowed the researcher to move away from a technical perspective of the research problem and rather apply a more dynamic, holistic and interdisciplinary view to address IS research problems. ANT allowed the researcher to understand the diffusion of transformational government and more importantly understand it within the context it occurs since one cannot divorce the context from the process of translating technology into society (Alcouffe et al., 2008). The research problem was also complex and non-linear and thus ANT with its insistence on the socio-technical conciliation is able to help the researcher understand the trajectory of transformational government from the past to the present (Bonner et al., 2009).

ANT can help IS researchers in variety of ways including: "understanding the spoken and unspoken rules within the network; the degree to which various actors are in fact in agreement with the vision for the network; understanding the key purpose of the network (beyond technology application); highlight other critical non-human elements other than just ICT" (Andrade and Urquhart, 2010). It can also highlight unintended outcomes of a project that may have not been anticipated by implementers (Greenhalgh and Stones, 2010). Within the e-Government domain specifically, there are several examples of ANT research: (Ochara, 2009), (Heeks and Stanforth, 2007), (Hardy and Williams, 2008), (Andrade and Urquhart, 2010). In this chapter ANT was utilised to understand the processes of delivering a project by illuminating the areas of construction, development, and stabilisation of the network within a t-government initiative.

5.5 Research Methodology

The study was qualitative in nature. It was essentially aligned to the intensive empirical procedures of critical realist based research (Danermark et al., 2002). In relation to the overall South African e-Government case study, this chapter was an embedded unit of analysis at the level of provincial government. This study was concerned with understanding the trajectory of a public sector technology project.

5.5.1 Data Collection Procedures

This study used secondary data. The study assessed documents, websites, media reports and other materials related to the project that was published since its commencement. A cut-off point for data collection was applied in November 2014 for the purposes of the doctoral thesis finalisation.

5.5.2 Data Analysis Procedures

The data that was collected was mainly textual and was analysed qualitatively. A deductive, thematic analysis was selected due to the objective of the study which was to understand South African government's e-Participation orientation towards t-Government. Thematic analysis was employed due to its flexibility and applicability in different theoretical contexts. The analysis was driven by the researchers' theoretical (i.e. ANT) or analytic interest (Braun and Clarke, 2006). ANT enabled a process of "following the actors" to assess their role and consequences of their actions on the project.

The study leaned on four ANT discursive practices namely Problematisation, Interessment, Enrolment and Mobilisation. The first is the concept of Problematisation, in which the conceptualization of a problem and its solution is viewed through a certain focal actor as the 'obligatory point of passage'. Secondly, the concept of Interessement is employed to show how stakeholders entice other stakeholders to fit their program of activities. Thirdly, how Enrolment is employed by focal actors to define and coordinate

the roles of other actors; and lastly, the use of Mobilisation as a way to attain visibility for representing stakeholder groups.

The four discursive practices (Problematisation, Interessement, Enrolment and Mobilisation) were used as part of a qualitative theoretical thematic analysis procedure to analyse policy documents, speeches, project documents and other sources of information on the e-toll system in South Africa.

5.6 Case Study Background: The Gauteng Freeway Improvement Project

The Gauteng Freeway Improvement Project (GFIP) is an e-Government project that was launched by South Africa's National Department of Transport (DOT). The project which was initiated in 2007 under the auspices of the South African National Roads Agency Limited (SANRAL) (SANRAL, 2014). The main objective of the project was to upgrade the road infrastructure which was deemed to be important towards the attainment of economic growth, social development, boost in tourism and the creation of economic opportunities (SANRAL, 2014). SANRAL delivered the upgraded road network through a combination of investments from the DOT and debt finance. The organisation employed a user-pay policy as a mechanism of addressing the debt finance. This manifested as an electronic open road tolling system (e-toll) that was set up in 2010.

5.6.1 Overview of Electronic Tolling

The e-toll system (known as an intelligent transport system - ITS) is comprised of a myriad of technologies such as closed circuit cameras, billing information system, e-tags based on radio communication and variable message sign boards (SANRAL, 2014). SANRAL has opted to utilise open road tolling where motorists are not expected to stop at a tolling booth to pay for their trip but rather rely on e-tags to electronically charge a motorist (SANRAL, 2012). This has been dubbed the "user-pay" principle where you pay as and when you utilise the roads.

There are benefits and challenges to using the e-toll system as outlined below:

Table 24: Advantages and Disadvantages of E-Tolling ITS System (Hommes and Holmner, 2013)

Advantages	Disadvantages
Reduced traffic delays through assigning priority traffic during rush hour	High deployment costs and funding restrictions
Better accident response time	Political challenges that come with changes of political power
Up-to-the-minute travel information via Variable Message Signs (VMS)	Unauthorised access of control systems
Reduction in the number of fraudulent license plates on the road	The accessibility of potentially sensitive data about individuals such as license and registration information that includes identity numbers
Reduction in crime such as car and identity theft	The ability to track an individual's movements and liability concerns with regards to violation of constitutional rights, such as the right to privacy

5.6.2 Rationale for Electronic Tolling

The theoretical motivation for starting an e-tolling initiative is typically linked to two main reasons: the first is the problem of congestion on roads and the interest is to increase transportation costs on some roads or to compel a percentage of road users to shift to uncongested roads in order to dampen demand in some roads (Ferrari, 2005). The imposition of congestion tolls is linked to the works of Beckmann, McGuire, & Winsten (1956) who argued that capacity constraints on some road network links are inevitable as a basis for defining road tolls in such a way that they give rise to an equilibrium traffic flow pattern in the road network. However, part of the requirement for the imposition of the road toll to ensure road decongestion is either the development of alternative routes or the existence of other options for the road users.

The second motivation for road tolling is related to the desire to recover maintenance and improvement costs incurred in some road networks because it may not be possible to rely exclusively on public financing (Ferrari, 2005). The imposition of the road toll is justified on the basis that if construction of the road is by public funds, then the funds

have to be obtained by levying taxes, which typically results in the loss of social welfare (Rosen, 1985). The increasing use of road tolls to finance transportation infrastructures has become increasingly popular as governments realize that public financing is unsustainable, despite the negative effects on social welfare (European Commission, 1998).

Therefore, e-tolling is linked to the fact that road tolling is a form of financial instrument for road construction and maintenance (Waersted, 2005, Leromonachou et al., 2006) as well as the use of road tolling as an efficient tool for transportation management (Albert and Mahalel, 2006). While many citizens and other stakeholders believe that the public sector should provide increased road capacity to ease traffic congestion, financing the additional capacity is normally inadequate, thus governments resort to road tolling as one form of financing (Li and Hensher, 2012). Therefore, the use of e-tolling is based on government using technology to ensure the efficient collection of toll charges for both congestion management as well as maintenance and improvement of roads. In assessing e-tolling as a tool for realizing automatic road user charging, the e-toll systems need to be designed to meet the technical objectives, the objectives of the designated geographical area and the optimization of the public and political acceptability to ensure the success of the project (Saleh and Farrell, 2005). This chapter focuses on the latter perspective, that is, how the optimization (or lack thereof) of the public and political acceptance is impacting the sustainability of the e-toll road system in the Gauteng Province of South Africa.

5.6.3 Case Significance and Relevance

The GFIP as an e-Government project is significant, not only due to the size and cost (approximately R29 billion in debt finance raised) of the project but also because of its potential impact on South African citizens. Furthermore, the project is based within the economic powerhouse of South Africa- Gauteng Province. The Province has the highest population of citizens, it contributes the largest portion to the country's GDP (STATSSA,

2014a) and subsequently has the highest number of road users. The proposed e-toll system has attracted much debate, opposition and attention from various stakeholders.

Due to its high profile it has also enticed various academic studies. For example the project has been studied from a variety of perspectives including: moral disengagement perspective (Naidoo, 2013), information ethics (Hommes and Holmner, 2013), equity impact (Venter and Joubert, 2013) and public administration (Tsheola, 2013). This chapter reviews the project from a citizen participation perspective.

5.7 Project Actors

The main actors (human and non-human) identified in this project were as follows:

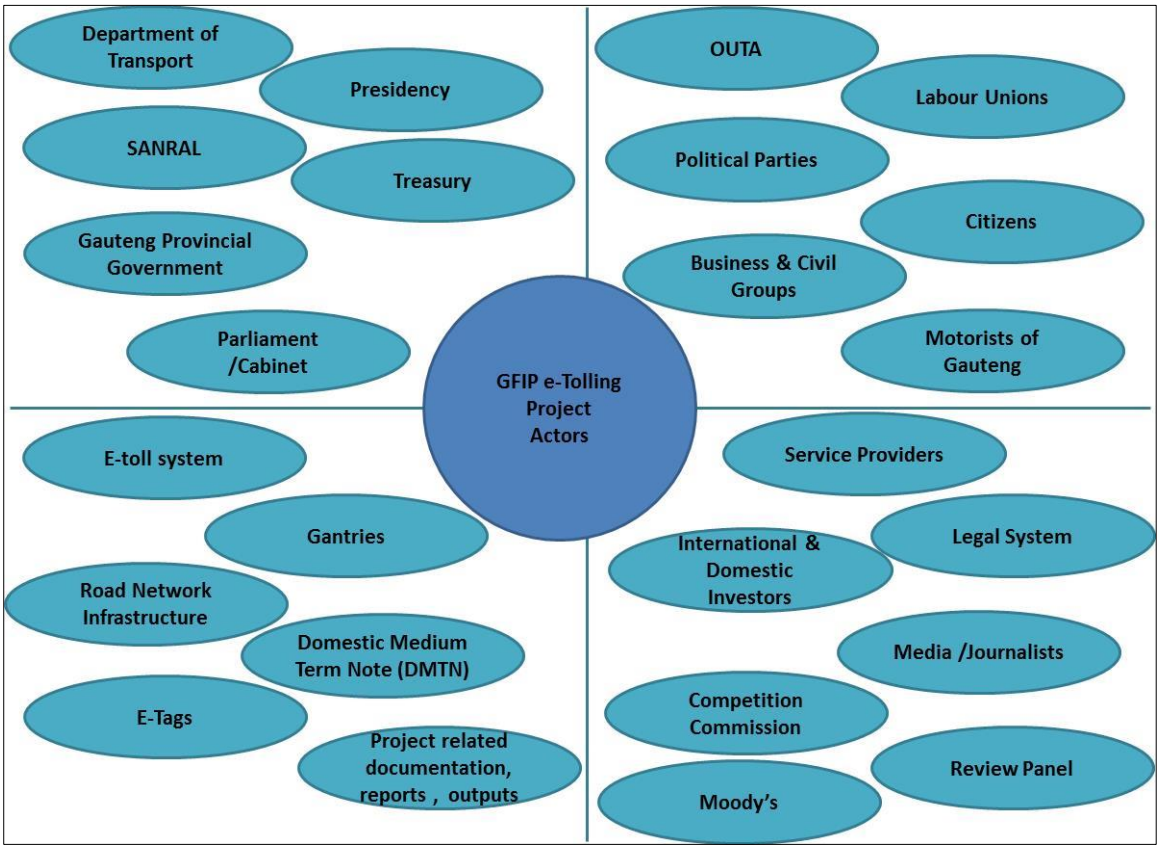

Figure 25: Project Actors

ANT employs the concept of global–local networks framework to trace an IS adoption process. Within this the network, global actors are perceived as those actors possessing and asserting resources and power over other actors. Local actors are those that are receivers and power is asserted over them (Callon and Law, 1992). Within the GFIP this global-local network framework is used to highlight events within the project and how these possibly impact the sustainability of the GFIP. The global aspect of the network refers to the resources provided to the project such as funding, technical expertise and political clout (Heeks and Stanforth, 2014). The global network is viewed as being external to the project. The local network comprises of the implementers of the project and its associated designs, artefacts and documentation. This network is viewed as internal to the project. The two networks interact through the progression of the project. The success of a project also depends on how global actors obtain resources and how local actors utilise resources provided to them for the objectives of the project (Heeks and Stanforth, 2014).

The actors are further expanded on below:

Table 25: GFIP Actors

Actor	Project Role	Potential Interests in the GFIP Project
Government Related Actors		
Department of Transport	Designer	Craft equitable transport policy
SANRAL	Designer	Ensure implementation of e-toll policy and system
Treasury	Designer	Provide government funding Ensure viability of the project
Presidency	Designer	Provide political support Ensure viability of the project
DMTN	Designer	Reduce financial impact on motorists Obtain additional funding Gain legitimacy from citizens
Gauteng Provincial Government	Designer	Economic growth of South Africa's economic powerhouse Maintain political support for ANC led provincial government
International Institutions/ Service Providers/ Other External Parties		
Service providers	Designer	Gain contracts Profit maximisation
Moody's Investor Services	Designer	Elevate credibility of SANRAL actions
Investors	Designer	Return on investment
Legal System	Designer	Promote and protect social justice and human rights Responsible and accountable justice for stakeholders involved
Competition Commission	Designer	Reduce restrictive business practices that may jeopardise the equity and efficiency of the South African economy

Actor	Project Role	Potential Interests in the GFIP Project
Media	Designer/ User	Disseminate claims about the project
Review Panel	Designer	To undertake a comprehensive assessment of the socio-economic impact of the introduction of the Gauteng Freeway Improvement Project in general and the e-tolls in particular on the economy and the people of Gauteng Provide recommendations to Gauteng Premier
Users/ Other Stakeholders		
OUTA/ Civil Groups	Users	Efficiency in deliveries Avoid additional transport costs
Citizens/Motorists	Users	Avoid additional transport costs
Political Parties	Designer/ Users	Align with popular sentiments Win credibility with citizens for political mileage
Labour Unions	Designer/ Users	Avoid costs to workers Align with dominant and popular stakeholders
Other Non-Human Actors		
e-Toll System	Designer	Inscribes the vision of implementers of GFIP
Technical and road infrastructure	Designer	Enabler of the vision of implementers of GFIP
Project related documents and research reports	Designer	Disseminate claims about the project Rationalise GFIP

The analysis above identified the major stakeholder groups and their goals in the e-toll project. The formation of SANRAL in 1998 formed the basis from which to analyse how subsequent stakeholder actions and their consequences are likely to affect how the GFIP E-Toll project is likely to 'pan out'. It has also shown that there is a category of actors largely considered as 'global' and is mainly comprised of actors that designed the e-toll funding structure. The Global actors are for instance the DOT driving a particular transport policy, the Presidency providing political leadership and investors that support the SANRAL funding instruments. Local actors comprise of the political parties that indicate that they are fighting for citizens' rights. Also civil society groups such as OUTA that have come out as driving the plight of motorists as well as the media that provides a voice for the various perspectives of global and local stakeholders.

5.8 Timeline of Key Project Milestones

Research utilising ANT should reflect the story of a particular project over a period of time (Heeks and Stanforth, 2014). A timeline of key project milestones is captured in the next section.

Table 26: GFIP Project Milestones

Year	Milestone Description
2004	• SANRAL granted jurisdictional mandate to address Gauteng Province road upgrades.
2008	• Cabinet approval of the 187km road upgrades to freeways.
2008 – 2011	• Construction of freeways • Objections to e-tolling raised by various business, civil society groups, labour unions and political parties.
2011	• GFIP steering committee setup in April to engage with various stakeholders and assess objections to e-tolling. • Committee announces in June that e-tolling would continue with reduced tariffs despite objections. • Two launch dates for e-tolling are postponed and both missed. • Public consultations and a drive for E-Tag registrations are undertaken.
2012	• OUTA- Opposition to Urban Tolling Alliance launched in February. • SANRAL announces a new launch date of April 2012. • OUTA makes an application in April to legally challenge the lawfulness of e-tolling – the interdict is obtained to halt e-tolls and conduct a judicial review. • DOT agrees to postpone launch by a further two months. • May 2012 CEO of SANRAL tenders resignation while a national government inter-ministerial committee led by the deputy president is setup to conduct yet another consultation process. • CEO withdraws resignation after being convinced to stay. • Government/SANRAL applies to the constitutional court to overturn interdict obtained by OUTA. • Constitutional court agrees with SANRAL and overturns the interdict but indicates that a judicial review may proceed. • SANRAL argued in court applications that it was ready to start the e-tolling within two weeks but delayed the actual launch by over 12 months. • SANRAL obtains permission from the high court in November to stop OUTA's request for a judicial review.
2013	• OUTA's appeal is heard in the high court. The punitive costs that were ordered against OUTA are overturned but court finds that it cannot rule on arguments on the alleged unlawfulness of e-tolling. • OUTA decides to not pursue the legal route further since it cannot match SANRAL's strategy of litigation due to limited funding. • Competition Commission investigates and exposes collusive practices of the construction companies which impacted negatively on the price of GFIP • e-Tolls system is launched in December 2013

Year	Milestone Description
	• SANRAL runs multi-million rand marketing campaign
2014	• It appears that the majority of Gauteng motorists have not registered for the e-Toll system (39% have registered for e-toll tags) signalling a rejection of the system. • SANRAL continues with the multi-million rand marketing campaign. • Citizens report bullying tactics from SANRAL through sms, email and postal messages coupled with roadblocks. • SANRAL mentions in June it is looking at legal summons to be directed at motorists that are using the roads but refusing to pay. • New Gauteng Premier announces in state of the province address of June 2014 that the Provincial Government would set up a panel to assess the socio-economic impact of e-tolls in Gauteng. • GFIP e-toll review panel was setup in July and would run until November 2014 to find a "lasting solution" and make recommendations to the Premier. • The review panel chairperson submits a report to the Premier in November 2014. The Premier indicates that the contents of the review panel report would be announced in early 2015 along with the decision on the future of e-tolls.

5.9 Network Analysis: Impact of Key Project Decisions

Linked to the understanding of the chain of events on a project is an assessment of the impact of key decisions on the enrolment of actors. The table below offers a view on the main decisions of the project that influenced the project trajectory. The strengths of the two networks (local and global) may be traced as a project progresses. This is done through a network analysis process. The changing strength of the global and local networks over time is plotted on a two-dimensional graph, where the *x* axis indicates the degree of the local actors' mobilization, and the *y* axis outlines the degree to which global actors are attached (Callon and Law, 1992, Heeks and Stanforth, 2014). The intention in undertaking a network analysis is to establish the *stability* of the emergent e-toll network, since stability assumes that the project effectively enrolled and *mobilized* various actors (stakeholders and other non-human actors). A high placement on an axis indicates that a large portion of the actors have been translated and therefore support the project (globally) or that local actors are participating freely in the project with very few of them deviating from the project (Heeks and Stanforth, 2014). As Callon and Law

(1992:46) indicate a project is deemed successful and sustainable if three principles are met:

- 'the capacity of the project to build and maintain a *global network* that will for a time provide resources of various kinds in the expectation of an *ultimate return'*,
- 'the ability of the project to build a local network using the resources provided by the global network to ultimately offer a material, economic, cultural or symbolic return to actors lodged in the global network',
- 'the capacity of the project to impose itself as an obligatory point of passage between the two networks'.

The following table highlights the pertinent project decisions and their influence on the global-local network.

Table 27: Project Decisions and Impact on Enrolment

Decision	Local Consequences	Global Consequences	Resultant Impact on Enrolment
A. Establishment of SANRAL; Adoption of road tolls Strategy	Local point of focus for Transport Debate	Support from International Partners	*Major (+) GA;* *Slight (+) LA*
B. Cabinet Approval for GFIP; SANRAL Adverts and Intention to Toll	Mobilization of Local Support ; Increasing visibility of SANRAL	Increased GFIP Visibility; Legitimization of International partners	*Moderate (+) LA;* *Major (+)GA*
C Awarding of Contracts and the beginning of the installation of Gantries	Increasing media and public focus on SANRAL; Failure to consult remains a 'sticky' issue; rationalization of GFIP using studies; increasing public awareness	Increased legitimization and mobilization by international partners; Positive Credit Rating by Moody's	*Moderate (+) LAs* *Major (+)GA*
D. Dropping of SANRAL's Credit Rating; Intervention by the Treasury	Questioning of SANRAL Funding model ; Pressure for tariff reductions/E-Tag Registrations	Support from international partners wanes as credit rating drops	*Major (-) GAs;* *Major (+)LAs*
E. Court Interdict and legal action	Challenges to e-Toll	Show of power among different government entities	*Major (-) GAs;* *Major (-)LAs*
F. Establishment of Gauteng Province Review Panel	Increased defiance of e-toll by motorists.	Future funding in question; increasing discordant voices within government	*Major (-) GAs;* *Major (-)LAs*

Decision	Local Consequences	Global Consequences	Resultant Impact on Enrolment
	Complexity of e-toll becomes increasingly evident.	and ruling party	

The network analysis diagram is outlined in Figure 26 below:

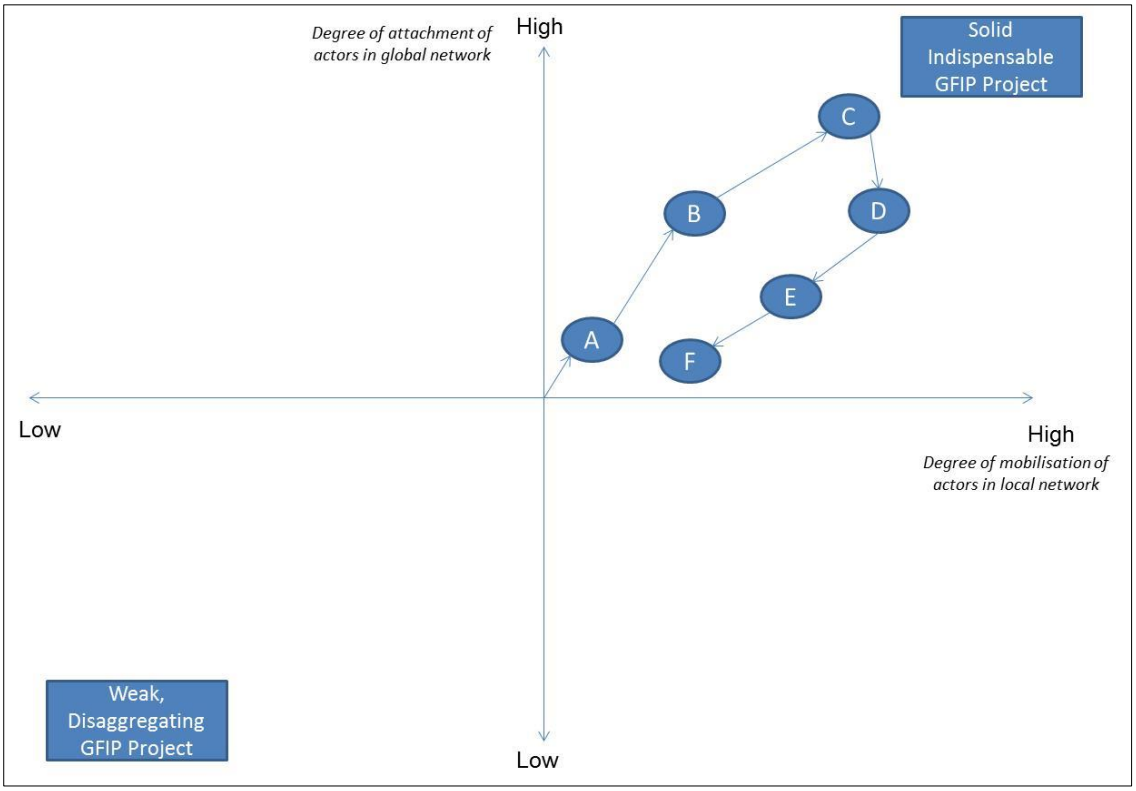

Figure 26: Network Analysis Diagram

5.10 Discussion of Findings

The following section elaborates on the findings of the analysis and also links these to the network analysis diagram.

5.10.1 Problematisation

During problematisation the main actors define the problem in such a manner that other actors in the network identify with this problem as their own. In the case of the GFIP,

problematisation began with the establishment of SANRAL (Network Analysis–**A**) which was to become the Department of Transport's main driver for the maintenance of South Africa's ailing road network that was failing to keep up with the country's growth. SANRAL's strategy for road maintenance included the acquisition of additional funding from external parties other than their allocated Treasury budget. Their strategy was further approved by Cabinet in 2008 (Network Analysis–**B**). Another part of the problematisation phase was SANRAL's launch of a Domestic Medium Term Note (DMTN). The DMTN is a finance instrument that allows for flexibility in raising finance for toll-road construction. The DMTN program was supported by credit ratings issued by Moody's Investors Service in 2008; which allowed SANRAL to secure finance and begin construction. This bolstered SANRAL's vision for road upgrades in the eyes of various local and global stakeholders. The problematisation phase also resulted in SANRAL (with the support of DOT) becoming the focal actor in the formation of the GFIP network. It is interesting to note that SANRAL is responsible for national roads however in 2004 it obtained jurisdictional mandate to upgrade some provincial road networks in Gauteng (Clarke and Duvenage, 2014). This essentially created SANRAL as an Obligatory Passage Point (OPP) for the GFIP project.

5.10.2 Interessment

Interessment is the employment of various mechanisms to raise the interest of actors in the project. As Callon (1986) highlights interessment may fail when actors in the network believe that their views and interests have been ignored or compromised.

Within the GFIP project the focal actors (SANRAL) used a variety of tactics to try and ensure that different actors in the network accept the road upgrades and the subsequent e-toll strategy to pay for them. One way of enticing support was through the attainment of credit ratings for the DMTN instrument from credible organisations such as Moody's that would attract local and international investors and further legitimise the project. Another way in which actors were enticed was in the manner in which the project was implemented. The project was implemented using a phased approach. In phase 1

SANRAL focused on the physical road upgrades (Network Analysis–**C**) for 185km of road network covering the N1, N3, N12 and R21 routes (SANRAL, 2012). The upgrades of the roads were welcomed by citizens since the changes did positively benefit them. This phase was then followed by the introduction of the e-tolling system based on e-tags (Network Analysis- **B**). The benefits of the new roads were used as motivator for why e-tolls should be accepted. For example the Department of Transport (2012) indicated:

> *"The improvements have been made and the benefits of these improvements are being enjoyed by road users. […]. Therefore, the funding of this project through the "user-pay" principle is required. This is an equitable way of funding the project, since the benefits will be enjoyed by those who pay for it."*

So, one of the oft used claims made by the government and its agencies to "entice" other stakeholders is to make the claim that e-tolling needs to be accepted because citizens are enjoying the fruits of the project. Additionally the president of the country has also come out in support of the project in various public speeches. In one report the president indicated that the e-tolls had been adopted legally and thus citizens should comply (Ephraim, 2013):

> *"Once the court says this is our decision, as citizens we should abide by it."*

SANRAL further tried to entice stakeholders by using research outputs from third parties to bolster their argument and vision for an intelligent transport system funded through e-tolling. The organisation commissioned a report by Standish, Boting and Marsay in 2010. The report stressed that the current road network was compromising the economic growth potential of the province. Further to this it positioned e-tolling and the user-pay system as an equitable way of funding the upgrades (Hommes and Holmner, 2013).

However, those who dismiss these arguments and oppose the e-tolling system counter that commuters cannot be penalized for using the road network covered under the e-tag system, yet GFIP, far from adopting a "user – pays principle" will be another example of taxation of the Gauteng economic heartland to finance the rest of the country. Part of the argument being advanced is that Gauteng province, where the e-toll system is being implemented is currently responsible for 50% of all personal taxes with only 20% of the

population. It is also highlighted that Gauteng contributes significantly to the country's GDP; over half of the nation's research and development is conducted in the province and 75% of the Gauteng province's tax contribution goes to the national treasury thus supporting all other provinces (Clarke and Duvenage, 2014).

Furthermore, the widespread culture of non-compliance is likely to lead to many motorists avoiding the e-toll routes, which is likely to increase the risk of damage to the few alternative routes that exist (Deloitte, 2011). In addition, if the rationale for road upgrades and improvements was partly hinged on traffic congestion, then SANRAL should have spent greater effort in developing alternative routes, which in their current state are likely to be depressed as motorists try to avoid e-toll charges, rather than having seemingly had a singular focus on penalizing users based on the "user – pays principle". SANRAL instead spent efforts on raising the profile of the GFIP project through a marketing and public relations campaign. Their efforts have however not always received a positive response (Tubbs, 2013):

> *"The SA National Roads Agency (Sanral) has been running a marketing campaign touting e-tolls on Gauteng's roads as pleasantly inexpensive, but opposition to the system says recent newspaper adverts are a "pathetic attempt" to hoodwink the public".*

The National Government has tried to garner public support by reducing the tariffs payable by motorists, extending the grace period for payments and increasing their investment in SANRAL (7am News Network, 2014, Clarke and Duvenage, 2014). Public transport, taxis and buses were also exempted from paying e-tolls in the hope to appease the argument that the poor would be hardest hit with transport price increases due to e-tolls. The office of the Presidency countered this during a speech (GCIS, 2014b):

> *"In October last year, the Transport Laws and Related Matters Amendment Act, 2013 came into operation to facilitate the collection of tolls and the implementation of the electronic toll collection system on Gauteng roads. President Jacob Zuma signed the Transport Laws and Related Matters Amendment Bill into law on 21 September 2013. The tolling, like all other measures that add to the already existing financial commitments of consumers, has been met with some uneasiness and unhappiness. Some bits of information that are important for consumers to know appear to have*

not found way into the public domain in a visible way. One is that workers travelling in buses and taxis are exempted from e-tolls. These modes of transport pass through the gantries free of charge. Transport services in South Africa are ably supported by the minibus taxi industry, ferrying about 60% of the population in Gauteng daily. They form an integral part of the integrated transport system value chain…" (GCIS, 2014b)

5.10.3 Enrolment

When the various actors within the network begin showing their acceptance of the new vision or project they are enrolled. From the data analysis it was found that there were various degrees of enrolment throughout the GFIP network. There are actors that have aligned to the new vision and accepted the project. However, there are actors that have failed to enrol despite various strategies employed by the main actors to entice them during the process of interessment.

SANRAL has provided different reports on the statistics regarding the motorists that have registered for e-tags. However, opposing reports indicate that 60% of motorists have not complied with the call to purchase e-tags (Clarke and Duvenage, 2014). This reflects an inconsistency of enrolment among the potential user group of Gauteng motorists. However, those that have purchased tags even if it is due to believing that they have no option are considered to be enrolled. Furthermore, actors such as the physical gantries (Network Analysis–**C**) that are highly visible on the freeways further entrench and enrol the idea of e-tolling in the minds of motorists and other stakeholders.

Also, while SANRAL and other actors who have supported the design of the e-toll system advance the argument that the road improvements and upgrades that have been undertaken make it inevitable for the enactment of e-tolling charges, discordant voices inside the government itself are voicing different opinions indicating poor enrolment (Clarke and Duvenage, 2014). For example, while it is normally assumed that under collective responsibility, the government tri-partite alliance of the African National Congress (ANC), Congress of South African Trade Unions (COSATU) and the South African Communist Party (SACP) would adopt a common position on the e-toll saga, evidence suggests the contrary.

For instance, SACP claims that the new e-tolling system will cause the prices of commodities and public transport to rise, especially due to the fact that working class communities mostly make use of public transport (Graham, 2012). This state of affairs would further be exacerbated since SANRAL did not make any improvements to the alternative routes, for motorists who would want to avoid e-tolling charges. COSATU the largest labour movement federation also strongly oppose the e-tolling strategy. On the launch of the system the General Secretary of COSATU urged the public to stop the "economic apartheid" that would result from e-tolling (Vavi, 2013):

> *"Today is one of the saddest days in the post-apartheid history of our country: As a law-abiding citizen of a free and democratic South Africa, I find myself in the untenable position of having to ask fellow South Africans to join me in defying the government's opportunistic introduction of e-tolls. I have offered my name and reputation to the cause of using civil disobedience to dismantle the gantries that have become an affront and eye sore to the millions of the working-class poor. As the gantries go live this morning, I want to reiterate the reasons why I'm not buying the e-tags…"*

The SACP also claims that there was a poor consultation process, yet according to SANRAL and the Department of Transport, consultation has been ongoing since the inception of the GFIP in 2007 (GCIS, 2013b). The minister further reiterated this at the launch of the e-tolls:

> *"…the above-mentioned concessions are proof that Government did listen to the concerns of our citizens and tried to mitigate the impact of e-tolls. Amilcar Cabral could have had in mind those who say Government did not listen to the issues raised when he said: "Tell no lies, claim no easy victories." Government did listen and it did respond."*

Furthermore COSATU and the Democratic Alliance (DA), the official opposition party, also questions the credibility of the Swedish and Austrian companies involved in the supply of the e-toll system, as well as the secrecy surrounding the award of contracts (Cohen and Wild, 2012) which points to a lack of credibility in the network and particularly in the main actor negatively influencing enrolment.

The legal battles between SANRAL and OUTA have also served to influence the enrolment of actors in a negative manner (Network Analysis- **E**). Although SANRAL eventually obtained a court order allowing them to continue with the implementation of e-

tolling the process has highlighted SANRAL's failure to consult and increased challenges to the project in the minds of local actors.

The use of DMTN as a possible tool being used by SANRAL, in conjunction with the Ministry of Finance, to 'prove' that viability of road maintenance and financing is possible through public – private partnerships, yet SANRAL's and Treasury's actions of underwriting the DMTN instrument using 20 billion rand from the social welfare fund has been condemned as risky. Thus, while DMTN is positioned by the government and SANRAL as a viable mode of financing for road e-tolling, its intended consequences of 'enticing' user enrolment is actually negative with various local civil society organizations and other discordant voices within the government itself voicing concerns over the underwriting of DMTN using social welfare. The launch of DMTN may have had a major increase in the enrolment of global actors (such as investors for obtaining financing for E-Tolls), but it had a minimal impact on local actors.

SANRAL's response to this ailing enrolment has been interesting. As the Opposition to Urban Tolling Alliance (OUTA) laments (Clarke and Duvenage, 2014):

> *"Sanral's multi-million rand advertising campaign throughout 2013 and 2014, coupled with an offensive SMS, postal and PR messages to intimidate non-tagged users with threats of criminal records and roadblocks, appeared not to have had the desired effect of driving compliance to the volumes required by Sanral."*

Thus it appears that SANRAL's enrolment of actors in the network has not been effectively achieved.

5.10.4 Mobilisation

This involves the on-going analysis of the various interests to ensure that they remain generally constant and have stability. In the GFIP it is evident that the different stakeholders' interests have not aligned to fully support the vision for an Intelligent Transport System in Gauteng province.

For instance, the government's ruling party, the ANC, Gauteng region has publicly denounced e-tolling since suffering at the elections polls of April 2014. The ANC in Gauteng appeared to have adopted a similar stance to the opposition party (Network Analysis- **F**), the Democratic Alliance and civil groups like OUTA in their submissions to the e-toll review panel. This shows an internal rift within the political organisation regarding the e-toll implementation. This is telling since it is the ANC government that designed and legislated the system. However, the leadership of the ANC Gauteng were careful not to directly oppose the Minister of Transport indicating that multiple solutions should be found for the e-toll challenge (Hunter, 2014).

Thus, the stakeholder interests of this network have fully not stabilised and the network stability continues to be under threat. The recent launch of the GFIP review panel supports this view. The panel was set up by the Gauteng Premier to assess the socio-economic impact of e-tolls in Gauteng (GCIS, 2014a). The review panel was triggered by the on-going sentiment that citizens, business and civic organisations had not been adequately consulted about the project. SANRAL has been accused of poor communication and only consulting "after the fact" in an attempt to pacify public anger on the issue (Clarke and Duvenage, 2014). The submissions to the review panel came from different actors while SANRAL, the main actor, originally refused to make any submissions to the panel seemingly perhaps in an attempt to reduce the credibility of the process. However, SANRAL did change their mind and made submissions at the last stages of the review. During their submission they highlighted that the review panel was further deteriorating investor confidence in the organisation (Network Analysis- **D**) and thus impacting on their ability to raise funds for future projects (Gernetzky, 2014). At the writing of this chapter the review panel was yet to conclude and make recommendations to the Gauteng Premier on a potential solution for the e-toll matter.

However, the government has also continued to realize that the approval for the GFIP and e-tolling strategy that was granted in 2007 was possibly a mistake (PMG, 2012):

> *" […] I have said that if we could re-wind the clock back to 2007, we would not recommend embarking on this project at all. We have made that very clear. (Pravin Gordhan, Minister, Treasury Department)."*

And possibly the only reason that the government is unwilling to change their views on the e-toll issue is because (PMG, 2012):

> *"However, alas! There is a R20 billion debt. It has been incurred on Phase A1, which is about 180 kilometres of what was projected to be, let's not forget, more than 500 kilometres of e-tolling (Pravin Gordhan, Finance Minister)."*

Regardless, the project has not managed to fully mobilise the different stakeholders. Indeed the assessment fails to show a solid representation of the masses within the network. Additionally, very few actors in the network (other than SANRAL and national government) have become spokespeople for the vision. It appears that actors are mainly spokespeople for an alternative vision for the transport requirements of the province.

5.10.5 Irreversibility

Irreversibility represents the point of no return when the actors in the network are unable to choose other options and are thus locked in the network. The question arises of whether the GFIP e-toll project has become irreversible or reversible taking into account the various challenges it has faced? The discussions above indicate that the e-toll project has faced many opposing forces from different sectors of society.

However, the project has gained great visibility and has essentially become a part of the Gauteng citizen's daily life and psyche. This indicates that the project has created its own identity becoming solid and indispensable in this network. The e-toll project is a visible artefact that has been able to create its own patterns of use (Callon, 1986) characterized by various viewpoints, values, opinions and rhetoric, which has already been converted into physical devices (toll stations and gantries, DMTN, e-tags, institutions, improved roads, reports, documents, scientific papers).

The e-toll project has remained a part of our society even though it has faced changes in space and time through delayed schedules, concerns, criticisms, court interdicts, political juxtaposing and thus exhibits properties of irreversibility. However, the nature of a network is that it changes over time. Thus in future the project may be abandoned or

other solutions for funding it sought, depending on how the actors' roles change and their reconsideration of the goals of the project.

The e-toll project has undeniably developed an installed base over time that has provided it with the momentum to be stable and irreversible. The momentum it has built is increasing self-reinforcing processes (Arthur, 1998) linked to its over R20 billion debt; improving learning effects as seen in the increasing public consultations; adopting better coordination by learning to concede ground and adapting to new expectations. It appears that a major occurrence would be required to totally reverse the project and the legislation that supports it. Thus the project is assessed as irreversible but its alignment to t-Government principals remains questionable.

5.11 e-Participation for Sustainability of t-Government Programmes

The discussion herewith elevates the notion of service experience as an important component in realizing t-Government projects. The discordant opinions being witnessed in the implementation of the GFIP E-Toll may point to a critical lack of participatory governance underpinned by a citizen centric service experience. SANRAL as the focal stakeholder for the GFIP project, has seemingly delivered goods (artefacts) in the form of high quality and maintained roads. However, there has been a lack of delivery on the crucial aspect of user-centric service experience as seen with the outcry and resistance directed at the GFIP E-Toll component. As Chadwick and May(2003) argue that a Participatory model allows a more complex multidirectional interaction with a discursive flow of information between citizens and government. This chapter sought an understanding of transformational government aligned to the participatory model since the relationship with citizens is at the core of t-government.

This chapter has highlighted that although the GFIP E-Toll project is irreversible and the payment for the investment will most likely be sourced from citizens in some form of tax (e-toll or other taxes) the t-government mindset is lacking. This dearth of engaging with the fundamentals of t-government that may be found in pursuing e-participation

principles may impact the sustainability of future ICT driven government programmes. Government implementers may find that this particular experience with GFIP E-Toll has taken its toll on the citizenry so that future e-Government initiatives may be met with distrust and thus influence e-participation levels. Governments are encouraged to seek to e-empower citizens which Macintosh (2004) highlights as the process of "supporting active participation and facilitating the flow of bottom-up feedback to influence the political agenda such that citizens become "producers and not just consumers of policy" (Macintosh, 2004: 3).

As displayed in the various online forums, print media, blogs, Facebook posts and tweets, citizens believe they were not adequately consulted on the e-toll project. This reveals a direct contradiction of the Batho Pele public sector principles. The principles aim to ensure that citizens have access to information and the public sector has an improved service delivery track record. It is believed that citizens are aggrieved on a number of the Batho Pele principles:

1. The principle of **Consultation** - *People must be consulted about the level and quality of public services they receive and wherever possible be given a choice*
2. The principle of **Information** - *People should be given full, accurate information about the services they receive.*
3. The principle of **Openness and Transparency**- *People should be told how government departments are run, how much they cost, and who is in charge.*
4. The principle of **Value for Money**- *Public services must be provided economically and efficiently.*

Another study also indicated that the GFIP e-toll project failed to address several pillars that are critical to the success of such Intelligent Transport System programmes. Hommes and Holmner (2013) highlight the following critical success factors for e-tolling:

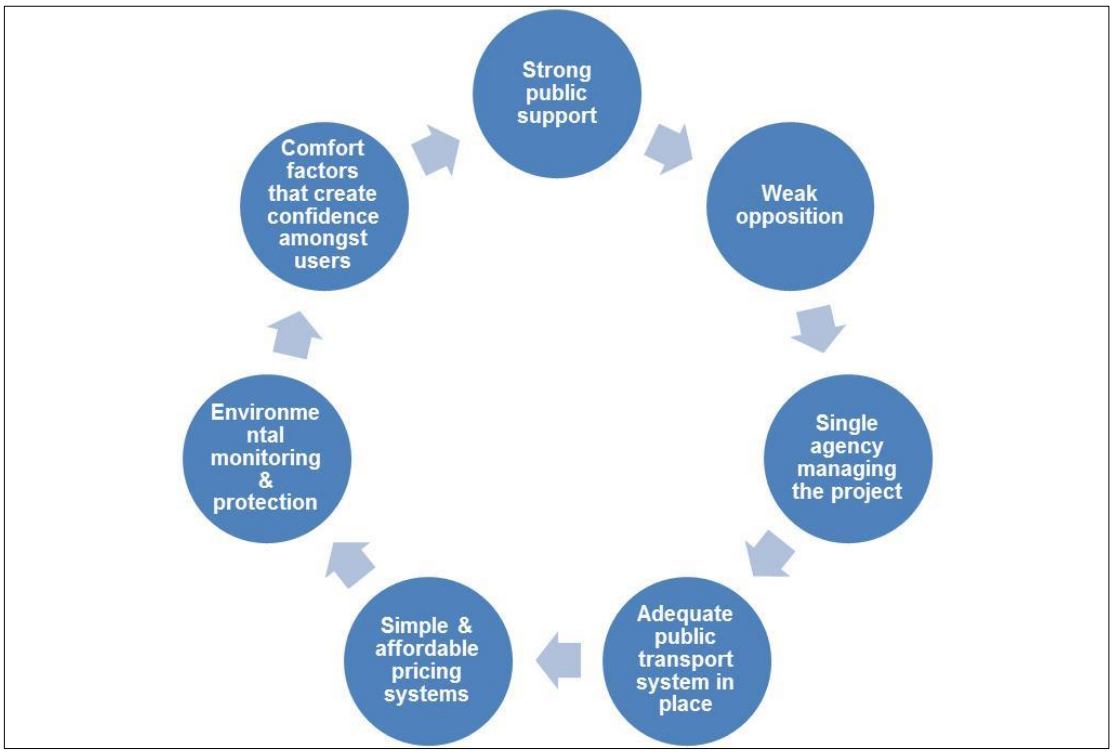

Figure 27: Critical Success Factors for e-Tolling (adapted from Hommes and Holmner, 2013)

This chapter argues that the GFIP has not successfully maintained the above factors thus further reducing the potential for t-Government ideals to be met. It has particularly failed at the public engagement and support factors. Indeed the consultant that SANRAL has employed to conduct research on the impacts of the GFIP embodies the overriding sentiment from the leadership of the project. It is reported that in his submission to the premier's review panel Mr Rudolph Botha argued strongly that (SAPA, 2014): "*Public transport is exempted, [users of this type of transport] should shut up and not take part in this debate*". He further defended his position on the matter indicating that: "*There shouldn't be debate on the issue, e-tolls are a damn good idea.*" Further to this he believes that SANRAL: "*… ought to get a medal for what they have done*" (SAPA, 2014).

The requirement for t-government programmes to elevate the role of various actors within these complex initiatives such that all stakeholders are engaged earlier in the process of delivery is highlighted. This may result in empowered stakeholders that are encouraged to participate in e-Government and thus potentially deliver benefits not only

for the users but also value for the initiators of such programmes. The essential lesson and practical implication for the public sector is the critical need for attention to be given to issues of e-participation earlier rather than later in e-government projects.

5.12 Summary

This exploratory study aimed to contribute to the literature on e-Participation within the broader t-Government agenda. The chapter investigated the notion of citizen participation through analysing data from the Provincial Government level unit of analysis. It relied on Actor Network Theory to trace the trajectory of the Gauteng Freeway Improvement Project (GFIP), an electronic-tolling project, based in Gauteng Province South Africa, to argue for the importance of shifting the mindset of implementers of e-Government to the concept of t-Government. The chapter found that although the GFIP had emerged as an irreversible network its alignment to t-Government was evidently poor.

CHAPTER 6: ASSESSING T-GOVERNMENT REALITIES IN LOCAL GOVERNMENT

"The essence of good government is trust."

Kathleen Sebelius

6.1 Introduction

The objective of this thesis was to understand how t-Government may be conceptualised and realised within a developing country context. This chapter explores the status of t-Government within the Local Government context of South Africa. It endeavoured to address the research sub-question: "*How may t-Government be manifested in Municipalities".* It presents the outcomes of several discussions conducted with representatives related to the municipal sector of the country. These were in the form of interviews and workshops resulting in qualitative primary data. Through the application of a thematic data analysis, the chapter reflects on the critical role that municipalities hold in pursuing t-Government. It further discusses the different stakeholders that may influence the manifestation of t-Government for municipalities. It also reflects on barriers and enablers identified by respondents that require consideration from local government.

6.2 The Significance of Municipalities for t-Government

Municipalities have a crucial role in addressing the developmental requirements of South Africa and other developing countries. Local Government is the main source for service delivery and development since they interface directly with citizens. The range of services that municipalities may undertake includes the following:

Typical Services Provided By Local Government Municipalities	
• Nature conservation	• Arts, culture and heritage
• Open space management	• Business licences/renewals
• Outdoor advertising	• Cemeteries
• Property rates and taxes	• City and regional development
• Resorts	• Community libraries
• Roads and storm water	• Customer Relationship Management
• Sports and recreation	• Disaster management
• Swimming pools	• Electricity
• Toponymy	• Environmental management
• Transport	• Fire brigade
• Tourism	• Health and medical
• Urban forestry	• Housing and human settlement
• Vehicle and drivers licences	• Language services
• Waste removal and management	• Metro police
• Water and sanitation	• Municipal courts
• Valuations	
• Enforcement of by-laws	

Figure 28: Typical municipal services (adapted from Tshwane Municipality, 2013)

It is the obligation of municipalities to ensure that there is an improvement in services for underdeveloped communities. This will ensure that there is an equitable provision of services to all citizens (SALGA, 2014). However, South Africa has since 2004 seen an upsurge in service delivery protests across the country. Alexander (2010) defines the service delivery protests as a rebellion of the poor. One study noted over 900 service protests for the period February 2004 until February 2005 alone (Booysen, 2007). Another study provided the figures for the 2007 to 2012 period as outlined in Figure 29 below:

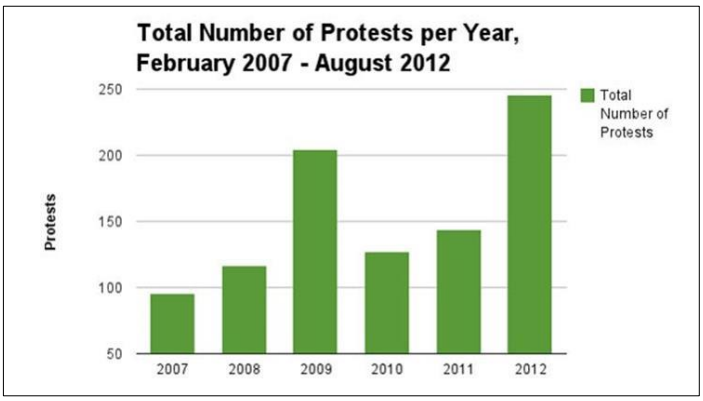

Figure 29: Service Delivery Protests 2007-2012 (De Visser and Powell, 2012)

The protests are about the lack of service delivery and a growing impatience with the leadership of municipalities (Alexander, 2010). Citizens are raising concerns around the lack of basic services such as water, housing, electricity and sanitation as seen in Figure 30 below.

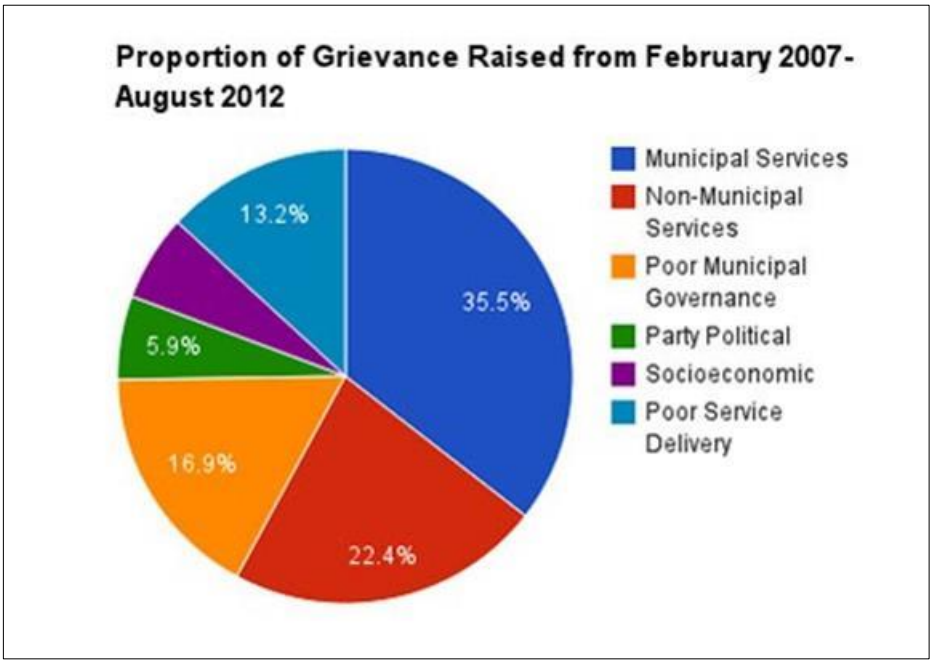

Figure 30: The percentage that the top grievances accounted for from 2007-2012 (De Visser and Powell, 2012)

Majavu (2011) highlights that citizens have learnt that protesting is an effective manner of obtaining a response from their municipalities. This is in direct contrast to the

principles of public participation where citizens are continuously engaged in dialogue on policy and service delivery matters. What is also concerning is the increasingly violent nature of the protests indicating a high level of dissent as displayed below (Figure 31):

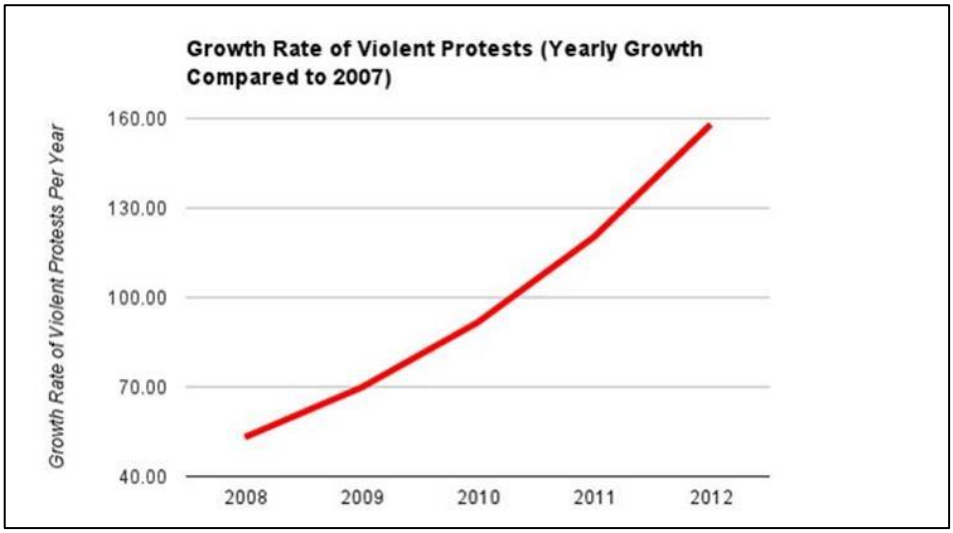

Figure 31: Growth of Violent Protests (De Visser and Powell, 2012)

In essence the failure of service delivery has been the result of poor accountability systems across the government tiers (Worldbank, 2011a).

It is therefore within this context of local government that the call for t-Government is elevated. Researchers believe South African municipalities can trigger e-governance programmes that allow citizens as well as business to interact with government using the full range of electronic media, through incorporating relevant measures in growth and development strategies (GDS) and integrated development plans (IDP) (Abrahams and Newton-Reid, 2008). Therefore, it can be argued that the local governments which are closer to the communities are best poised to deliver on a vision of t-government.

6.3 Research Methodology

The focus of this chapter was on exploring Transformational Government at the local government level in South Africa. The study was qualitative in nature. This aligns to the intensive empirical procedures of critical realist based research (Danermark et al., 2002).

Accordingly in terms of the case study strategy it was an embedded unit of analysis of municipalities (see Chapter 3). The objective was to review raw data from interviews and workshops with representatives from local government. The research question driving this chapter was: *"How may t-Government be manifested in South African Municipalities?"*

6.3.1 Population and Sample

The population that was relevant to this study of local government were the 278 different municipalities of South Africa. This comprises of eight metropolitan municipalities (referred to as Category A municipalities), 226 local municipalities (referred to as Category B municipalities) and 44 district municipalities (referred to as Category C municipalities).

Table 28: Types of Municipalities (adapted from ETU, 2012)

Type	Description	Number in South Africa
Category A – Metropolitan Municipalities	Metropolitan municipalities exist in the large urbanized cities in South Africa. A Metropolitan municipality organises the delivery of services to the whole area and has over 500 000 voters. These municipalities are divided into wards. A portion of the councillors are elected through a proportional representation ballot, where voters vote for a party. The remaining portion is elected as ward councillors by the residents in each ward.	8
Category B – Local Municipalities	Areas that fall outside of the metropolitan municipal areas are divided into local municipalities. Each municipality is broken into wards. The residents in each ward are represented by a ward councillor. In local municipalities, half the councillors are elected through a proportional representation ballot, where voters vote for a party. The other half are elected as ward councillors by the residents in each ward.	226
Category C – District Municipalities	District municipalities are made up of a number of local municipalities that fall in one district. There are usually between three to six local municipalities that come together in a district council. Some district municipalities also include nature reserves and the areas where few people live - district management areas. These fall directly under the district council and have no local council. The district municipality has to co-ordinate development and delivery in the whole district. It plays a stronger role in areas where local municipalities lack capacity to deliver.	44

Marshall (1996) indicates that there are three broad approaches to selecting a sample for a qualitative study, namely: Convenience sample, Judgement or Purposeful sample and Theoretical sample. The sampling technique selected for this study was a combination of judgement (purposeful) and convenience sampling. The researcher actively searched for the most productive sample to answer the research questions. Furthermore, potential respondents were invited to participate based on their proximity to the researcher who is based in Gauteng province. Candidates that were ideal for participation in this research were initially highlighted as the following:

- Municipal Managers or Project Sponsors or the equivalent including the Office of the Mayor where applicable;
- The Information Technology Manager or Chief Technology Officer or Chief Information Officer of a Municipality or the equivalent;
- Project Manager/Consultant or equivalent for a Municipality Technology Project;

There were 15 participants identified for inclusion and invited for participation. The final set of respondents that data was collected from included the following:

Table 29: Interview Respondents

Role	Number of Interviews	Location
Municipal ICT Manager	1	Mpumalanga Province, South Africa (based in a Category B Municipality)
Municipal ICT Manager	1	Mpumalanga Province, South Africa (based in a Category C Municipality)
ICT Consultant on Local Government Projects	1	Sub-Saharan Africa (projects based in central Africa)
ICT Consultant on Local Government Projects	1	Sub-Saharan Africa (Projects based in the western region of Southern Africa)
Local Government Organisation	1	Gauteng Province, South Africa
Various Municipal ICT Resources	Workshop of 40 attendees	Representatives from 9 provinces in South Africa (from all municipal categories)

6.3.2 Data Collection Procedures

The respondents that were invited for interviews were sent an introductory letter (see Appendix A). The principle of informed consent was applied (Hankinson et al., 2007). Each potential participant also received an email or phone call outlining the purpose of the research and the objectivity and independence of the researcher. It was also highlighted to respondents that the data would be handled in the strictest confidence and respondents would remain anonymous throughout the study. The researcher also attended a one day workshop held for municipal ICT representatives. The focus of the workshop was on transforming service delivery through ICT governance. The interview and workshop proceedings were recorded and consent to record was discussed and confirmed with the respondents. The proceedings were recorded to allow the researcher to remain wholly focused on the interviewees and workshop attendees without the need to take extensive notes. This allowed the researcher to remain engaged and the interviews to flow smoothly whilst being interactive (Patton, 1987). The interview guide is outlined in Appendix B.

6.3.3 Data Analysis Process

The interviews and workshop recordings were transcribed. This resulted in qualitative primary data encapsulated in the transcripts. The transcripts were uploaded into Atlas.ti 7 (version 7.0.81). The computer-aided techniques within the software were used to help categorise the text and identify pertinent concepts and themes.

The overarching approach for analysing the data for this study was the Inductive Thematic Analysis method. The thematic approach to qualitative data analysis, applied in this study, was as described by Braun and Clarke (2006). Initially the scholar develops familiarity with the data through several iterations of reading and re-reading the interview and workshop transcripts. During this stage the researcher may also take notes of some preliminary ideas regarding the primary data.

Secondly, the scholar articulates initial codes and key words. Coding comprises of identifying interesting dimensions of the data in a systematic manner across the entire data set and collating data relevant to each code. Next there is a search for themes in the data through the assembling of codes into potential themes. The themes are then put through a review cycle to check if they work with the data set and a thematic map is derived.

This is followed by a definition and naming of the themes. The objective is to continue analysing and working through the themes such that the scholar compiles more distinct and representative names for the themes. The last step involves articulating the interpretations in the form of a report. The report should ideally have samples of data supporting the themes and analysis discussion (Braun and Clarke, 2006).

Figure 32 below captures the thematic map:

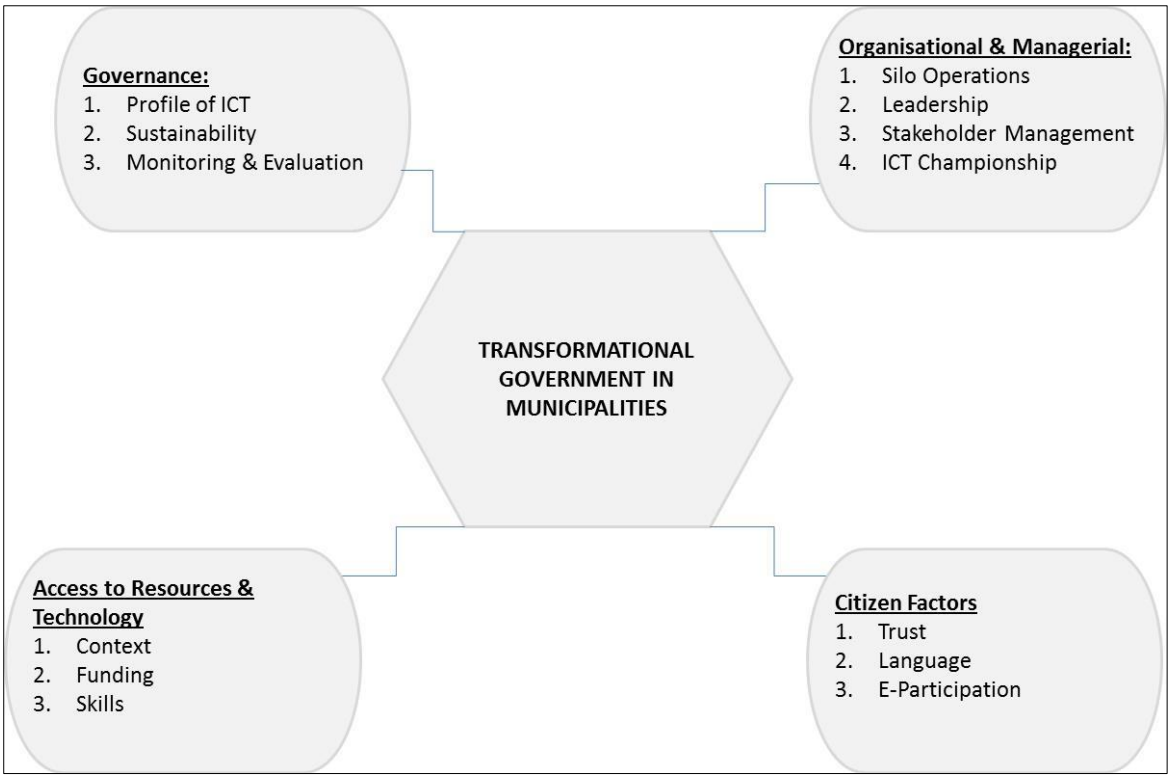

Figure 32: Local Government Discussion Themes and Sub-Themes

One study reflected on the existing e-Government literature and t-Government case studies to elevate obstacles to attaining t-government (Van Veenstra et al., 2011). These included governance related barriers, organisational and managerial barriers and also technological and other resource barriers (Van Veenstra et al., 2011). These were utilised as main organising themes coupled with citizen factors.

6.4 Reflections on Conversations with Local Government

The following sections discuss some of the pertinent issues raised by municipal representatives on the application of ICT for development and service delivery. It came through quite distinctly from several respondents that municipalities understood how important the role of local government is. They do believe that they are specially poised to deliver on the transformation that citizens are expecting from government. Also, taking into account the history of South Africa, the sense emanating from the discussion was that they considered transformation of citizen's lives as their central duty. As two managers highlighted:

> *"Local municipalities are the base of the pyramid and without it none of the other tiers can exist"* (ICT Manager, Interview 1,pp 6)

> *"Municipalities are close to the ground so they can have huge impacts in terms of job creation and all those things"* (ICT Manager, Interview 5, pp 38)

However, service delivery has "fallen short of citizen aspirations and the government's goals" (Worldbank, 2011a: 1) and some municipalities acknowledged this. The following discussion is framed mainly around the enablers and barriers of t-Government in municipalities. This is due to the overriding focus of municipal ICT managers' interviews on what currently prevents them from being able to deliver on their obligations. Conversely, they also expressed what they would prefer to see in municipalities that would support transformation and service delivery.

6.5 Governance Aspects

6.5.1 Profile of the ICT Function

It became evident in the discussions with municipal ICT managers, that the ICT department or function within municipalities was not receiving the necessary attention due to the low profile that it held. ICT was not seen as an important department like the service departments (e.g. Electricity, Water and Sanitation departments). However, within the support departments it also didn't have much clout as compared to more established support functions (e.g. Finance or Audit).

> *"The ICT person has to change the perception of ICT and the role of ICT. If they don't then ICT will have little or no impact"* (Local Government Authority, Interview 2, pp 3)

> "*IT is not a backroom function but is part and parcel of trying to achieve this responsive, accountable etc local government"* (ICT Manager, Workshop Notes, pp 2)

> *"I have learnt that there is low integration of the ICT Department in municipal structures. The question is: to whom does ICT report to?"* (Local Government Authority, Interview 2, pp 2)

> *"Has ICT achieved visibility like for e.g. Finance which is seriously embedded in municipal systems?"* (ICT Consultant, Workshop Transcripts, pg 3)

The raising of the profile of ICT may also be dependent on how it is placed in the organisational structure. As one ICT manager explains, this has helped them immensely:

> "*Leadership is very important and he has taken Information and communications technology (ICT) upward and situated it in his department. We are opposite the municipal manager and that is where it should be strategically placed. Because one, we have direct communication with the municipal manager, he has hands on access as to what is happening within the municipality where ICT is concerned plus we have direct access to all the other offices. If we were in finance we would have to go through the CFO, then up to the municipal manager, now we have direct contact with all of the managers and all the deputy managers down to the clerks and as you have seen in the short time you have been here the interaction works"* (ICT Manager, Interview 1,pp 8)

Thus a considerable enabler for the ICT department to achieve their goals of supporting transformation is that of its positioning within the municipality. This is coupled with the power and voice it has in influencing strategic decisions. It is interesting to note that the South African Local Government Association (SALGA)[2] has recommended that municipalities place ICT directly reporting to the municipal manager (SALGA, 2012). Their proposal is outlined below:

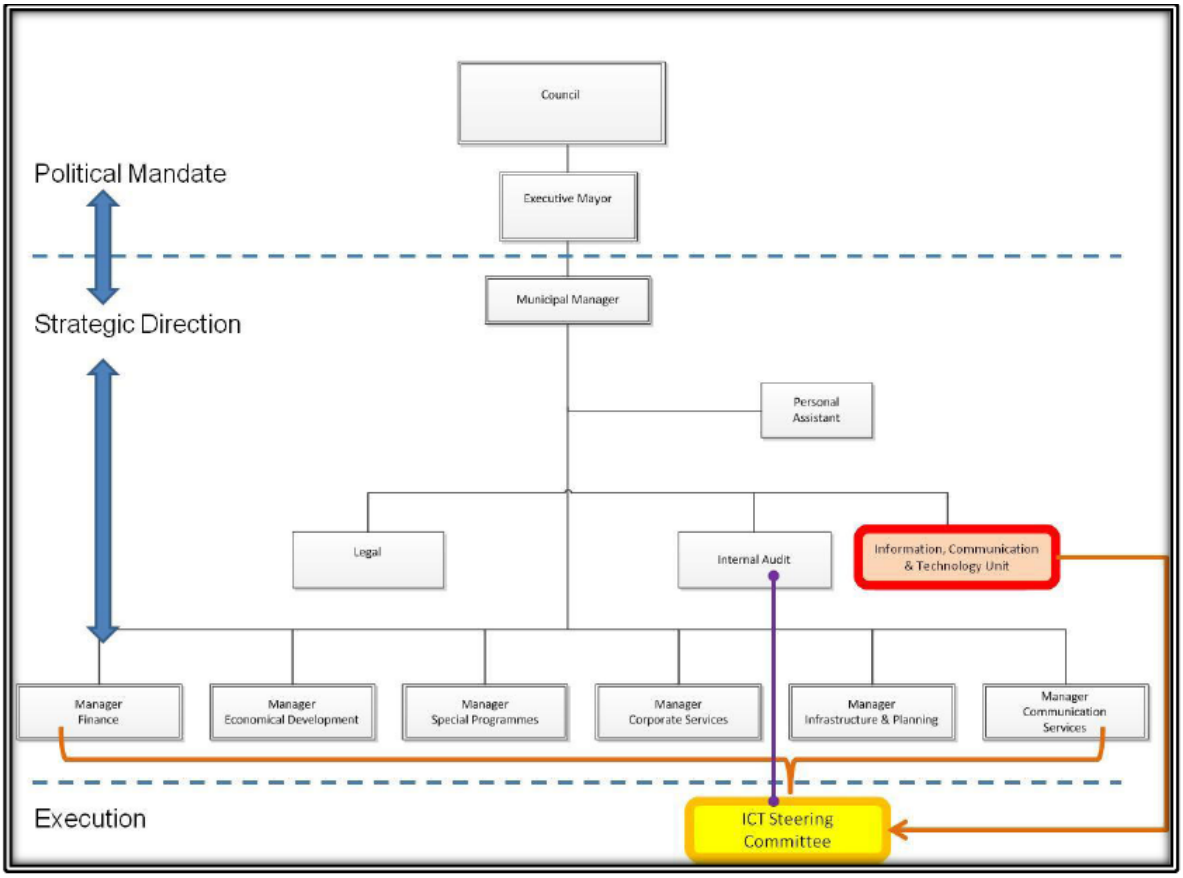

Figure 33: Recommended Placement of ICT Function in Municipality (source SALGA, 2012: 31)

It has been lamented that often organisations fail to take advantage of technologies to drive organisational strategy (Damianides, 2005). The control and governance of ICT's

[2] SALGA is an autonomous association of municipalities with its mandate derived from the Constitution of the Republic of South Africa. This mandate defines SALGA as the voice and sole representative of local government. SALGA interfaces with parliament, the National Council of Provinces (NCOP), cabinet as well as provincial legislatures.

may be enhanced to support the performance and sustainability of government's goals (De Haes and Van Grembergen, 2009). This control and governance largely depends on ICT's positioning within the government organisation. Thus municipalities are encouraged to consider the structure of their ICT departments critically for the purposes of service delivery and development. This is due to the critical role of ICT's in creating an enabling environment for the delivery of organisational objectives (De Haes and Van Grembergen, 2009).

6.5.2 Sustainability of e-Government

Social sustainability of ICT programmes is important for the longevity of the impacts that are often called for. The sustainability of e-Government projects also came under the spotlight in numerous discussions. It remains a vexing issue and one of the reasons provided is due to the cyclical nature of how governments operate. Thus the political and executive management has a short term view since they are not guaranteed to be in their positions after a period of 5 years.

> *"I worry as with all government projects, that there's never a plan for how to maintain sustainability, never, ja and it's the nature of government. Governments have the lifespan of five years, and they do things for the election and then the elections come and then there's a slowdown and priorities change*" Local Government Consultant, Interview 3, pp9)
>
> "*So, if there is a way, ICT can be linked to those priorities, maybe then ICT can find a place in development.*" (Local Government Consultant, Interview 4, pp8)
>
> *"So, because government thinking is so connected to elections, it makes it very difficult to plan long-term. The planning is not independent of the projects that government puts money into, are not independent of the election, and that makes it very difficult to do a long-term project*" (Local Government Consultant, Interview 3, pp 12)

In essence the sustainability of e-government requires an assessment of alternatives that can help redress unintended consequences related to e-government and its longevity in the long run (Ali and Bailur, 2007).

6.5.3 Evaluation of Projects

There was an interesting debate regarding how the success of projects is defined in municipalities. Some municipalities believed that government ICT projects are experiencing high failure rates. While others thought that perhaps our notion of failure and success needs to be adjusted.

> *"I think we're not doing well in the African context itself. That is what has been the challenge, we have a lot more failed projects than successful projects which has serious implications."* (ICT Manager, Interview 5, pp2)

> "O*ther people say all these projects are failures, I think that they are projects which have laid a basis on which you can build on to do other things. I think looking at those projects in isolation is wrong but if you consider them as building blocks to much broader objectives, then I would not rush to call them failures"* (Local Government Consultant, Interview 3, pp19)

The challenges in understanding the failures or successes of the e-Government projects may be rooted in a lack of an appropriate measuring and evaluation framework that takes into account the municipal context:

> "Q*uantifying the transformational part is very difficult. Currently the measures are not clear I think that is the problem. How do you monitor, assess the impacts or the benefits of ICT…We currently use the SDBIP*[3] *and then we also look at the budget those are not ideal ways of measuring the impact."* (ICT Manager, Interview 5, pp 24)

> *"I think the monitoring evaluation is a challenge in municipalities."* (ICT Manager, Interview 2, pp 23)

The literature is also in disagreement since some scholars indicate that the majority of e-Government projects are failures however others indicate that there is an acute lack of empirical evidence particularly for the African context (Heeks, 2002, Ndou, 2004, Dada, 2006).

---

[3] The SDBIP is a Service Delivery and Budget Implementation Plan that details the implementation of service delivery and the budget for the financial year in compliance with the Municipal Finance Management Act(MFMA), 2003 (Act 56 of 2003).

6.6 Organisational and Managerial Aspects

6.6.1 Silos in Government

It was noted in the discussions that a culture of operating in silos appears to be evident in some areas of government. This increased concerns from ICT managers that it may further delay service delivery.

> "*That is something that we are talking to them about now, but that is a resource that has to be shared across different ministries but you find that the survey general wants to set up his database, the Ministry of Mines wants to set up their own, the Ministry of Lands wants to set up their own. So, it's a very difficult one. So, it defies the whole idea of doing a totally connected solution"* (Local Government Consultant, Interview 3, pp7)

> *"The larger municipalities tend to want to do their own thing. We haven't been able to get much joy from them." (*Local Government Consultant, Interview 3, pp14)

The municipalities indicated that although they appreciate support they would want to maintain some autonomy in terms of how they run their ICT programmes. This indicated a strain in the relationship with national and provincial government but also entrenched the notion of silo operations.

> *"So it is evolving, but it needs to evolve naturally and not be forced. If a decree comes down from government, national government that everybody has to have open source software regardless can you imagine the chaos… They are trying to have one financial system for the whole country, it is not feasible."* (ICT Manager, Interview 1,pp 18)

The culture of silos may find its roots in the pressurised environment that government departments find themselves to deliver on services and address the backlog that is currently plaguing the system. The World Bank reports that Government programs have become silos that are supply driven, focused only on the outputs and not on the citizen's needs (Worldbank, 2011a). This emanates from how governments have historically organised themselves for managerial efficiency and service specialisation resulting in silos (Krishnaswamy, 2006). E-Government was anticipated to demolish the silos and assist governments in becoming more integrated and citizen centric (Krishnaswamy,

2006). The municipalities included in this study have unfortunately not yet fully experienced this.

6.6.2 Political Leadership and Executive Management

The respondents felt very strongly about the notion of leadership within the municipalities. In the workshop this issue was reiterated by representatives from several different municipalities. They felt overwhelmingly that they do not have the necessary support of their political leadership or executive management with regards to using ICTs to support service delivery. As several managers complained:

> *"Our biggest pain is getting politicians to talk to ICT issues. Also the 2nd part is the challenge of practicalising the executive management to drive ICT governance and implementation"* (ICT Manager, Workshop Transcripts, pp 3)
>
> "*We have been talking for the last 5 years*" (ICT Manager, Workshop Transcripts, pp 5)
>
> *"There was a Communique sent from the DPSA minister. It came through the municipal manager's office and they took it straight to the IT office but with no directives given to IT"* (Municipal ICT Manager, Workshop Transcripts, pp 4)
>
> *"It doesn't matter how good are the plans we come up with here or how good the intentions are at our level we will never get it through until the leadership at management and at political level can be the ones driving the process.*" (ICT Manager, Workshop Transcripts, pp 7)

The respondents indicated that although they did not have sufficient support from the leadership the requirement to deliver was not reduced.

> "*You see at the level of the politicians they just want to see tangibles. They want to see assistance with delivering services that people can see" (*ICT Manager, Workshop Transcripts, pp 8)

However, not all was lost with a few representatives highlighting that they at least have supportive leadership that embraces the role of ICT's in municipalities, indicating that having supportive political leadership is important.

> *"We have a very forward thinking Municipal manager"* (ICT Manager, Interview 1,pp 2-3)

*"MP has very active GITOC and support from premier. The premier drives it and ICT governance is on the agenda. We are lucky in a sense, and it's much easier" (*ICT Manager, Workshop Transcripts, pp 7)

"We are fortunate enough to have a progressive municipal manager but a lot of the municipalities don't see the relevance and it is very disheartening for a person like myself if they are not going to get the support." (ICT Manager, Interview 1,pp 8-9)

The extant literature argues that strong political leadership is a necessity for the success of e-Government programmes (Furuholt and Wahid, 2008). However, South Africa like its peers in other developing nations across Africa, Latin America and the Philippines struggles with weak technical and managerial leadership and capacity (Worldbank, 2011a). Thus it is evident from the data of this study that some municipalities are in desperate need of political leadership with the foresight to put t-Government onto the "agenda and make it happen" (Furuholt and Wahid, 2008: 4).

6.6.3 Stakeholder Management

Municipalities have a range of stakeholders with which they must maintain relationships throughout the planning and delivery of services. Below (Figure 34) is a sample of the groups of stakeholders that need to be considered:

Figure 34: Sample of Municipal Stakeholders

As the City of Tshwane Municipality indicates it is essential that municipalities maintain communication with stakeholders. This is important for ensuring that community members are provided the opportunity to contribute to decisions affecting what happens in their communities (Tshwane, 2011). It is also accepted that municipal stakeholders have a significant role to play in the delivery and success of e-Government (Rowley, 2011). However, respondents acknowledged the inherent complexity in the stakeholder management because of the sheer number of stakeholders that municipalities interface with.

> "*Communications is very important both with the staff you have internally and then conveying that communications on a larger scale from the municipality to the stakeholders or citizens itself*" (ICT Manager, Interview 1,pp 29)

> *"The problem is they don't understand it takes three to five years to understand the legislative processes which guide them*" (ICT Manager, Interview 5,pp 11)

> *"Also there is a lot of confusion in Local Government e.g. DOC has an ICT policy, DPSA published an ICT governance policy, Rural Development Department has a Rural ICT programme. Are they aligned, do they reference each other, who should the municipality listen to?*" (Local Government Authority, Interview 2, pp 2)

The multitude of stakeholders that municipalities have further exposes them to external pressures to deliver and be more efficient (Moon, 2002). Therefore it is challenging and takes a large amount of time and other resources to maintain the various stakeholder relationships whilst remaining responsive to citizens' needs. Regardless of the complexity, municipalities need to "know more about who their stakeholders are, and what they want, to succeed in e-government service adoption" (Rowley, 2011: 54). This will assist in driving the developmental impacts of e-Government as envisioned within the t-Government argument. How this may be achieved is through the careful identification of stakeholders; understanding of their varying interests and the drafting of relevant strategies that aim to support the participation of stakeholders in municipal projects such as e-Government (Rowley, 2011).

6.6.4 In Search of an ICT Champion

When quizzed about what may improve their ICT operations and the transformational role that ICT may bring to communities, one of the areas that municipalities indicated was around a champion being critical for change.

> *"If you look at all successful projects there is always one person who stands out along the line, at each level and he is absolutely fabulous. He has got a team around him"* (ICT Manager, Interview 1,pp 16)

> *"In my experience, the projects that have succeeded is because they've got this champion. This champion is someone that's fairly senior, it's someone that's respected up and down, he's respected by his bosses, and he is respected by his juniors. He has got enough influence to get things to happen. "* (Local Government Consultant, Interview 3, pp 14)

However there's also a risk in relying on these hero's for the success of projects:

> *"They are important to drive a project… But if you can't implement and ingrain the project into organisation it won't be sustainable"* (Local Government Authority, Interview 2 pp2)

> *"I don't think you can run away from the idea of having a coach, someone that's rooting for you in the project. The fact that, that person is a weak link for the project, I think that is something that you might have to live with"* (Local Government Consultant, Interview 3, pp 15)

A potential solution is offered by one interviewee:

> "*You need to have multiple champions in the different areas, which is what we've done" (*Local Government Consultant, Interview 4, pp 17)

The need for change agents and sponsors for e-Government projects has been cited by some scholars (see for example Ndou, 2004, Chou et al., 2008, Almarabeh and AbuAli, 2010). It appears to be agreed upon that senior executive sponsorship is a critical success factor (Scholl, 2005, Chen et al., 2009) for e-Government success and this view was also held strongly by respondents.

6.7 Access to Resources and Technology Aspects

6.7.1 The Realities of Local Municipalities

The respondents expressed that local municipalities face a very different environment than their counterparts in provincial or national government. National and provincial governments define policies and often leave it to the local government to make sense of policies and drive implementation. Respondents outlined that they often believe that the other tiers of government are not aware of the realities within which they try to deliver services. South Africa is a country of contradictions faced with poverty, unemployment and a high skills deficit (STATSSA, 2012). These pressures are most evident in the local government context. This was especially pertinent in the context of rural municipalities. For example the ICT managers indicated that the rural areas require special attention to address the digital divide that still persists if ICTs are to be used to change citizens' lives. The constraints mentioned included the issue of distance, the lack of electricity and connectivity remains pertinent. As one respondent lamented:

> *"Now, I think that place is 1000 kilometres or so. It is so far that we are being told that if somebody gets sick, they will just wait for that person to get well on his own or just to die." (*Local Government Consultant, Interview 4, pp3)

> *"There was no connecting; in all those places, that we went to there was no network." (*Local Government Consultant, Interview 4, pp4)

The literature supports this finding since the digital divide has been consistently cited as a key problem for extending the reach of ICTs to citizens. The literature also indicates that those that do not have the necessary ICT skills, cannot access information for economic opportunities and thus fail to benefit from e-government (Almarabeh and AbuAli, 2010).

Another area that must be noted within the rural municipality's context is the existence and importance of traditional community leaders. Some respondents indicated that if ICT implementations are to reach rural communities they are more likely to succeed with the

support of the communities. Where traditional leaders were engaged it was found that they opened up more channels for bringing government services to the citizens through ICTs. For example in some of the projects the following transpired:

> *"The local administrator there was supportive and again allocated a room, which is going to be used as a tele-centre. So, he provided a room, he provided one of the offices in the local administrations offices."* (Local Government Consultant, Interview 4, pp2)

> *"The government's plan is to set up community information centres in the rural areas where people can access the government services. So, they set up a centre in the middle of the village, you go there, it's a solar-powered centre."* (Local Government Consultant, Interview 3 pp4)

> *"We went and met the local administrator and a group of the elders of that community…to talk to them about the idea of how a tele-centre will be able to aid them in administration, for instance, enhancing security, health, and education, and the other benefits that may come from having a functioning communication system. Again, they were able to give us, in fact one of the elders donated a home, an old home that they have moved away from"* (Local Government Consultant, Interview 4, pp3)

The literature concurs on the importance of including traditional leaders and community leaders in the planning and implementation of ICT for Development projects. For example Gigler (2004) posited that ICTs not only need to be locally appropriated by communities for the purposes of development. They also need to be built on existing social and organisational community relationships and structures such that they result in the collective empowerment of communities (Gigler, 2004). Thus the influence that traditional leaders yield and the knowledge they bring are noted in the quest of utilising ICTs to transform and empower communities.

6.7.2 Funding

Funding was raised at *all* the sessions as a significant barrier for the ICT function in attempting to support the municipalities in delivering on their mandates. This was not surprising since a lack of funding is noted by various research studies as a concerning impediment (see Ho, 2002, Heeks, 2003, Janssen and Shu, 2008, Wang, 2009, Ebrahim and Irani, 2005, Heeks, 2002, Almarabeh and AbuAli, 2010). One of the respondents

indicated that their ICT department was taken in-house after a long period of outsourcing parts of the IT function to different service providers. It was however difficult to convince the municipal manager on the issue of a budget:

> "*After the municipal manager told me we had no budget, I questioned as to whether I should be here and eventually after about a month we managed to get some money from finance*" (ICT Manager, Interview 1,pp 26)
>
> "*My budget is… I call it a virtual budget"* (ICT Manager, Interview 2,pp 2-3)
>
> *"If I had the budget this would be a first class department.*(ICT Manager, Interview 1,pp 5)
>
> *"But we do struggle as far as finances are concerned. We are not bankrupt obviously. We manage our money; we manage our funding very strictly"* (ICT Manager, Interview 2,pp 2-3)

Municipalities did however raise a means of coping with the limited funding. For example a culture of "making do with what is in hand" appears to have assisted one smaller municipality. The idea that they did not feel overwhelmed but rather focused on what they did have rather than not, resonated.

> *"I have trained my staff to think outside the box and to recycle and they are fantastic at it now. Slow to start but as we have progressed they have got more and more into it and saying if we don't have it we will find a way. In ninety percent of the cases there is always an alternative".* (ICT Manager, Interview 1,pp 3)

Another option was to find additional ways of cutting costs. For example two municipalities indicated how they have switched to open source software:

> *"Because of our situation we have taken big ideas and reduced them"* (ICT Manager, Interview 1,pp 4)
>
> *"Take note of this all our servers are now open source, they are no longer Microsoft"* (ICT Manager, Interview 5,pp 11)

The literature shows that for instance, some public organisations have moved to the open source software allowing them to experience some relief from funding pressures (Sife et al., 2007, Camara and Fonseca, 2007). However, in the longer term, the ICT

function may have to indicate to municipalities why allocating them supportive budgets is necessary in light of how they contribute to the community's development.

> "*Municipalities have so many competing priorities – it is critical to show how ICT can help e.g. with Local Economic Development or Service Delivery etc."*(Local Government Authority, Interview 2, pp 3)

One municipal ICT manager chose to look forward and maintain optimism despite the funding challenges:

> *"The question of budget… Yes no municipality can say they have enough budget but you start somewhere. When I started we had one person now we are three, it simply means we are growing we are hoping that next time we will have 5. Let's not give up!*" (Municipal ICT Manager, Workshop Transcripts pp 8)

6.7.3 ICT Skills

Skills were considered quite high up in importance for attaining an ICT department that is able to support municipal objectives and drive developmental objectives. As one ICT manager argued:

> *"The first thing and the foremost thing is skills, not money but skills"* (ICT Manager, Interview 1,pp 6)

However, it unfortunately appears that municipalities have a shortage of ICT skills when they are the level of government that needs these critically. As SALGA reports the skills shortage of the country has the most impact on local government and it was found that municipal staff are under qualified and thus are not able to cope with ICT challenges (SALGA, 2012). Respondents supported this as follows:

> *"That is where the problem is, there is a lack of skills and a lack of understanding"* (ICT Manager, Interview 5, pp3)

> *"70% of municipalities are running IT at a network operator level. Look at the adverts, they don't have IT managers. They have something called a network operator. Most local municipalities will*

have a network operator. Now that is a guy who is running around with a screwdriver and CD's in his pocket fixing emails." (ICT Manager, Workshop Transcripts, pp 3)

"*And they just don't have the skills sitting in government to be able to provide the infrastructure that we require and it's really slowed down a lot of the services"* (Local Government Consultant, Interview 3, pp8)

"The problem is most of the managers are operational maintenance guys they just come and keep systems going. They don't – very few people really implement innovative systems which will make an impact on what you want to achieve in the community, they just want to get a salary." (ICT Manager, Interview 5, pp 40)

The ICT sector is fast paced and ever growing and thus there is a challenge for municipalities to remain skilled in the different areas.

"*An issue in local government is the confusion over ICT "buzzwords" e.g. e-government vs e-governance, vs digital divide, ICT governance, e-participation, m-participation etc. There are various words being used, they are often not understood or have different meanings to different people in the municipalities*" (Local Government Authority, Interview 2, pp 1)

"We are intimidated by a lot of these things captured in acronyms made up by various parties" (ICT Manager, Workshop Transcripts, pp 1)

The issue of general computer literacy of citizens was also discussed as requiring special attention beginning particularly at the school levels.

I think computer literacy is a challenge still and creation of quality knowledge work is a challenge" (ICT Manager, Interview 5, pp 32)

"*I think we need to take it as seriously as we take other subjects we are taught in, like history and maths. Why do you teach those things? If ICT is going to make an impact, then probably we need to take that seriously and it must be part of the curriculum. Is there a reason why we should not teach an ICT related sort of course that prepares us for this knowledge based society that we are talking about*" (Local Government Consultant , Interview 4, pp 7)

"The e-skills project, according to the national directive, says every citizen should be a knowledge worker and all spheres of government must contribute to achieving that objective so what we have done, is we have put a project team together called e-learning centers project which is one for e-skills." (ICT Manager, Interview 5, pp7)

Governments are often cited as having insufficient ICT skills and this is coupled with a need to compete with the higher salaries often paid within the private sector (Schware, 2003). What concerned the respondents was that if the skills gap was not addressed it would continue to cost the municipality. This was not only in reference to delays with the delivery of projects but also funds that were diverted to consultants as a means of temporarily buying the skills.

> *"Managers don't understand the system they are very susceptible to the consultants… you think that is the best one and you implement it and it turns out to be a white elephant and they are gone by the time and it is half way through implementation"* (ICT Manager, Interview 5, pp9)

Some of the municipal ICT managers, however, were optimistic that skills and capacity could be improved in municipalities through internal initiatives. The lack of skills may be a current barrier however municipalities may consider strategies to build skills and capacity over time. One municipality for example initiated an internship which provides students that are studying towards qualifications in ICT the opportunity to obtain work experience. This at the same time increases local skills and the capacity for the department since they have more resources for the internship period. They also have the option of employing the student in future where possible.

> *"…that is why I have here for the information technology (IT) side I have work experience, any student within the municipality that is attending tertiary or secondary… doing information technology (IT) courses that requires work experience… I will consider taking them on for that period. In fact I have working here, I have already had two through my hands and overall it has been very successful, he has got his diploma though the university and the other is a young student and she started just basic PC training. She finished work experience. She has now gone back to college and is doing her course. So we are encouraging people and we are trying to keep them in the area so when a new company comes in we have an information technology (IT) skills base to draw from. And that is extremely important and it gives stability to the employer as well*." (ICT Manager, Interview 1,pp 3)

6.8 Citizen Factors

6.8.1 Trust

Building citizen trust is important for enabling t-Government. Belanger and Carter (2008) indicate that trust in government is "…one's perceptions regarding the integrity and ability of the agency providing the service" (Belanger and Carter, 2008: 167). Some municipalities recognised the importance of building trust with citizens and highlighted their concerns.

> *"There is a lot of mistrust between the community and the municipality and it has a very negative effect. "* (ICT Manager, Interview 1,pp 6)

For example it took one municipality implementing an e-participation tool based on SMS, over two years to convince community members to register their cellphone numbers on the system. However, through sticking to their policy of not abusing citizen information e.g. not campaigning for a particular political party, they showed their community that the municipality could be trusted. This supported the building of the Government to Citizen (G2C) relationship and increased the involvement of citizens in their e-participation system.

> *"If there is a fault the people no longer phone technical they phone Information and communications technology (ICT) to find out why we didn't send out an SMS because they had no electricity for the last hour. We are getting noticed and we are getting interaction. It is not negative it is positive"* (ICT Manager, Interview 1,pp 7)

Thus once the relationship has been built municipalities find a pull rather than a push scenario where citizens initiate the interactions. However, ICT has also manifested as a double edged sword for some:

> "*ICT is the source of and solution to mistrust. When citizens have bad experiences e.g. they send a complaint and that leads to them not being given a tender or citizen's personal data is not handled responsibly that leads to issues with trust. Trust is broader not only focused on the e-participation/mobile solution but also about how citizens' information is handled.*" (Local Government Authority Interview 2, pp 1)

Regardless, municipalities do essentially believe that the results of building trust are positive and self-evident:

> *"We gave a promise to the community that it will only be used for municipal purposes and not for third parties. Plus the fact that it would be non-political as well. And that is a thin line. A good example is the previous elections, a certain party wanted to send out an SMS and I blocked it. That was the turning point when people realized we had kept the promise we had given them."* (ICT Manager, Interview 1,pp 14)

> *"Another factor which is very, very important to note, within the last two years the municipality has had not one service delivery protest.*" (ICT Manager, Interview 1,pp 7)

It will be important to ensure that municipalities consistently include people in the process since trust is a foundational principle for t-Government (Bannister and Connolly, 2011).

6.8.2 Language Policy Implications

Due to its policy of 11 official languages South Africa remains in a challenging position of ensuring that government caters appropriately to its citizens in their language of choice for service delivery. Thus this is an area that municipalities need to be sensitive of. For example the local government authority assessed municipal websites and found that:

> *"All municipal websites are in English!"* (Local Government Authority Manager, Interview 2, pp 2)

One municipality was taking small steps towards acknowledging the language dynamics of their communities:

> "*Even down to our SMS's we are now finding we are sending out SMS's in Zulu and the odd one out in Afrikaans. If it is only being targeted to a densely populated area that speaks that then we translate it, but English being the international language, ninety eight percent are English."* (ICT Manager, Interview 1,pp 22)

Research indicates that there are benefits for ensuring that e-Government services are available in the language of choice for citizens. One study found that the consideration of language in a bi-lingual or multi-lingual society in e-Government improved citizens' trust

(Roy et al., 2009). Another study hypothesized that for certain citizens reduced language options such as the lack of their mother tongue for interacting with e-Government may be a potential barrier for adoption (Shareef et al., 2011).

6.8.3 e-Participation in Municipalities

A recent report found that the voice of the citizens appears to have been lost due to government's focus on centralised planning and meeting targets without considering how citizens would like the services to be delivered (Worldbank, 2011a). Yet, the area of citizen participation is important for the improvement and institutionalisation of political accountability of the public sector towards its citizens (Worldbank, 2011a). Participation of citizens is evident in the legal frameworks of South Africa yet it is failing to come through in delivery. Accordingly, the use of technology to support participatory governance and service delivery requires attention in the municipalities. However, municipalities were still relying heavily on traditional mediums for citizen participation. For example Tshwane outlined in their stakeholder engagement plan that the participation of stakeholders would be encouraged through meetings, letters, email, special events, mass media and other programmes (Tshwane, 2011). As one manager explained citizens were expected to be involved in the Integrated Development Planning Processes (IDP) which runs every five years.

> "*How do you involve citizens in ICT in the province? Usually it is through the IDP. They don't directly interface with ICT as such; it is mainly through the IDP. The translation of the IDP is the ICT programs. When they go operational the projects then we see the effectiveness of how that project serves…"* (ICT Manager, Interview 5, pp 24)

> *"Feedback on the services is usually through the call centre, through the IDP session meetings or ward committee meetings and the tools are the customer care relations management system. E-participation is very critical because e-participation if done correctly can avoid or mitigate protest it really can"* (ICT Manager, Interview 5, pp 25)

It was encouraging to note that municipalities do recognise that participation requires feedback and engagement to and from citizens and their local government.

> *"The participation of course is a two way street… One of the things on the e-participation is we want to do that kind of thing where people can inform us of their views on certain things."* (ICT Manager, interview 5, pp 26)

However, from the researcher's discussion with and analysis of the municipalities they had not effectively considered how ICT's may support this two-way dialogue and decision making for service delivery. This assertion was supported by the Public Service Commission's[4] findings that in municipalities "part of the implementation weaknesses are the non-involvement of beneficiary communities in the planning and implementation of programs" (PSC, 2008: 40). The frustration of the ICT managers was palpable in the workshops and interviews further pointing to a gap between the rhetoric of policy designers (national government) and the practical experiences of the implementers (local government municipalities).

6.9 Summary

This chapter reflected on several themes that arose from discussions with municipal ICT representatives. The chapter presented the outcomes of interviews and a workshop on the role of ICT's towards the transformation of municipalities. The qualitative primary data was analysed thematically to tease out the barriers and enablers for t-Government. The respondents indicated that their most pertinent issues were around areas such as lack of funding, shortage of skills, poor leadership and the profile if ICT's in municipalities. The data mirrored what was found in the existing literature indicating that South Africa's experiences are similar to its counterparts in the developing world. The findings show that for ICT's to be transformational there needs to be a consideration of the political context, culture and business processes bearing in mind the multi-actor environment and organisational setting (Weerakkody et al., 2009). The views of the respondents also indicate that the call of t-Government is definitely timely and perhaps

[4] The Public Service Commission is an independent and impartial body mandated by the South African Constitution to investigate and evaluate the performance of the public administration.

even overdue. This need is particularly acute when the findings of this chapter are contrasted with the findings of chapter 4 which outlined national government policy and rhetoric.

CHAPTER 7: CITIZEN FACTORS FOR T-GOVERNMENT

"This city is what it is because our citizens are what they are".

Plato

7.1 Introduction

This thesis centred on exploring the notion of Transformational Government (t-Government). As argued earlier, t-Government represents a reorientation of Electronic Government (e-Government) towards citizen's impacts and benefits. This chapter reflects on the influence of citizen's access to ICT's, citizen ICT skills and citizen attitudes on e-Government adoption and use. It sought to address the research sub-question: "*How can e-participation as the basis for t-Government be enhanced using mobile technology for socially excluded citizens in a developing world context".* In chapter 2 the relevance of mobile technologies in extending e-Government services was highlighted. This chapter investigated how mobile technologies may be utilised to contribute toward improving citizen e-Participation for the attainment of sustainable social development. Therefore, it is about increasing e-Government adoption for the realization of benefits for citizens. The results of a survey conducted in South Africa with respondents from digitally and socially excluded groups of society are presented. The descriptive analyses, cluster analysis as well as the reliability analysis are reported. The analysis and findings offer insight into factors influencing the use of readily available mobile technologies for e-government.

7.2 Background

The proponents of ICT4D argue for the role of ICT's in improving citizens lives through the supporting overarching visions such as the Millennium Development Goals (MDG's) (ITU, 2011b). To improve the lives of citizens for social sustainability requires the involvement of citizens. The central argument in this chapter is a call for considering mobile technologies for improving citizen involvement and e-Participation. There is a

need to consider that previous policies aimed at increasing access to ICTs may no longer be suited for today's environment (Verdegem and Verhoest, 2008) since they were mainly formulated around the traditional PC based model of access. Henceforth, a consideration of mobile technologies is offered. Increased e-Participation is reflective of the adoption and use of e-Government products and services by citizens to both engage in decision making and in service delivery requirements. The notion is that e-Participation is an essential element of the t-Government ideal leading to the sustainable social development that scholars have lamented is currently lacking. Citizens have a need to participate more meaningfully in their societies and this may be enabled by ICTs as referred to by some as e-Inclusion (Verdegem and Verhoest, 2008).

The framing of this chapter rests upon several themes namely: the digital divide and its contribution to social exclusion; adoption of e-Government for sustainable development and thus contributing to t-Government; the proliferation of mobile technologies as a basis for e-Participation of citizens. Further to this the role of access, skills and attitude of citizens in e-Participation efforts.

7.2.1 Digital Divide and Social Exclusion

Technology has been accused of worsening socio-economic inequalities within societies and between nations (Yates et al., 2010). As Heeks (2008) argues: "Economic, social, and political life in the 21st century will be increasingly digital, and those without ICTs will be increasingly excluded" (Heeks, 2008). Undeniably the current information society has deep inequalities not only with regards to those that have access to the internet and computers versus not; but also with regards to the gap in access to information and the social and economic opportunities offered by ICT's (Verdegem and Verhoest, 2008). This manifests as the digital divide (Bélanger and Carter, 2009). Indeed information use is still disproportionate and in favour of certain segments of society resulting in the social exclusion of large segments of society. ICT inequities are complex and thus investigating how to reduce such inequalities remains pertinent (Verdegem and Verhoest, 2008). Research on the socio-economic impact of the digital divide is hardly novel (Hüsing and

Selhofer, 2002) with a number of studies focusing on the rate of technology adoption; abilities to use ICTs and its attendant benefits; and attitudes related to adoption and usage (Donat et al., 2009). It is noted that the digital divide is not only influenced by access to ICT but also broader factors such as income, age, gender, level of education, family structure and even geographical location having an impact (Verdegem and Verhoest, 2008). Of concern in this chapter was a group of factors to be considered for enabling citizen participation in the digital age (Sipior et al., 2012). As Fuchs and Horak (2008) indicate South Africa faces similar challenges in the digital divide and has been unable to narrow this gap. This chapter reflects on some of these concerns.

7.2.2 e-Government and Sustainable Development

E-Government is essentially a reform instrument of the public sector. For instance, in the findings of the United Nations E-Government Survey of 2012, governments worldwide continue to widen the transformative role of e-government by investing in ICT initiatives aimed at enhancing public sector efficiencies and streamline governance systems to support sustainable development (UNPAN, 2012). The transformative aspect of e-government critically brings to the fore the quest for more citizen participation in governance (UNPAN, 2014), yet this very emphasis on e-participation by these latter e-government initiatives is a stark reminder of the legitimacy of the digital divide concerns that continue to shroud ICT applications to date. Various researchers specifically claim that e-government initiatives are aimed at realizing a number of socially desirable outcomes including but not limited to improving quality of life, providing better access to education, encouraging and facilitating active participation of citizens in government, bridging the digital divide, eradicating distance, and reducing the communication and information costs (Jaeger and Thompson, 2003, Hanna, 2008). The implication is that a key benefit or value flow of implementing e-government is on reducing the digital divide and facilitating citizen participation in governance. This meaning provides a conceptual link between the idea of public value and t-government, e-government, e-participation and digital divide.

The concept of public value is part of a wider debate on post New Public Management (NPM) government reform that seeks to broaden the understanding of the benefits of e-government applications (as per Chapter 2) and partly emphasizes introducing innovations in the delivery of government services in order to enrich governments' interaction with citizens (Meynhardt, 2009). The consistent argument herewith is that improved citizen engagement with government contributes to t-government. The importance of adopting innovative approaches to realize e-participation is evident, especially in developing countries faced with limited resource problems and where e-government implementation is also linked to attaining sustainable development (Yıldız and Saylam, 2013, UNPAN, 2014).

The World Bank proposes a concept of sustainable development as "changes in societies – in their norms and institutions – that make development more equitable and inclusive for all members of a society" (Worldbank, 2004). Alternatively, it was defined by the Bruntland Commission in 1987 as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Souter, 2012). The notion of sustainable development provides traction to the concept of governance, of which e-government is a part of. The issue of sustainable development is relevant to developing countries in Africa and its link to the quest for good governance through various means such as e-government. E-Government and the shifting debate towards Transformational Government occupies a vantage point as for the accomplishment of reforms that date back to 1980s in Africa, particularly those associated with the management movement of new public management (NPM) and much more recently, a public value perspective (Moore and Bennington, 2011, Yıldız and Saylam, 2013). Therefore a direct link between the notions of e-government, Transformational Government, Governance, e-participation and Sustainable Development is purported.

Souter and Maclean (2012) capture this thinking through their sustainable development framework which comprises of five components including: economic development, social development, environmental protection, cultural diversity and governance. As reflected in Figure 35 below, governance is the central issue underpinning the focus on

e-government in Africa. Goldsmith (2007) argues that the overriding rationale for good governance reforms has been a belief that such reforms can boost economic growth, as evidenced in the MDGs. Empirical studies highlight that non-transparent, unaccountable and restricted governance is detrimental to development, while the opposite tendency is advantageous (Acemoglu et al., 2002, Rodrik et al., 2004, Goldsmith, 2007). These results buttress the notion that improvements in governance could raise per capita incomes significantly over the long run and have positive effects even over relatively short periods (Kaufmann et al., 2006). The achievement of good governance is now touted as critically dependent on e-government as a reform instrument (Heeks, 2002, Ochara, 2012). In this context, it is imperative that for e-participation to contribute to sustainable development, more effort should be geared towards promoting user uptake among the vulnerable and socially excluded citizens.

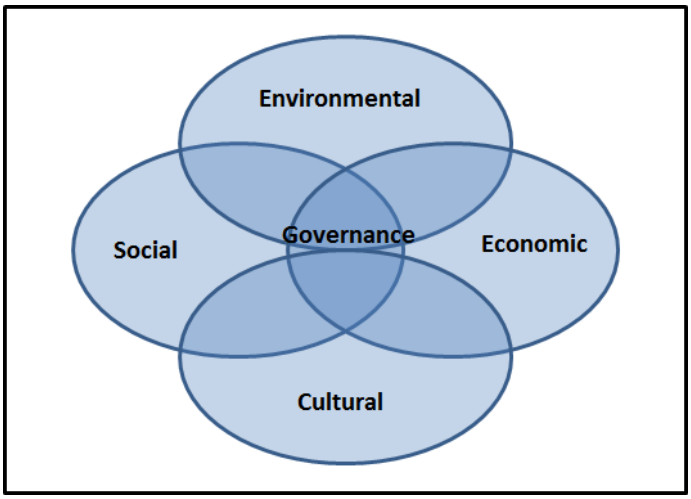

Figure 35: Sustainable Development (Souter and Maclean, 2012)

7.2.3 Mobile Technologies Advancing e-Participation

Often the costs of adopting ICT's are high such as upfront costs of equipment like PC's or recurrent costs such as those for an internet connection (Verdegem and Verhoest, 2008). As the ITU reports over 90% of the population worldwide and also 80% of those residing in rural areas have access to mobile networks (ITU, 2011a). The trends have shown that access to fixed broadband is lower than access to mobile technologies

mainly due to the exorbitant costs of broadband infrastructure when compared to the affordability, simplicity and benefits citizens access from mobile technology (ITU, 2011a). Of concern in Africa is whether e-government is sustainable on the current dominant Internet infrastructure which relies on a longstanding model of computing or whether the mobile technology infrastructure, given high adoption rates in Africa, provides a better alternative for conceptualizing e-government. Mobile technologies have reduced many of the communication costs including the internet (Jack and Suri, 2011). As Chigona et al (2009) suggest mobile internet could potentially contribute towards the improvement of social exclusion in a developing country context (Chigona et al., 2009).The ITU agency of the United Nations support the possibility of mobile phones enabling the attainment of internationally agreed development goals such as the Millennium Development Goals (MDG's) (ITU, 2011a). The mobile phone has very quickly become a part of life for developing nations. It is noted that mobile telephony has been adopted in an unprecedented manner at more than five times as quickly as the fixed line telephone (Jack and Suri, 2011). Acknowledging that a majority of the socially excluded in Africa has some form of Internet access through mobile technology, the social sustainability of e-government requires an assessment of alternatives that can help redress unintended consequences (digital exclusion) related to e-government and its longevity in the long run (Ali and Bailur, 2007). Mutula and Mostert (2010) argue that the use of mobile phone infrastructure for e-government represents untapped possibilities due to the ubiquitous nature of cell phones. Looking at the private sector, it is seen that mobile technologies hold great potential to change citizens' lives. A timely example is in the form of M-PESA a mobile money transfer product that utilises sms to enable consumers to deposit, send and withdraw cash (Jack and Suri, 2011, Mbiti and Weil, 2011). The product originated in 2007 in Kenya and has over six million registered users (Mas and Morawczynski, 2009). It has seen phenomenal growth as well as extensions to other African countries and most recently with a re-launch in South Africa. The success of M-PESA has been in its direct impacts on ordinary citizens who previously lacked banking services, but who through M-PESA have simple, cost effective and much needed banking services (Jack and Suri, 2011, Mbiti and Weil, 2011, Plyler et al., 2010). Such examples bolster the argument of this chapter that mobile technologies are an option in improving the e-

participation of citizens since these technologies are already “in hand”. The use of existing resources of consumers (such as the mobile phone) for a different purpose (such as exchanging money); highlighted the relevance of the network bricolage concept for the studying of alternatives for improving the sustainability of e-Government.

7.3 Network Bricolage

The Network Bricolage concept is used as an encompassing metaphor for this chapter. The concept assists in encapsulating the argument on the role of mobile technologies in e-participation. Bricolage is defined as “making do with what’s at hand” (Baker, 2007, Oliver and McKague, 2009). The notion is that people pool together various resources, skills and materials that they have access to and piece these together as a solution to current problems they may be facing (Baker, 2007). Bricolage indicates a resourcefulness (Baker, 2007, Oliver and McKague, 2009) in the face of a constrained resource base. The idea of network bricolage has been used in studies in a number of fields including business, anthropology, economics and political science to mention a few (Baker, 2007). In this chapter the idea was a suitable metaphor for the scenario in developing countries and the ICT4D domain specifically. Developing nations often have limited resources and a variety of competing goals thus it was fitting to see how current resources and local expertise that are available to e-Government implementers may be further exploited for the benefit of citizens and achieve e-Participation goals (Baker and Nelson, 2005). The South African context (as seen in Chapter 2) in particular necessitates such a consideration of the mobile technologies for citizens’ participation. The United Nations indicates that ICTs may be used to pursue development through focusing on including citizens in the process through what is viewed as e-Participation (UNPAN, 2012).

7.4 Access, Skills and Attitudes of Citizens

As per Klecun (2008) it is argued that e-participation depends on access, skills and attitude towards mobile technology use for e-government services. Given that e-

government initiatives are linked to sustainable development, any form of digital exclusion related to such initiatives necessarily compounds social exclusion, limiting people's opportunities for personal, social and economic development. It is believed that improvements in e-participation will positively impact on the sustainability of e-government initiatives in developing countries of Africa. Thus the chapter focused on socially excluded groups as the context for this study.

It has been proposed that people who are digitally excluded or have yet to adopt ICTs and the internet are "either hard to convince, under-skilled or simply lacking the financial resources to afford a connection" (Verdegem and Verhoest, 2008 :1). Thus this necessitates the need to research the areas of attitude, skills and access towards adoption.

In chapter two the background literature on user access to ICTs was offered. It highlighted that access remains a problem for governments worldwide. The World Summit on the Information Society (WSIS) utilizes the term "Universal Access" in relation to the provision of affordable ICT's to communities. This comprises of three components: availability (is it there), accessibility (can everyone use it), and affordability (can everyone afford to use it) (ITU, 2011b). In reflecting on the high adoption rates of mobile technologies the chapter views such technology as being accessible to the majority of citizens. This chapter contributes to the dialogue regarding how better access to various ICT and in particular mobile technology may further contribute to addressing the persistent digital divide in the context of growing mobile phone adoption in the developing world.

Furthermore the literature review chapter showed skills as an essential contributor to citizens adopting ICT. Skills are important for understanding how the digital divide may be bridged for the improvement of e-participation (Van Deursen and Van Dijk, 2011). Thus this chapter engaged on how improving user ICT skills may further contribute to addressing the persistent digital divide in the context of growing mobile phone adoption in the underdeveloped nations.

Also, chapter two elevated attitudes towards ICTs in connecting it to citizens' likelihood to adopt the technology. Attitudes are a significant element of explaining the adoption and diffusion of new technologies (Donat et al., 2009). Following this thinking, this chapter investigated how enhanced understanding of user attitudes towards ICTs may further contribute to addressing the persistent digital divide in light of undeniable acceptance of mobile telephony in the developing world. The conceptual model underlying the investigation is offered next.

7.5 Conceptual Model

This chapter investigated how e-participation as the basis for t-Government may be enhanced using mobile technology for socially excluded citizens in a developing world context. The chapter leaned on the conceptual model offered by Verdegem and Verhoest (2009) as per Figure 36 below. The model outlines several determinants of ICT appropriation. The model was deemed suitable since in this study the objective was to obtain a better understanding of e-Participation of citizens and what may influence their increased participation and appropriation of e-Government.

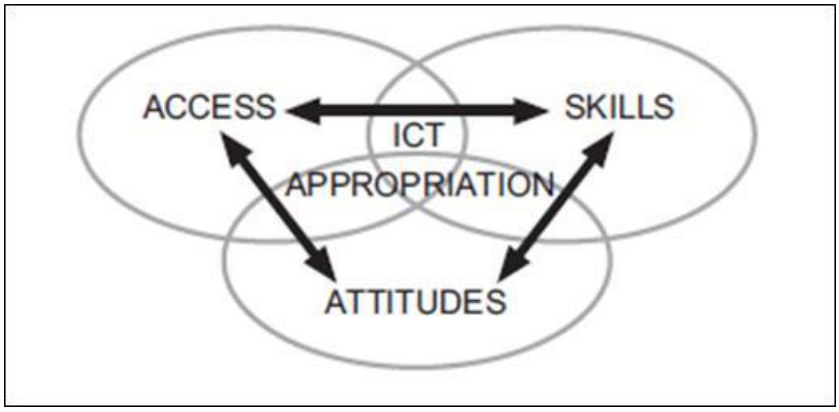

Figure 36: Access, Skills and Attitudes Framework. Source: Verdegem and Verhoest (2009)

7.6 Model Constructs

Several constructs were utilized in pursuing an understanding of e-Participation of citizens for sustainable social development as outlined below:

Table 30: Conceptual Model Constructs

Construct	Description	References
Access	Provision of ICT's to a particular community. Access that citizens have of mobile technology for e-Government.	(Verdegem and Verhoest, 2009) (ITU, 2011b)
Skills	The capabilities required for effective application of ICT systems and devices by the individual. Skills of citizens in using mobile technology for e-Government.	(Verdegem and Verhoest, 2009) (Herselman et al., 2010)
Attitude	An attitude is an individual's disposition to react with a certain degree of favourableness or unfavourableness to an object, behaviour, person, institution, or event – or to any discriminable aspect of the individual's world. Attitude of citizens towards using mobile technology for e-Government.	(Verdegem and Verhoest, 2009) (Ajzen, 1993)
e-Government Adoption /Use	Behavioural intention to adopt/use ICT The intention of citizens to adopt e-Government over mobile platforms.	(Bhattacherjee and Hikmet, 2007)

7.7 Model Proposition

The study essentially proposed that citizen access to ICTs such as the mobile phone; their skills in utilising the mobile phones and their attitude towards using the mobile phones for engaging in e-Government together influence how citizens perceive the utility of the e-Government offering. This subsequently contributes to their willingness to use e-Government and thus electronic participation. This proposed relationship is outlined in Figure 37 below:

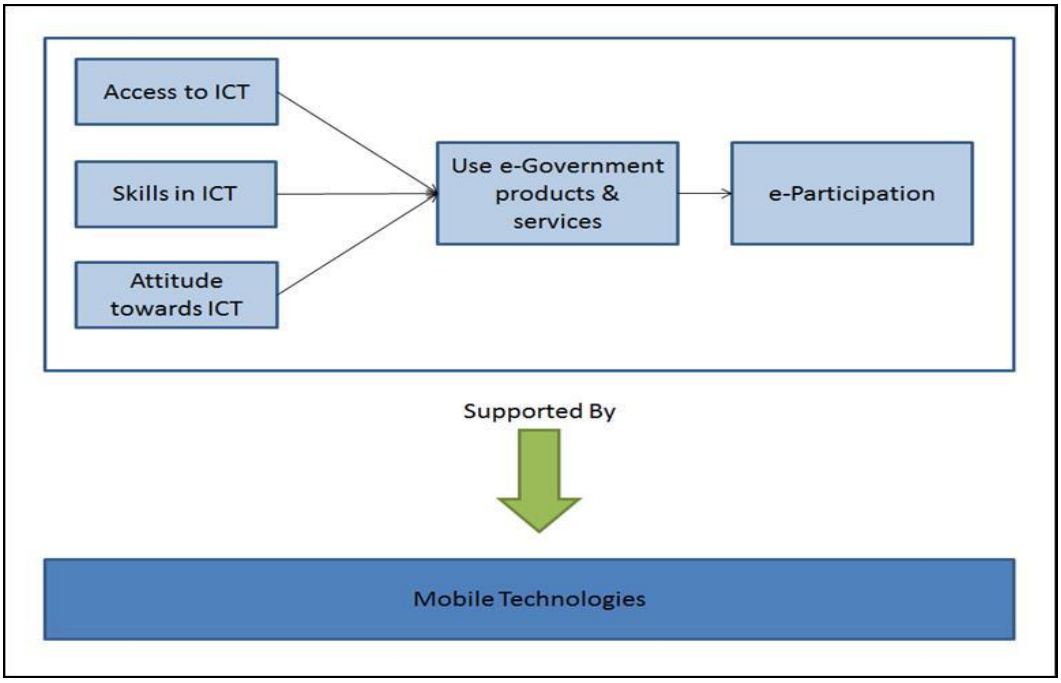

Figure 37: Proposed Relationship between the Primary Constructs

7.8 Research Methodology

As described in chapter three of this thesis the research methodology of this investigation was a survey. Danermark et al (2002) indicate that this method typically aligns to the extensive empirical procedures of critical realist based research. The instrument of choice was a self-administered questionnaire. The questionnaire was designed based on the Verdegem and Verhoest (2009) model (see Appendix D). It comprised two areas, firstly initial demographic statements and secondly statements for assessing e-Participation with regards to access, skills and attitude. A Likert scale was used to assess respondents' feelings towards the statements provided.

The survey method has been criticised for being non-temporal and sensitive to respondent biases which may influence internal validity (Bhattacherjee, 2012). However, the value that a survey method brought was the ability to obtain feedback from a larger group of respondents in a shorter period of time, than what would have been possible with interviews or perhaps focus groups. The study sought citizens' views on e-government and the survey supported this objective.

7.9 Research Procedures

The target population was South African citizens in general with a particular focus on those that are socially and digitally excluded. The main source of data collection was the economic hub of South Africa, the Gauteng Province. Non-probabilistic sampling methods were applied, namely a combination of convenience and judgement sampling. The non-probabilistic sampling techniques are critiqued for introducing sampling bias into the study and also not allowing for the estimation of sampling errors (Bhattacherjee, 2012). The convenience sampling was applied due to the proximity of the physical location of the respondents. The judgement sampling was applied due to a focus on specifically socially and digitally excluded groups of society. Data was collected at various sites in the province as per the table below.

Table 31: Overview of Respondent Sample

Site Name	Respondents (N)	Description
CIDA College – Johannesburg Campus	30	Members of the local community attending a Basic Computer Literacy course.
Pretoria University – Mamelodi Campus	90	Members of the local community attending a Basic Computer Literacy course.
Total	120	

In total, 220 questionnaires were administered[5], with 120 completed correctly providing a response rate of 55 %. The questionnaire resulted in quantitative data that was captured into the IBM SPSS tool. The data was reviewed for accuracy and completeness through regular spot checks during and after entry (Bhattacherjee, 2012). The data was subsequently analysed statistically using the IBM's SPSS tool. A cluster analysis was used to group variables by assigning polarities to the clusters using item means. Clustering is a statistical technique for classification of data where, essentially the

[5] The data set was part of an ongoing e-Governance project as described in Appendix C.

scholar partitions the data into meaningful subgroups (Fraley and Raftery, 1998) The method is practical, empirical, inductive and makes no preceding assumptions regarding significant differences in the population of interest (Punj and Stewart, 1983).

7.10 Model Reliability Analysis and Validation

The thirty-seven variables used to represent the e-government utility through mobile phones and Internet was assessed for reliability by computing the Cronbach's alphas. The Cronbach alpha is a statistical measure of the internal consistency or reliability of a measurement instrument (Tavakol and Dennick, 2011). In an initial reliability analysis, Cronbach's alpha for the 37 variables was .689. An inspection of the item-total statistics showed that if seven (AT2, S1, S2, S4, S5, AT8 and AT14) items were removed, the overall Cronbach alpha would be improved (0.739). These variables were therefore deleted, and a further check on the resulting item-total correlations showed that there is need to delete a further six items (AT3, AT4, AT12, AT13, AT15 and AT17). Further reliability analysis and deletions of variables (AT5, AC4, S10, AT19, AT20, AT11, AC5, and AT1) resulted in an improved Cronbach's alpha of 0.808, with 16 items being retained for subsequent analysis. There are various opinions on the acceptable value of a Cronbach alpha however a value of between 0.70 and 0.95 is generally deemed as favourable (Tavakol and Dennick, 2011).

Table 32: Item Total Statistics

Item – Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
MarketStrategy (AC1)	42.45	89.039	.324	.319	.803
Cost (AC2)	42.88	88.406	.369	.344	.800
Tangibles (AC3)	42.67	91.451	.240	.136	.808
Complexity (S3)	42.98	86.747	.446	.356	.795
RelativeAdvantage (AT6)	43.02	86.084	.488	.375	.792
Reliability (AT7)	42.94	88.291	.324	.273	.804
PerceivedRisk (S6)	43.18	82.722	.604	.485	.784
MarketStrategy (S7)	42.47	86.285	.418	.353	.797
Compatibility (AT9)	42.98	86.781	.371	.253	.801
Trialability (AC8)	42.69	84.719	.545	.408	.788
Complexity (S9)	43.22	85.717	.479	.321	.793
PerceivedSocialRisk (AT16)	43.07	89.189	.316	.257	.804
Trialability (S11)	42.39	86.526	.477	.399	.793
PerceivedFinancialRisk (AC6)	42.97	87.831	.366	.315	.801
SocialInfluence (AT18)	43.18	90.773	.259	.206	.807
SocialInfluence (AT10)	43.18	85.036	.528	.451	.790

Table 33 below outlines the initial reliability results utilising Cronbachs Alpha:

Table 33: Initial Reliability Analysis

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.689	.675	37

Table 34 below shows the final reliability analysis results also using Cronbachs Alpha where the items were reduced:

Table 34: Final Reliability Analysis

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.808	.809	16

7.11 Data Analysis and Results

The following section discusses the analysis and results.

7.11.1 Descriptive Analysis

Descriptive analysis focuses on statistically defining, aggregating and presenting constructs of significance (Bhattacherjee, 2012).There were three variables of interest (gender, age and education) that were used to capture the demographic profile of the 120 valid responses that were received. Just over half (55 %) were female while 45 % were male. The ages of the respondents were as follows: 6 % below 20 years; 39 % between 20 and 25 years; 18 % between 26 and 30 years; 18 % between 31 and 35 years; while 18 % were above 36 years. Thus the majority (63 %) of respondents were below the age of 30 years, which aptly placed the respondents within the generation Y category typically referred to as the 'millennials'. The demographic section of the questionnaire also captured the educational qualifications of the respondents in Table 35 below:

Table 35: Demographic Profile for Education Levels

Education		Frequency	Percent	Cumulative Percent
	No formal Qualification	9	7.5	7.5
	High School Graduate	75	62.5	70.0
	Diploma	8	6.7	76.7
	Undergraduate Degree	24	20.0	96.7
	Postgraduate Degree	4	3.3	100.0
	Total	120	100.0	

The table above further shows that 70 % of the respondents at most had a high school certificate; and the sample frame revealed that all the members of this group did not have any formalized computer literacy training and lived in economically disadvantaged

communities. The majority of respondents were also not in any form of formal employment, were classified as poor, with some of the elderly members receiving social grants of some sort. Thus, the theoretical sample realized a respondent profile that can be considered as socially excluded (socially, economically and digitally).

7.11.2 Cluster Analysis

The study aimed to test the assumption that socio-demographically related respondents yield similar profiles in terms of access (A), skills (S) and attitudes (AT) which would enable the crafting of a consistent ASA profile of the respondents. The 16 statements that remained after reliability analysis was conducted were coded in the following manner. Positive answers were attributed a plus (+) and negative answers a minus (-) as shown in the table below. For example, a respondent who fully agreed with the statement "If I were to use my mobile phone to access government services, it must be with a government department I am familiar with" is considered to provide an indication of a negative attitude and was awarded a Ac- (as per Table 36 below).

Table 36: Assigned Bipolarities

	1(Strongly Disagree)	**Cluster Means**	**5 (Strongly Agree)**
MarketStrategy (AC1)	Ac+	3.30	Ac-
Cost (AC2)	Ac+	2.87	Ac-
Tangibles (AC30	Ac+	3.08	Ac-
Complexity (S3)	S-	2.78	S+
RelativeAdvantage (AT6)	At-	2.73	At+
Reliability (AT7)	At-	2.81	At+
PerceivedRisk (S6)	S+	2.57	S-
MarketStrategy (S7)	S+	3.28	S-
Compatibility (AT9)	At+	2.78	At-

	1(Strongly Disagree)	Cluster Means	5 (Strongly Agree)
Trialability (S8)	S+	3.08	S-
Complexity (S9)	S+	2.53	S-
PerceivedSocialRisk (AT16)	At+	2.68	At-
Trialability (S11)	S+	3.36	S-
PerceivedFinancialRisk (AC6)	Ac+	2.78	Ac-
SocialInfluence (AT18)	At-	3.40	At+
SocialInfluence (AT10)	At+	2.58	At-

The assignment of positive and negative polarities allowed the ability to distinguish the respondents' answers in terms of bipolarities Ac+, Ac-, S+, S-, At+ and At- as shown in Table 37 below.

Table 37: ASA Bipolarities Descriptions

Dimension	Polarity	Description
Ac(cess)	+	Respondents have no problem with access to e-government using their mobile phone
Ac(cess)	-	Respondents have a problem accessing e-government from their mobile phones
S(kills)	+	Respondents are skilled sufficiently to use mobile phones for e-government
S(kills)	-	Respondents lack skills to use mobile phones for e-government
At(titudes)	+	Respondents have a positive attitude towards mobile technology for e-government
At(titudes)	-	Respondents have a negative attitude towards mobile technology for e-government

The scores for the 16 statements allows for the profiling of the respondents in terms of their ASA characterization using Hierarchical cluster analysis (SPSS). Various cluster outputs (5, 4, 3, and 2) were analysed and a three cluster solution was interpretable and

made theoretical sense to enable for the ASA characterization. The cluster analysis outputs that were considered relevant for further analysis were: Agglomeration schedule (Table 38), cluster membership (Table 39) and the dendrogram (Figure 38). The dendrogram, which is a tree diagram, is a useful tool for determining the cluster number (Forina et al., 2002). Below the dendrogram provides a visual display of the clustering of the variables into three major clusters, which is confirmed by the agglomeration schedule. The outputs are indicated below:

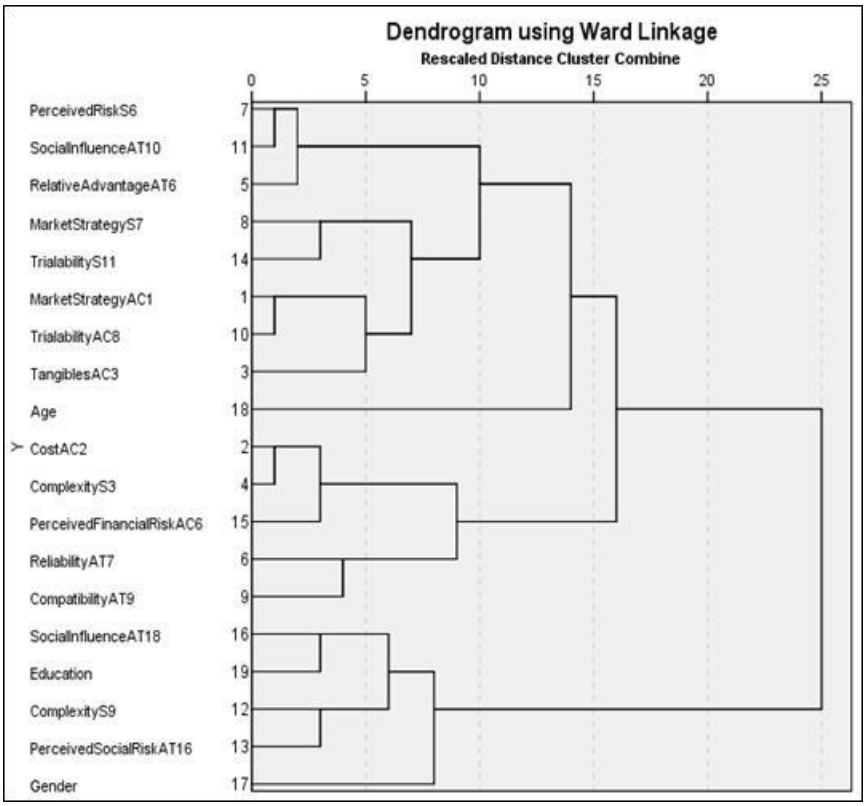

Figure 38: Dendrogram

The agglomeration schedule demonstrates the level of inaccuracy resulting at each clustering stage when two different objects are brought together to create a new cluster. A significant leap from one value to the next demonstrates that two different groups have been brought together and thus there is a significant difference at that point of joining the two groups (Byrne, 1998). The coefficients column in the agglomeration schedule shows the distance statistic used to form clusters. According to the agglomeration schedule, the important values to consider are the coefficients, which provide an indication as to the

number of clusters which can meaningfully be extracted. Starting with the bottom coefficient (stage 18), the analysis advances upwards while on the searching for the point at which there is the greatest leap between any two adjacent coefficients. The greatest jump occurs between coefficient 2313.156 (stage 16) and 2062.225 (stage 15), which indicates that three meaningful clusters are likely (counting from the bottom). The agglomeration schedule also shows how the various items have been clustered through the various stages. For instance, at stage 1, items 7 (S6) and 11 (At10) are combined in a cluster as shown in the dendrogram (figure 38) and confirmed in the table 39 of cluster membership. According to table 35, the two items belong to cluster 1. Likewise, at stage 2 in the agglomeration schedule, items 2 (Ac2) and 4 (S3) are combined into cluster 2. The combination of the various items as confirmed through the dendrogram and the agglomeration schedule results in the overall cluster membership shown in table 38 and summarized in table 39.

Table 38: Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	7	11	93.500	0	0	4
2	2	4	190.000	0	0	7
3	1	10	294.500	0	0	10
4	5	7	405.000	0	1	15
5	16	19	521.500	0	0	11
6	12	13	641.500	0	0	11

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
7	2	15	763.667	2	0	14
8	8	14	886.167	0	0	12
9	6	9	1024.167	0	0	14
10	1	3	1167.667	3	0	12
11	12	16	1327.917	6	5	13
12	1	8	1492.217	10	8	15
13	12	17	1671.867	11	0	18
14	2	6	1866.400	7	9	17
15	1	5	2062.225	12	4	16
16	1	18	2313.156	15	0	17
17	1	2	2579.829	16	14	18
18	1	12	2954.947	17	13	0

Table 39: Cluster Membership

Case	3 Clusters	Assigned Polarity
MarketStrategy (AC1)	1	Ac+
Tangibles (AC3)	1	Ac+
RelativeAdvantage (AT6)	1	At-
PerceivedRisk (S6)	1	S-
Trialability (S8)	1	S+
SocialInfluence (AT10)	1	At-
MarketStrategy (AC7)	1	AC+
Trialability (S11)	1	S+
Age	1	
Cost (AC2)	2	Ac+
Complexity (S3)	2	S-
Reliability (AT7)	2	At-
Compatibility (AT9)	2	At+
PerceivedFinancialRisk (AC6)	2	Ac+
Complexity (S9)	3	S+

Case	3 Clusters	Assigned Polarity
PerceivedSocialRisk (AT16)	3	At+
SocialInfluence (AT18)	3	At+
Gender	3	
Education	3	

Cluster 1 comprised of the following items, taking into account the polarities captured in Table 36:

Market_Strategy (AC1): If I were to use my mobile phone to get government services, it must be with a government department I am familiar with

Tangibles (AC3): The way to access government services using a mobile phone is not clear

Relative_Advantage (AT6): I do not know how to use mobile phones to access government services.

Perceived_Risk (S6): I cannot use the mobile phone to access government services by myself

Trialability (S8): I would like to see others use mobile phones to access government services before I try it out for myself

Social_Influence (AT10): I am interested in using the mobile phone to get government services, but only if my friends and family are doing so

Market_Strategy (S7): If I would consider accessing government services using my mobile phone, someone needs to explain to me how to do it

Trialability (S11): Before using the mobile phone for accessing government services, I would like the advice of some people

According to the polarities obtained from the means, respondents considered that accessing government services utilizing mobile phones can be with any government department (AC1); that the process is clear (AC3) and that they can try out the process independently of others (S6, S7, S8, S11; At10). There were no negative polarities associated with Cluster 1, with a majority of the respondents indicating that they possess the skills (S6, S7, S8, S11) and the interest (At10) to use the phone independently of any social influence to access (AC1, AC3) government services. Therefore the name assigned to this cluster is, "Capable and Interested within a Social Network". Cluster 1 was also combined with the Age variable, and the descriptive analysis performed earlier showed that 63% of the respondents were below the age of 30, which may allow for a preliminary claim that the "youth" have the skills and the interest to use mobile phones for e-government access, but the influence of their social network cannot be ignored in embedding e-government as part of the mobile phone artefact. This claim is backed by several studies that show how the mobile phone is becoming a communications platform for the youth around the world (Kreutzer, 2009, Selian and Srivastava, 2004, Walsh et al., 2008). Thus, the fact that "age" clusters with these items confirms assertions that have been made in other research projects. Given this finding, a number of implications can be envisaged, particularly related to how e-government can be crafted and positioned taking into account the mobile platform.

Cluster 2 comprised of the following items, taking into account the polarities captured in Table 36:

Cost (AC2): Using the mobile phone to access government services seems expensive

Complexity (S3): I fear that using a mobile phone for government services is rather complicated for me

Reliability (AT7): I doubt that the mobile phone is good enough for providing government services

Compatibility (AT9): I prefer walking into a government office for service instead of using the Internet

Perceived_Financial_Risk (AC6): I fear that using my mobile phone to communicate with government would exceed my budget

An analysis of cluster 2 reveals that three items at positive polarities (AC2, AT9 and AC6); while two items had negative polarities (S2 and AT7). Item AC2 sought to assess the perception of respondents regarding the issue of the cost of telecommunications and the internet often mentioned as a hindrance in developing countries. The overriding sentiment rejects such an assertion and respondents largely regard using mobile phones for e-government services as inexpensive. It perhaps may also be that the need for government services online far outweighs the perceived notion of high telecommunications costs. This finding is similar to a study by Kreutzer (2009) that found that youth in a poor community had unexpectedly high mobile telephony spending and were prepared to pay for accessing beneficial mobile services (Kreutzer, 2009). The AT9, the third item with positive polarity also rebuts the perception that citizens prefer walking to a government office for services if there is access through the Internet. This perception should provide impetus for considering the Internet and specifically, mobile technology as an e-government platform. The third positive polarity also focused on aspects of access costs, and a majority of the respondents are of the view that utilizing the mobile telephony for e-government will not exacerbate their costs. On the other hand, negative polarities were captured by AT7, which supports the view that in fact using the mobile phone for e-government is not good enough or is inadequate. The other item with negative polarity (S3) was skills related, in which respondents expressed fear that using the mobile phone for e-government services may be complicated. So the negative polarities are related to attitude and skills, which breeds some level of scepticism towards the use of mobile phones for e-government; though there are dominant positive polarities in items AC2, AT9 and AC6. Thus this cohort of respondents is referred to as 'Sceptical Optimists' given that they prefer online services over manual (AT9) and that access costs/budget are within their reach; though there may be complications in using the mobile phone for government services.

Cluster 3 had three items related to the utility of mobile technology for e-government access (S9, AT16 and AT18) but was also demographically clustered with gender and education. All the three items had positive polarities and emphasized the following:

Complexity (S9): I fear that using the mobile phone to access government services will make it more complicated to use.

Perceived_Social_Risk (AT16): If I were to use the mobile phone to get in touch with government, my friends and family would look odd at me.

Social_Influence (AT18): Even if I am interested, I would not access government services through my mobile phone if my friends and family have a negative opinion about it.

All the three items had positive polarities, thus the respondents disagreed that using the mobile phone for e-government access will make mobile telephony complicated to use (S9); which is linked to skills related to using the mobile phone. Thus the addition of a service in the device does not make it more complicated to use. The other two items were related to attitudes, where respondents negated the view that the perception and opinion of family and friends does not influence the decision to use mobile phone for e-government (AT16; AT18). Subsequently, this cluster is labelled as 'Mobile Government Optimists'. The items in this cluster are also cluster with the gender and education variables. As was shown in the descriptive section of the analysis, there were 55 % female and 45 % male respondents; which captured a proportionate representation of the gender variable. However, it is in linking the level of education of the respondents that the results of this cluster are instructive. As per the descriptive analysis, 70 % of the respondents only had a formal education of up to 12 years and did not qualify to enrol at university. They therefore may be regarded as 'uneducated' by some definitions, low skilled and as was shown in the sample, are poor. Yet despite their level of education, the positive polarities captured in this cluster point to strong attitudes supportive of using the mobile computing platform as a basis for e-government.

7.12 Discussion and Interpretation of Results

One key emphasis in the literature review chapter was to position the notion of mobile government within developing countries within the ICT4D discourse. Part of the argument was that for e-Participation to be realized a focus on the mobile computing platform is important in Africa and that the ICT4D metaphor provides an adequate structuring device in a developing country's context. In the next section, the discussion of results is structured around the concept of 'Bricolage' that was introduced earlier. It also connects the results to implications for the realization of e-Participation strategy in the developing nations of Africa.

7.12.1 Network Bricolage for Sustainable e-Participation In Africa

The concern in this chapter was how to contribute towards achieving social sustainability of e-government, for realizing user participation (e-participation). The preoccupation with e-participation from various studies relates to the fact that e-government has generally had an ineffective citizen-centric focus; thus scholars and practitioners alike battle with alternative conceptualizations of e-government based on a mobile computing platform (mobile government). From the analysis reported earlier, it is claimed that; while the mobile technology platform was not intended for realizing e-government, it offers a potential for realizing the sustainability of the e-government concept in Africa. Insight into the prior analysis was sought through following the metaphor of Bricolage, which provides a way of re-thinking the issue of user participation in terms of unintended consequences of a technology (Ciborra, 1994, Ciborra, 1998). In other words, mobile technology needs to be embraced as a necessary resource for realizing the goals of e-government, as revealed from the analyses above. 'Bricolage', which Ciborra (1998) views as tinkering through the combination of resources at hand, implies that the mobile device, which has found various uses in Africa and is readily available, can be leveraged for realizing e-participation for t-Government.

For instance, the analysis showed that a majority of respondents were clustered as 'Mobile Government Optimists', yet interestingly, the demographic profile of the

respondents are socially excluded and belong to the 'bottom of the pyramid (economically as well as socially). The optimism and hopefulness, expressed by this demographic profile, supports the claim that for social sustainability of e-government and its various forms to be achieved, the readily available resource of mobile devices need to be taken into account when conceptualizing an e-participation strategy. Thus the realization of the public value of e-government in the developing nations implies taking the opportunity for building e-government solutions on a mobile platform, and in the language of Bricolage, is a resource that allows for "making do by applying combinations of the resources at hand to new problems and opportunities" (Baker and Nelson, 2005:333). The significance of this finding is to debunk the 'myth' of technological complexity of the mobile phone as a platform for e-government cognizant of studies that show that the issue of concern in 'digital divide' is on electronic illiteracy (Ochara, 2012). The positive attitude and the skills apparent in mobile phone use amongst this group (the "Mobile Government Optimists") requires moving beyond the constraint of this 'myth' and conjecture to boldly adopt and adapt the mobile computing platform as one of the foundations for e-participation. However, given this opportunity provided by mobile technology for creating an e-participation strategy, there are various challenges foreseen. The next two sections attempt to put forth a resolution, based on the outcomes of the prior analysis.

7.12.2 Network Bricolage for Sustainable Mass Scale Adoption

The cluster analysis that was referred to as "Capable and Interested within a Social Network" provides some indication of how to achieve mass scale by focusing on socially excluded groups. The demographic profile of the respondents has been shown to belong to the socially disadvantaged in the community and as was analysed in table 35, the problem of mass scale adoption is rarely of access (as was shown by the positive polarities of AC1, AC3 and AC7 in conjunction with S8 and S11) but is typically related to factors that hinge around attitudes (AT7, AT10) and skills (S6). This confirms views that have been expressed by ICT4D authors who suggest looking beyond the regularly cited problem of equitable access for correcting the digital exclusion problem (Gomez and

Gould, 2010, Roman, 2003). In addressing mass scale adoption of e-government, the clustering of variables (AT7, AT10 and S6) provide, in a preliminary sense, a linkage to making use of the social networks of individuals as a basis for improving the social resource base (see Warschauer, 2004) for persons interested in e-government. It is in elevating the social network of the individual that the metaphor of network Bricolage becomes appropriate as a lens for explaining mass scale adoption.

The social network of the individuals is instrumental in building confidence in attitudes and ability to use mobile devices for e-government services. In their study Verdegem and Verhoest (2008) concluded that social networks are important for ICT adoption. This is linked to the improvement of the Social Capital or Social Resources of a community, hence an individual. Social capital is a shared resource of communities and there is evidence that such resources contribute towards the development of communities (Warren et al., 2001). There are two aspects related to developing confidence, which is at the individual level as well as at the broader social network (various organizing forms) level. Organizing forms are the immediate structures that the individual interacts with frequently to assist in ordering his or her life. These organizing forms are generally not part of the mainstream public sector and include institutions such as churches, schools, market places, informed retailers, community centres, family and friends. This form of social co-ordination is based on a network mode of governance (Lowndes and Skelcher, 1998), and thus network Bricolage inevitably becomes the process for developing the social capital for socially excluded groups. If the social resource base is weak, then the result is weak communities and individuals who are not empowered, with negative attitudes and lacking skills necessary for empowering them to use mobile devices for e-government. A strong' social resources base results in confident communities.

In sum, the implication of the finding, that individuals fitting the demographic profile of this study are actually “capable and interested in using mobile devices for e-government, within their social network” brings to the fore the role that social capital plays in mass scale adoption of e-services. Development of social capital is typically achieved within informal networks and organizing forms, sometimes outside the control of e-government planners and implementers. Thus, while recognizing the influence of the social network

in influencing mass scale adoption of various forms of e-services, at the practical level, how to mainstream local practices in e-government strategy still remains a challenge.

7.12.3 Electronic Literacy as a Basis for an e-Participation Strategy

Insights from the analysis of cluster 2, which was named 'Sceptical Optimists', point towards a need to crafting the e-participation strategy hinged on the concept of electronic literacy. Electronic Literacy encompasses computer literacy; information literacy, multimedia literacy and computer-mediated literacy (Warschauer, 2004). The positive clustering of the variables and respondents around AC2, AT9 and AC6 provide unequivocal preference of online government services (where applicable) over manual services, thus the connotation of optimists in the naming of the cluster. However, the optimism is moderated by negative polarities related to S3 (using a mobile phone for government services will be complicated) and AT7 (mobile phone is not good enough for government services), thus the connotation of scepticism in the naming of the cluster. The scepticism portrayed by the analysis as a quest to be convinced (resulting in change of attitude – AT7) was linked to the uncertainty regarding the level of skills required for using a mobile phone for e-government (S3). These two challenges that generate scepticism on the utility of mobile technology for e-government are partly addressed by re-orienting the e-government and e-participation strategy as founded on an electronic literate population. Attention on nurturing e-literacy emphasizes the use rather than connectivity, which has up till now been the main driver for galvanizing national information infrastructure investments in Africa; yet e-literacy continue to be ignored. Therefore, priority should concentrate on information and computer literacy, which can be achieved through the mediation of the various forms of organizing closer to the individual actors.

7.13 Summary

The chapter focused on the social sustainability of e-government projects by considering the role that mobile technology can play amongst socially excluded groups in developing countries. It is believed that "As citizens across the world increasingly turn to mobile technology as their main source for news, information and connecting with others, m-government is expected to continuously expand" (ITU, 2011a:107). The survey in this chapter supports these emergent beliefs. The results indicate that, despite the predominant perception that socially excluded groups typically lack the skills, equitable access and the right attitudes for e-inclusion (Verdegem and Verhoest, 2009); mobile technology provides a feasible platform for enhancing citizen e-participation. The investigation indicated that the socially excluded groups are optimistic about the potential of mobile technology even though there are minimal formal structures and policy guidelines on how mobile technology can play a role in e-participation. It presented the notion of 'tinkering' and Bricolage as critical in shaping the skills and attitudes related to use of mobile phones for e-government access, despite their social exclusion from the mainstream of society. Further, that daunting decisions related to how mobile technology can be used for e-government are best handled within local organizing forms, which enabled the accessing of these local connections using the metaphor of network Bricolage. In other words, the social capital necessary for enhancing e-participation of individuals are best exploited through the local organizing forms such as churches, schools, and community forums. The recommendation that emanates from this claim is that in order to improve e-participation of socially excluded groups, local organising forms and the formal institutional infrastructure of the government need to be "joined up". This requires linking disparate organising and the administrative institutions of governance. A "joined up" (Jones, 2012) perspective supports the call for t-Government since citizens become central to the modes of e-government delivery rather than being viewed as passive consumers of government driven designs. The results also highlighted a level of scepticism related to the potential of mobile technology in augmenting government services. However, the analysis revealed that the scepticism is partly linked to aspects of electronic illiteracy. Thus the recommendation is that for e-government to move beyond

myth status, ICT education should embrace electronic literacy, not only in formal educational setups but also in work practices. It is through such efforts that the idealisation of t-government and ICT actually impacting the lives of citizens may start to gain traction.

CHAPTER 8: TOWARDS A T-GOVERNMENT FRAMEWORK

"Science is much more than a body of knowledge. It is a way of thinking."

Carl Sagan

8.1 Introduction

The objective of this research study was to understand how t-Government may be conceptualised and realised within a developing country context. In this undertaking the thesis was underpinned by the critical realist philosophical paradigm. Critical realist researchers pay attention not only to the events that are observed in the world but also to the unobservable mechanisms which may have generated those events. This chapter accordingly aimed to delve into the world of mechanisms that may be behind the manifestation of t-Government. The chapter begins by reflecting briefly on the research problem and applicable questions. It then discusses Retroduction as a critical realist mode of inference and how it was applied within this thesis. The chapter then synthesizes the lessons learned from the literature, data analysis and process of retroduction by offering a conceptualisation and framework for t-Government.

8.2 Revisiting the Research Question

This study was concerned with the emerging area of Transformational Government within the e-Government domain. The problem that was pursued in this research was the need for conceptual clarity on the notion of Transformational Government so as to highlight if and how it is achievable in a developing country context. This study supported the call by Fernando et al (2010) who lamented that "there has been very little description on what t-government means in the academic literature" (Fernando et al., 2010:55). The study also aligned to the recent calls for IS scholars to focus on the "big questions of e-Government research" in that it sought to understand e-Government programmes and their impact on citizens (Yildiz, 2013, Yildiz, 2012, Bebbington et al., 2007). This research was rooted in the ICT for Development arena and the purpose of the study was to understand t-Government for a developing country context. The study

investigated how t-Government is conceptualised in government departments using South Africa as its main source of data. The study sought to answer the question*: How is Transformational Government conceptualised within sub-Saharan Africa for Developmental Impacts*? Thus the objective of the study was to:

1. Determine how transformational government is conceptualised in a developing country.

2. Contribute towards a conceptual framework of transformational government

8.3 Critical Realist Inference

As a critical realist based study, the aim was to understand not only the t-Government phenomenon but also what may be behind this phenomenon. However, the mechanisms resulting in the phenomena exist in the domain of the real (see Chapter 3) and thus they are not directly observable. Thus this required the researcher to undertake a process of thought operations and inference that may reveal the underlying mechanisms.

The researcher relied on the process of retroduction to do so. Retroduction borrows from the realist meta-theory which stresses the difference between what we observe and the real domain of structures and mechanisms (Danermark et al., 2002). Retroduction involves "advancing from one thing (empirical observations of events) and arriving at something different (a conceptualization of transfactual conditions)" (Danermark et al., 2002:96). In essence the scholar "moves beyond a specific ontic context to another, hence generating an explanation that embraces ontological depth" (Downward and Mearman, 2007: 88). Thus the researcher is partaking in a thought exercise that is not only focussed on formalised and structured logic but also infuses creativity.

Retroduction is based on a transcendental argumentation which aims to understand what makes a particular phenomenon possible. Thus the process of retroduction places the following question at the fore*: What makes X possible?* It is assumed here that X is some phenomena under study that the researcher is trying to explain. In this study the question underpinning the process of retroduction was: "*What makes t-Government*

possible"? Or put differently: "*What must reality be like for the existence of t-Government?*"

The researcher used this question to drive a thought process involving the following steps:

- Asking what are the key lessons from the literature review (Chapter 2)?
- Asking what were the key lessons from the data analysis chapters (Chapter 4, 5, 6, 7)?
- Enquiring about what makes the outcomes (observations) of the data analysis chapters possible?
- What mechanisms may explain these observations?
- Are there alternative mechanisms that may drive these observations?

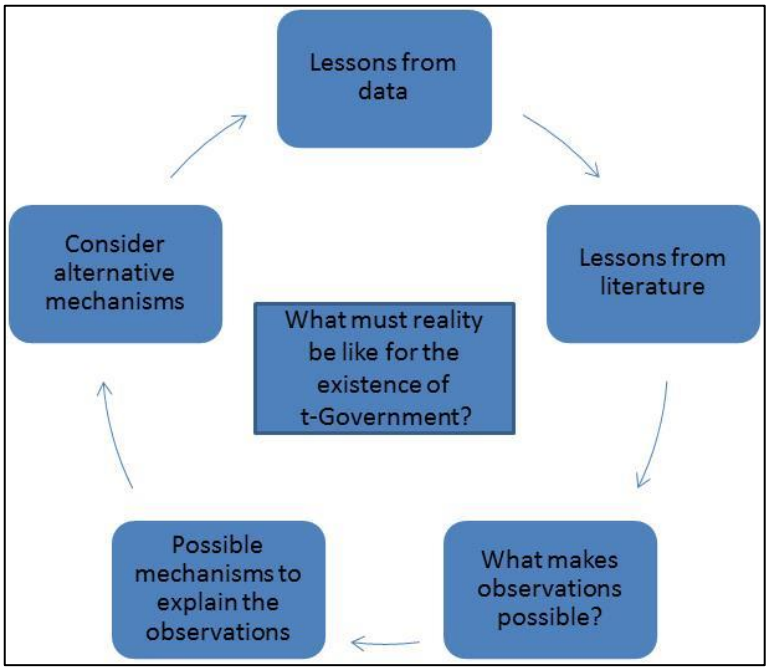

Figure 39: Retroduction Thought Processes

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

The process was reflective, iterative and non-linear. It aimed to propose reasonable and logical explanations for what is observed and what is required to make t-Government a reality. Retroduction assisted in exploring the conditions, structures and mechanisms that are in action and accordingly constructing a link between deep structures and empirical observations (Sæther, 1998).

8.4 Key Lessons from Empirical Observations

Each of the data analysis chapters brought through a different angle of thinking about t-Government. The essence of the chapters is outlined below:

Chapter Four focused on understanding the alignment of South African ICT strategic plans towards t-Government. Several themes came through the analysis in this chapter. Firstly, it was evident that there was an inconsistent view of what transformation is required and how this may be achieved through the support of ICT's by the various ICT Government departments. This inconsistency was traced to several contributing factors. The area of t-Government is still new and therefore lacks clarity in conceptualisation. To recap our current conceptualisation within ICT enabled development initiatives is problematic for attaining t-Government. It is driven by economic rationality, overly technically focussed and requires a more socio-technical understanding to be brought into the public sector. The current conceptualisation limits the view of ICTs to that of "tools" rather than broadening it to be viewed as part of an ensemble. The use of ICTs is mainly conceptualised as a driver of the economy. There is a deficiency in the conceptualisation of how ICTs may be used for specific ICT4D interventions. Thus leading to a mismatch of outcomes vis-à-vis expectations.

The current *policy and regulatory environment* of the country has proved to be frustrating the potential utilisation of the ICTs to support the development goals of the country. There is also a lack of *institutional capacity* to support the attainment of t-Government. The country has drafted a policy on the requirements of public service delivery in the form of *Batho Pele*. However, government organisations have failed to institutionalise these fundamental principles into their operations. Furthermore, investments in ICTs

continue in the face of a dearth of evidence that ICTs have indeed contributed to development fuelled by *e-Government myths*. South Africa's public governance is still rooted partly in *New Public Management ideologies* and this requires a reorientation to citizens through consideration of Public Value principles for service delivery.

Chapter Five explored the role of e-Participation in the attainment of t-Government. It reviewed the role of citizen participation within a large scale e-Government project. It found that there is a discrepancy in how public sector officials sought citizen participation in project conceptualisation, design and delivery. Thus there was a *lack of a two-way interaction* that positioned citizens as co-decision makers and co-creators in service delivery. The chapter showed that the government had failed specifically in four areas that they have committed to in the service charter policy of the public sector. These were:

1. The principle of **Consultation** - *People must be consulted about the level and quality of public services they receive and wherever possible be given a choice.*
2. The principle of **Information** - *People should be given full, accurate information about the services they receive.*
3. The principle of **Openness and Transparency**- *People should be told how government departments are run, how much they cost, and who is in charge.*
4. The principle of **Value for Money**- *Public services must be provided economically and efficiently.*

It is believed that an opportunity exists for the government to further explore how *the attainment of e-Participatory modes of governance* may support t-Government.

Chapter Six analysed the views of municipal local government officials on the role of ICTs in assisting them in the delivery of their mandates as primary providers of government services. The respondents believed that ICTs have a role in supporting and enabling development goals. However, the respondents voiced *multiple barriers* that required corrective actions if t-Government is to be attained. These were grouped into four thematic areas: Governance, Organisational and Managerial, Access to Resources and Technology, and Citizen Factors. The sub-themes that were unearthed ranged from a dearth of skills and funding to poor leadership and the political will to recognise the

potential value of ICTs. The findings indicate that for ICTs to be transformational there needs to be a consideration of the political context, culture and business processes bearing in mind the multi-actor environment and organisational setting. The respondents supported the call for an alternative conceptualisation of e-Government placing a greater emphasis on citizen's involvement.

Chapter Seven draws on data collected from citizens since the underlying proposition of t-Government is centred on a re-orientation to citizen inclusion for citizen benefits and impacts the study canvassed this critical group. The results indicate that, although socially excluded groups typically lack the skills and equitable access for e-inclusion, *mobile technology* provides a feasible platform for enhancing *citizen e-participation.* The majority of citizens that are the main target of t-Government initiatives have a mobile phone in hand and are optimistic about the potential of mobile technology even though there are minimal formal structures and policy guidelines on how mobile technology can play a role in e-participation. The study also highlighted the need for addressing electronic illiteracy through formal and informal ICT education efforts. These should ideally be coupled with the use of local organising forms in communities to allow citizens to be partners in service design while accessing social capital for the purposes of enhancing their e-participation.

8.5 Key Lessons from the Literature Review

8.5.1 Nature of Development

The definition of development is fraught with disagreement. This study leaned on the South African government's perspectives and objectives as a developmental state. Thus for the purposes of this study, development is represented by the framework provided by the National Planning Commission of South Africa. The Commission views the attainment of development as all South Africans having a decent standard of living through eliminating poverty and reducing inequality (NPC, 2012). Thus it is understood

that for South Africa development is equated to the achievement of a decent standard of living for every citizen. A decent standard of living includes:

- Nutrition and a clean environment
- Quality healthcare
- Employment
- Quality education and skills development
- Recreation and Social Protection
- Housing
- Water, electricity and sanitation

This may be achieved through efforts of the state in conjunction with citizens, business and the NGO sector.

8.5.2 T-Government Concept

The prevailing normative and technocratic view of e-Government is unsettling since "how" e-Government impacts people is lacking therein. There is a need to understand "what works" and less of a preoccupation with achieving certain phases of e-Government deployment. This is why there is a pertinent call for t-Government which has a focus on government's ICT initiatives transforming the lives of citizens. The conceptualisation is ideally based on a more adaptive, synthetic, socio-technical and citizen centric emphasis of t-Government.

8.5.3 Public Value Principles

Public interventions are driven by the attainment of public value. This public value is the value created by the government through their services. Public value is defined by

citizens since they entrust certain resources and powers to the state in lieu of benefits. There is a need to carefully consider the public value of ICTs if they are to have an impact on citizens. Citizens value outcomes, services and trust. Thus the focus of t-Government should be on how to improve outcomes and services and also increase trust as alternatives to the NPM conceptualisations that have dominated e-Government. The values that underpin the attainment of public value in South Africa are encapsulated in "Batho Pele" principles for the public sector. It is believed that these values may be applied to developing contexts in general.

8.5.4 E-Participation of Citizens

The focus of t-Government on citizens requires an assessment of how ICTs may be used to support development while including citizens in the process. T-Government is built together with citizens for their benefits and ICTs can support this participatory form of governance and service delivery. There needs to be an improvement in the e-inclusion of citizens for their empowerment. This should be supported by a building of citizen's skills and improvement of digital access.

8.5.5 Sustainability and Evaluation

T-Government is distinct from e-Government in particularly how it is evaluated. T-Government evaluates not on the attainment of technological levels but on benefits realisation. This is done from a multi-stakeholder perspective for defining and measuring efficiency, effectiveness and the value attained by citizens. This alternative perspective of defining success means that it is localised to the particular context of the community and thus drives sustainability of the initiatives due to the involvement of that particular community.

8.6 Mechanisms for t-Government

Critical realism aims to explain phenomena rather than predict it. This goal of explaining social phenomena requires an appreciation of the duality of society. The interaction between the macro and the micro in society should be highlighted through observing structure and agency (Avgerou, 2008). This may provide insights into the mechanisms behind the phenomena. Taking this into account Hedström and Swedberg (1998) put forth generic mechanisms to help understand social phenomena. These included: Situational Mechanisms, Action-Formation Mechanisms and Transformational Mechanisms. The Situational Mechanism (Macro-Micro) indicates how the prevailing macro level conditions influence individual level actions and behaviours. The Action-Formation Mechanisms (Micro-Micro) highlight the actions of individuals and how individuals interact with each other. Ultimately the interactions of groups of individuals result in macro level outcomes, referred to as Transformational Mechanisms (Micro-Macro) (Hedström and Swedberg, 1998).

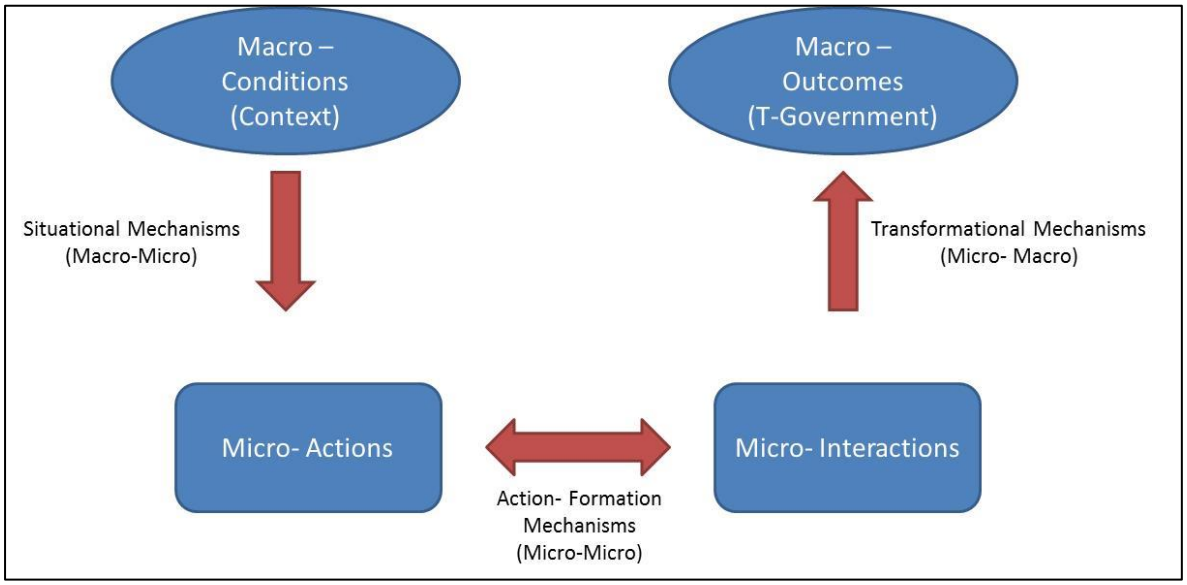

Figure 40: Generic Mechanisms (adapted from Hedström and Swedberg, 1998)

The pursuit of mechanisms that may influence the progress of developing nations towards t-Government was structured using Hedström and Swedberg's (1998) proposed model of generic mechanisms based on an analytical dualism of the macro and the micro

elements. The review of the literature and the data from the doctoral study teased out several pertinent mechanisms as summarized in the table below:

Table 40: t-Government Mechanisms

Proposed Mechanism	Category
Participatory Governance	Situational
Transformative Technology & Infrastructure Innovation	Situational
Transparency and Trust	Action Formation
Public Sector Effectiveness	Action- Formation
Monitoring and Evaluation	Transformational

8.7 Discussion

Mechanism based explanations of social phenomena draw on the actors involved, their actions and interactions within a particular context. In the case of transformational government social outcomes it was necessary to understand the macro-level drivers and micro-level contributors.

8.7.1 Participatory Governance

A Policy, Regulatory and Legal environment that places citizen participation central to public sector initiatives is necessary to drive t-Government within a broader ICT4D agenda. This will be driven by a public value ideology that requires a move away from the historical New Public Management based conceptualisation of t-Government.

The literature indicates that an improvement in wellbeing represents development and includes not only basic needs but also the right to live in dignity, freedom, have choice and participate in decision making (Alexander and Phahlamohlaka, 2006). Also, trends show citizens becoming increasingly dissatisfied and disengaged with their governments and subsequently there is a search for new styles of governance through the engagement of citizens (Torres et al., 2005, Worldbank, 2011a).

T-Government is concerned with improving government decision making and services through ICTs supported by increased citizen participation (Fernando et al., 2010). The basis of the Participatory model is a complex multidirectional interaction with a discursive flow of information between citizens and government (Chadwick and May, 2003). This interaction pursues public value within ICT enabled initiatives. The public value is defined from the citizen perspective (Kelly et al., 2002). Citizens value outcomes, services and trust. It is also proposed that this participatory governance rests on several organisational values that enable it to be operationalized. These are Consultation, Information, Openness and transparency, Value for money (DPSA, 2009).

The data on the other hand indicates a chequered existence of Participatory Governance. The policy analysis of government departments indicated that rhetoric on participatory governance was picked up explicitly from one national government department's document. Furthermore analysis at the provincial and local government levels showed that poor participatory governance has delivered a lack of impact and sustainability of t-Government programmes. It also showed that there is a gap between what national government expresses in their policy documents and what the implementers experience at the local government level.

Social sustainability, as it relates to information and communications technology for development (ICT4D), needs a concerted focus on citizen participation in governance. It also requires the acknowledgement of local customs, cultural differences within communities, the emancipation of marginalized sections of society, and also sharing goals with local people while adapting to the ever changing community needs (Avgerou, 2010, Silva and Westrup, 2009, Hayes and Rajão, 2011).

It is therefore argued that citizen based participatory governance is necessary for t-Government existence. This will drive the citizen participation and collaboration that has been found to be lacking within e-Government initiatives. Citizens ultimately participate in governance processes and collaborate on service delivery contributing to t-Government.

8.7.2 Transformative Technology and Infrastructure Innovation

To deliver t-Government to the majority of citizens requires supportive technology and infrastructure. It is proposed that for the developing world context this may rely mostly on mobile platforms and Web2.0 for mass scalability. As cited these technologies are perceived as part of an ensemble working toward the use of ICT in specific development projects in areas such as health, education and employment for citizens.

There is also a dissatisfaction with the prior ICT4D trajectory (referred to as ICT4D 1.0) and Heeks (2008) believes there is a shift towards a new phase which addresses the dismal outcomes experienced thus far. Referred to as ICT4D2.0 this phase focuses on sustainability, scalability and impact evaluation of ICT4D projects and is bolstered by the increasing uptake of mobile phones and the advent of Web2.0 innovations to ensure benefits for citizens (Heeks, 2008, Silva and Westrup, 2009).

The literature has shown that new technologies hold the potential to create opportunities for transformative change in a developing country context (Njihia and Merali, 2013). Research also indicates that technological developments help organisations innovate and create value for their stakeholders (Jetzek et al., 2014). In the case for t-Government, the technological innovation that is proposed is the mobile government option. Mobile government aims to improve benefits for citizens, businesses and government agencies through the application of wireless and mobile platforms (Nkosi and Mekuria, 2010). Mobile government holds the potential to leap-frog developing countries where e-Government has failed to deliver due to the lack of fixed communication infrastructure (Mtingwi and Van Belle, 2013, Mutula and Mostert, 2010). The mobile phones still represent an important tool for governments to engage with citizens since there is a growing demand for multiple channel service delivery (Ntaliani et al., 2008). This argument is in direct contrast to the normative view of e-Government but pursues an adaptation view that looks at what is suitable for a particular localised context.

The analysis of the data supported the consideration of mobile technologies. It highlighted that in developing countries such as South Africa, there is often a challenge of limited infrastructure. There has been inadequate investment into the provision of open access broadband infrastructure (Gillwald et al., 2012). However, it was found that the current Mobile broadband is both cheaper and faster than fixed broadband indicating an option for governments to consider while the gap in overall fixed line infrastructure is addressed. The data analysis also indicated that it would be important to "make do with what is at hand" since the impacts of e-Government vis-à-vis the investments that have been made are overdue. Citizens are growing impatient as witnessed in service delivery protests. One way that may be considered to accelerate delivery is the use of what is already available. The analysis brought to the fore bricolage as an important theme in t-Government. It is the notion that people pool together various resources, skills and materials that they have access to and piece these together as a solution to current problems they may be facing (Baker, 2007). In the case of many developing countries, the mobile phone "is in hand" since trends have shown remarkable uptake and affordability.

It is therefore purported that technology and infrastructure innovation driven by mobile technologies is necessary for t-Government existence. From the analysis reported earlier, it is claimed that; while the mobile technology platform was not intended for realizing e-government, it offers a potential for realizing the sustainability of the e-government concept in Africa. The overwhelming access that currently exists coupled with the positive attitude towards and skills in mobile technologies show it as a viable alternative. The widely cited M-PESA case in Kenya bears kudos to this argument (Jack and Suri, 2011, Mbiti and Weil, 2011, Plyler et al., 2010). This will promote an enabling environment for increased access to government services supported by ICT's. It will also support citizen e-participation which is essential for mass scale adoption and impacts of e-Government initiatives.

8.7.3 Transparency and Trust in Government

Trust is not visible however it produces a variety of effects in the Government to Citizens relations that is important for working towards t-Government. Belanger and Carter (2008) indicate that trust in government is "…one's perceptions regarding the integrity and ability of the agency providing the service" (Belanger and Carter, 2008: 167). Due to participatory governance and a public value focus, citizen trust in government and t-Government are improved. Trust in local government officials is a necessity and has been found to be lacking in public sector programmes (Almarabeh and AbuAli, 2010). Edmiston (2003) found that one of the reasons for the slow implementation of e-Government was the difficulty in selling e-Government to citizens. For e-Government to succeed it requires that citizens accept and adopt it (Carter and Bélanger, 2005, AlAwadhi and Morris, 2008). A lack of transparency regarding government decision making results in the public failing to actively participate in government processes programmes (Almarabeh and AbuAli, 2010) and erodes trust.

The literature shows that e-Government can enable the building of trust between a government and citizens thus increasing public value (Karunasena et al., 2011). Furthermore for t-Government to succeed it requires trust between government and various constituent groups (Warkentin et al., 2002, Alsaghier et al., 2009). Trust is also important in that it may reduce citizen's resistance towards adopting t-Government. Trust is underpinned by transparency in government's engagement with citizens. Transparency reveals information about governments decision processes, public services, relevant procedures and government performance timeously (Jetzek et al., 2014)

The data analysis showed that government respondents recognised the importance of building trust with citizens and highlighted their concerns regarding how trust may be built. They seek alternatives for building trust with citizens. The provincial and local government as the delivery arms of government have an important role within the t-government information ecology as far as their practices (which are reflective of the underlying value system and supported by various policies such as "Batho Pele") allow

or impede the availability of information to citizens. In a t-Government setting trust is achieved by ensuring that citizens have access to critical information. Thus transparency may help citizens gain information that bolsters their social capital and ability to attain certain goals (Kolstad and Wiig, 2009). As scholars argue enhanced pellucidity may decrease information asymmetry and thus drive better resource allocation and improve economic and social value (Jetzek et al., 2014). This contributes to the citizen's socio-economic development.

8.7.4 Public Sector Effectiveness and Efficiency

How the public sector operates on a day-to-day basis is essential for driving t-Government. It has been noted that citizens value outcomes and service delivery. This is linked to the effectiveness of government's internal operations. Research argues that t-Government is concerned with the development of efficient and effective ways to transform and conduct the business of government and enhance transformational efforts (Dwivedi et al., 2011a). The e-Government strategies cited in chapter one showed that the improvement of government efficiency to build the public sector's capacity to deliver services is one central driver of transformation. This requires an equitable and efficient use of public resources for the attainment of public value.

It will also require inter-government cooperation and the rejection of the existing silo type operations. The World bank reports that Government programs have become silos that are supply driven, focused only on the outputs and not on the citizen's needs (Worldbank, 2011a). This emanates from how governments have historically organised themselves for managerial efficiency and service specialisation resulting in silos (Krishnaswamy, 2006). The data analysis also showed that currently government departments at the different tiers acknowledge the challenge with efficient and effective delivery and the notion of entrenched silo operations. The alternative t-Government conceptualisation rejects such structures with a view of becoming more integrated, citizen centric and localised to the context.

It is also noted that the drive to deliver services does not focus on the cost benefit aspect only underpinned by a bias towards economic rationality. Public agencies need to assess their ability to deliver public goods and services efficiently and at a fair cost without compromising the political rationality requirements. Political rationality focuses on the issues of conflict, power, force and political decision making (Zouridis and Thaens, 2003, Henriksen and Mahnke, 2005) and cannot be ignored at the expense of aiming to deliver targets that citizens have not had the opportunity to engage with.

8.7.5 Monitoring and Evaluation

The t-Government ideals require a feedback process between the ICT enabled projects in their localised contexts and the various tiers of government. The literature acknowledges a prevalent lack of clear monitoring and evaluation mechanisms (Cloete, 2012, Mutula and Mostert, 2010). The monitoring and evaluation of t-Government implementation (at the local government level) should provide feedback to the policy formulators and resource allocators (at the national and provincial government levels). This will lead to the effective support of local government projects. Furthermore it will enable the realities of local government to be shared continuously with national government so that policies may be adapted to these on the ground realities.

The public sector is not motivated by profits and needs to demonstrate economic probity and value for money to the citizen (Irani et al., 2008). Thus the monitoring and evaluation of projects cannot be driven purely from an economic perspective. Monitoring and evaluation is underpinned by public value. It drives the learning from local experiences and provision of feedback into macro level policy and strategic planning. Data analysis indicated a concern that there exists a gap in understanding between the different levels of government. This was expressed by local government authorities in particular. The gap was apparent and the ensuing frustrations were felt vividly during the interviews with local government thus this feedback process is necessary for the existence of t-Government. It is suggested that the gap may be closed by continuous monitoring and

evaluation mechanisms which will provide lessons from both successful and failed implementations.

8.8 Towards a t-Government Framework

Frameworks seek to map out elements involved in explaining and understanding of social processes (Veselý and Smith, 2008). The social process of interest herewith is the implementation of t-Government for socio-economic development. The following outlines a proposal for understanding t-Government:

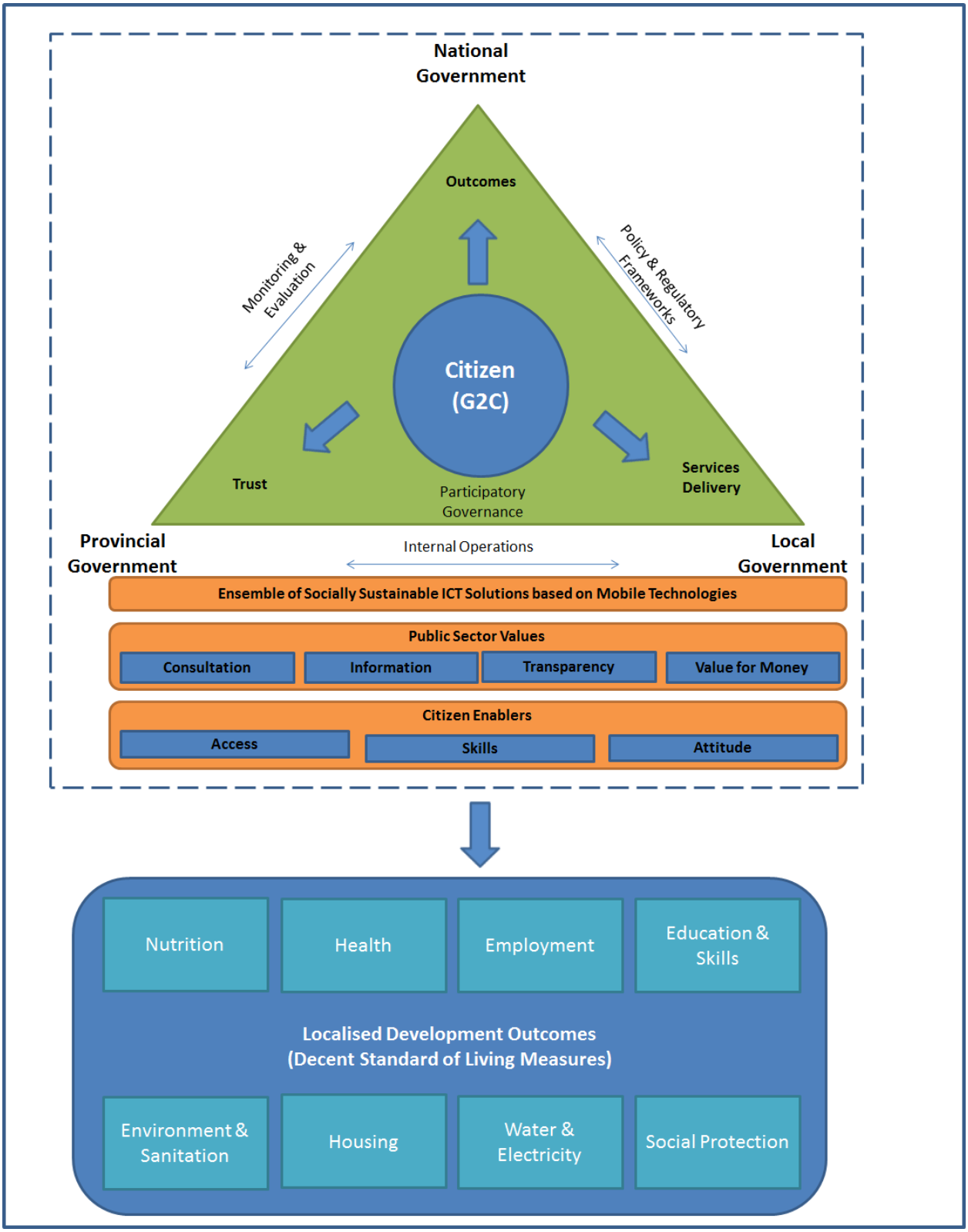

Figure 41: T-Government Framework

8.8.1 Defining T-Government

T-Government may be defined as a public value based socio-technical process through which the public sector builds a relationship with its citizens to exploit an ensemble of ICT's for delivery of products and services for developmental outcomes. These outcomes may be in a variety of targeted development projects as defined jointly by citizens and government. For instance in the areas of *health* (e.g. reducing child mortality), *education* (e.g. increase access to textbooks for primary school children), and *employment* (e.g. provide youth with access to online career advancement resources).

8.8.2 Characteristics of the Framework

The framework is put forth as an alternative conceptualisation of t-Government. The elements which constitute the framework are discussed next:

8.8.2.1 Citizens and their requirements for Public Value

At the core of t-Government is a preoccupation with citizen benefits. Citizens benefit when public sector officials utilise the resources and powers given to them to attain public value. Citizens esteem trust, service delivery and developmental outcomes. Viewing the citizen as the heart of t-Government requires participatory governance underpinned by continuous dialogue with the government. It highlights political rationality as equally important as the requirement to deliver cost effective services within the constrained resources available to governments.

8.8.2.2 Multi-tiered Government

T-Government acknowledges that all three spheres of government (National, Provincial and Local) are important in delivering value to citizens. This requires the reduction of silo operations and provides a more integrated view of government operations. This is supported by efficiency and effectiveness of internal operations, the supportive policy

and regulatory frameworks and the outlining of roles and responsibilities. Lastly it will require monitoring, evaluation and feedback efforts between the different tiers driving a holistic understanding of constraints towards delivery. This in turn influences how policy makers respond depending on the localised context.

8.8.2.3 Ensemble of ICT Solutions

The delivery of t-Government requires a bricolage tinged lens where officials acknowledge their constraints and make do with what is available. It is an adaptive and synthesis based perspective rather than a normative and maturational one. The ICT solutions lean on readily available mobile technologies with which citizens are becoming increasingly familiar. The ICTs are not only viewed as tools but contributing actors within the complex network of t-Government. The ICTs are used to deliver specific projects linked to the decent standard of living measures within the areas of for example health, education, employment and others depending on the development priorities of that particular community.

8.8.2.4 Public Sector Values

How the government goes about delivering on their objectives will be influenced by the organisational values they believe are important and thus practice. In reconfiguring for citizens' benefits the values that will enable this transformation include: Consultation (People must be consulted about the level and quality of public services they receive and wherever possible be given a choice), Information (People should be given full, accurate information about the services they receive), Transparency (People should be told how government departments are run, how much they cost, and who is in charge) and Value for Money (Public services must be provided economically and efficiently). Values drive the day-to-day behaviours, thus the operations of the public sector will need to draw from these values specifically.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

8.8.2.5 Citizen Factors

Citizens are the focal stakeholder in the t-Government domain. An environment that enables citizens to take advantage of participatory governance and interact with their local authorities is elevated. This will require that citizens have the necessary access to ICTs, e-literacy skills and attitude towards e-participation efforts. Citizens need to view themselves as co-creators and partners with government in deciding on which services are prioritised and how those services are delivered.

8.8.2.6 Outcomes Focused

The driver behind t-Government is the requirement to obtain specific outcomes for citizens. As indicated the outcomes are linked to development goals of creating a decent standard of living for all citizens. Thus projects undertaken within t-Government are expressed in terms of the outcomes for example within health, education or employment of citizens. Initiatives are linked clearly to the inputs required, activities to be undertaken and the resultant outputs that will lead to a particular transformation for a specific context.

8.9 Towards Guiding Principles

The t-Government domain is nascent and is centred on the application of ICTs to facilitate public sector transformation through new practices (Janssen and Shu, 2008). Accordingly the following section provides some guiding principles for the conceptual and practical shift to the t-Government paradigm. These guiding principles were formulated from a pragmatic perspective. The principles are based on the learning's from the literature, theory and findings from the thesis. The guiding principles are not exhaustive nor are they intended to be a formula for the implementation of t-Government projects. However, they are intended to facilitate a shift in focus when such projects are undertaken and to align the conceptualisation of the role of ICTs to t-Government thinking.

Principles	Description	Supporting Reference
Local Context and Customised Solution	t-Government requires that the local context be understood such that ICT solutions may be customised to the development needs of the community. Infuse an awareness of social and cultural nuances into project design.	(Hafkin, 2009) (Misuraca, 2007)
Citizen oriented services	Design and build t-Government services for citizen needs and not based on organisational structures.	(Worldbank, 2011a) (UNPAN, 2012)
Exploit local knowledge and leadership	Make connections with local community "grass root" leaders and the research community to build a local knowledge base.	(Ochara, 2012) (Hafkin, 2009)
Feedback	Utilise feedback mechanisms between citizens and government. Allow for continuous learning based on citizen experiences to inform future project delivery.	(PSC, 2008) (Worldbank, 2011a)
Focus on core areas first	The main focus areas are human resources, access to information and accessible infrastructure. Identify projects that may accelerate these areas to drive uptake and accessibility for citizens.	(Ngulube, 2007)
Political Leadership	t-Government requires strong political leadership that has a clear vision for their community and change management tactics to overcome cultural and organisational inertia.	(Wahid, 2012) (Weerakkody et al., 2011)

8.10 Reflections on the Framework

What is evident from undertaking this research study is that the e-Government domain is a very complex area of research. The researcher deems it appropriate to reflect on the proposed framework and conceptualisation in line with the critical realist underpinning of the study. The framework is not put forth as the panacea for all problems currently being experienced by e-Government practitioners. However, what it does call for is the need to think about e-Government in a different manner to what has dominated the discourse.

The framework campaigns for the elevation of impacts on citizens through ICT4D initiatives. This will require the recognition of citizens as the core stakeholders of t-Government. Increased citizen participation is a central tenet of the proposed framework. This does not mean that citizens may do as they wish but they are seen as partners that are involved in decision making, defining services and how these are delivered within the

constrained resources of their local context. This will address some of the frustrations that citizens experienced as manifest in declining trust levels and dissent.

However, the involvement of citizens is put forward appreciating the challenges that come with including a larger number of people in, for instance, a government project or a service delivery process. Increased citizen participation may result in a more expensive and time consuming process, some stakeholder groups being frustrated or being overlooked and new or unintended conflicts (Luyet et al., 2012) arising as touched on in Chapter 2. Furthermore, it is noted that there may also be practical barriers to citizen participation such as the low ICT access levels, e-literacy skills as well as attitudes of citizens towards participating in t-Government. However, it is believed that the immediate pains of consulting more citizens and enabling their participations cannot be used to overlook the expected benefits of changing how the public sector views the role of citizens in decision making and service delivery. The literature on public value bolsters the argument for citizen participation within t-Government showing that it can bring benefits such as improved citizen trust levels, more effective public organisations, better service delivery and attainment of goals (Karunasena and Deng, 2011).

The framework puts forth technology as an actor in the broader network of ICT4D projects that are undertaken whose effects are situationally dependent. This broader view of the ICT artefact may address the mismatch between expectations and outcomes. It relies on citizens' access and skills and thus investments for addressing the digital divide and e-literacy will need to be bolstered. T-Government cannot be fully realised where there are citizens that are information rich while others remain information poor. It however acknowledges the prevalence of the mobile phone and thus it uses this as a way of accelerating the delivery of t-Government programs.

The framework acknowledges that certain values will have to be in place within the three tiers of government to put into operation what is being suggested. Values drive choices and behaviours (Sullivan et al., 2001) therefore this cannot be ignored. The operations that are currently manifest as being ineffective and inefficient will require a mainstreaming of a different set of values across government operations. The alignment

of values may also address the current silos experience. How this alignment of values may be achieved is by engaging internal and external stakeholders regarding types of values that are required to achieve t-Government. An agreement on these values is a precursor to creating awareness in the stakeholders such as employees on how their current behaviour can hinder or further the desired values.

Indeed such a framework requires the requisite political leadership and will to ensure that it is reflected from a policy and regulatory level and through continuous monitoring evaluation and feedback is internalised in government operations. It is also acknowledged that the efficacy of t-Government will require change management to implement the t-Government structure. This will comprise of a migration strategy outlining how the organisation will reorganise to better serve its citizens (Janssen and Shu, 2008).

8.11 Summary

This chapter proposed several mechanisms that are deemed to be behind the manifestation of t-Government. The chapter began by reflecting on the research problem and applicable questions to position the importance of elevating mechanisms. The chapter also highlighted the critical realist mode of inference driving the synthesis of the literature and data towards a proposal for t-Government. The alternative conceptualisation of t-Government and its composite elements were discussed. Several principles were also offered to guide the conceptual and pragmatic shift towards t-Government. The upcoming chapter concludes the research study.

CHAPTER 9: CONCLUSION

"The true function of philosophy is to educate us in the principles of reasoning and not to put an end to further reasoning by the introduction of fixed conclusions."

George Henry Lewes

9.1 Introduction

The aim of this research study was to illuminate the conceptualisation of Transformational Government in a developing country context. This final chapter brings the thesis to a conclusion. The chapter reflects on the research questions and provides a summary of the findings. It also provides a discussion on the limitations of the study and outlines several areas for further research. The chapter also assesses the main contributions of the thesis and related implications.

9.2 Addressing the Main Research Question

This research aimed to augment the existing knowledge base on e-Government within developing countries by investigating an emergent area of Transformational Government. The overarching research question that framed the thesis was: *How is Transformational Government conceptualised within sub-Saharan Africa for Developmental Impacts*? The study was rooted in the dissatisfaction with the impacts that have been seen within e-Government programmes to date.

Scholars have lamented that e-Government has failed to deliver on the expectations of stakeholders and particularly citizens (Irani et al., 2007a, Irani et al., 2008, Heeks, 2010). Researchers have studied the failure rates of various ICT led projects in the public sector (Heeks, 2003); (Robin, 2007); (Irani et al., 2008, Heeks, 2010) and several have questioned the actual impacts of ICT on the development of countries (Oghogho and Ezomo, 2013, Sein and Harindranath, 2004, Harindranath and Sein, 2007). In the face of this disappointment, the sentiment that ICTs do hold potential to transform the trajectory of development resonated.

The study thus undertook to understand how e-Government programmes are currently conceptualised for citizen impacts towards socio-economic development. It aimed to comprehend the shift in e-Government literature towards t-Government. Early proponents of t-Government argue that a shift in focus to t-Government is the "result of a logical realisation that the IT trajectory of legacy e-Government systems and programs will not solve the lingering problems with public service delivery" (Irani et al., 2007b: 2). Harindranath and Sein (2007) contend that the "extent of success or failure of ICT interventions to enable development will depend on how national and local governments, national and international development agencies, non-governmental organisations and public agencies conceptualise ICT and development" (Harindranath and Sein, 2007:2). Thus an alternative conceptualisation of ICT's for development is being called for by scholars.

This thesis focused on offering an alternative conceptualisation of e-Government in enabling much needed service delivery and governance towards broader development goals. To do this the study conducted research at the different levels of government using South Africa as its main source of data collection. The research was underpinned by a critical realist paradigm and employed a pluralistic approach to conduct research at the levels of:

- National Government: How do the strategic plans of Government departments reflect transformational government ideals? (Chapter 4)
- Provincial Government: How does the existence (or lack) of the t-government mindset affect the sustainability of e-government initiatives? (Chapter 5)
- Local Government: How may t-Government be manifested in Municipalities? (Chapter 6)

It also sought to understand the area of t-Government from a citizen perspective:

- Citizen Level: How can e-participation as the basis for t-Government be enhanced using mobile technology for socially excluded citizens in a developing world context? (Chapter 7)

The various data analysis chapters coupled with the literature review (Chapter 2) brought together several lessons for the emergent t-Government concept.

9.3 Limiting Conceptualisation of t-Government

The thesis highlighted that the current conceptualisation of ICT's for development in Chapter 4. It showed that our current conceptualisation within ICT enabled development initiatives is problematic for attaining t-Government. It is overly technically focussed and requires a more socio-technical understanding to be brought into the public sector. The current conceptualisation restricts the view of ICTs to that of "tools" as opposed to extending it to be viewed as part of an ensemble within a network of ICT4D initiatives. The use of ICTs is mainly conceptualised as a driver of the economy. There is a gap in the conceptualisation of how ICT's may be used for specific ICT4D interventions. This was shown to result in inconsistent delivery as compared to stakeholder expectations. The thesis accordingly argued for an alternative conceptualisation that was based on the argument that t-Government involves a refocus on the citizen.

It showed that the t-Government may be driven by several mechanisms including *participatory governance* coupled with *transparency and trust* in government. This focuses on ensuring the citizen voice is not lost by ensuring citizens are included in decision making and service delivery. This may bolster trust in the Government to citizen relations driving further participation by citizens.

It also requires *transformative technology and infrastructure innovation*. Since ICT4D programmes comprise of a technology component the thesis argued for focusing on mobile technologies for mass scalability taking into account the current realities in the developing nations of sub-Saharan Africa. This is driven by an appreciation of what is readily available for citizens as seen in the widespread uptake of the mobile phone in Africa.

Furthermore, there is a need for a public sector that delivers required services to citizens. Thus *operational effectiveness* needs to be addressed but not at the expense of political rationality. Here, the thesis focused on reducing the silo based operations of government

agencies and restricting these to enable citizen focussed service delivery. The alternative t-Government conceptualisation rejects such structures with a view of becoming more integrated, citizen centric and localised to the context.

Finally it argued that the current gap in understanding across the various tiers of government may need formal and informal feedback procedures underpinned by *monitoring and evaluation* frameworks. The gap between policy formulators, resource allocators and policy implementers is hindering the ability to learn what is required, what has worked and where provision of support for local government is necessary.

9.4 Proposed T-Government Framework

The thesis then offered a framework for understanding t-Government in Chapter 8. This framework elevated a synthetic and adaptation perspective for t-Government. It raised the area of citizen's needs and their requirements for public value. It outlined that t-Government requires the various tiers of Government to cooperate for service design and delivery. The framework is supported by an ensemble of ICT solutions and programmes that are aimed at specific development outcomes such as a health, education or poverty reduction. The area of citizen factors that may enable the uptake of t-Government is also highlighted through focusing on citizen access to ICTs, citizen skills and attitudes towards the technology. Organisational values are deemed critical for enabling t-Government since values drive behaviour. These values need to incorporate areas of consultation, access to information, value for money and transparency in how government operates.

9.5 Contribution to Knowledge

The thesis made some contributions to the knowledge base from a theoretical, methodological and pragmatic perspective.

9.5.1 Theoretical Contribution

The thesis began the process of unearthing an alternative conceptualisation of e-Government specifically geared for a developing country context. Much of the existing literature (as reviewed in Chapter 2) emanates from the Western and developed country context. The proposed alternative conceptualisation tried to address this gap by drawing from experiences in the sub-Saharan Africa region. Some scholars lament that the ICT artefact has limited theorisation (Orlikowski and Iacono, 2001) and call for broadening this understanding from socio-technical angle (Avgerou, 2008). This study addressed the call for conceptual clarity in the t-Government domain since it is a nascent and developing area (Harindranath and Sein, 2007, Fernando et al., 2010). The thesis argued that t-Government is not a normative techno-centric advancement from e-Government as reflected in some of the literature. It is rather understood better from a synthetic and adaptation perspective that is preoccupied with realising benefits for citizens. Previous conceptualisations have been lacking in the focus on impacts for citizens (Yildiz, 2013, Yildiz, 2012).

The thesis is furthermore an illustration of how the meta-theory of critical realism with its associated ontological and epistemological principles may be used to support IS research studies. This adds to the body of knowledge for IS critical realist scholars.

The thesis also contributed theoretically by further exposing the application and value of Actor Network Theory within ICT for Development research (Andrade and Urquhart, 2010). Actor Network Theory (ANT) has not been fully understood and applied for development studies and particularly its application in development project analysis (Heeks and Stanforth, 2014). This study contributed to this dearth of examples of ANT's applicability towards understanding development initiatives. It highlighted the use of ANT to understand the trajectory of an e-Government project and its resultant sustainability (as seen in Chapter 5).

The thesis also employed several theories to assist in guiding the reasoning and argumentation in the data analysis chapters. For instance it showed how scholars can

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

employ the work of by Irani et al (2007b) and the Jones (2012) together to better understand the manifestation of t-Government which based on the researcher's search was previously not done in this manner in other research studies within the existing knowledge base. The study also further used the ASA theoretical model by Verdegem and Verhoest (2009) to elevate important citizens factors for ICT4D initiatives.

9.5.2 Methodological Contribution

The study employed a critical realist case study relying on methodological pluralism to understand the research area from different perspectives. The research heeded the call for increased use of critical realism for IS implementations (Mingers, 2004b, Mingers, 2004a) and particularly for African research studies (Njihia, 2011). It made a contribution by showing critical realism as useful for unearthing some potential underlying mechanisms driving the outcomes noted in e-Government. It highlighted that critical realism is a viable alternative for scholars seeking to understand the deeper issues of t-Government.

The use of methodological pluralism added to the literature that shows how various methodological approaches may be used to understand a research problem more holistically. The data analysis chapters (Chapter 4, 5, 6, 7) showed how this mix of methods enables the researcher to appreciate the complexity of domains such as e-Government that are multifaceted. The study also provided insights into the use of both the theoretical (deductive) thematic analysis and the inductive thematic analysis. These were used to tease out different insights from the data that was collected.

9.5.3 Practical Contribution

The study offered an alternative conceptualisation for e-Government as captured within the t-Government framework proposed in Chapter 8. The framework re-orients public sector thinking towards their stakeholders and particularly citizens. It positions citizens as contributing to the decision making, design and delivery of services for benefit

realisation. The framework shifts the preoccupation from a technology bias towards the impacts of using the technologies within a localised context.

The framework is also coupled with several principles to guide implementation when undertaking t-Government initiatives. The principles are based on the learnings from the literature, theory and findings from the thesis. The guiding principles are not exhaustive nor are they intended to be a strict formula for the implementation of t-Government projects. However, they are intended to enable a change in focus when such projects are undertaken and to align the conceptualisation of the role of ICTs to t-Government thinking.

The study also contributed by emphasising that t-Government is underpinned by the notion of Bricolage in that practitioners need to consider what they can do with what is already in hand. This may apply to what is in the hands of citizens (e.g. proliferation of the mobile phone) or that of the public sector (appreciating current resource constraints). Consequently it elevates a pragmatic approach in learning from the proposed t-Government framework.

9.5.4 Assessing the Research Study and Contributions

Wynn and Williams (2012) indicate that critical realism may contribute positively to information systems research by furthering our understanding of complex socio-technical phenomena. In this section the study is reviewed in light of the principles for critical realist case studies that were proposed by Wynn and Williams (2012). The principles are aimed at guiding and evaluating critical realist case studies. The principles are founded in the ontology and epistemology of critical realism and are outlined below:

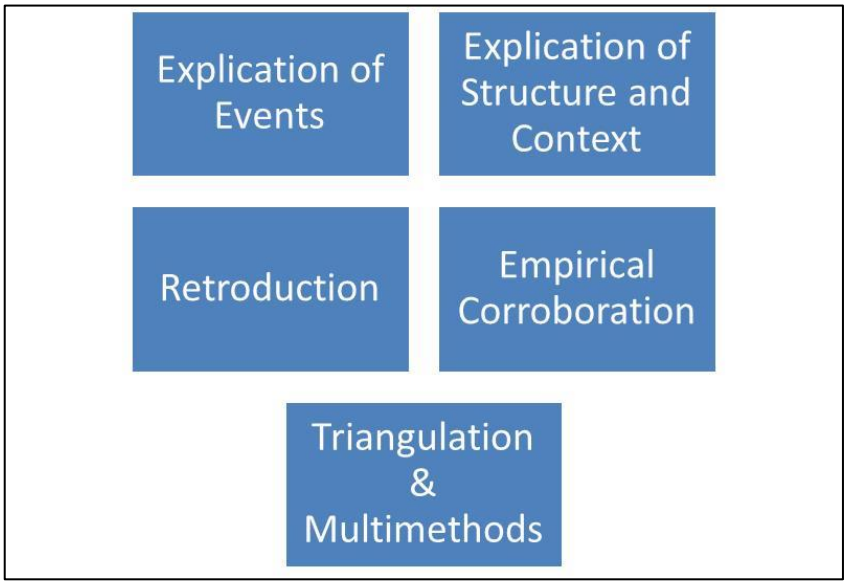

Figure 42: The principles of critical realist case studies (Wynn and Williams, 2012)

The current study was reviewed and evaluated against these principles.

Firstly the study described what was observed in the data through the data analysis chapters. These descriptions of not only the events but also outcomes and implications therefore aligned to the principle of explication of the events for the phenomena under study. For instance in Chapter 5, the reader will see a sample of the chronology of events on the project that was reviewed including the actors involved and their applicable interactions.

The thesis also positions the research for other researchers by providing details regarding the context within which the majority of data was collected. Thus accordingly context is touched upon in the data analysis chapters. However, Chapter 1 reviews the historical, demographical, political and socio-economic context of South Africa. This acknowledges the open nature of the societies within which the e-Government phenomena manifests.

Furthermore, the study utilises critical realist modes of analysis and inference through asking: what must reality be like for the existence of t-Government to be possible? Through this line of questioning and reasoning the study elevated some mechanisms that may drive t-Government. This aligned to the retroduction aspect of critical realist

case studies. Additionally these proposals are linked to what was learned from the literature review and the findings from the data analysis. This aligned to the principle of empirical corroboration.

Finally the study relied on the pluralistic approach and combined both the intensive and extensive approaches for data collection and analysis. The use of multiple methods allowed for an understanding of the research problem from various perspectives. The study also compiled data at different levels of analysis (national government, provincial government, local government and citizen perspectives) which further bolstered the triangulation and multi-methods requirement of critical realist case studies. The study met the key areas of concern as raised by the Wynn and Williams (2012) paper on evaluating critical realist studies.

9.6 Limitations and Suggestions for Future Research

Research projects of this nature have their limitations. These along with various opportunities for future research are highlighted next:

This being a doctoral study, implied that the project was limited to one researcher and thus could not obtain a multiple researcher perspective as proposed by Wynn and Williams (2012). However, the thesis was discussed on an on-going basis with the supervisors to obtain alternative perspectives on various chapters. A future extension of the research project may include additional researchers to infuse multiple perspectives and source additional primary data from other countries on the continent (Fereday and Muir-Cochrane, 2008).

Time was another limiting factor. Thus the proposed framework and guiding principles have not had the opportunity to be tested on a t-Government project. However, this represents an opportunity for future research and to obtain feedback from practitioners on the applicability of what is proposed. How the framework may apply to different contexts is another opportunity open for future research.

The study was limited to a few specific examples of e-Government in the data analysis chapters. The study may be extended to incorporate more e-Government projects for review and conduct this over a much longer period. This may build on the current t-Government discussion. Future studies may also focus solely on each of the levels (National, Provincial, Local and Citizen) so as to gain depth in these areas and understanding t-Government implications for each level.

The analysis in Chapter 4 and 5 was rooted in the critical realist intensive procedures and thus may be viewed as mainly qualitative. It may be argued that qualitative research is subjective (Boyatzis, 1998). It is acknowledged that this study represents the perspective of the researcher within the context of e-government in South Africa as the primary data collection area. The findings may not be necessarily generalizable. However, it is proposed that what is useful is the increased awareness and lessons learned from the understanding brought by mining the alignment of strategic documents and current e-government projects to the emerging area of t-Government for a developing country context.

The analysis in Chapter 6 may be extended to incorporate further interviews with local government since it was limited to a workshop of 40 representatives and five one-on-one interviews.

Chapter 7 on the other hand, was limited to a sample size of 120. The study was also limited to socially excluded clusters in the urban areas and is limited in the perspective of rural citizens. A future study can aim to increase the sample. There is a need to conduct a parallel study across several clusters (rural and urban) as well as across different countries to allow for increased generalisability of the findings. The next limitation was a focus on the social sustainability factors in exclusion to other factors related to economic sustainability. This was deliberate to enable a deeper investigation into specific aspects related to social sustainability. However, this generated a requirement to investigate associations between factors that address social sustainability of using the mobile platform with other economic-related factors.

A future extension of the study can also include the investigation of how current organisational values of public sector institutions should be changed and the adoption of new values supporting the implementation of the t-Government framework. This proposed study may include an exploration of how to align individual values to the requirements of t-Governments from a IS change management perspective or other organisational change research domains.

Overall the study was exploratory however it is believed this was influenced by the nascent nature of the t-Government domain. Exploratory and grounding research is required to lessen the ambiguity that exists for the phenomena under study (Andersen et al., 2012).

9.7 Conclusion

This chapter provided a summary of the overall research study and its findings. The chapter reviewed the research questions and how these were addressed. The contributions that it made from a theoretical, methodological and practical perspective were highlighted. The chapter also acknowledged some of the limitations of the study and offered some thoughts regarding areas for further research. At this juncture the study pauses the debate, discussion and the philosophical reasoning on the t-Government phenomena. The researcher does not view the study as concluding here. The study has only begun to unearth an alternative conceptualisation for t-Government - particularly for the developing country context where a dearth of research exists.

REFERENCES

7AM NEWS NETWORK. 2014. SANRAL's Grace Period for Payments Extended. Available: http://www.7am.co.za/sanrals-grace-period-for-payments-extended/ [Accessed September 2014].

AASTRUP, J. & HALLDÓRSSON, Á. 2008. Epistemological role of case studies in logistics: a critical realist perspective. *International Journal of Physical Distribution & Logistics Management,* 38**,** 746-763.

ABRAHAMS, L. 2009. e-Governance policy 1999-2009: Paths and limitations to progress. *Journal of Public Administration: Special Issue 1,* 44**,** 1011-1026.

ABRAHAMS, L. & NEWTON-REID, L. 2008. e-Governance for Social and Local Economic Development: Gauteng City Region perspective. Johannesburg: The Learning Information Networking Knowledge (LINK) Centre, University of the Witwatersrand.

ACEMOGLU, D., JOHNSON, S. & ROBINSON, J. A. 2002. Reversal of fortune: Geography and institutions in the making of the modern world income distribution. *Quarterly journal of economics***,** 1231-1294.

AFRICAN UNION. 2014. *About the African Union* [Online]. Available: http://www.au.int/en/about/vision [Accessed September 2014].

AJZEN, I. 1993. Attitude theory and the attitude-behavior relation. *In:* KREBS, D. & SCHMIDT, P. (eds.) *New directions in attitude measurement.*

AL-KHAMAYSEH, S. & LAWRENCE, E. 2006. Towards Citizen Centric Mobile Government Services: A Roadmap. *CollECTeR Europe 2006***,** 129.

ALAWADHI, S. & MORRIS, A. 2008. The Use of the UTAUT Model in the Adoption of E-government Services in Kuwait. *41st Hawaii International Conference on System Sciences (HICSS-41).* Waikoloa, Big Island, Hawaii.

ALBERT, G. & MAHALEL, D. 2006. Congestion tolls and parking fees: A comparison of the potential effect on travel behavior. *Transport Policy,* 13**,** 496-502.

ALCOUFFE, S., BERLAND, N. & LEVANT, Y. 2008. Actor-networks and the diffusion of management accounting innovations: A comparative study. *Management Accounting Research,* 19**,** 1-17.

ALEXANDER, P. 2010. Rebellion of the poor: South Africa's service delivery protests – a preliminary analysis. *Review of African Political Economy,* 37**,** 25-40.

ALEXANDER, P. & PHAHLAMOHLAKA, L. 2006. Amartya Sen's Capability Approach applied to Information Systems research: reviewed article. *South African Computer Journal*, 1-11.

ALI, M. & BAILUR, S. The challenge of "sustainability" in ICT4D–Is Bricolage the answer. Proceedings of the 9th International Conference on Social Implications of Computers in Developing Countries, São Paulo, Brazil (May 2007), 2007.

ALLEN, B. A., JUILLET, L., PAQUET, G. & ROY, J. 2001. E-Governance & government on-line in Canada: Partnerships, people & prospects. *Government Information Quarterly,* 18, 93-104.

ALLEN, D. K., BROWN, A., KARANASIOS, S. & NORMAN, A. 2013. How should technology-mediated organizational change be explained? A comparison of the contributions of critical realism and activity theory. *MIS Quarterly,* 37, 835-854.

ALMARABEH, T. & ABUALI, A. 2010. A general framework for e-government: definition maturity challenges, opportunities, and success. *European Journal of Scientific Research,* 39, 29-42.

ALSAGHIER, H., FORD, M., NGUYEN, A. & HEXEL, R. 2009. Conceptualising Citizen's Trust in e-Government: Application of Q Methodology *Electronic Journal of e-Government,* 7, 295-310.

ANDERSEN, K. N., MEDAGLIA, R. & HENRIKSEN, H. Z. 2012. Social media in public health care: Impact domain propositions. *Government Information Quarterly,* 29, 462-469.

ANDERSEN, K. N., MEDAGLIA, R., VATRAPU, R., HENRIKSEN, H. Z. & GAULD, R. 2011. The forgotten promise of e-government maturity: Assessing responsiveness in the digital public sector. *Government Information Quarterly,* 28, 439-445.

ANDERSEN, K. V. & HENRIKSEN, H. Z. 2006. E-government maturity models: Extension of the Layne and Lee model. *Government Information Quarterly,* 23, 236-248.

ANDRADE, A. & JOIA, L. A. 2011. Organizational structure and ICT strategies in the Brazilian Judiciary System. *Government Information Quarterly,* 29, Supplement 1, S32-S42.

ANDRADE, A. D. & URQUHART, C. 2010. The affordances of actor network theory in ICT for development research. *Information Technology & People,* 23, 352-374.

ANDREWS, R. & VAN DE WALLE, S. 2013. New Public management and citizens' perceptions of local service efficiency, responsiveness, equity and effectiveness. *Public Management Review,* 15, 762-783.

ANGUS, J., MILLER, K.-L., PULFER, T. & MCKEEVER, P. Studying delays in breast cancer diagnosis and treatment: critical realism as a new foundation for inquiry. Oncology nursing forum, 2006. Onc Nurs Society, E62-E70.

ANTOVSKI, L. & GUSEV, M. M-government framework. *In:* KUSHCHU, I. & KUSCU, M. H., eds. Proceedings of the First European Mobile Government Conference, 10-12 July 2005 2005 Brighton UK. Mobile Government Consortium International LLC.

ANTWI, K., ANALOUI, F. & NANA-AGYEKUM, D. 2008. Public sector reform in Sub-Saharan Africa: what can be learnt from the civil service performance improvement programme in Ghana? *Public Administration and Development,* 28**,** 253-264.

ARMET, S. 2013. IDENTIFYING CAUSAL MECHANISMS THAT EXPLAIN THE EMERGENCE OF THE MODERN DUTCH STATE. *Journal of Critical Realism,* 12**,** 301-335.

ARTHUR, W. 1998. Self-Reinforcing Mechanisms in Economics. *In:* ANDERSON, P., ARROW, K. & PINES, D. (eds.) *The Economy as an Evolving Complex System.* Redwood City (CA): Addison-Wesley Publishing Company Inc.

AVGEROU, C. 2008. Information systems in developing countries: a critical research review. *Journal of Information Technology,* 23**,** 133-146.

AVGEROU, C. Discourses on Innovation and Development in Information Systems in Developing Countries' Research. Proceedings of the 10th International Conference on Social Implications of Computers in Developing Countries, 26-28 May 2009 2009 Dubai, United Arab Emirates.

AVGEROU, C. 2010. Discourses on ICT and Development. *Information Technologies and International Development,* 6**,** 1-18.

AYANSO, A., CHATTERJEE, D. & CHO, D. I. 2011. E-Government readiness index: A methodology and analysis. *Government Information Quarterly,* 28**,** 522-532.

AYOGU, M. D. & BAYAT, F. 2010. ICT governance: South Africa. *Telecommunications Policy,* 34**,** 244-247.

BACH, S. & BORDOGNA, L. 2011. Varieties of new public management or alternative models? The reform of public service employment relations in industrialized democracies. *The International Journal of Human Resource Management,* 22**,** 2281-2294.

BAERT, P. 1996. Realist philosophy of the social sciences and economics: a critique. *Cambridge Journal of Economics,* 20**,** 513-522.

BAILARD, C. S. 2009. Mobile phone diffusion and corruption in Africa. *Politcal Communication,* 26**,** 333-353.

BAKER, T. 2007. Resources in play: Bricolage in the Toy Store (y). *Journal of Business Venturing,* 22**,** 694-711.

BAKER, T. & NELSON, R. E. 2005. Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly,* 50**,** 329-366.

BALOGUN, M. & AFRICA, U. N. E. C. F. Performance Management and Agency Governance for African Development: The Search for Common Cause on Excellence in the Public Service. 2003. Development Policy Management Forum.

BANNISTER, F. & CONNOLLY, R. 2011. Trust and transformational government: A proposed framework for research. *Government Information Quarterly,* 28**,** 137-147.

BAO, G., WANG, X., LARSEN, G. L. & MORGAN, D. F. 2013. Beyond New Public Governance A Value-Based Global Framework for Performance Management, Governance, and Leadership. *Administration & Society,* 45**,** 443-467.

BASU, S. 2004. E-government and developing countries: an overview. *International review of law computers & technology,* 18**,** 109-132.

BATINI, C., VISCUSI, G. & CHERUBINI, D. 2009. GovQual: A quality driven methodology for E-Government project planning. *Government Information Quarterly,* 26**,** 106-117.

BEBBINGTON, A., LEWIS, D., BATTERBURY, S., OLSON, E. & SIDDIQI, M. S. 2007. Of texts and practices: Empowerment and organisational cultures in world bank-funded rural development programmes. *Journal of Development Studies,* 43**,** 597-621.

BECKMANN, M., MCGUIRE, C. & WINSTEN, C. 1956. Studies in Economics of Transportation. Yale University Press, New Haven, Connecticut.

BEKKERS, V. & HOMBURG, V. 2007. The myths of e-government: Looking beyond the assumptions of a new and better government. *The Information Society,* 23**,** 373-382.

BELANGER, F. & CARTER, L. 2008. Trust and risk in e-government adoption. *The Journal of Strategic Information Systems,* 17**,** 165-176.

BÉLANGER, F. & CARTER, L. 2009. The impact of the digital divide on e-government use. *Communications of the ACM,* 52**,** 132-135.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

BERGIN, M., WELLS, J. S. & OWEN, S. 2008. Critical realism: a philosophical framework for the study of gender and mental health. *Nursing Philosophy,* 9**,** 169-179.

BEVIR, M., RHODES, R. A. & WELLER, P. 2003. Traditions of governance: interpreting the changing role of the public sector. *Public administration,* 81**,** 1-17.

BHASKAR, R. & DANERMARK, B. 2006. Metatheory, interdisciplinarity and disability research: a critical realist perspective. *Scandinavian Journal of Disability Research,* 8**,** 278-297.

BHATTACHERJEE, A. 2012. Social science research: principles, methods, and practices. *Textbooks Collection. Book 3.*

BHATTACHERJEE, A. & HIKMET, N. 2007. Physicians' resistance toward healthcare information technology: a theoretical model and empirical test. *European Journal of Information Systems,* 16**,** 725-737.

BHUIYAN, S. H. 2011. Modernizing Bangladesh public administration through e-governance: Benefits and challenges. *Government Information Quarterly,* 28**,** 54-65.

BIDWELL, N. J., LAMAS, M., MARSDEN, G., DLUTU, B., JONES, M., TUCKER, B., VARTIAINEN, E., KLAMPANOS, I. & ROBINSON, S. 2011. Please call ME. NU 4EVER: Callback & Social Media Sharing in Rural Africa. www.uct.ac.za.

BILBAO-OSORIO, B., DUTTA, S. & LANVIN, B. The global information technology report 2013. World Economic Forum, 2013.

BLOM, B. & MOREN, S. 2011. ANALYSIS OF GENERATIVE MECHANISMS. *Journal of Critical Realism,* 10**,** 60-79.

BONNER, B., CHIASSON, M. & GOPAL, A. 2009. Restoring balance: How history tilts the scales against privacy. An Actor-Network Theory investigation. *Information and Organization,* 19**,** 84-102.

BOOYSEN, S. 2007. With the ballot and the brick: The politics of attaining service delivery. *Progress in Development Studies,* 7**,** 21-32.

BORRAS, J. 2012. Using the Transformational Government Framework to deliver Public Sector services. *tGov 2012.* Brunel University, University Kingdom.

BOUCKAERT, G. & POLLITT, C. 2000. Public management reform: an international comparison. . *Government of the future. .* Oxford, UK: Oxford University Press.

BOYATZIS, R. E. 1998. *Transforming qualitative information: Thematic analysis and code development*, Sage Publications, Inc.

BRAINARD, L. A. & MCNUTT, J. G. 2010. Virtual Government-Citizen Relations: Informational, Transactional or Collaborative. *Administration and Society,* 42**,** 836-858.

BRAUN, V. & CLARKE, V. 2006. Using thematic analysis in psychology. *Qualitative research in psychology,* 3**,** 77-101.

BROWN, D. 2005. Electronic government and public administration. *International Review of Administrative Sciences,* 71**,** 241-254.

BROWN, M. M. 2007. Understanding e-government benefits an examination of leading-edge local governments. *The American Review of Public Administration,* 37**,** 178-197.

BROWN, W. & BROWN, I. 2008. Next generation ICT policy in South Africa: Towards a human development-based ICT policy. *Social dimensions of information and communication technology policy.* Springer.

BRYMAN, A. 1984. The debate about quantitative and qualitative research: a question of method or epistemology? *British Journal of Sociology***,** 75-92.

BRYNARD, P. A. & HANEKOM, S. X. 2006. *Introduction to research in management-related fields,* Pretoria, Van Schaik.

BRYSON, J. M. 1988. A strategic planning process for Public and Non-profit Organisations. *Long Range Planning* 21**,** 73-81.

BRYSON, J. M. 2010. The Future of Public and Nonprofit Strategic Planning in the United States. *Public Administration Review,* 70**,** s255-s267.

BRYSON, J. M., ACKERMANN, F. & EDEN, C. 2007. Putting the Resource-Based View of Strategy and Distinctive Competencies to Work in Public Organizations. *Public Administration Review,* 67**,** 702-717.

BURN, J. & ROBINS, G. 2003. Moving towards e-government: A case study of organisational change processes. *Logistics Information Management,* 16**,** 25-35.

BWALYA, K. J. 2009. Factors affecting adoption of e-government in Zambia. *The Electronic Journal of Information Systems in Developing Countries,* 38.

BYRNE, D. 1998. Class and ethnicity in complex cities-the cases of Leicester and Bradford. *Environment and Planning,* 30**,** 703-720.

CALLON, M. 1986. Some Elements of a sociology of translation: domestication of the scallops and the fishermen of St. Brieuc Bay. *In:* LAW, J. (ed.) *Power, action and belief.* London: Routledge & Kegan Paul.

CALLON, M. & LAW, J. 1992. The life and death of an aircraft: a network analysis of technical change. *In:* BIJKER, W. & LAW, J. (eds.) *Shaping Technology/Building Society: Studies in Socio-Technical Change.* Cambridge, MA: MIT Press.

CAMARA, G. & FONSECA, F. 2007. Information policies and open source software in developing countries. *Journal of the American Society for Information Science and Technology,* 58**,** 121-132.

CARTER, L. & BÉLANGER, F. 2005. The utilization of e-government services: citizen trust, innovation and acceptance factors *. *Information Systems Journal,* 15**,** 5-25.

CHADWICK, A. & MAY, C. 2003. Interaction between states and citizens in the age of the internet: "e-government" in the United States, Britain, and the European Union. *Governance-an International Journal of Policy and Administration,* 16**,** 271-300.

CHEN, A. J., PAN, S. L., ZHANG, J., HUANG, W. W. & ZHU, S. 2009. Managing e-government implementation in China: A process perspective. *Information & Management,* 46**,** 203-212.

CHEN, Y.-C. & GANT, J. 2001. Transforming local e-government services: the use of application service providers. *Government Information Quarterly,* 18**,** 343-355.

CHEN, Y. N., CHEN, H. M., HUANG, W. & CHING, R. K. H. 2006. E-government strategies in developed and developing countries: an implementation framework and case study. *Journal of Global Information Management,* 14**,** 23-46.

CHIGONA, W., BEUKES, D., VALLY, J. & TANNER, M. 2009. Can mobile internet help alleviate social exclusion in developing countries? *The Electronic Journal of Information Systems in Developing Countries,* 36.

CHOU, T. C., CHEN, J. R. & PU, C. K. 2008. Exploring the collective actions of public servants in e-government development. *Decision Support Systems,* 45**,** 251-265.

CHRISTENSEN, T. & LÆGREID, P. 2011. Democracy and administrative policy: contrasting elements of New Public Management (NPM) and post-NPM. *European Political Science Review,* 3**,** 125-146.

CIBANGU, S. K. 2010. Paradigms, methodologies, and methods. *Library & Information Science Research,* 32**,** 177-178.

CIBORRA, C. The grassroots of IT and strategy. Strategic information systems, 1994. John Wiley & Sons, Inc., 3-24.

CIBORRA, C. & NAVARRA, D. D. 2005. Good governance, development theory, and aid policy: Risks and challenges of e-government in Jordan. *Information technology for development,* 11**,** 141-159.

CIBORRA, C. U. 1998. Crisis and foundations: an inquiry into the nature and limits of models and methods in the information systems discipline. *The Journal of Strategic Information Systems,* 7**,** 5-16.

CLARKE, J. & DUVENAGE, W. 2014. Beyond the Impasse : OUTA's Submission to the Gauteng Advisory Panel on Socio-economic Impact of e-tolls. Opposition to Urban Tolling Alliance (OUTA).

CLOETE, F. 2012. E-government lessons from South Africa 2001-2011: institutions, state of progress and measurement: Section II: Country perspectives on e-government emergence. *African Journal of Information and Communication: Perspective on a Decade of e-Government in Africa***,** 128-142.

COATS, D. & PASSMORE, E. 2008. *Public value: The next steps in public service reform*, Work Foundation.

COHEN, T. & WILD, S. 2012. Call to Probe E-Tolls 'Link' to Arms Deal Companies. *Business Day* [Online]. Available: http://www.businessday.co.za/articles/Content.aspx?id=170821 [Accessed June 2012].

COLLINS, K. & ISON, R. 2006. Dare we jump off Arnstein's ladder? Social learning as a new policy paradigm. *Participatory Approaches in Science & Technology (PATH) Conference.* Edinburgh.

CORDELLA, A. & BONINA, C. M. 2012. A public value perspective for ICT enabled public sector reforms: A theoretical reflection. *Government Information Quarterly,* 29**,** 512-520.

CORNWALL, A. 2003. Whose voices? Whose choices? Reflections on gender and participatory development. *World Development,* 31**,** 1325-1342.

COSATU 2013. Summary of Critique of the National Development Plan. *In:* COSATU (ed.).

COURSEY, D. & NORRIS, D. F. 2008. Models of E-Government: Are They Correct? An Empirical Assessment. *Public Administration Review,* 68**,** 523-536.

COURSEY, D., YANG, K. & PANDEY, S. K. 2012. Public service motivation (PSM) and support for citizen participation: A test of Perry and Vandenabeele's reformulation of PSM theory. *Public Administration Review,* 72**,** 572-582.

CRESSWELL, K., WORTH, A. & SHEIKH, A. 2011. Implementing and adopting electronic health record systems: How actor-network theory can support evaluation. *Clinical Governance: An International Journal* 16**,** 320-336.

CRUZ, I., STAHEL, A. & MAX-NEEF, M. 2009. Towards a systemic development approach: Building on the Human-Scale Development paradigm. *Ecological economics,* 68**,** 2021-2030.

DADA, D. 2006. The failure of e-government in developing countries: A literature review. *The Electronic Journal of Information Systems in Developing Countries,* 26.

DAMIANIDES, M. 2005. Sarbanes-Oxley and IT governance: New guidance on IT control and compliance. *Information Systems Management,* 22**,** 77-85.

DAN, S. & POLLITT, C. 2014. NPM Can Work: An optimistic review of the impact of New Public Management reforms in central and eastern Europe. *Public Management Review***,** 1-28.

DANERMARK, B. 2002. Interdisciplinary research and critical realism the example of disability research. *Alethia,* 5**,** 56-64.

DANERMARK, B., EKSTROM, M., JAKOBSEN, L. & KARLSSON, J. C. 2002. *Explaining society: Critical realism in the social sciences*, Routledge.

DAVISON, R. M., WAGNER, C. & MA, L. C. K. 2005. From government to e-government: a transition model. *Information Technology & People,* 18**,** 280-299.

DE HAES, S. & VAN GREMBERGEN, W. 2009. An exploratory study into IT governance implementations and its impact on business/IT alignment. *Information Systems Management,* 26**,** 123-137.

DE VISSER, J. & POWELL, D. 2012. Service Delivery Protest Barometer 2007-2012. Cape Town: Multi-level Government Initiative-Community Law Centre.

DEAKINS, E. & DILLON, S. M. 2002. E-government in New Zealand: The local authority perspective. *The International Journal of Public Sector Management,* 15**,** 375-398.

DELOITTE. 2011. Cost of doing business in Gauteng set to rise as e-Tolls launched. Available: http://www.deloitte.com/view/en_ZA/za/marketsolutions/impact-of-the-tolling-system/4fd2bba5bae4f210VgnVCM3000001c56f00aRCRD.htm [Accessed June 2012].

DEPARTMENT OF COMMUNICATIONS 2011. Strategic Plan 2011-2014. *In:* COMMUNICATIONS, D. O. (ed.). Republic of South Africa.

DEPARTMENT OF COMMUNICATIONS 2013. Strategic Plan for the fiscal years 2013-2018 and Annual Performance Plan for the fiscal year 2013-2014. *In:* COMMUNICATIONS, D. O. (ed.). Pretoria.

DEPARTMENT OF COMMUNICATIONS. 2014a. *About the Department of Telecommunications and Postal Services* [Online]. Available: www.doc.gov.za [Accessed July 2014].

DEPARTMENT OF COMMUNICATIONS 2014b. The National Integrated ICT Policy Green Paper Executive Summary. *In:* COMMUNICATIONS, D. O. (ed.). Pretoria.

DEPARTMENT OF PUBLIC SERVICE AND ADMINISTRATION. 2012a. *About the Department of Public Service and Administration* [Online]. Available: http://www.dpsa.gov.za/about.php?id=16 [Accessed July 2012].

DEPARTMENT OF PUBLIC SERVICE AND ADMINISTRATION 2012b. Strategic Plan 2012-2015. *In:* DPSA (ed.). RSA.

DEPARTMENT OF PUBLIC SERVICE AND ADMINISTRATION 2013. Department of Public Sevice and Administration Strategic Plan for 2013-2015. *In:* DPSA (ed.). RSA.

DEPARTMENT OF PUBLIC SERVICE AND ADMINISTRATION. 2014. *About the Department of Public Service and Administration* [Online]. Available: http://www.dpsa.gov.za [Accessed July 2014].

DEPARTMENT OF SCIENCE AND TECHNOLOGY 2011. Department of Science and Technology Strategic Plan for the Fiscal Years 2011 -2016. *In:* DST (ed.).

DEPARTMENT OF SCIENCE AND TECHNOLOGY. 2014. *About the Department of Science and Technology* [Online]. Available: www.dst.gov.za [Accessed July 2014].

DEPARTMENT OF TRANSPORT 2012. Gauteng Freeway Improvement Committee Report. Pretoria: Department of Transport.

DERY, K., HALL, R., WAILES, N. & WIBLEN, S. 2013. Lost in translation? An actor-network approach to HRIS implementation. *The Journal of Strategic Information Systems,* 22**,** 225-237.

DEVADOSS, P. R., PAN, S. L. & HUANG, J. C. 2003. Structurational analysis of e-government initiatives: a case study of SCO. *Decision support systems,* 34**,** 253-269.

DIMAGGIO, P. J. 1995. Comments on "What Theory is Not". *Administrative Science Quarterly,* 40**,** 391-397.

DONAT, E., BRANDTWEINER, R. & KERSCHBAUM, J. 2009. Attitudes and the digital divide: Attitude measurement as instrument to predict internet usage. *Informing Science: The International Journal of an Emerging Transdiscipline,* 12**,** 37-56.

DONNER, J. 2006. The use of mobile phones by microentrepreneurs in Kigali, Rwanda: Changes to social and business networks. *Information Technologies and International Development,* 3**,** 3.

DOTY, D. H. & GLICK, W. H. 1994. Typologies as a Unique Form of Theory Building: Toward Improved Understanding and Modeling. *The Academy of Management Review,* 19**,** 230-251.

DOWNWARD, P. & MEARMAN, A. 2007. Retroduction as mixed-methods triangulation in economic research: reorienting economics into social science. *Cambridge Journal of Economics,* 31**,** 77-99.

DPSA 2009. Know your service rights: You, the police, courts and correctional services. *In:* DPSA (ed.).

DUNCAN, J., FINLAY , A., GROOME, A., COMNINOS, A. & ESTERHUYSEN, A. 2014. Mapping the ICT policy environment in South Africa. Association for Progressive Communications (APC).

DUNLEAVY, P., MARGETTS, H., BASTOW, S. & TINKLER, J. 2006. New public management is dead long live digital-era governance. *Journal of Public Administration Research and Theory,* 16**,** 467-494.

DWIVEDI, Y. K., WEERAKKODY, V. & JANSSEN, M. 2011a. Moving Towards Maturity: Challenges to Successful E-government Implementation and Diffusion. *Data Base for Advances in Information Systems,* 42**,** 11-22.

DWIVEDI, Y. K., WILLIAMS, M. D., RANA, N. P. & WILLIAMS, J. 2011b. Reflecting on e-government research: toward a taxonomy of theories and theoretical constructs. *International Journal of Electronic Government Research,* 7**,** 64-88.

DZIMBIRI, L. B. 2008. Experiences in new public management in Africa: the case of performance management systems in Botswana. *Africa Development,* 33.

EASTON, G. 2010. Critical realism in case study research. *Industrial Marketing Management,* 39**,** 118-128.

EBBERS, W. E. & VAN DIJK, J. A. 2007. Resistance and support to electronic government, building a model of innovation. *Government Information Quarterly,* 24**,** 554-575.

EBRAHIM, Z. & IRANI, Z. 2005. E-government adoption: architecture and barriers. *Business Process Management Journal,* 11**,** 589-611.

EDMISTON, K. D. 2003. State and local e-government. *The American Review of Public Administration,* 33**,** 20-45.

EDMUNDS, R., THORPE, M. & CONOLE, G. 2012. Student attitudes towards and use of ICT in course study, work and social activity: A technology acceptance model approach. *British Journal of Educational Technology,* 43**,** 71-84.

EDWARDS, A. & SKINNER, J. 2009. CHAPTER 2 - Research Paradigms in Qualitative Sport Management Research. *In:* EDWARDS, A. & SKINNER, J. (eds.) *Qualitative Research in Sport Management.* Oxford: Butterworth-Heinemann.

EIU 2010. Digital economy rankings 2010. Beyond e-readiness.: The Economist Intelligence Unit.

EL-KIKI, T. & LAWRENCE, E. 2007. Emerging Mobile Government Services: Strategies for Success. *BLED 2007 Proceedings*, 5.

EPHRAIM, A. 2013. Zuma- Pay up for e-Tolls. *Mail and Guardian* [Online]. Available: http://mg.co.za/article/ [Accessed January 2014].

ETU. 2012. *Understanding Government: The Policy and law making process.* [Online]. Available: http://www.etu.org.za/toolbox/docs/govern/policy.html [Accessed 7 July 2012].

EUROPEAN COMMISSION. 1998. European Commission expert group on the urban environment, 1998. Case description of the Trondheim Toll Ring. Available: http://ec.europa.eu/environment/urban/policy_initiatives.htm.

EVANS, D. & YEN, D. C. 2006. E-Government: Evolving relationship of citizens and government, domestic, and international development. *Government Information Quarterly,* 23, 207-235.

FEENEY, M. K. & WELCH, E. W. 2012. Electronic Participation Technologies and Perceived Outcomes for Local Government Managers. *Public Management Review,* 14, 815-833.

FEREDAY, J. & MUIR-COCHRANE, E. 2008. Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods,* 5, 80-92.

FERNANDO, S., MONEY, A., ELLIMAN, T. & LINES, L. 2010. Transformational government and improving services for older adults through the DIADEM assistive technology. *Transforming Government: People, Process and Policy,* 4, 54-72.

FERRARI, P. 2005. Road pricing and users' surplus. *Transport Policy,* 12, 477-487.

FINE, B. 2006. Debating critical realism in economics. *Capital & Class,* 30, 121-129.

FLEETWOOD, S. 2011. POWERS AND TENDENCIES REVISITED. *Journal of Critical Realism,* 10, 80-99.

FORINA, M., ARMANINO, C. & RAGGIO, V. 2002. Clustering with dendrograms on interpretation variables. *Analytica Chimica Acta,* 454, 13-19.

FRALEY, C. & RAFTERY, A. E. 1998. How many clusters? Which clustering method? Answers via model-based cluster analysis. *The computer journal,* 41**,** 578-588.

FUCHS, C. & HORAK, E. 2008. Africa and the digital divide. *Telematics and Informatics,* 25**,** 99-116.

FURUHOLT, B. & WAHID, F. E-government Challenges and the Role of Political Leadership in Indonesia: the Case of Sragen. Hawaii International Conference on System Sciences, Proceedings of the 41st Annual, 2008. IEEE, 411-411.

GAMBOA, L. F. & OTERO, J. 2009. An estimation of the pattern of diffusion of mobile phones: The case of Colombia. *Telecommunications Policy,* 33**,** 611-620.

GATAUTIS, R. 2010. Creating public value through e-participation: WAVE project. *Artificial Intelligence and Law***,** 483-491.

GAUTENG PROVINCE ONLINE. 2011. *About Government* [Online]. Johannesburg. Available: http://www.gautengonline.gov.za/Government/Pages/AboutGovernment.aspx [Accessed 24 October 2011].

GCIS 2013a. South Africa Year Book 2012 - 2013. *In:* SYSTEM, D. O. G. C. A. I. (ed.). Pretoria: Department of Government Communication and Information System.

GCIS 2013b. Speech by Transport Minister, Ms Dipuo Peters during press briefing on the first day of e-tolling. *In:* TRANSPORT (ed.). Pretoria.

GCIS 2014a. Premier David Makhura: establishment of advisory panel on socio-economic impact of e-tolls. *In:* PROVINCE, G. (ed.).

GCIS 2014b. The Presidency on e-tolls and transport infrastructure. *In:* GCIS (ed.). Pretoria.

GCIS. 2014c. *Thusong Service Centre - Brief Background* [Online]. GCIS. Available: http://www.thusong.gov.za/about/history/index.html [Accessed July 2014].

GERNETZKY, K. 2014. Panel's e-tolls work impacting project funding, says Sanral. *Business Day* [Online]. Available: http://www.bdlive.co.za/national/2014/11/05/panels-e-tolls-work-impacting-project-funding-says-sanral.

GHAZINOORY, S. & HAJISHIRZI, R. 2012. Using Actor-Network Theory to identify the role of IT in cognitive science in Iran. *Procedia-Social and Behavioral Sciences,* 32**,** 153-162.

GHYASI, F. & KUSHCHU, I. 2004. Uses of mobile government in developing countries. *web: http://www. movlab. org, accessed,* 4**,** 2004.

GIBBERT, M., RUIGROK, W. & WICKI, B. 2008. What passes as a rigorous case study? *Strategic management journal,* 29**,** 1465-1474.

GIDDENS, A. 2002. *Runaway world: How globalisation is reshaping our lives*, Profile books.

GIGLER, B.-S. Including the Excluded-Can ICTs empower poor communities? Towards an alternative evaluation framework based on the capability approach. 4th International conference on the capability approach, 2004.

GILLWALD, A., MOYO, M. & STORK, C. 2012. Understanding what is happening in ICT in South Africa: A supply and demand side analysis of the ICT sector. *In:* GILLWALD, A. (ed.). Research ICT Africa (RIA).

GOLDSMITH, A. A. 2007. Is governance reform a catalyst for development? *Governance,* 20**,** 165-186.

GOMEZ, R., ABOKHODAIR, N., BAYO, I. & PARK, M. Computer Training to Empower Day Laborers: A Heat Map to Address Emotional Barriers and Technical Skills. System Sciences (HICSS), 2013 46th Hawaii International Conference on System Sciences, 2013. IEEE, 2833-2841.

GOMEZ, R. & GOULD, E. 2010. The "cool factor" of public access to ICT: Users' perceptions of trust in libraries, telecentres and cybercafés in developing countries. *Information Technology & People,* 23**,** 247-264.

GRAHAM, S. 2012. E-Tolling Hogs Attention on Workers' Day. *Mail and Guardian* [Online]. Available: http://mg.co.za/article/2012-05-01-etolling-hogs-attention-on-workers-day [Accessed June 2012].

GREENHALGH, T. & STONES, R. 2010. Theorising big IT programmes in healthcare: Strong structuration theory meets actor-network theory. *Social Science and Medicine,* 70**,** 1285-1294.

GREGOR, S. 2006. The nature of theory in information systems. *MIS Quarterly,* vol. 30**,** p. 611-642.

GRUENING, G. 2001. Origin and theoretical basis of New Public Management. *International public management journal,* 4**,** 1-25.

GUHA, J. & CHAKRABARTI, B. 2014. Making e-government work: Adopting the network approach. *Government Information Quarterly,* 31**,** 327-336.

HACKNEY, R. A. & JONES, S. 2006. Towards eGovernment in the National Assembly for Wales (UK): an empirical analysis. Manchester Metropolitan University.

HAFKIN, N. J. 2009. E-government in Africa: An Overview of Progress Made and Challenges Ahead. UNPAN.

HANKINSON, P., LOMAX, W. & HAND, C. 2007. The time factor in re-branding organizations: its effects on staff knowledge, attitudes and behaviour in UK charities. *Journal of Product & Brand Management,* 16**,** 236-246.

HANNA, N. 2008. *Transforming government and empowering communities: The Sri Lankan experience with e-development*, World Bank Publications.

HANSEN, M. B., STEEN, T. & DEJONG, M. 2012. New Public Management, Public Service Bargains and the challenges of interdepartmental coordination: a comparative analysis of top civil servants in state administration. *International Review of Administrative Sciences,* 79**,** 29-48.

HAQUE, A. & MANTODE, K. L. 2013. Governance in the Technology Era: Implications of Actor Network Theory for Social Empowerment in South Asia. *In:* YOGESH K. DWIVEDI, H. Z. H., DAVID WASTELL, RAHUL DE' (ed.) *Grand Successes and Failures in IT. Public and Private Sectors.* Springer.

HAQUE, M. S. 2002. E-governance in India: its impacts on relations among citizens, politicians and public servants. *International Review of Administrative Sciences,* 68**,** 231-250.

HARDY, C. A. & WILLIAMS, S. P. 2008. E-government policy and practice: A theoretical and empirical exploration of public e-procurement. *Government Information Quarterly,* 25**,** 155-180.

HARINDRANATH, G. & SEIN, M. K. Revisiting the Role of ICT in Development. Proceedings of the 9th International Conference on Social Implications of Computers in Developing Countries, São Paulo, Brazil, 2007.

HARINDRANATH, G. & SEIN, M. K. Reviewing the views of ICT in development. Management of Engineering & Technology, 2008. PICMET 2008. Portland International Conference on, 2008. IEEE, 924-937.

HARWOOD, L. & CLARK, A. M. 2012. Understanding health decisions using critical realism: home-dialysis decision-making during chronic kidney disease. *Nursing inquiry,* 19**,** 29-38.

HAYES, N. & RAJÃO, R. 2011. Competing institutional logics and sustainable development: the case of geographic information systems in Brazil's Amazon region. *Information Technology for Development,* 17**,** 4-23.

HAYNES, S. R. & CARROLL, J. M. The range and role of theory in information systems design research: from concepts to construction. International Conference on Information Systems (ICIS), 2010.

HEDSTRÖM, P. & SWEDBERG, R. 1998. Social mechanisms: An introductory essay. *Social mechanisms: An analytical approach to social theory***,** 1-31.

HEEKS, R. 2002. e-Government in Africa: Promise and practice. *Information Polity,* 7**,** 97-114.

HEEKS, R. 2003. *Most e-government-for-development projects fail: how can risks be reduced?*, Institute for Development Policy and Management, University of Manchester Manchester.

HEEKS, R. 2005. e-Government as a Carrier of Context. *Journal of Public Policy,* 25**,** 51-74.

HEEKS, R. 2008. ICT4D 2.0: The next phase of applying ICT for international development. *Computer,* 41**,** 26-33.

HEEKS, R. 2010. Do information and communication technologies (ICTs) contribute to development? *Journal of International Development,* 22**,** 625-640.

HEEKS, R. & MOLLA, A. 2009. Compendium on impact assessment of ICT-for-development projects. *Manchester: IDRC.* .

HEEKS, R. & SEO-ZINDY, R. 2013. ICTs and Social Movements under Authoritarian Regimes: An Actor-Network Perspective. *Development Informatics -Working Paper Series* [Online]. Available: http://www.sed.manchester.ac.uk/idpm/research/publications/wp/di/index.htm.

HEEKS, R. & STANFORTH, C. 2007. Understanding e-Government project trajectories from an actor-network perspective. 16**,** 165-177.

HEEKS, R. & STANFORTH, C. 2014. Understanding Development Project Implementation: An Actor-Network Perspective. *Public Administration and Development,* 34**,** 14-31.

HEIKKINEN, M. V., NURMINEN, J. K., SMURA, T. & HÄMMÄINEN, H. 2012. Energy efficiency of mobile handsets: Measuring user attitudes and behavior. *Telematics and Informatics,* 29**,** 387-399.

HENDRICK, R. 2003. Strategic planning environment, process, and performance in public agencies: A comparative study of departments in Milwaukee. *Journal of Public Administration Research and Theory,* 13**,** 491-519.

HENRIKSEN, H. Z. & MAHNKE, V. 2005. E-procurement adoption in the Danish public sector: The influence of economic and political rationality. *Scandinavian Journal of Information Systems,* 17**,** 2.

HERSELMAN, M., MARAIS, M. & PITSE-BOSHOMAN, M. 2010. Applying living lab methodology to enhance skills in innovation.

HILBERT, M. 2010. When is cheap, cheap enough to bridge the digital divide? Modeling income related structural challenges of technology diffusion in Latin America. *World Development,* 38**,** 756-770.

HO, A. T.-K. 2002. Reinventing Local Governments and the E-Government Initiative. *Public Administration Review,* 62**,** 434-444.

HO, A. T.-K. & NI, A. Y. 2004. Explaining the Adoption of E-Government Features A Case Study of Iowa County Treasurers' Offices. *The American Review of Public Administration,* 34**,** 164-180.

HOMMES, E. & HOLMNER, M. 2013. Intelligent Transport Systems: privacy, security and societal considerations within the Gauteng case study. *Innovation: journal of appropriate librarianship and information work in Southern Africa: Information Ethics*, 192-206.

HORNBY, A. S. 2010. Oxford Advanced Learners Dictionary of Current English. *In:* TURNBULL, J. (ed.) *Oxford Advanced Learners Dictionary of Current English*

Eighth ed. New York: Oxford University Press.

HOSTETTLER, N. 2010. On the implications of Critical Realist underlabouring. A Response to Heikki Patomäki's 'After Critical Realism?'. *Journal of Critical Realism,* 9**,** 89-103.

HUNTER, Q. 2014. Gauteng ANC in the same lane as e-toll opposition. *Mail and Guardian* [Online]. Available: http://mg.co.za/article/2014-10-14-gauteng-anc-in-the-same-lane-as-e-toll-opposition [Accessed October 2014].

HÜSING, T. & SELHOFER, H. 2002. The Digital Divide Index-A Measure of Social Inequalities in the Adoptioon of ICT.

IRANI, Z., ELLIMAN, T. & JACKSON, P. 2007a. Electronic transformation of government in the UK: a research agenda. *European Journal of Information Systems,* 16**,** 327-335.

IRANI, Z., LOVE, P. E. D. & JONES, S. 2008. Learning lessons from evaluating eGovernment: Reflective case experiences that support transformational government. *The Journal of Strategic Information Systems,* 17**,** 155-164.

IRANI, Z., SAHRAOUI, S., OZKAN, S., GHONEIM, A. & ELLIMAN, T. 2007b. T-government for benefit realisation. *European and Mediterranean Conference on Information Systems (EMCIS).* Spain.

IST-AFRICA 2012. Guide to ICT Policy in IST-Africa Partner Countries. IST Africa Consortium.

IST-AFRICA 2014. Current ICT Initiatives and projects - Republic of South Africa. *In:* IIMC (ed.). IST-Africa.

ITU 2011a. M-Government: Mobile Technologies for Responsive Governments and Connected Societies -International Telecommunication Union.

ITU 2011b. Measuring the Information Society. Geneva: International Telecommunications Union.

ITU 2013. The world in 2013- ICT facts and figures. Geneva: International Telecommunication Union.

JACK, W. & SURI, T. 2011. Mobile money: the economics of M-PESA. National Bureau of Economic Research.

JAEGER, P. T. & THOMPSON, K. M. 2003. E-government around the world: lessons, challenges, and future directions. *Government Information Quarterly,* 20**,** 389-394.

JANSSEN, M. & SHU, W., S. 2008. Transformational government: basics and key issues. *Proceedings of the 2nd international conference on Theory and practice of electronic governance.* Cairo, Egypt: ACM.

JEPPESEN, S. 2005. Critical realism as an approach to unfolding empirical findings: thoughts on fieldwork in South Africa on SMEs and environment. *The Journal of Transdisciplinary Environmental Studies,* 4.

JETZEK, T., AVITAL, M. & BJORN-ANDERSEN, N. 2014. Data-Driven Innovation through Open Government Data. *Journal of theoretical and applied electronic commerce research,* 9.

JOIA, L. A. 2004. Bridging the digital divide: some initiatives in Brazil. *Electronic Government: An International Journal,* 1**,** 300-315.

JONES, S. 2012. Understanding t-government progress and issues: a case study of a United Kingdom local authority. *Journal of Enterprise Information Management,* 25**,** 605-618.

JOSEPH, R. & JOHNSON, N. 2013. The Good, The Bad, and The Big: Big Data and T-Government. *IT Professional - IEEE*.

KARUNASENA, K. & DENG, H. 2011. A revised framework for evaluating the public value of e-government.

KARUNASENA, K. & DENG, H. 2012. Critical factors for evaluating the public value of e-government in Sri Lanka. *Government Information Quarterly,* 29**,** 76-84.

KARUNASENA, K., DENG, H. & SINGH, M. 2011. Measuring the public value of e-government: a case study from Sri Lanka. *Transforming Government: People, Process and Policy,* 5**,** 81-99.

KAUFMANN, D., KRAAY, A. & MASTRUZZI, M. 2006. Measuring governance using cross-country perceptions data. *International handbook on the economics of corruption,* 52.

KEARNS, I. 2004. *Public value and e-government*, Institute for Public Policy Research.

KELLY, G., MULGAN, G. & MUERS, S. 2002. Creating public value: An analytical framework for public service reform. Strategy Unit, UK Cabinet Office.

KHAN, G. F., MOON, J., RHEE, C. & RHO, J. J. 2010. E-government skills identification and development: Toward a staged-based user-centric approach for developing countries. *Asia Pacific Journal of Information Systems,* 20**,** 1-31.

KING, S. & COTTERILL, S. 2007. Transformational Government? The role of information technology in delivering citizen-centric local public services. *Local Government Studies,* 33**,** 333-354.

KLECUN, E. 2008. Bringing lost sheep into the fold: questioning the discourse of the digital divide. *Information Technology & People,* 21**,** 267-282.

KLEIN, H. K. 2004. Seeking the new and the critical in critical realism: déjà vu? *Information and Organization,* 14**,** 123-144.

KLING, R. 2000. Learning about information technologies and social change: The contribution of social informatics. *The Information Society,* 16**,** 217-232.

KOLSAKER, A. & LEE-KELLEY, L. 2008. Citizens' attitudes towards e-government and e-governance: a UK study. *International Journal of Public Sector Management,* 21**,** 723-738.

KOLSTAD, I. & WIIG, A. 2009. Is transparency the key to reducing corruption in resource-rich countries? *World Development,* 37**,** 521-532.

KOTUS, J. 2013. Position of the Polish city on the ladder of public participation: Are we going the right way? The case of Poznań. *Cities,* 35**,** 226-236.

KRAEMER, K. L. & KING, J. L. 2003. Information technology and administrative reform: Will the time after e-government be different? *Center for Research on Information Technology and Organizations*.

KREUTZER, T. 2009. Assessing cell phone usage in a South African township school. *International journal of education and development using ICT,* 5.

KRISHNASWAMY, G. 2006. E-services in Government: Why do we need Strategies for Capacity Building and Capacity Utilization? *Delivering E-government*, 15.

KUMAR, N. 2013. New Public Management in Developing Countries. *Global Journal of Management and Business Studies,* 3, 1241-1246.

KUMAR, R. & BEST, M. L. 2006. Impact and Sustainability of E-Government Services in Developing Countries: Lessons Learned from Tamil Nadu, India. *The Information Society,* 22, 1-12.

KUMAR, V., MUKERJI, B., BUTT, I. & PERSAUD, A. 2007. Factors for successful e-government adoption: a conceptual framework. *The Electronic Journal of e-Government,* 5, 63-76.

LAI, J.-Y. & CHANG, C.-Y. 2011. User attitudes toward dedicated e-book readers for reading: The effects of convenience, compatibility and media richness. *Online Information Review,* 35, 558-580.

LAWAL, G. 2006. Globalisation and development: The implications for the African economy. *Humanity & Social Sciences Journal,* 1, 65-78.

LAYNE, K. & LEE, J. 2001. Developing fully functional E-government: A four stage model. *Government Information Quarterly,* 18, 122-136.

LECA, B. & NACCACHE, P. 2006. A critical realist approach to institutional entrepreneurship. *Organization,* 13, 627-651.

LEE, J. 2010. 10 year retrospect on stage models of e-Government: A qualitative meta-synthesis. *Government Information Quarterly,* 27, 220-230.

LEROMONACHOU, P., POTTER, S. & WARREN, J. P. 2006. Norway's urban toll rings: Evolving towards congestion charging? *Transport Policy,* 13, 367-378.

LI, Z. & HENSHER, D. A. 2012. Congestion charging and car use: A review of stated preference and opinion studies and market monitoring evidence. *Transport Policy,* 20, 47-61.

LLEWELLYN, S. & TAPPIN, E. 2003. Strategy in the public sector: Management in the wilderness. *Journal of Management Studies,* 40, 955-982.

LOWNDES, V. & SKELCHER, C. 1998. The dynamics of multi-organizational partnerships: an analysis of changing modes of governance. *Public administration,* 76, 313-333.

LUBBE, S. & SINGH, S. 2009. From conception to demise: Implications for users of informations systems in changing a local parastatal educational institution in Kwazulu-Natal, South Africa. *In:* REDDICK, C. G. (ed.) *Handbook of Research on*

Strategies for Local E-Government Adoption and Implementation: Comparative Studies Information Science References.

LUYET, V., SCHLAEPFER, R., PARLANGE, M. B. & BUTTLER, A. 2012. A framework to implement Stakeholder participation in environmental projects. *Journal of environmental management,* 111**,** 213-219.

MACIEL, C., SLAVIERO, C., SOUZA, P., CAMPOS, M. & SANTANA, E. Platform design details to support e-participation environments deployment. *In:* JANSSEN, M., MACINTOSH, A., SCHOLL, H., TAMBOURIS, E., WIMMER, M. A., DE BRUIJN, H. & TAN, Y.-H., eds. Third IFIP WG, 2011. 382-391.

MACINTOSH, A. Characterizing e-participation in policy-making. System Sciences, 2004. Proceedings of the 37th Annual Hawaii International Conference on, 5-8 Jan. 2004 2004. 10 pp.

MADON, S. 2005. Evaluating the developmental impact of e-governance initiatives: An exploratory framework. *The Electronic Journal of Information Systems in Developing Countries,* 20.

MAJAVU, M. 2011. Making sense of municipal revolt. *Development in Focus* [Online], Vol. 1. Available: http://abahlali.org/taxonomy/term/development_in_focus/development_in_focus/ [Accessed January 2014].

MARCHE, S. & MCNIVEN, J. D. 2003. E-Government and E-Governance: The Future Isn't What It Used To Be. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration,* 20**,** 74-86.

MARGETTS, H. & DUNLEAVY, P. 2002. Cultural barriers to e-government. *National Audit Office, UK*.

MARSHALL, M. N. 1996. Sampling for qualitative research. *Family Practice,* 13**,** 522-526.

MARTINS, N. 2011. An Evolutionary Approach to Emergence and Social Causation. *Journal of Critical Realism,* 10**,** 192-218.

MAS, I. & MORAWCZYNSKI, O. 2009. Designing mobile money services lessons from M-PESA. *Innovations,* 4**,** 77-91.

MAX-NEEF, M. A., ELIZALDE, A. & HOPENHAYN, M. 1991. *Human scale development: conception, application and further reflections*, Apex Press New York.

MAZILU, M. 2010. Globalisation, Where? *European Research Studies Journal,* 13**,** 189-200.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

MBITI, I. & WEIL, D. N. 2011. Mobile banking: The impact of M-Pesa in Kenya. National Bureau of Economic Research.

MCEVOY, P. & RICHARDS, D. 2006. A critical realist rationale for using a combination of quantitative and qualitative methods. *Journal of Research in Nursing,* 11**,** 66-78.

MCLEAN, C. & HASSARD, J. 2004. Symmetrical Absence/Symmetrical Absurdity: Critical Notes on the Production of Actor-Network Accounts. *Journal of Management Studies,* 41**,** 493-519.

MEYNHARDT, T. 2009. Public value inside: What is public value creation? *Intl Journal of Public Administration,* 32**,** 192-219.

MINGERS, J. 2004a. Critical realism and information systems: brief responses to Monod and Klein. *Information and Organization,* 14**,** 145-153.

MINGERS, J. 2004b. Real-izing information systems: critical realism as an underpinning philosophy for information systems. *Information and Organization,* 14**,** 87-103.

MINGERS, J., MUTCH, A. & WILLCOCKS, L. 2013. Critical Realism in Informations Systems Research. *MIS Quarterly,* 37**,** 795-802.

MISURACA, G. 2007. *E-governance in Africa, from theory to action: A handbook on ICTs for local governance*, Idrc.

MODELL, S. 2009. In defence of triangulation: a critical realist approach to mixed methods research in management accounting. *Management Accounting Research,* 20**,** 208-221.

MOLINA, A. 2003. The digital divide: The need for a global e-inclusion movement. *Technology Analysis & Strategic Management,* 15**,** 137-152.

MONGKOL, K. 2011. The critical review of new public management model and its criticisms. *Research Journal of Business Management,* 5**,** 35-43.

MONOD, E. 2004. Einstein, Heisenberg, Kant: methodological distinction and conditions of possibilities. *Information and Organization,* 14**,** 105-121.

MONTAZEMI, A., PITTAWAY, J. J. & QAHRI-SAREMI, H. SIGNIFICANCE OF IT GOVERNANCE IN TRANSFORMATIONAL GOVERNMENT. *In:* UNIVERSITY, B., ed. tGov Workshop 2010 (tGov10), 2010 West London.

MOON, M. J. 2002. The Evolution of E-Government among Municipalities: Rhetoric or Reality? *Public Administration Review,* 62**,** 424-433.

MOORE, M. & BENNINGTON, J. 2011. Public value: Theory and practice. Basingstoke: Palgrave.

MORGAN, J. 2014. What is Progress in Realism? An Issue Illustrated Using Norm Circles. *Journal of Critical Realism,* 13**,** 115-138.

MORGAN, P. 2006. The concept of capacity. *Maastricht, The Netherlands: European Centre for Development Policy Management, May*.

MORSE, J. M., BARRETT, M., MAYAN, M., OLSON, K. & SPIERS, J. 2002. Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods,* 1**,** 1-19.

MTINGWI, J. & VAN BELLE, J.-P. 2013. E-government status and m-government readiness in Malawi. *In:* MAHMOOD, Z. (ed.) *E-Government Implementation and Practice in Developing Countries.* IGI Publishing.

MUMFORD, E. 2000. A socio-technical approach to systems designs. *Requirements Engineering,* 5.

MURPHY, J. 2005. Beyond E-Government the world's most successful technology enabled transformations. *In:* INSEAD (ed.). Parliamentary Secratary Cabinet Report.

MUTULA, S. M. 2005. Peculiarities of the digital divide in sub-Saharan Africa. *Program,* 39**,** 122-138.

MUTULA, S. M. & MOSTERT, J. 2010. Challenges and opportunities of e-government in South Africa. *The Electronic Library,* 28**,** 38-53.

MUTULA, S. M. & VAN BRAKEL, P. 2007. ICT skills readiness for the emerging global digital economy among small businesses in developing countries: Case study of Botswana. *Library Hi Tech,* 25**,** 231-245.

MYERS, M. D. 2009. *Qualitative Research in Business Management,* London, SAGE.

MYERS, M. D. & KLEIN, H. K. 2011. A set of principles for conducting critical research in information systems. *MIS Quarterly,* 35**,** 17-36.

NAIDOO, R. 2013. E-toll roads: analysing a case of collective moral disengagement in an e-government project: challenges in leadership of ICT policy and e-development. *African Journal of Information and Communication: Leadership in the electronic age: a broad inter-disciplinary practice***,** 108-122.

NATIONAL TREASURY 2010. The Framework for Strategic Plans and Annual Performance Plans. *In:* NATIONAL-TREASURY (ed.). Pretoria: Republic of South Africa.

NDOU, V. 2004. E-Government for developing countries: opportunities and challenges. *The Electronic Journal on Information Systems in Developing Countries,* 18**,** 1-24.

NEPAD. 2014. *About the New Partnership for Africa's Development* [Online]. Available: http://www.nepad.org/about [Accessed August 2014].

NGULUBE, P. 2007. The nature and accessibility of e-government in sub-Saharan Africa. *International Review of Information Ethics,* 7**,** 1-10.

NJIHIA, J. M. 2011. Critical realism and its prospects for African development research and policy. *Thought and Practice: A Journal of the Philosophical Association of Kenya,* 3**,** 61-85.

NJIHIA, J. M. & MERALI, Y. 2013. THE BROADER CONTEXT FOR ICT4D PROJECTS: A MORPHOGENETIC ANALYSIS. *MIS Quarterly,* 37**,** 881-905.

NKOSI, M. & MEKURIA, F. Mobile government for improved public service provision in South Africa. 2010. IEEE, 1-8.

NPC 2012. National Development Plan - 2030 Our Future Make it Work. *In:* DEPARTMENT OF THE PRESIDENCY: NATIONAL PLANNING COMMISSION (ed.). Pretoria: Department of The Presidency: National Planning Commission,.

NTALIANI, M., COSTOPOULOU, C. & KARETSOS, S. 2008. Mobile government: a challenge for agriculture. *Government Information Quarterly,* 25**,** 699-716.

NURDIN, N., STOCKDALE, R. & SCHEEPERS, H. 2012. Organizational Adaptation to Sustain Information Technology: The Case of E-Government in Developing Countries. *Electronic Journal of Electronic Government,* 10**,** 70-83.

OASIS-COMMITTEE-NOTE01 2012. Transformational Government Framework Primer Version 1.0. OASIS.

OATES, B. J. 2006. *Researching Information Systems and Computing,* Los Angeles, Sage Publications.

OCHARA, N. M. 2009. Assessing irreversibility of an E-Government project in Kenya: Implication for governance. *Government Information Quarterly,* 27**,** 89-97.

OCHARA, N. M. 2012. Grassroots Community Participations as a Key to e-Governance Sustainability in Africa. *African Journal of Information and Communication,* 12**,** 26-47.

OCHARA, N. M. & VAN BELLE, J.-P. The Link Between the Conceptualization of eGovernment and its Perceived Impacts: An Exploratory Empirical Study in Kenya. Proceedings of the 10th European Conference on E-Government: National Center for Taxation Studies University of Limerick, Ireland 17-18 June 2010, 2010. Academic Conferences Limited, 308.

OGHOGHO, I. & EZOMO, P. 2013. ICT for National Development in Nigeria: Creating an enabling environment. *International Journal of Engineering,* 3**,** 2305-8269.

OLIVER, C. & MCKAGUE, K. Sustainable local enterprise networks: Network bricolage as institutional entrepreneurship in low-income economies. Institutional Theory Conference, University of Alberta, Edmonton, June. Retrieved November, 2009. 2011.

OLTMANN, C. & BOUGHEY, C. 2012. Using critical realism as a framework in pharmacy education and social pharmacy research. *Research in Social and Administrative Pharmacy,* 8**,** 333-337.

ORLIKOWSKI, W. J. & BAROUDI, J. J. 1991. Studying information technology in organizations: Research approaches and assumptions. *Information Systems Research,* 2**,** 1-28.

ORLIKOWSKI, W. J. & IACONO, C. S. 2001. Research commentary: Desperately seeking the "IT" in IT research—A call to theorizing the IT artifact. *Information Systems Research,* 12**,** 121-134.

OSMAN, I. H., ANOUZE, A. L., IRANI, Z., AL-AYOUBI, B., LEE, H., BALCI, A., MEDENI, T. D. & WEERAKKODY, V. 2014. COBRA framework to evaluate e-government services: A citizen-centric perspective. *Government Information Quarterly,* 31**,** 243-256.

PARDO, T. 2000. Realizing the promise of digital government: It's more than building a web site. Center for technology in government.

PATEL, H. & JACOBSON, D. Factors Influencing Citizen Adoption of E-Government: A Review and Critical Assessment. *In:* GOLDEN, W., ACTON, T., CONBOY, K., VAN DER HEIJDEN, H. & TUUNAINEN, V. K., eds. 16th European Conference on Information Systems (ECIS 2008), June 9-11, 2008 2008 Galway, Ireland. 1058-1069.

PATTON, M. Q. 1987. *How to Use Qualitative Methods in Evaluation*, Sage.

PERISTERAS, V. & TARABANIS, K. 2004. Governance enterprise architecture (GEA): domain models for e-governance. ACM.

PETERS, S. & VAN NIEUWENHUYZEN, H. 2012. Understanding the dynamics of the capacity challenge at local government level. *Financial and Fiscal Commission*.

PINA, V., TORRES, L. & ACERETE, B. 2007. Are ICTs promoting government accountability?: A comparative analysis of e-governance developments in 19 OECD countries. *Critical Perspectives on Accounting,* 18**,** 583-602.

PLYLER, M., HAAS, S. & NGARAJAN, G. 2010. Community-Level Economic Effects of M-PESA in Kenya: Initial Findings. *College Park, MD: IRIS Center, Assessing the Impact of Innovation Grants in Financial Services Project*.

PMG. 2012. Appropriations Bill: Debate on Vote No 37 – Transport. *Parliamentary Monitoring Group* [Online]. Available: http://www.pmg.org.za/print/32074 [Accessed September 2012].

POISTER, T. H. 2010. The future of strategic planning in the public sector: Linking strategic management and performance. *Public Administration Review,* 70**,** s246-s254.

POLLITT, C. & DAN, S. 2011. The impacts of the New Public Management in Europe: A meta-analysis. *status: published*.

PONELIS, S. R. & BRITZ, J. J. 2008. To talk or not to talk? From Telkom to Hellkom: A critical reflection on the current telecommunication policy in South Africa from a social justice perspective. *The International Information & Library Review,* 40**,** 219-225.

PONTEROTTO, J. G. 2005. Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of counseling psychology,* 52**,** 126.

PRICE, L. 2014. Critical Realist versus Mainstream Interdisciplinarity. *Journal of Critical Realism,* 13**,** 52-76.

PSC 2008. A Mid-term Review of Public Service Transformation. *State of the Public Service Report.* Pretoria: Public Service Commission.

PUNJ, G. & STEWART, D. W. 1983. Cluster analysis in marketing research: review and suggestions for application. *Journal of marketing research***,** 134-148.

REDDICK, C. G. 2005. Citizen interaction with e-government: From the streets to servers? *Government Information Quarterly,* 22**,** 38-57.

REFFAT, R. 2003. Developing a successful e-government. *OECD Symposium on e-Government.*

REINWALD, A. & KRAEMMERGAARD, P. 2012. Managing stakeholders in transformational government — A case study in a Danish local government. *Government Information Quarterly,* 29**,** 133-141.

RHODES, J. 2009. Using Actor-Network Theory to Trace an ICT (Telecenter) Implementation Trajectory in an African Women's Micro-Enterprise Development Organization. *Information Technologies & International Development,* 5**,** pp. 1-20.

ROBIN, G. 2007. Public sector information system project failures: Lessons from a New Zealand hospital organization. *Government Information Quarterly,* 24**,** 102-114.

RODRIK, D., SUBRAMANIAN, A. & TREBBI, F. 2004. Institutions rule: the primacy of institutions over geography and integration in economic development. *Journal of economic growth,* 9**,** 131-165.

ROMAN, R. 2003. Diffusion of innovations as a theoretical framework for telecenters. *Information Technologies & International Development,* 1**,** pp. 53-66.

ROSEN, H. S. 1985. Public Finance. Homewood, IL: Richard D. Irwin. Inc.

ROSS, R. 1999. *A concise history of South Africa* Cambridge UK, Cambridge University Press.

ROWE, G. & FREWER, L. J. 2004. Evaluating public-participation exercises: a research agenda. *Science, technology & human values,* 29**,** 512-556.

ROWLEY, J. 2011. e-Government stakeholders—Who are they and what do they want? *International Journal of Information Management,* 31**,** 53-62.

ROY, H. S., MURRAY, E. J. & JAMES, B. 2009. Paralingual Web Design and Trust in E-Government. *International Journal of Electronic Government Research (IJEGR),* 5**,** 36-49.

RYDER, G. 2007. Debunking the optimists: An evaluation of conventional wisdom about the digital divide and e-government in the British Isles. *Transforming Government: People, Process and Policy,* 1**,** 112-130.

SÆTHER, B. 1998. Retroduction: an alternative research strategy? *Business Strategy and the Environment,* 7**,** 245-249.

SAHO. 2013. *South African History Online* [Online]. Cape Town: SAHO. Available: http://www.sahistory.org.za/ [Accessed December 2013].

SALEH, W. & FARRELL, S. 2005. Implications of congestion charging for departure time choice: work and non-work schedule flexibility. *Transportation Research Part A: Policy and Practice,* 39**,** 773-791.

SALGA 2012. A Municipal Guide/RoadMap to Successful ICT Governance. Pretoria: South African Local Government Association.

SALGA. 2014. *About Local Government (South African Local Government Authority)* [Online]. Available: http://www.salga.org.za/pages/Municipalities/About-Municipalities [Accessed September 2014].

SANNER, T. A. & SAEBO, J. I. 2014. Paying Per Diems for ICT4D Project Participation: A Sustainability Challenge. *Information Technologies & International Development,* 10**,** pp. 33-47.

SANRAL. 2012. *South African National Roads Agency Limited* [Online]. Available: http://www.nra.co.za 2012].

SANRAL 2014. A guide to tolling. *In:* SANRAL (ed.). Pretoria.

SANTOS, B. D. S. 2002. The processes of globalisation. *Revista Crítica de Ciências Sociais and Eurozine*, 1-48.

SAPA. 2014. Sanral: Shut up if you use public transport. *City Press Online* [Online]. Available: http://www.citypress.co.za/news/sanral-shut-use-public-transport/.

SAXENA, K. B. C. 2005. Towards excellence in e-governance. *International Journal of Public Sector Management,* 18, 498-513.

SAXENA, N. 1998. What is meant by People's Participation? *Journal of Rural Development* 17, 111-114.

SCHOLL, H. J. 2003. E-government: A Special Case of ICT-enabled Business Process Change. *36th Hawaii International Conference on System Sciences (HICSS-36).* Island of Hawaii (Big Island): Computer Societry Press.

SCHOLL, H. J. 2005. E-government-induced business process change (BPC): An empirical study of current practices. *International Journal of Electronic Government Research (IJEGR),* 1, 27-49.

SCHUPPAN, T. 2009. E-Government in developing countries: Experiences from sub-Saharan Africa. *Government Information Quarterly,* 26, 118-127.

SCHWARE, R. 2003. Information and communications technology (ICT) agencies: functions, structures, and best operational practices. *info,* 5, 3-7.

SEIFERT, J. W. & CHUNG, J. 2009. Using e-government to reinforce government–citizen relationships: Comparing government reform in the United States and China. *Social Science Computer Review,* 27, 3-23.

SEIN, M. K. & HARINDRANATH, G. 2004. Conceptualizing the ICT artifact: Toward understanding the role of ICT in national development. *The Information Society,* 20, 15-24.

SELIAN, A. & SRIVASTAVA, L. Mobile phones and youth: A look at the US student market. ITU/MIC Workshop: Shaping the Future Mobile Information Society, 2004. 4-5.

SEN, A. 1999. *Commodities and capabilities,* New York, Oxford University Press.

SHAREEF, M. A., KUMAR, V., KUMAR, U. & DWIVEDI, Y. K. 2011. e-Government Adoption Model (GAM): Differing service maturity levels. *Government Information Quarterly,* 28, 17-35.

SHARIF, A. M. 2008. Transformational Government: What is the shape of things to come? *Transforming Government: People, Process and Policy,* 2**,** 71-75.

SHU, W. S. Strategic IT planning as change specification. Proceedings of the 2nd international conference on Theory and practice of electronic governance, 2008. ACM, 136-143.

SIAU, K. & LONG, Y. 2005. Synthesizing e-government stage models–a meta-synthesis based on meta-ethnography approach. *Industrial Management & Data Systems,* 105**,** 443-458.

SIFE, A., LWOGA, E. & SANGA, C. 2007. New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *International journal of education and development using ICT,* 3.

SILVA, L. & WESTRUP, C. 2009. Development and the promise of technological change. *Information Technology for Development,* 15**,** 59-65.

SIMS-SCHOUTEN, W., RILEY, S. C. & WILLIG, C. 2007. Critical Realism in Discourse Analysis A Presentation of a Systematic Method of Analysis Using Women's Talk of Motherhood, Childcare and Female Employment as an Example. *Theory & Psychology,* 17**,** 101-124.

SINGH, H., DAS, A. & JOSEPH, D. 2007. Country-level Determinants of E-government Maturity. *Communications of the Association for Information Systems,* 20**,** 40.

SINGH, S. K. 2008. The diffusion of mobile phones in India. *Telecommunications Policy,* 32**,** 642-651.

SIPIOR, J., WARD, B. & CONNOLLY, R. 2012. Bridging the Digital Divide for e-Government inclusion: A United States Case Study. *Case Studies in eGovernement***,** 167.

SIPIOR, J. C., WARD, B. T. & CONNOLLY, R. 2011. The digital divide and t-government in the United States: using the technology acceptance model to understand usage. *European Journal of Information Systems,* 20**,** 308-328.

SMITH, M. L. 2006. Overcoming theory-practice inconsistencies: Critical realism and information systems research. *Information and Organization,* 16**,** 191-211.

SNELLEN, I. 2002. Conciliation of Rationalities: The essence of public administration. *Administrative Theory & Praxis,* 24**,** 323-346.

SOUTER, E. D. & MACLEAN, D. 2012. Changing our Understanding of Sustainability: The impact of ICTs and the Internet.

SOUTH AFRICAN PRESIDENCY 2010. Guide to the Outcomes Approach. *In:* THE-PRESIDENCY (ed.). Pretoria.

STATS-SA 2014. Poverty Trends in South Africa : An examination of absolute poverty between 2006 and 2011. Pretoria: Statistics South Africa.

STATSSA 2012. Census 2011- Key Results. Pretoria: Statistics South Africa.

STATSSA 2014a. Gross Domestic Product- 2nd Quarter 2014. Pretoria: Statistics South Africa.

STATSSA 2014b. Mid year population estimates. Pretoria: Statistics South Africa.

STATSSA 2014c. Quarterly Labour Force Survey- Quarter 2 of 2014. Pretoria: Statistics South Africa.

STEWART, J. 2004. The meaning of strategy in the public sector. *Australian Journal of Public Administration,* 63**,** 16-21.

STOKER, G. 2006. Public value management a new narrative for networked governance? *The American Review of Public Administration,* 36**,** 41-57.

SULLIVAN, W., SULLIVAN, R. & BUFFTON, B. 2001. Aligning individual and organisational values to support change. *Journal of Change Management,* 2**,** 247-254.

TAMBOURIS, E., LIOTAS, N. & TARABANIS, K. A framework for assessing e-Participation projects and tools. 40th Annual Hawaii International Conference on System Sciences (HICSS), 2007. IEEE, 90-90.

TAVAKOL, M. & DENNICK, R. 2011. Making sense of Cronbach's alpha. *International journal of medical education,* 2**,** 53-55.

TELES, A. & JOIA, L. A. 2011. Assessment of digital inclusion via the actor-network theory: The case of the Brazilian municipality of Pirai. *Telematics and Informatics,* 28**,** 191-203.

THOMAS, P. 2009. Bhoomi, Gyan Ganga, e-governance and the right to information: ICTs and development in India. *Telematics and Informatics,* 26**,** 20-31.

THOMPSON, M. 2008. ICT and development studies: towards development 2.0. *Journal of International Development,* 20**,** 821-835.

TORRES, L., PINA, V. & ROYO, S. 2005. E-government and the transformation of public administrations in EU countries: Beyond NPM or just a second wave of reforms? *Online Information Review,* 29**,** 531-553.

TRIPATHI, M. 2007. Lokvani (voice of the masses): A case study of e-governance in rural India. *The International Information & Library Review,* 39**,** 194-202.

TRITTER, J. Q. & MCCALLUM, A. 2006. The snakes and ladders of user involvement: moving beyond Arnstein. *Health Policy,* 76**,** 156-168.

TRUEX, D., HOLMSTRÖM, J. & KEIL, M. 2006. Theorizing in information systems research: A reflexive analysis of the adaptation of theory in information systems research. *Journal of the Association for Information Systems,* vol. 7**,** p. 797-821.

TSHEOLA, J. 2013. State capitalism, meta-governance, state-capital nexus and state activism paradoxes in the Gauteng freeways. *Journal of Public Administration,* 48**,** 35-50.

TSHWANE 2011. Approved Stakeholder Liaison Strategy. *In:* COMMUNICATIONS (ed.). City of Tshwane Municipality.

TSHWANE MUNICIPALITY. 2013. *About Us* [Online]. City of Tshwane Municipality. Available: www.tshwane.gov.za [Accessed November 2013].

TUBBS, B. 2013. Sanral 'takes public for fools'. *IT Web* [Online]. Available: http://www.itweb.co.za/index.php?option=com_content&view=article&id=63142 [Accessed October 2014].

TWINOMURINZI, H., PHAHLAMOHLAKA, J. & BYRNE, E. 2012. The small group subtlety of using ICT for participatory governance: A South African experience. *Government Information Quarterly*.

UNDP. 2011. *Millennium Development Goals Overview* [Online]. Available: http://www.beta.undp.org/undp/en/home/mdgoverview.html [Accessed 29 October 2011].

UNITED-NATIONS. 2013. *UN Public Administration Programme* [Online]. Available: http://unpan3.un.org/egovkb/egovernment_overview/eparticipation.htm [Accessed September 2013].

UNITED-NATIONS. 2014. *Millenium Development Goals* [Online]. UN. Available: http://www.un.org/millenniumgoals/bkgd.shtml [Accessed July 2014].

UNPAN 2008. United Nations E-government Survey 2008. From E-government to connected governance. United Nations Public Administration Network.

UNPAN 2012. United Nations E-Government Survey 2012: E-Government for the People. United Nations Public Administration Network.

UNPAN 2014. United Nations E-Government Survey 2014: E-Government for the Future We Want United Nations Public Administration Network.

UNSTATS. 2014. *United Nations Classification of the Functions of Government* [Online]. United Nations Statistics Division. Available: http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=4 [Accessed June 2014].

VAN DEURSEN, A. & VAN DIJK, J. 2010. Measuring internet skills. *Intl. Journal of Human–Computer Interaction,* 26**,** 891-916.

VAN DEURSEN, A. & VAN DIJK, J. 2011. Internet skills and the digital divide. *New media & society,* 13**,** 893-911.

VAN DIJK, J. & HACKER, K. 2003. The digital divide as a complex and dynamic phenomenon. *The Information Society,* 19**,** 315-326.

VAN VEENSTRA, A. F., KLIEVINK, B. & JANSSEN, M. 2011. Barriers and impediments to transformational government: insights from literature and practice. *Electronic Government, An International Journal,* 8**,** 226-241.

VAVI, Z. 2013. Vavi on e-tolls: Stop economic apartheid. *Eye Witness News* [Online]. Available: http://ewn.co.za/2013/12/03/Stop-economic-apartheid-dont-buy-etags.

VENKATESH, V. & SYKES, T. A. 2013. Digital Divide Initiative Success in Developing Countries: A Longitudinal Field Study in a Village in India. *Information Systems Research,* 24**,** 239-260.

VENTER, C. J. & JOUBERT, J. W. 2013. Tax or toll? GPS-based assessment of equity impacts of large scale electronic freeway tolling in Gauteng, South Africa.

VERDEGEM, P. 2011. Social Media for Digital and Social Inclusion: Challenges for Information Society 2.0 Research & Policies. *Triple C - Open Access Journal for a Global Sustainable Information Society* 9**,** 28-38.

VERDEGEM, P. & VERHOEST, P. 2008. The 'relative utility' approach for stimulating ICT acceptance: profiling the non-user. *European Journal of e-Practice***,** 36-46.

VERDEGEM, P. & VERHOEST, P. 2009. Profiling the non-user: Rethinking policy initiatives stimulating ICT acceptance. *Telecommunications Policy,* 33**,** 642-652.

VESELÝ, A. & SMITH, M. L. 2008. Macro-micro linkages and the role of mechanisms in social stratification research. *Sociologický časopis/Czech Sociological Review***,** 491-509.

VOLKOFF, O. & STRONG, D. M. 2013. Critical Realism and Affordances: Theorizing IT-Associated Organizational Change Processes. *MIS Quarterly,* 37**,** 819-834.

WAERSTED, K. Urban tolling in Norway–Practical experiences, social and environmental impacts and plans for future systems. Norwegian Public Roads Administration. PIARC Seminar on Road Pricing with amphasis on Financing, Regulation and Equity, Cancun, Mexico, 2005. 11-13.

WAHID, F. 2012. The Current State of Research on eGovernment in Developing Countries: A Literature Review. *Electronic Government.* Springer.

WALKER, R. 1985. *Applied qualitative research*, Gower Publishing Company.

WALSH, S. P., WHITE, K. M. & YOUNG, R. M. 2008. Over-connected? A qualitative exploration of the relationship between Australian youth and their mobile phones. *Journal of Adolescence,* 31**,** 77-92.

WALSHAM, G. 2005. Development, global futures and IS research: a polemic. *The Journal of Strategic Information Systems,* 14**,** 5-15.

WANG, Y.-J. 2009. Rethinking E-Government Services Session 3: Serving Citizens – Becoming User-focused in the Provision of E-Government Services. OECD.

WARKENTIN, M., GEFEN, D., PAVLOU, P. A. & ROSE, G. M. 2002. Encouraging citizen adoption of e-government by building trust. *Electronic markets,* 12**,** 157-162.

WARREN, M. 2007. The digital vicious cycle: Links between social disadvantage and digital exclusion in rural areas. *Telecommunications Policy,* 31**,** 374-388.

WARREN, M. R., THOMPSON, J. P. & SAEGERT, S. 2001. The role of social capital in combating poverty. *Social capital and poor communities***,** 1-28.

WARSCHAUER, M. 2004. *Technology and social inclusion: Rethinking the digital divide*, MIT press.

WEERAKKODY, V. & DHILLON, G. 2008. Moving from e-government to t-government: a study of process reengineering challenges in a UK local authority context. *International Journal of Electronic Government Research (IJEGR),* 4**,** 1-16.

WEERAKKODY, V., JANSSEN, M. & DWIVEDI, Y. K. 2009. *Handbook of research on ICT-enabled transformational government: a global perspective*, Information Science Publishing.

WEERAKKODY, V., JANSSEN, M. & DWIVEDI, Y. K. 2011. Transformational change and business process reengineering (BPR): Lessons from the British and Dutch public sector. *Government Information Quarterly,* 28**,** 320-328.

WEF 2013. The Global Information Technology Report 2013 -Growth and Jobs in a Hyperconnected World

In: BEÑAT BILBAO-OSORIO, S. D., AND BRUNO LANVIN (ed.). World Economic Forum.

WEST, D. M. 2004. E-Government and the Transformation of Service Delivery and Citizen Attitudes. *Public Administration Review,* 64**,** 15-27.

WILLIAMS, I. & SHEARER, H. 2011. Appraising public value: past, present and futures. *Public administration,* 89**,** 1367-1384.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

WILLIAMS, S. L. 2002. Strategic planning and organizational values: links to alignment. *Human Resource Development International,* 5**,** 217-233.

WOLCOTT, P., KAMAL, M. & QURESHI, S. 2008. Meeting the challenges of ICT adoption by micro-enterprises. *Journal of Enterprise Information Management,* 21**,** 616-632.

WORLD BANK 2011. An Evaluation of World Bank Group Activities in Information and Communication Technologies. Capturing Technology for Development. Washington DC: World Bank Independent Evaluation Group.

WORLDBANK 2004. A History of the Social Development Network in The World Bank, 1973 - 2002. WorldBank.

WORLDBANK 2011a. Accountability in Public Services in South Africa. The World Bank.

WORLDBANK. 2011b. *E-Government Definition* [Online]. Available: http://go.worldbank.org/JKO5DVDMQ0 [Accessed 30 June 2012].

WÜNDERLICH, N. V., WANGENHEIM, F. V. & BITNER, M. J. 2013. High Tech and High Touch A Framework for Understanding User Attitudes and Behaviors Related to Smart Interactive Services. *Journal of Service Research,* 16**,** 3-20.

WYNN, D. & WILLIAMS, C. K. 2012. Principles for conducting critical realist case study research in information systems. *MIS Quarterly,* 36**,** 787-810.

YANG, K. 2005. Public administrators' trust in citizens: A missing link in citizen involvement efforts. *Public Administration Review,* 65**,** 273-285.

YATES, D. J., GULATI, G. J. & TAWILEH, A. Explaining the global digital divide: The impact of public policy initiatives on digital opportunity and ICT development. System Sciences (HICSS), 2010 43rd Hawaii International Conference on Systems Sciences, 2010. IEEE, 1-10.

YILDIZ, M. 2012. Big questions of e-government research. *Information Polity,* 17**,** 343-355.

YILDIZ, M. Big questions of e-government research. Proceedings of the 14th Annual International Conference on Digital Government Research, 2013. ACM, 260-262.

YıLDıZ, M. & SAYLAM, A. 2013. E-government discourses: An inductive analysis. *Government Information Quarterly,* 30**,** 141-153.

YIN, R. K. 2013. *Case study research: Design and methods*, Sage publications.

YIRENKYI-BOATENG, S. 2010. DEVELOPMENT PLANS AND THE SUSTAINABLE DEVELOPMENT AGENDA IN AFRICA: How Critical Realist Conceptualization Can Help. *Journal of Critical Realism,* 9**,** 328-352.

YONG, J. S. & KOON, L. H. 2003. E-government: Enabling public sector reform. *E-Government in Asia: Enabling Public Service Innovation in the 21st Century*, 3-21.

ZAFRA-GÓMEZ, J. L., BOLÍVAR, M. P. R. & MUÑOZ, L. A. 2012. Contrasting New Public Management (NPM) Versus Post-NPM Through Financial Performance: A Cross-Sectional Analysis of Spanish Local Governments. *Administration & Society*, 0095399711433696.

ZARENDA, H. 2013. South Africa's National Development Plan and its implications for regional development. Stellenbosch: Trade Law Centre.

ZHANG, P. & SUN, H. 2009. The complexity of different types of attitudes in initial and continued ICT use. *Journal of the American Society for Information Science and Technology,* 60, 2048-2063.

ZOURIDIS, S. & THAENS, M. 2003. E-government: towards a public administration approach. *Asian Journal of Public Administration,* 25, 159-183.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

APPENDIX A: Introductory Letter for Research Study

Faculty of Economic and Management Sciences
Dept. of Informatics

"Towards a Transformational Government Framework for sub-Saharan Africa"

Research conducted by:

Ms. T. Mawela (99151619)

Dear Respondent

You are invited to participate in an academic research study conducted by Tendani Mawela, a Doctoral student from the Department Informatics at the University of Pretoria.

The purpose of the study is to investigate Electronic Government Technology (e-Government) implementations within the Public Sector. The study seeks to understand the impacts of Information and Communication Technology in this sector towards transforming the lives of citizens. It is expected that the study may yield interesting insights and lessons for both academia and practice. Please note the following:

- This study involves an interview and /or completion of a questionnaire that will require no more than an hour of your time. The interview will be set up at a time and venue that is convenient for you.
- Please be assured that the answers you give will be treated as strictly **confidential**. You cannot be identified in person based on the answers you give. The identities of the respondents will not be published or released to anyone.
- Your participation in this study is very important to us. You may, however, choose not to participate and you may also stop participating at any time without any negative consequences.
- The results of the study will be used for academic purposes only and may be published in an academic journal. We will provide you with a summary of our findings on request.
- Please contact my study leader, Dr. Nixon Muganda Ochara and he is available on 012 420-3373 or nixon.muganda@up.ac.za, if you have any questions or comments regarding the study.

Please sign the form to indicate that:

- You have read and understand the information provided above.
- You give your consent to participate in the study on a voluntary basis.

_____ _____

Respondent's signature **Date**

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

APPENDIX B: Interview Guide

Note: Researcher will discuss ethical issues regarding confidentiality of respondents, reinforce open and honest feedback (there are no wrong answers), and reconfirm reasons for recording the interview to assist in transcription and reflect the outcomes of the interview accurately. Respondents will not be individually identifiable and the following information will be shared with the PhD supervisors only.

Section 1: Administrative Information

Date of Interview	
Time of Interview	
Venue	
Interview Reference No:	
Total Duration of Interview (Hours)	

Section 2: Demographic Information

Current Position/Role in Government (National/Provincial/Local)	
Number of years in Government	

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Previous positions/ roles in Government	
Education and Training Qualifications	
Organisation Size (number of permanent staff vs. contract and temporary staff)	
Number of years involved in an ICT/e-Government Project	
Role(s) on the ICT/e-Government Project	

Section 3: Discussion on the Experiences of Respondents

1. The objectives and implementation of ICT programmes in the organisation

1. What ICT programmes has your organisation undertaken in the last 10 years? How many programmes were undertaken?
2. How did the ICT programmes start in your organisation and why was it started? (were there external or internal triggers)
3. What were the initial objectives of the ICT programmes?
4. Who manages your organisation's ICT Programmes?
5. What was the implementation strategy for the ICT programme?
6. What was the duration of the implementation?

7. What do you think needs to be in place in order to design, implement and maintain an ICT project?

2. The context within which ICTs are implemented in the organisation

1. How does Provincial/National Government influence implementation of ICT in the Municipalities?
2. At what stage are Provincial and National Government involved in the implementation (Planning, Design, Building, Testing and Deployment)?
3. What is the prevailing political, economic, technological and institutional context within which the technology is being introduced locally or nationally?
4. Do you have thoughts on the values, culture and leadership and whether these influence your ICT programmes?
5. What is the role of Batho Pele in ICT implementation for your organisation?

3. The barriers and drivers of ICT programmes

1. What are the key challenges in implementing an ICT programme? Are there challenges you believe are unique to national/ provincial/local Government?
2. Have you achieved any of your ICT programme objectives?
3. How do you measure success of your ICT programmes?
4. Are there systems and mechanisms in place to ensure that the ICT programme project is successful?
5. Was there a champion for the ICT programme within your organisation and how did this/these person(s) influence the implementation process?

4. The stakeholders within Government ICT programmes

1. Who do you consider to be your key stakeholders (internal and external) in the implementation of ICT/ e-Government?
2. What is the role of each stakeholder in the implementation of ICT/e-Government?
3. Describe your relationship with each stakeholder highlighted?
4. How has each group of stakeholders responded to the technology implementation?

5. The outcomes and impacts of ICT based programmes (conceptualising Transformational Government)

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

1. What are the consequences/results to government of implementing ICT?
2. Of the ICT programmes undertaken by the organisation in the last 10 years how many do you consider to be "Total failure" vs. "Partial failure" vs. "Success"*

   Note:

   **Total failure*: the initiative was never implemented or was implemented but immediately abandoned.

   **Partial failure*: major goals for the initiative were not attained and/or there were significant undesirable outcomes.

   **Successful project:* is where most stakeholder groups attained their major goals and did not experience significant undesirable outcomes
3. Are you satisfied with the results/outcomes of your ICT projects?
4. Do you believe there are opportunities to use ICT for developmental purposes and to transform the lives of citizens?
5. How are the ICT Programmes aimed to transform the lives of the community?
6. What role does ICT have in socio-economic development?
7. How have your ICT projects transformed the lives of the communities you serve?
8. What do you understand from the term "e-Government" and "ICT for Development"?
9. What do you understand from the term "Transformational Government"?
10. How do you measure "transformation" in your municipality/province?
11. How do you monitor/assess the impacts or benefits of Transformational Government in particular?

6. e-Participation for Transformational Government in ICT based programmes

1. How do you involve citizens in ICT programmes (in what way and at what stage)?
2. How do citizens provide the municipality/province with feedback on services? What processes and tools are used for this?
3. What is your view on e-Participation?
4. How is e-Participation manifested in the municipality/province?
5. What opportunities for enhanced e-Participation do you see in your municipality/province?

7. General perceptions of ICT in the government context

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

1. What are the main lessons you have learned from your involvement in ICT implementations in government?
2. Any other comments/thoughts on your experiences in pursuing e-Government/ Transformational Government or ICT for Development?
3. What future plans do you have for ICT implementations in your municipality?

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

APPENDIX C: Overview of e-Indaba Project

As indicated in Chapter 7 data sets from an existing e-Government project were utilised to support the study. The project was funded by a grant from the National Research Foundation (NRF) and University of Pretoria. An overview of the project is outlined below:

Project Title	E-Indaba- Towards an e-Participation Model for Digitally Excluded Groups
Project Leader	Prof. NM Ochara
UP Department and Faculty	Informatics Faculty of Engineering, Built Environment and Information Technology (EBIT)
Duration of Project	2011-2013
Project Objectives	1. Investigate how e-governance is conceptualised in policy texts of developing nations and how the policy intentions influence e-participation. 2. Undertake a comparative analysis of the internet and mobile diffusion trajectory in developing nations and assess how it influences e-participation. 3. Explore alternative information infrastructures as a basis for e-participation. 4. Develop a framework and software application for e-participation in developing nations (e-Indaba).
Data Collection Sites	South Africa, Angola, Zimbabwe, Lesotho

APPENDIX D: Survey Instrument

The survey instrument utilised for Chapter 7 is outlined below:

SURVEY OF E-PARTICIPATION IN SOUTH AFRICA

Thank you for taking the time to complete this questionnaire.

PART I: DEMOGRAPHICS

Please respond to the questions by putting a tick mark (√) at the choice that best describes you.

1) Gender: ☐ **Male** ☐ **Female**

2) Age

☐ **<20** ☐ **20 - 25** ☐ **26 - 30** ☐ **31 - 35**

☐ **36 - 40** ☐ **41+**

3) Qualification

☐ **None** ☐ **Matric** ☐ **Diploma** ☐ **Degree**

☐ **Post graduate**

PART II: Assessing E-Government Utility for E-Participation.

Please read the following statements and indicate to what extent you agree or disagree with the statements by putting one tick mark (√) on your choice in the grey shaded area on the right hand side below.

Aspects related to Access, Skills Attitude Towards E-Government	**ASA**
1. ENJOYMENT: Using the mobile phone to access government services is ridiculous	At
2. SOCIAL INFLUENCE: When my friends are using the mobile phone to access government services, I will consider using it myself	At
3. COMPLEXITY: The mobile phone is user friendly to me	S
4. MARKET STRATEGY: If I were to use my mobile phone to get government services, it must be with a government department I am familiar with	Ac

Aspects related to Access, Skills Attitude Towards E-Government	ASA
5. COST: Using the mobile phone to access government services seems expensive	Ac
6. TANGIBLES: The way to access government services using a mobile phone is not clear	Ac
7. IMAGE/PRESTIGE: Using the mobile phones to access government services improves my image and social status	At
8. PRODUCT KNOWLEDGE: I consider myself well informed about why mobile phones should be used for getting government services	S
9. COMPLEXITY: I fear that using a mobile phone for government services is rather complicated for me.	S
10. OPTIMISM: The fast technological developments are a good thing	At
11. SELF-EFFICACY: I have no problem using the Internet by myself to get government services	S
12. SOCIAL INFLUENCE: I sometimes discuss with my friends how government can provide services using the Internet	At
13. OBSERVABILITY: I am perfectly able to explain the strengths and weaknesses of the Internet to others.	S
14. RELATIVE ADVANTAGE: I do not know how to use mobile phones to access government services.	At
15. WILLINGNESS TO PAY: Using my mobile phone to get access to government is something I really want.	Ac
16. RELIABILITY: I doubt that the mobile phone is good enough for providing government services	At
17. PERCEIVED RISK: I cannot use the mobile phone to access government services by myself.	S
18. MARKET STRATEGY: If I would consider accessing government services using my mobile phone, someone need to explain to me how to do it	S
19. RELATIVE ADVANTAGE: The benefits of using the mobile phone to access government services are more important than the disadvantages for me	At
20. COMPATIBILITY: I prefer walking into a government office for service instead of using the Internet.	At
21. COST: Using the mobile phone to access government services will probably be too expensive for many people	Ac
22. TRIALABILITY: I would like to see others use mobile phones to access government services before I try it out for myself	S
23. SOCIAL INFLUENCE: I am interested in using the mobile phone to get government services, but only if my friends and family are doing so	At
24. SOCIAL INFLUENCE: If I use the mobile phone to connect to the government, it would certainly explain something about me and my personality	At
25. COMPLEXITY: I fear that using mobile phone to access government will make it more complicated to use	S

Aspects related to Access, Skills Attitude Towards E-Government	ASA
26. INNOVATIVENESS: Since I already know about the Internet, I will find out how more about e-government services	At
27. OPINION LEADERSHIP: My friends and family will certainly come to me for advice concerning the using the of Internet for government information	S
28. RELATIVE ADVANTAGE: Using the mobile phone to get government services and to give feedback on service delivery will make it easier for me	At
29. OPTIMISM: If you do not want to be left behind, using the Internet is necessary	At
30. VOLUNTARINESS: If I was to use my mobile phone to access government services, it would completely be my own decision without influence from anybody	At
31. PERCEIVED SOCIAL RISK: If I were to use the mobile phone to get in touch with government over service delivery, my friends and family would look odd at me	At
32. COMPATIBILITY: Using the mobile phone for Internet access fits in my lifestyle	At
33. TRIALABILITY: Before using the mobile phone for accessing government services, I would like the advice of some people	S
34. PERCEIVED FINANCIAL RISK: I fear that using my mobile phone to communicate with government would exceed my budget	Ac
35. SOCIAL INFLUENCE: Even if I am interested, I would not access government services through my mobile phone if my friends and family have a negative opinion towards it	At
36. SOCIAL INFLUENCE: Most of my family and friends are certainly enthusiastic about using Internet at home	At
37. RELIABILITY: I think it is not safe to send sensitive information to the government using the Internet or mobile phones	At

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

APPENDIX E: Publications Related to the Thesis

Several refereed articles were published during the completion of this doctoral study. These are outlined below:

Type	Publication Name	Title	Year	Author(s)
Journal Article	Information Technology for Development Journal	Enabling Social Sustainability of E-Participation through Mobile Technology	2015	Nixon Muganda Ochara & Tendani Mawela
Conference Paper	Proceedings of: South African Institute of Computer Scientists and Information Technologists (SAICSIT) Conference	Sustainability of e-Participation through Mobile Technology	2013	Tendani Mawela & Nixon Muganda Ochara
Conference Paper	Proceedings of: IEEE e-Leadership Conference	Strategic Planning for Transformational Government	2012	Tendani Mawela
Conference Paper	Proceedings of: International Business Information Management Association (IBIMA) Conference	Toll on E-Toll: (Ir)Reversibility of a Transformational Government Project in South Africa	2012	Nixon Muganda Ochara & Tendani Mawela

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA