

A Systems Thinking Approach to e-Government Strategy Formulation for Water Service Delivery in South African Local Municipalities

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By

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Abstract

E-Government deployments by stakeholders within the South African water service sector, provide certain benefits for the sector. While deemed beneficial and of considerable value, e-Government deployments and implementations in the water sector of local governments of South Africa have not always been successful. One important reason for e-Government failures, among several others, is the lack of coherent strategies, informed by key representing stakeholder views, to guide implementation and deployment of e-Government tools. Without strategies, it is highly likely that ICT integration will be conducted haphazardly. As a point of note, more than the deliverable (*strategy document*) that represents the output of the strategy development process, it serves more purpose to understand the process that results in the strategy. Importantly, understanding the process helps to account for the formed relationships between the various stakeholders that need to buy into the strategy.

The research study develops an *e-Government strategy formulation framework* based on a systems thinking approach, intended to support the strategy formulation process of e-Government strategies – to underpin the effective integration, deployment and sustained use of ICT solutions for water service delivery at the local government level. A systems thinking approach is considered due to its emphasis on the strategy being informed by a holistic assessment. Where there is some knowledge about the processes by which a strategy is formulated – over time ideas may be derived on the types of processes that may produce efficient e-Government strategies. The research is conducted using the Design Science research paradigm. The Design Science paradigm is comprised of two processes – *build* and *evaluate* (Hevner *et al.*, 2004). The *build* process, as related to this research concentrates on the progression through which the theoretical e-Government strategy formulation framework is derived. Weick's (1989) theorizing approach is ascribed, supporting the design of the theoretical framework. In applying Weick's theorizing approach, firstly, the lack of knowledge on how e-Government strategies should be formulated in South African local municipalities – is explicated in an intelligible manner. Once the problem is properly articulated, a trial and error selection process is undertaken of existing approaches on strategy formulation – thought to possess the potential to contribute to the development of an e-Government strategy formulation framework, suited to local governments in South Africa. With good reason, 10 (ten) strategy approaches are selected from, *e-Government programmes in developed countries*, *Non-Governmental organizational strategy approaches*, and *business*

related strategy formulation approaches. Lastly, as all possible approaches that may contribute to the framework development process cannot be selected, criteria is specified to limit the number of possible selections. Furthermore, in deriving the framework, foundations for systematically dealing with unstructured problems, such as, strategy formulation are consulted. This foundation along with the research goals, informs the development of a template used to comparatively analyse the 10 selected approaches on strategy formulation. This analysis aids in revealing the components of an e-Government strategy formulation process. With the developed framework, the *evaluation* process of the design science research commences, seeking to determine the utility of the framework (*suitability and shortcomings*). The framework is applied to the procedural formulation of a strategy for a tentative e-Government project called MobiSAM, which aims to enhance citizen engagement with local government through the use of mobile phones. The strategy formulation application process in the project environment and local government reveals lessons that inform revisions to the framework. The e-Government strategy formulation framework, therefore represents a fundamental tool for e-Government strategy development in local municipalities, and may be customized to fit the requirements of varying local municipalities.

Declaration

I affirm that the Thesis titled, *A Systems Thinking Approach to e-Government Strategy Formulation for Water Service Delivery in South African Local Municipalities*, which I hereby submit is my own work. Furthermore, I declare that this Thesis has not been submitted by me, for a degree at this or any other higher institution of learning, and that all references that I have used have been accurately recorded.



Joshua Osah

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Table of Contents

Abstract	i
Acknowledgements	ii
Appendices (Refer to attached CD)	ix
List of Figures	x
List of Tables	xi
Chapter 1: Research Introduction	1
1.1 Introduction	2
1.2 Research Context	2
1.3 Goals of the Research	5
1.3.1 Research Questions	6
1.3.2 Research Objectives.....	6
1.4 Methods, Procedures, and Techniques	6
1.5 Research Scope	10
1.6 Significance of Research	10
1.7 Summary of Results.....	11
1.8 Thesis Organization	13
Chapter 2: Research Structure	16
2.1. Introduction	17
2.2 Research Paradigm	18
2.2.1 Design Science Research Cycle.....	22
2.2.2 Design Science Research Guidelines.....	24
2.2.3 Design Science Research Process.....	27
2.3 Conclusion	29
Chapter 3: Public Service Delivery and Local Government Stakeholders in South Africa	30
3.1 Introduction	31
3.2 Overview of Water Service Management in South Africa	31
3.3 Water Service Structure: Operations, Management Structure and Stakeholders	34
3.4 Conclusion	43
Chapter 4: E-Government for Service Delivery Provision	44
4.1 Introduction	45
4.2 An Overview of E-Government for Service Delivery in South Africa.....	45
4.3 Potential Areas of ICT Application for Water Service Delivery.....	47

4.3.1 Management and Networking of Water Infrastructure and Water Resources	47
4.3.2 Smart Water Metering (SWM) and Automatic Meter-reading (AMR).....	48
4.3.3 Research and Development	49
4.3.4 Information Flow Enhancement and Collaboration amongst Water Service Stakeholders.....	49
4.3.5 ICTs for Transaction Processes (Bill Payment)	49
4.3.6 Awareness, Capacity Building and Information Dissemination to the Public	50
4.4 E-Government Challenges Related to Water Service Management	50
4.4.1 Unidentified Conceptual Prerequisites	50
4.4.2 Self-Centred Motivations.....	51
4.4.3 Financial Constraints	52
4.4.4 Leadership Convictions.....	52
4.4.5 Technophobia and Illiteracy	53
4.4.6 Fragmented Functional Areas.....	53
4.4.7 Infrastructure Needs	54
4.4.8 Haphazard Implementation (Lack of Strategy).....	54
4.5 The Role of Strategy in Successful E-Government Implementation	55
4.6 Conclusion	58
Chapter 5: A Systems View to Strategy Formulation	59
5.1 Introduction	60
5.2 Importance of understanding the Strategy Formulation Process	60
5.3 The Need for a Systems View to E-government Strategy Formulation in South African Local Municipalities.....	64
5.4 Conclusion	73
Chapter 6: An Analysis of Approaches to Identify Components of Strategy Formulation	75
6.1 Introduction	76
6.2 The Theorizing Approach	76
6.2.1 Problem Formulation	77
6.2.2 Thought Trials	78
6.2.3 Selection criteria	81
6.3 A Critical Review of e-Government Strategy related Approaches	87
6.3.1 Components of Strategy formulation from an E-Government Perspective	88
6.3.2 E-government Strategy Formulation Approaches Contribution to Systems	

Thinking	97
6.3.3 Limitations of E-Government Strategy Formulation Approaches	98
6.4 A Critical Analysis of Business related (private sector) strategy formulation Approaches	98
6.4.1 Components of Strategy formulation from a Business/private sector Perspective	99
6.4.2 Supporting Elements	115
6.4.3 Business/Private Sector Strategy Formulation Approaches Contribution to Systems Thinking	116
6.4.4 Limitations of Business/Private Sector Strategy Formulation Approaches	116
6.5 A Critical Analysis of NGO related strategy formulation Approaches	117
6.5.1 Components of Strategy formulation from an NGOs Perspective	118
6.5.2 Supporting Elements	121
6.5.3 NGO Strategy Formulation Approaches Contribution to Systems Thinking	122
6.5.4 Limitations of NGO Strategy Formulation Approaches	122
6.6 Discussion on the Three Analyzed Sectors	122
6.6.1 Topic/Content focus in a local e-Government Strategy formulation process	122
6.6.2 Phase Gates	130
6.6.3 Phases of A Strategy Formulation Process Identified Across Analyzed Approaches	130
6.6.4 Supporting Element	133
6.6.5 Approaches Contribution to Systems Thinking	133
6.6.6 Limitations of Analysed Approaches	135
6.7 Conclusion	136
Chapter 7: A framework to guide the formulation process of a Localized e-Government strategy in South African Local Municipalities	138
7.1 Introduction	139
7.2 Defining a Localized e-Government Strategy Formulation Framework	139
7.3 The Components of the localized e-Government strategy formulation framework for Water Service Delivery	140
.....	141
.....	141
.....	141

.....	141
7.3.1 Content focus in a local e-Government Strategy formulation process	142
7.3.2 Phase Gates and Feedback Mechanisms	144
7.3.3 Phases of an E-Government Strategy Formulation Process.....	144
Phase 1: Study Preparation Phase.....	145
Phase 2: ICT Orientation Phase	148
Phase 3: Assessment of Local Government affiliated Organizations (Formal and Informal aspects)	149
Phase 4: Collaborative e-Government objective setting/evaluation of objectives	167
Phase 5: E-Government Strategy Communication and Persuasion for Acceptance.....	171
7.4 Conclusion	171
Chapter 8: Case Study Research Methodology.....	173
8.1 Introduction	174
8.2 Research Paradigm	174
8.3 Research Strategy	175
8.4 The Case Study Design	178
8.4.1. The Case Study Research Questions:.....	178
8.4.2 The Unit of Analysis	179
8.4.3 The Research Instruments.....	179
8.5 Overall Data Collection	182
8.6 Data Analysis	183
8.6.1 Thematic Analysis	183
8.6.2 Explanation Building	184
8.7 Data Validation.....	185
8.8 Ethical Considerations	185
8.9 Conclusion	187
Chapter 9: A Case Study Exploration of Strategy Formulation for MobiSAM. 189	
9.1 Introduction	190
9.2 An Overview of MobiSAM	190
9.3 Makana Municipality Context	197
9.3.1 The ICT Infrastructure of Makana Municipality.....	199
9.4 MobiSAM Service Delivery Focus.....	201
9.5 Key Stakeholders of MobiSAM	203
9.6 Strategy Formulation for the MobiSAM Project.....	207

9.6.1 Content Focus in the Strategy Formulation Process.....	208
9.6.2 Phase Gates and Feedback Mechanisms	213
9.6.3 Application of Phases of the strategy formulation Framework	213
9.7 Conclusion	244
Chapter 10: An Enhancement of the e-Government Strategy Formulation Framework.....	245
10.1 Introduction	246
10.2 Revision of the Theoretical e-Government Strategy Formulation Framework	246
10.2.1 Observation of Content Focus of e-Government Strategy Formulation Process.....	247
10.2.2 Application of Phases of the Strategy formulation Framework.....	248
10.2.3 The Overall Structure of the E-Government Strategy Formulation Framework.....	254
10.3 General Review of the Application of the e-Government Strategy Formulation Framework	256
10.4 Conclusion	257
Chapter 11: Conclusion and Future Research.....	258
11.1 Introduction	259
11.2 Responding to Research Questions	260
11.3 Research Contribution.....	261
11.3.1 The Design Artefact.....	261
11.3.2 Design Construction Knowledge	262
11.3.3 Knowledge on the Evaluation of the Design Artefact	263
11.4 Implications of the Research	263
11.5 Limitations of Research.....	264
11.6 Future Research.....	265
11.6.1 Investigating the proposed framework in other local government environments	265
11.6.2 Further Investigating a Systems Thinking in the framework.....	265
11.6.3 Investigating additional methods for engagement.....	265
11.7 In Closing	265
References.....	267

Appendices (Refer to attached CD)

Appendix 1: Template analysis of strategy related approaches.

Appendix 2: Related documents for Ethical Approval.

2.1. Information debriefing sheet

2.2. Participant Consent form.

2.3. Ethical clearance approval letter by Rhodes University.

Appendix from Case Studies.

Case A: Municipal baseline questionnaire.

Case B: Diagrammatic representation of Municipalities existing service reporting structure.

Case C: Interview protocol for assessment of technical status of the municipality

Case D: Interview protocol for assessment of group structural elements of municipal staff.

Case E: Copy of MobiSAM strategy document.

Case F: Copy of actor analysis.

Case G: List of selected municipal staff to participate in baseline study.

Case H: Citizen baseline questionnaire.

Case I: Case narrative.

LIST OF FIGURES

Figure 1.1: Overall Research Design	8
Figure 2. 1: Overall Research Process.....	17
Figure 2. 2: Three Cycles of Design Science Research	22
Figure 2. 3: Design Science Research Process	28
Figure 3. 1: Basic Activities of Water Service Delivery in South Africa.....	42
Figure 6. 1: Example of a SWOT analysis for an ICT department in an organization intending to integrate a new application.....	111
Figure 7. 1: E-Government strategy formulation framework.....	141
Figure 7. 2: An Example of a Means-End diagram.....	151
Figure 7. 3: An Example of an objectives tree	154
Figure 7. 4: An Example of a causal diagram.....	156
Figure 7. 5: Power/Interest Matrix	166
Figure 9. 1: Social Accountability Monitoring Methodology	192
Figure 9. 2: MobiSAM Architecture	194
Figure 9. 3: High level view of Makana Municipality's internal computer network infrastructure.....	199
Figure 9. 4: MobiSAM operational model	203
Figure 9. 5: Problem tree generated at municipal strategy workshop	226
Figure 9. 6: A mean-end analysis generated by the interventionist.....	227
Figure 9. 7: An objective tree generated by the interventionist.....	227
Figure 9. 8: Current municipal service delivery reporting structure	228
Figure 9. 9: Proposed reporting structure articulated at municipal strategy formulation workshop	229
Figure 9. 10: Modified proposed reporting structure based on feedback.....	231
Figure 9. 11: Examples of problem trees generated at citizen workshop	232
Figure 9. 12: Power/Interest Matrix depicting interdependencies MobiSAM seeks to rely on, adapted from Enserink et al., (2010).	235
Figure 10. 1: An Enhanced Framework to guide e-Government strategy formulation	255

List of Tables

Table 2. 1: Design Science Research Guidelines Observed by Research.....	24
Table 3. 1: Municipal Classification developed as part of the Municipal Infrastructure Investment Framework	37
Table 3. 2: Summary of the municipal governance framework. Source	39
Table 6. 1: Research chapters elaborating on problem formulation	78
Table 6. 2: Thematic analysis sequential process of existing strategy approaches .	79
Table 6. 3: Criteria used for selecting approaches to be analysed.....	82
Table 6. 4: A template for analysing strategy formulation approaches	83
<i>Table 6. 5: Approaches Selected</i>	<i>84</i>
<i>Table 6. 6: Summary of organization information requirements</i>	<i>107</i>
Table 6. 7: Organization/business process matrix tool	108
Table 6. 8: Example of existing system support for business processes	109
Table 6. 9: Theme identification from analyzed approaches	125
Table 6. 10: Summary of commonalities noticed across the ten analyzed approaches	131
<i>Table 7. 1: Methods for making a first selection of actors (stakeholders) to engage in an e-government strategy formulation exercise</i>	<i>145</i>
Table 7. 2: ICT readiness dimensions to assess in preparation for e-Government projects	157
Table 7. 3: Components of a system diagram relevant to a problem situation	158
Table 7. 4: Example of a consequence table for means/criteria relationship.....	159
<i>Table 7. 5: A tool for making an inventory of actors</i>	<i>161</i>
Table 7. 6: Overview table of actors' problem formulations.....	163
<i>Table 7. 7: Resource dependency Matrix.....</i>	<i>165</i>
<i>Table 7. 8: Overview Table for crucial and non-crucial actors.....</i>	<i>165</i>
Table 8. 1: Six-phase process for thematic analysis	183
Table 8. 2: Summary of research design guiding this study	188

Table 9. 1: Information about planned activities for MobiSAM strategy development based on framework proposal	207
Table 10. 1: Proposed Addition to Thematic focus of e-Government strategy Process.....	247
<i>Table 10.2: Revisions to Study Preparation Phase</i>	<i>248</i>
Table 10. 3: Revisions to the ICT orientation phase.....	250
<i>Table 10. 4: Revisions to the assessment of local government stakeholder phase</i>	<i>251</i>
Table 10.5: Revision of Joint strategy development presentation	253
Table 10. 6: Revision of the strategy communication and persuasion phase.....	254

List of Abbreviations

Abbreviation	Meaning
AMCOW	African Ministers Council on Water
AR	Action Research
BPR	Business process reengineering
CATWOE	Customers, Actors, Transformation Process, Weltanschauung, Owner, Environmental Constraints
CBO's	Community Based Organizations
CDWs	Community Development Workers
CEO	Chief Executive Officer
CFO	Chief Financial Officer
COGTA	The Department of Cooperative Governance of Traditional Affairs
DEIS	Department of Engineering and Infrastructure
DFID	Department of International Development
DMS	Data Management Systems
DSS	Decision Support Systems
DWA/F	Department of Water Affairs
EFCNMT	Environmental Finance Centre New Mexico Tech
GIS	Geographic Information Systems
GPS	Global Positioning System
GRA	Grahamstown Resident Association
GSN	Government Secure Network
GSB	Government service bus
HAM	Human Activity Model
ICTs	Information and Communication Technologies
ICT4D	Information and Communication Technologies for Development
IS	Information Systems
IT	Information Technologies
ITU	International Telecommunication Union
LAN	Local Area Networks
LED	Local Economic Development
MAVC	Making all voices count
MobiSAM	Mobile Social Accountability Monitoring
MVC	Model View Controller
NGO	Non-Governmental organizational
PCMEF	Presentation Control Mediator Entity Foundation
PEST	Political, Economic, Social and Technological
PKI	Public Key Infrastructure
PSAM	Public Service Accountability Monitor
QMS	Qualitative Meta Synthesis
REST API	Representational State Transfer Application Programming Interface
RICT-CEF	Rural ICT Comprehensive Evaluation Framework
RtD	Research through Design
SAM	Social Accountability Monitoring
SMS	Short Message Service
SMT	Senior Management Team
SOA	Service Oriented Architecture
SRVM	Sundays River Valley Municipality
SSM	Soft Systems Methodology
SWOT	Strengths, Weaknesses, Opportunities, Threats
UAE	United Arab Emirates
UNAIDS	U.S Agency for International Development
UNDP	United Nations Development Programme

UPM	Unemployed Peoples Movement
WAN	Wide Area Networks
WSA	Water Service Authorities
WSP	Water Service Providers
WUA	Water User Association

Chapter 1

Research Introduction

This chapter introduces the research study. The chapter commences with a discussion of the research context to place the study into perspective. The goals of the research, and the methods, procedures, and techniques employed are summarized. Lastly, the chapter outlines the key findings from each chapter of the research.

1.1 Introduction

The South African Constitution in Section 24 and 27 of the Bill of Rights, grants specific rights to citizens to access sufficient water, and other key public services (Algotsson, Murombo, Davis, Poole, 2009). With the devolution of water service delivery responsibility to local government level (African Ministers Council on Water (AMCOW), 2011; Department of Water Affairs (DWAF), 2002), access to basic water services has become a mandate of the local government organization. Given the communication dependent nature of public service delivery, Information and Communication Technologies (ICTs), can strategically provide value to public service delivery processes. The application of ICTs to support public service delivery is commonly referred to as e-Government. Although e-Government solutions conceivably can provide value to public service delivery, a number of challenges impede this from happening. One important challenge amongst several, is the lack of strategies to guide deployment and sustained use of e-Government solutions, so as to avoid haphazard implementation. More so, it helps to understand the process that aids in the articulation of the strategy. A systems view to strategy formulation is thought to be appropriate here, due to the largely complex nature of e-Government challenges, especially in the South African local government context (Alter, 2004; Matavire, Chigona, Roode, Sewchurran, Davids, Mukudu and Boamah-Abu, 2010).

This chapter introduces the research study. It commences with a research context, which provides a contextual background to the problem area. Subsequently, the goals of the research are outlined, along with a more elaborate list of objectives that the research seeks to address. Following this, the research methodology that underpins the study is summarised. The chapter then outlines the scope of the research, as well as the significance of the study. A discussion of the summary of results revealed by each chapter is then presented. Finally, an outline of the thesis organisation is listed.

1.2 Research Context

Water is a basic necessity, and its utility is crucial to all human beings (Algotsson *et al.*, 2009). At the same time, it needs to be taken into consideration that water is a finite resource (United States Environmental Protection Agency (USEPA), 2013), and as such, its use must be managed efficiently. Water management, while significant is severely challenged around the globe. These challenges are more prevalent in developing contexts, for instance, in the majority of African countries (Berry, Forder, Sultan and Moreno-Torres, 2004).

In South Africa, protests and campaigns appear to be on the rise about water scarcity and the lack of provision of similar services (Nnadozie, 2013). Tissington, Dettmann, Langford, Dugard and Conteh (2008) corroborate this claim by stating that, while South Africa possesses a progressive legislative framework for water service delivery, when it comes to implementation at the local level the reality is different. Especially disconcerting is the lack of water services in poor rural and informal settlements of the country (Algotsson *et al.*, 2009). Service distribution inequalities emanated from the past apartheid legacy, which has left high levels of imbalance in access to resources, infrastructure, and social services (Nnadozie, 2013; Tissington *et al.*, 2008). As such, while some progress has been made, a need still exists to address water service provision challenges being experienced in predominantly poor black communities, rural areas, and informal settlements of South Africa. The South African government, being aware of these challenges, has taken a pro-poor stance, since the end of the apartheid era, to ensure equitable service distribution (Nnadozie, 2013). Therefore, to achieve their goals and objectives, it is incumbent on government to seek optimal ways of addressing these problems.

Particularly pertinent to public service provision in South Africa, is the need to institute effective and efficient channels of information and communication flows between multi-stakeholder groups involved in service delivery processes. For instance, within the water sector stakeholders may include but are not limited to, the office of the minister of water and environmental affairs, water service authorities (WSAs) at the provincial/municipal level, water service providers (WSP) contracted by WSAs, and citizens (Algotsson *et al.*, 2009; Tissington *et al.*, 2008). Data flows between these stakeholders consist of – supply chain logistics, transparency exhibition, feedback from citizens on service quality, billing transactions, subsidy considerations and water demand management aspects, amongst others (Molobela and Sinha, 2011; Tissington *et al.*, 2008). Presently, as is the case, the cohesive flow, communication, and management of these data aspects are subpar (Bhagwan, 2012). Consequently, this negatively impacts on the entire service sector.

Retrospectively, it may help remarkably if the government strategically integrates Information and Communication Technologies (ICTs) to support service delivery (Nkohkwo and Islam, 2013). The tactical incorporation of ICTs, in addition to improving the information and communication flows between multi-stakeholders will also provide several other benefits to the public service sector. These include, savings on transacting, enhanced management

practices, and better support and empowerment of marginalized groups (Al-khouri, 2012; Nkohkwo and Islam, 2013; Seng-Wong, Hideki and George, 2011; Vaisla and Pant, 2012 and Venkatesh, Sykes and Venkatraman, 2012). This is not to imply that ICTs are a solution to all challenges being faced in the public service sector, however the suggestion being made is that an ICT enabled environment could significantly enhance service delivery. For instance, tangible costs could be reduced by automating services, hence eliminating the need for some physical building infrastructure and human resource (Al-khouri, 2012). Also, deriving appropriate tariff prices for excessive water consumption requires accurate data (Tissington *et al.*, 2008), which ICTs such as Decision Support Systems (DSS) could provide (Arnott and Pervan, 2008). To add on, the information storage, and communication capabilities ICTs possess can support better evidence based engagement between citizens and the government (Thinyane and Coulson, 2012). These gains, which e-Government provides for the government, and citizens, makes their deployment and use mutually desirable for both parties.

While deemed beneficial and of considerable value, literature suggests that e-Government deployments and implementation in developing countries have not always been successful. Authors such as, Dada (2006); Heeks (2003); Nkohkwo and Islam, 2013; and Venkatesh, Sykes and Venkatraman (2012) draw attention to the high failure rates of e-Government implementations in developing countries. Challenges resulting in failures are not generic, but peculiar to each government's context (Matavire *et al.*, 2010). Accordingly, South Africa, requires e-Government implementation approaches and solutions relevant to their context, especially at local government level.

Rigorous grounded theory research, by Matavire *et al.*, (2010), reveals that perceived lack of ICT usefulness, leadership challenges, and fragmentation, are major inhibitors of successful e-Government implementation in South Africa. These challenges may largely be attributed to the absence of a cohesive outlook and understanding, by varying stakeholders of particular public service delivery aspects, on the gains of comprehensively adopting ICTs to underpin their service delivery sectors (Matavire *et al.*, 2010; Saha, Jaramillo, Loi, Alshanfari, Qian and Zoughbi, 2010). Non-existent cohesion stems from the decentralized nature of government functional areas, which consequently promotes silo interests and isolated functional processes (Saha *et al.*, 2010; Arendse, Mohamed, Levy, Bevan, Wakeford, de Bruyn, Freitas, Jean, Mbhele and Klaas, 2012). For instance, Matavire *et al.*, (2010) and

Twinomurinzi and Gharthey-Tagoe (2011) allude to the lack of information flows across government intra-departmental boundaries. The absence of these flows inherently cause service disruptions or may ultimately affect service provision. Furthermore, this lack of an all-inclusive approach to e-Government adoption, deters multi-stakeholder engagement. Such engagement is imperative prior to ICT implementation. Collective engagement allows all stakeholders involved to comprehend the overarching mutual benefits, as well as individual gains of e-Government implementation to their functional areas (Matavire *et al.*, 2010). Moreover, it does not help matters that currently, many public sector sub-routine work-processes are vaguely defined (Twinomurinzi and Gharthey-Tagoe, 2011), and as such it cannot be determined where ICTs fit.

The complex nature of these challenges demand an appropriate and well-articulated *strategy* for integrating ICTs to support service delivery at the municipal level. Such a strategy will delineate a transformation plan from a point of no, or poor e-Government implementation, to well-functioning systems that effectively and efficiently support service provision (Al-khour, 2012; Naidoo, 2007). Though critical, evidently such strategies are lacking in many service provision aspects of the South African context (Naidoo, 2007).

In view of the largely systemic nature of the highlighted e-Government challenges, Alter (2004) and Matavire *et al.*, (2010), suggest that an e-Government integration *strategy* should be formulated only after a systems wide analysis of service provision functioning at the municipal level. Commonly referred to as a systems thinking approach, a systems wide analysis is the idea of holistically understanding a system in which human participants and/or machines perform work using information, technology, and other resources to produce products and/or services for internal or external customers at optimal performance (Alter, 2004; Brenton, 2007; Ramo and St.Clair, 1998; Tasmin, Saufi, and Rusuli, 2011). Currently, systems thinking approaches to ICT research and ICT integration in organizational settings are lacking (Alter, 2004; Turpin and Alexander, 2014). Additionally, knowledge on how to develop e-Government strategies for South African local governments are lacking (Champanis, Rivett, Gool, and Nyemba-Mudenda, 2013).

1.3 Goals of the Research

This research aims to develop a framework that guides the strategy formulation process for e-Government for water service delivery at the municipal (*local government*) level in South Africa, based on a systems thinking approach.

1.3.1 Research Questions

The study will be guided by the following research questions:

1. What are the uses and challenges of e-Government for water service delivery at local government level in South Africa? How can a systems view be integrated into the design and development of an e-Government strategy at the municipal level in South Africa?
2. What are the components essential in the formulation process of developing a strategy for e-Government deployment at municipal level in South Africa?
3. How can a proposed e-Government strategy formulation framework be applied to develop the strategy for a tentative or existing e-Government project at local government level in South Africa?

1.3.2 Research Objectives

- a) To apply the Design Science paradigm in developing an e-Government strategy formulation framework and evaluating its utility in a real-life project environment.
- b) To illustrate the importance of communication amongst local government stakeholders in the water sector of South Africa, and reasons for e-Government failures within the sector.
- c) To investigate the concept of a systems view to e-Government strategy development.
- d) To identify the components of strategy formulation relevant to an e-Government project.
- e) To design an e-Government strategy formulation framework suited for local municipalities.
- f) To apply the framework in a real life project environment, in order to determine its utility.
- g) To revise the framework based on reflections from its application in a real life project environment.

1.4 Methods, Procedures, and Techniques

A Design Science paradigm is employed to conduct the study. The paradigm is appropriate where the articulation and solution of a problem are best realized through the design and application of an artefact (Hevner, March, Park and Ram, 2004). As is the case here, the designed framework intended to guide strategy formulation is applied in a South African local municipal service provision context. The application of the artefact (framework) in this environment is simultaneously carried out alongside an evaluation of the artefact

(Johannesson and Perjons, 2012). This is subsequently followed by a revision of the artefact. Information Systems (IS) development is usually shaped by emergent requirements and contextualized design, rather than something that is developed right the first time (Scacchi, 2004). Hence, the design science approach is applied iteratively, where observed shortcomings, which consequently result in revisions to the artefact, will demand its reapplication (Hevner *et al.*, 2004). Using the design science paradigm, emphasis is on engagement. Furthermore, importance is given to developing the framework through a design process, and evaluating its effectiveness and value in relation to a well-defined strategy to support the deployment of an e-Government system for basic service delivery at the municipal level (Islam and Grönlund, 2012). The paradigm seeks to refine both the design process and the artefact with its proposal of iterative application and evaluation (Hevner *et al.*, 2004).

A single case study *research strategy* is employed for this research. Yin (2009) describes case study research as an exploration of contemporary phenomena within its real life context, based on experience, where the boundaries between phenomena and experience are not clear. The case study *strategy* is adequate for answering how and why questions (Corcoran, Walker and Wals, 2004). By employing the case study strategy, this research provides insights into how the formulated framework is applied in a real life environment, and why the framework is applied the way it is in that context (Andrade, 2009). This implementation approach is consistent with the specified proposition by Hevner *et al.*, (2004), on how a designed artefact should appropriately be applied – where the design science paradigm is used.

The prospective case study is MobiSAM (Mobile Social Accountability Monitoring) , an e-Government project implemented in Makana municipality, which is situated in the Eastern Cape of South Africa (Thinyane, 2013). The area is challenged by high levels of unemployment (67.9%), as well as, low levels of education (Thinyane and Coulson, 2012). An increasing dependence on the government for social grants by residents places significant constraint on the municipality's ability to provide basic services (Makana Municipality, 2011; Thinyane and Coulson, 2012). Communication is considered essential in this context given the fact that citizens are often left clueless where there are unattended service faults, nor do they have effective means of engaging directly with government. Social accountability monitoring requires attention here, given the numerous reports of misspending and misappropriation of funds within the municipality (Thinyane and Coulson, 2012). MobiSAM provides capabilities for Makana residents to communicate with government, on the extent of

satisfaction with public service related issues, as well as alerting them to issues. Reports on service delivery issues are aggregated, and can thus provide evidence based support for service monitoring by service recipients. The integration of MobiSAM within the municipality had not been successful during the first few years of its deployment. In-fact after a number of months of piloting the project it was shut down due to a number of challenges, mainly emanating from a lack of government responsiveness, and limited citizen reach (especially citizens residing in marginalized contexts). In 2016, the project reevaluated its objectives from lessons learned in its previous phase 1.0, and instigated phase 2.0, applying a new operation model. One of the main activities in the operation model entails the development of a strategy for MobiSAM integration, with government and citizens. It is anticipated that the framework constructed in this research study, will guide strategy development for MobiSAM's deployment and sustained use.

Though single case studies are often questioned on their ability to be generalized, it should be noted that single cases are generalizable to theoretical propositions (Yin, 2009). This is achieved through a deductive reasoning process, where observed findings during case study theory applications, consequently inform theoretical refinement (Johansson, 2003). Figure 1.1 outlines the research design employed to conduct this study.

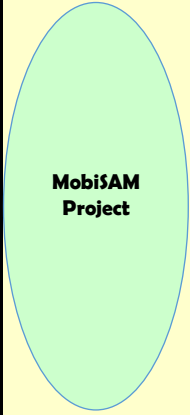
	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 7	Chapter 8	Case study Exploration	Chapter 9	Chapter 10
Purpose	<i>Literature Review: Problem Formulation</i>			<i>Critical analysis of strategy formulation approaches</i>	<i>Develop Theoretical Framework</i>	<i>Research Methodology Description</i>		<i>Framework Reflection and Evaluation</i>	<i>Framework Revision</i>
Research Question	<i>Informs research question 1</i>		<i>Informs research question 2</i>	<i>Informs question 3</i>	<i>Informs Research question 4</i>			<i>Informs Research question 4</i>	<i>Informs Research question 4</i>
Output	<i>Mandate to local government regarding service delivery</i>	<i>Strategy as an important factor in tentative e-Government projects</i>	<i>The need to approach e-Government strategy development from a systems view.</i>	<i>Proposed theoretical framework</i>		<i>Methodology through which empirical investigation is conducted</i>		<i>Lessons learned</i>	<i>Revised e-Government strategy formulation framework</i>

Figure 1.1: Overall Research Design

1.5 Research Scope

This research focuses on e-Government strategy, with particular attention to strategy formulation. As a prerequisite to answering the research questions it was fundamentally important to analyse existing approaches to strategy formulation from a number of sectors. Sectors from where existing strategy formulation approaches were selected included: business/profit oriented strategy approaches, e-Government strategy approaches, and Non-governmental organization (NGO) strategy approaches. Systematic analysis of literature on these aspects produces an e-Government strategy formulation framework, which is presented in Chapter 7 of the research. To determine the frameworks utility, it was applied to support the strategy development process of an existing e-Government project in a South African local government. Essentially, the research is focused on South African local government contexts – nonetheless, government structures from other countries faced with similar contextual challenges may benefit from this research.

1.6 Significance of Research

ICT integration in the public sector needs to be underpinned by a very meticulous, analytical and dynamic strategy (Ndou, 2004). Though critical, evidently such strategy is lacking in many service provision aspects of the South African context (Naidoo, 2007). Champanis *et al.*, (2013) reveals that ICT integration strategies are lacking especially in rural and under-resourced municipalities. Municipalities that are typically oblivious to the underlying analytical processes required to achieve successful ICT integration, rush to implement e-Government solutions. As a result, e-Government solutions are implemented haphazardly. Furthermore, in view of the largely systemic nature of e-Government challenges, Alter (2004) and Matavire *et al.*, (2010), suggest that an e-Government integration strategy should be formulated only after a systems wide analysis of service provision at the municipal level. This motivates for a focus on a systems thinking approach to formulating e-Government strategies. Moreover, where some electronic related projects in the South African context have publicly accessible strategies, there seems to be little documentation, if any, on how they came to be. The framework proposed in this study highlights the need to understand the process by which an e-Government strategy is formulated, so as to inform learning, and as such, enable better e-Government strategy development processes to guide ICT integration in the public sector.

1.7 Summary of Results

Key findings of the thesis are outlined as follows:

- **Problem Formulation**

- Using water service delivery as an example, due to its unavoidable use by humans, it is highlighted that the South African constitution indicates that everyone has a right to have access to sufficient water, as well as other basic services (Algotsson *et al.*, 2009: 2). Though this mandate is etched in the constitution, implementing it has proved to be difficult. Service delivery challenges are more pronounced in areas populated by disenfranchised groups, and the government has taken note of this. The national government, however, bears less of the onus, as the responsibility for service delivery has been devolved to the local level (*local government*). At the local level, service provision requires interaction (information exchange), between a number of stakeholders. As such, ICTs integrated strategically to support public service delivery can provide significant value.
- Use of ICTs to support water service delivery is commonly referred to as e-Government. Deployed e-Government solutions contribute in different ways to the public service delivery value chain. Nonetheless, a number of challenges inhibit the successful integration of e-Government solutions to support service delivery. One important among several challenges is the lack of strategies to guide deployment and sustained use of e-Government solutions. An even bigger issue is the lack of knowledge on how e-Government strategies should be formulated at local government level. The systemic nature of e-Government challenges demands a systems view to e-Government strategy formulation.

- **Theoretical Construction**

- Determining the components of strategy formulation, reveal the fundamentals, or parts, needed to engage in a strategy formulation process. The revealing of components, encompasses all factors that need to be considered in order to develop an e-Government strategy for local government. The theoretical construction is achieved using Weick's (1989) theorizing approach. In applying

Weick's theorizing approach, firstly, the lack of knowledge on how e-Government strategies should be formulated in local municipalities – is explicated in an intelligible manner (Weick, 1989). Once the problem is properly articulated, a trial and error selection process is undertaken of existing approaches on strategy formulation – thought to possess the potential to contribute to the development of an e-Government strategy formulation framework, suited to local governments in South Africa (Weick, 1989). Criteria is then specified to ensure consistency and to limit the number of possible selection of approaches to be analysed (Weick, 1989).

- Formulating an e-Government strategy requires an investigation and identification of relevant components. In order to identify components of strategy formulation relevant to e-Government at the local government level, an analysis of existing approaches from three disciplines is carried out: *e-Government strategy approaches*, *Business related strategy approaches* and *Non-Governmental Organization(NGO) strategy approaches*. The analysis of 10 strategy approaches from these three disciplines reveals five phases that must be completed in formulating an e-Government strategy at the local government level. These include: i) *Study Preparation*, ii) *ICT Orientation Session*, iii) *Local Government Assessment (formal and informal aspects)*, iv) *E-Government Mission and Objective Setting or Evaluation of Objectives*, and v) *Strategy Communication and Persuasion for Acceptance*. These identified phases create a foundation for the proposed framework for formulating an e-Government strategy for local government.

- **Empirical Investigation**

The proposed framework is applied to the MobiSAM project, which produces lessons from a reflective evaluation of the frameworks application in the context. At the projects current phase, it is decided that government responsiveness is key, hence the project is positioned to require a strategy formulation for its new phase. The frameworks application process is reflected on primarily through participant observation, nonetheless

other qualitative tools, such as interviews, and document analysis aid in articulating a descriptive narrative of the application of the framework.

- **Research Outcome**

The framework is revised based on the observed lessons, thus leading to the presentation of an enhanced e-Government strategy formulation framework. There are a number of additions and modifications suggested to activities and processes initially proposed within the phases of the framework.

1.8 Thesis Organization

The thesis chapters are presented as listed in the sequence below:

Chapter 1: Research Introduction

The research study is introduced here. The chapter commences with an elaboration of a research context to put the study in perspective, as well as to provide a background. Also, the goals of the research, and the methods, procedures, and techniques employed are summarized. Lastly, the chapter outlines the key findings from each chapter of the research.

Chapter 2: Research Structure

The research paradigm upon which the research is based is discussed. Included in the paradigm discussion is the overall process adhered to in answering the research questions posed.

Chapter 3 Service Delivery at local Government level and Stakeholders involved

This chapter provides insight on public service delivery in South Africa, with a focus on the water service sector. Challenges with the provision of services are highlighted, noting that service delivery challenges are more prevalent in marginalised areas. The chapter then brings to attention the government's decision to devolve service delivery responsibility to the local level, where service providers are closest to the people who they are mandated to serve, and who are considered to need the services the most. The chapter goes on to elaborate on the stakeholders involved in service delivery at the local level, and the resulting information and communication that is required in the value chain of public service delivery.

Chapter 4: E-Government in Water Service Delivery Management

Primarily using the water sector as base illustration, this chapter elaborates on how ICTs may be used within the public sector to provide value to service delivery. The chapter goes on to discuss some challenges that may be encountered in seeking to integrate and employ ICTs within the public sector. The chapter concludes that an e-Government strategy is essential to guide the integration and sustained use of e-Government solutions to be deployed in local government.

Chapter 5: A Systems View to Strategy Formulation

This chapter discusses the need to understand the strategy formulation process in the pursuit of deriving an e-Government strategy. A systems view to understanding the strategy formulation process is recommended, as systems have been considered as useful tools for conceptualizing aspects of the world. It is concluded that to commence a systematic understanding of a problem (strategy formulation), a framework may be constructed to represent the researchers initial understanding and conceptualization of e-Government strategy formulation.

Chapter 6: An Analysis of Approaches to Identify Components of Strategy Formulation

This chapter undertakes an analysis of ten frameworks on strategy formulation. The chapter's intent is to identify components of strategy formulation relevant to e-Government projects in local municipalities. The components represent important factors and activities to be considered in conducting an e-Government strategy formulation exercise.

Chapter 7: A framework to guide the formulation of a Localized e-Government strategy in South African Local Municipalities

This chapter based on the analysis conducted in the previous chapter, proposes a framework for carrying out an e-Government strategy formulation process within South African local governments. The framework comprises of three main components: *phases*, *phase gates*, and *content focus areas to address in an e-Government strategy formulation process*. The chapter concludes by informing on the need to apply the framework in an appropriate environment in order to determine its suitability to support e-Government strategy development in local municipalities.

Chapter 8: Research Methodology

The research methodology that underpins the research is outlined and explained here. Furthermore, the research strategy, as well as the case study design process is described.

Chapter 9: Case Study Exploration of the MobiSAM project

This chapter describes a case study of the application of the e-Government strategy formulation framework to the strategy development process of an e-Government project (MobiSAM). The utility, and shortcomings of the framework are reflected on, and discussed – and lessons learned from the application of the framework are considered.

Chapter 10: An Enhancement of the e-Government Strategy Formulation Framework

This chapter presents a revised version of the applied e-Government strategy formulation framework, based on the revealed lessons from reflections, observations and evaluation of the framework during its application in the MobiSAM project.

Chapter 11: Conclusion and Future Research

This chapter provides a conclusion to the research. It highlights the contribution made, and points out areas for future research.

Chapter 2:

Research Structure

The research paradigm upon which the research is based is discussed. Included in the paradigm discussion is the overall process adhered to in answering the research questions posed.

2.1. Introduction

Outlined in the last chapter are the aims of the study, encompassing aspects such as the goals of the research, research questions, and research objectives. The Design Science paradigm is selected as an appropriate approach for conducting the study. The paradigm is well suited for research where the development of an artefact is the desired tool for understanding and providing a solution to an identified problem. Essentially, the research structure described in this chapter gives the reader insight, as well as provide a reference point for understanding how the research progressed, and was conducted overall.

The chapter commences by discussing the research paradigm – “Design Science” – upon which the research has its foundation. It outlines a three (3) step procedure, commonly referred to as the Design Science Research Cycle. The guidelines employed in conducting the Design Science research are then outlined. To conclude the chapter, a diagrammatic representation of the Design Science research process that guided the entire study is presented. The sequential research process employed to answer the research questions is depicted in Figure 2.1.

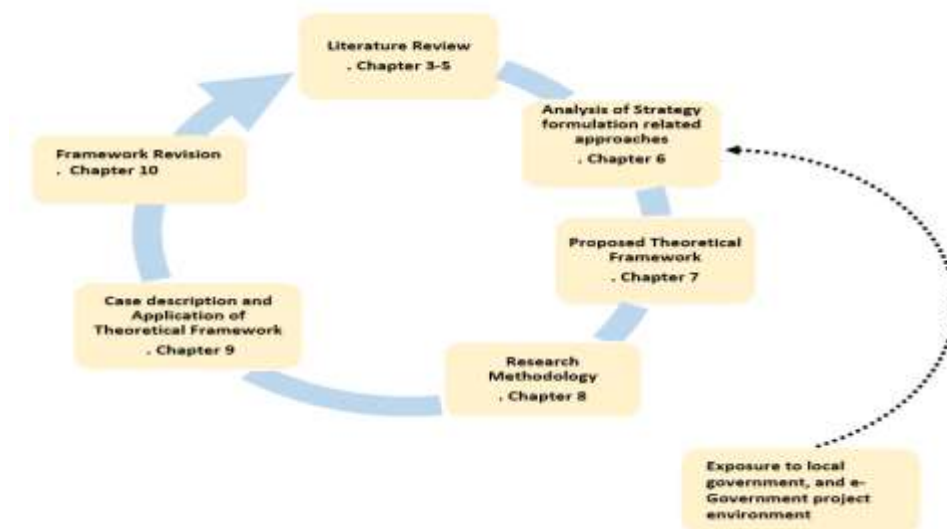


Figure 2. 1: Overall Research Process

As depicted in Figure 2.1, firstly, the research commences with a literature review in chapters 3-5. The literature review aids in explicating the research problem. Following this, using Weick's (1989) theorizing approach, a theoretical analysis is conducted in chapter 6 intent on revealing components relevant to strategy formulation of e-Government projects. Based on the findings of

the theoretical analysis, an e-Government strategy formulation theoretical framework is described in chapter 7. As is required of Design Science research, the framework is expected to be applied in a real life environment to address the problem for which the artefact is developed. As such, chapter 8 outlines the methodology, particularly the strategy (case study), that aids in the exploration of the frameworks application. Chapter 9 then provides a descriptive narrative of the application of the framework in an existing local government. Lastly, chapter 10 explains revisions that are made to the framework, based on produced lessons observed from the application of the framework. As may be noticed in Figure 2.1, the process is considered to revolve in a repeated cycle. This is based on the fact that pragmatic research such as Design Science is never ending, but is iterative in nature.

2.2 Research Paradigm

The research study is conducted using the Design Science paradigm. The paradigm is deemed appropriate where the understanding and solution of a problem are best realized through the development of a design artefact (Hevner *et al.*, 2004). Artefacts may comprise of one of the following; constructs, models, methods, or instantiations (Hevner *et al.*, 2004). The paradigm is thought to be suitable, as it provides an avenue to develop an e-Government strategy formulation framework (the design artefact), as well as evaluate its utility, and performance in a real life e-Government project environment. Specifically, the use, and performance evaluation of the e-Government strategy formulation framework is achieved through the application of the framework in an e-Government project being undertaken within a local government in the Eastern Cape of South Africa. The said local government is anticipating the integration of a mobile system solution to support its functional processes (service delivery) (Hevner and Chatterjee, 2010). Although a number of e-strategies exist in the South African context, there is no trace of research, to explain, elaborate on, or indicate how these strategies came into existence. This gap in knowledge illustrates the significance of this research in the South African context. This corresponds to the intent of Design Science – which seeks to create *innovations* that define the ideas, practices, technical capabilities, and products through which the analysis, design, implementation, management and use of information systems can be effectively and efficiently accomplished (Denning 1997; Hevner *et al.*, 2004). In relation to the paradigm's outlined purpose, this study aims to develop an innovative framework, intent on advancing practices (*strategy development*), of ICT projects, in order to realize more effective and efficient

ICT projects within local government settings. Considering that purposeful artefacts are built to address unsolved problems (Benbasat and Zmud, 1999), the usefulness of innovative IS research developments, may be tested where applied to solving problems for which they are created (Hevner *et al.*, 2004). Design Science research with its focus on two iterative processes of *design* and *evaluate*, provides a suitable philosophy for innovative development and subsequent application of developed innovation. This makes the paradigm well suited for this research, as it is a “socio-technologically-enabled-contextually-situated research approach that can serve for socially-constructed development aspects of e-Government research” (Islam and Grönlund, 2012: 133).

A pure interpretivist approach is not ascribed to, as the research is not seeking to provide meaning to a previously understood concept, but rather a phenomenon that is novel. As such, as opposed to placing emphasis on understanding what an e-Government strategy formulation process has meant to Makana municipality in the past, the research is intent on investigating how a novel concept can be applied within Makana municipality.

A positivist approach is not employed either. This as suggested by Leclercq (2007) is due to the fact that research such as that described here does not seek to provide an objective world-view to e-Government strategy formulation – through a sufficient representative sample from which some form of statistical inference may be drawn. Rather, the aim is to derive a novel artefact, that is both systematically desirable, and culturally feasible (Checkland and Scholes, 1990), to a particular context (Makana municipality). Furthermore, whereas a positivist approach seeks to identify causal relations between hypothesized constructs, the research embarked on here seeks to understand how, and why an e-Government strategy formulation framework should be designed in a particular way. This is a task that cannot be accomplished by the positivist oriented approach. Moreover, the sample size in any case study research is not large enough to motivate for the use of statistical inference (Easton, 2007).

Critical realism as a paradigm would have been well suited for this study, if not for the fact that as condition, it is expected to be employed in research seeking to understand things as they are (Easton, 2007). Contrary to this stipulation, the study being undertaken is not focused on

understanding routinely undertaken occurrences, but on the introduction of a new concept to support collaborative e-Government strategy formulation.

Action research (AR) may be employed as a substitute to Research through Design (RtD), due to both their focuses on problem solving. A number of debates have ensued (Cole, Purao, Rossi and Sein, 2005; Iivari and Venable, 2009; Øgland, 2009; Papas, O’Keefe and Seltsikas, 2012), on the similarities between both approaches. Notwithstanding their similarities, this study is of the belief that the e-Government strategy formulation framework is central to understanding the problem. This belief is fundamental to design science. On the contrary, AR does not always require an artefact (Johannesson and Perjons, 2012). In instances where artefacts are constructed for Action Research, these artefacts do not constitute the focus of the research, but are “by-products of the research exercise” (Papas *et al.*, 2012: 156).

In developing the theoretical e-Government strategy formulation framework, Weick’s (1989) theorizing approach is employed. Following this, the utility of the framework is descriptively evaluated – pointing out the extent to which the framework supports the coherent development of an e-Government strategy with represented input from relevant stakeholder groups. In procedural order, the following activities take place:

- **Problem Formulation:** Theory construction in Design Science is based on the need to solve a problem (Weick, 1989). This illustrates the important role of context in explicating the problem. Here the theorist attempts to make sense out of the observable world, by ordering the relationship among elements that constitute the theorist’s focus of attention (Dublin, 1976 in Weick, 1989). At this stage, the problem is explicated in an intelligible manner, in addition to clarifying assumptions (Gregory and Muntermann, 2011; Weick, 1989). The theorist’s experience with local government collaboration, and interaction provides a first experience for framing the problem or sense making. Furthermore, a thorough literature review, for instance, studies of, Bryson, Crosby and Bryson (2009); Champanis *et al.*, (2013); David, (2003 in Malunga 2007); Liukkunen, Pohjonen and Sariola, (2005); Matavire *et al.*, (2010) and Naidoo (2007), aid in explicating assumptions, as well as depicting a more accurate representation of the need for local municipalities in South Africa to understand e-government strategy formulation processes from a systems viewpoint.

- **Development and application of the e-Government strategy formulation framework:** Rigorous methods underpin the Design Science's approach to the development and application of the e-Government strategy formulation framework. Essentially, this is done by adhering to Weick's principle on developing theoretical frameworks (*Weick's theorizing approach*) (Weick, 1989). Once created, the framework is applied to guide the actual strategy formulation for MobiSAM, an e-Government project to be tentatively relaunched in March 2017. Weick's, (1989) approach to theorizing is comprised of three components: 1) *Problem Formulation*, 2) *Thought Trials*, 3) *Selection Criteria*. Here, theorizing is described as 'disciplined imagination', with *discipline* relating to "the consistent application of selection criteria to trial-and-error thinking" (Weick, 1989: 516), and *imagination* relating to the deliberate diversity in problem statements, thought trials, and selection criteria.
- **Evaluation of the e-Government strategy formulation framework:** Applying the framework in an appropriate real life environment allows for, observation, understanding and learning on aspects related to the nature of the e-Government strategy development problem, the local government environment and its stakeholders, and possible solutions. A descriptive reflection on the application of the framework, supports learning and enhancement of the effectiveness of the framework: The reflective exercise includes:
 - i) *Reflecting on how proposed phases of the framework are employed to conduct the e-Government strategy formulation exercise.*
 - ii) *Reflecting on the suitability and shortcomings of the framework as applied to the MobiSAM project initiative.*

In line with the Design Science paradigm, this reflective process allows the researcher to undertake a qualitative reflective account of the application of the framework in the host local government of the e-Government project. The deductive propositions of the framework are the criteria by which the empirical findings are evaluated, through participant observation.

- **Revision of the e-Government strategy formulation framework:** The application of the e-Government strategy formulation framework, and the evaluation of its utility, informs the reflective exercise of the application of the framework. Similarly, the

reflective exercise informs revisions to the framework. Revisions to the theoretical framework are founded on the lessons learned from its application, and the ensuing reflection process. For future research purposes, the continuous and incremental improvement of the e-Government strategy formulation framework enhances the potential to transfer and contextualize the framework for different local governments.

2.2.1 Design Science Research Cycle

The design science research cycle demonstrates the iterative and interconnected nature of the various activities that holistically comprise design science research. This cycle summarizes the research paradigm employed (Hevner *et al.*, 2004). The cycle is depicted in Figure 2.2 below.

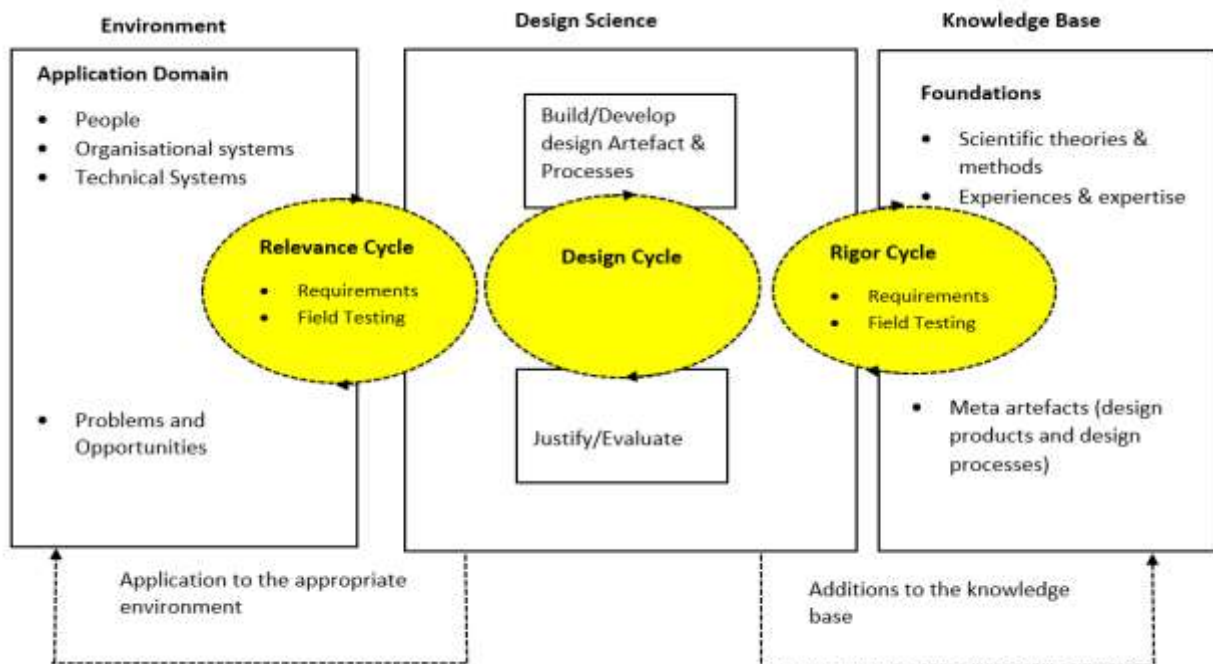


Figure 2. 2: Three Cycles of Design Science Research (Adapted from Hevner *et al.*, 2004)

A fundamental requirement of Design Science is that the researcher provide evidence that the e-Government strategy formulation framework provided utility (*solved the problem*), or did not provide utility (*did not solve the problem*). As such, it is imperative to ensure that the selected environment in which the framework is applied is an appropriate one. This suggests that relevancy must drive the research from the onset, with the intention to design an artefact based on an identified relevant problem. There are three cycles: *Relevance Cycle*, *Design Cycle*, and, *Rigour Cycle*.

Relevance Cycle

The relevance cycle should drive the design science research process. It is here that the idea to design an artefact is initiated (Hevner *et al.*, 2004). A problem is identified in an environment, and as a result, the researcher commences articulation of a design artefact to try to solve the problem. Included in a *relevant* environment are: people, organizational systems, technical systems, and problems and opportunities, a combination of which are to be addressed. Hence, the said environment defines criteria by which the designed artefact is evaluated for its relevance, and ability to solve the identified problem (Hevner, 2007). The observed feedback from applying the e-Government strategy formulation framework will serve as an indication of the extent to which the framework demands further application in the relevant environment. The application of the framework will aid in determining its suitability to support collaborative e-Government strategy formulation.

Rigour Cycle

The rigour cycle ensures that the designed artefact is grounded in theory. This demands that substantive literature is consulted on e-Government strategy formulation, thereby supporting the uniqueness of the designed framework. Furthermore, upon its application and descriptive evaluation, the framework contributes to the existing knowledge base on e-Government strategy development. The rigour cycle supports the identification, analysis, and narration of appropriate theories on strategy formulation, and a systems thinking view to strategy formulation. This represents the knowledge base of the research process, which can be found in chapters 3-6 of the research (*comprising of a literature review, and theoretical analysis*).

Design Cycle

The Design cycle is concerned with the development of the artefact. This is not simply from a theoretical point of view, but rather an iterative process between theoretical framework construction, and its evaluation, through implementation or application in the relevant environment (Hevner, 2007). The development and evaluation of the framework are based on relevance and rigour. Criteria to evaluate the artefact is elicited from the Relevance Cycle, while the knowledge to support its design and evaluation are provided by the Rigour Cycle. As is applicable to this research, the design cycle encompasses the construction and subsequent or

simultaneous evaluation of the e-Government strategy formulation framework (Gregor, 2006). Weick's (1989) theorizing approach provides guidance in the design of the e-Government strategy formulation framework. Even though the framework creation primarily takes a deductive approach, some inductive experiences inform the frameworks creation, through the researcher's first-hand experience and interaction with stakeholders (local government officials, citizens, and the project team). Furthermore, the framework is evaluated by user opinions of the researcher, through participant observation, which results in a reflective process of the frameworks application in a real setting (Pries-Heje, Baskerville and Venable, 2008). Participant observation of the application of the framework allows for a reflective evaluation, which supports the provision of a narrative of *how* and *why* the framework is applied the way it is (Pries-Heje, Baskerville and Venable, 2008).

2.2.2 Design Science Research Guidelines

Hevner *et al.*, (2004) provide seven guidelines intended to support the effective employment of the Design Science research approach. These guidelines include: *Design as an artefact*, *Problem Relevance*, *Design evaluation*, *Research Contributions*, *Research Rigour*, *Design as a search process*, and *communication of the research*. Table 2.1 depicts the use of the guidelines to support the research process.

Table 2. 1: Design Science Research Guidelines Observed by Research

Design Science Research Guideline	Description of application to research process
Guideline 1: Design as an Artefact. As an outcome, DSR should produce an artefact. The definition of artefact refers to any of the following: a construct, a model, a method, or an instantiation (Hevner <i>et al.</i> , 2004).	An e-Government strategy formulation framework is developed. It proposes steps and discusses activities that should be carried out in collaboratively articulating an e-Government strategy, with input from key stakeholders.
Guideline 2: Problem Relevance. Artefacts are designed to address particular technology related aspects of business problems.	e-Government literature in the South African context highlights the lack of strategies, as one of the factors that leads to failure of e-Government initiatives (Champanis <i>et al.</i> , 2013). Although some strategies exist, there is little knowledge on how they came to be. An e-Government strategy formulation framework, provides knowledge on how e-Government strategies should be developed, thus supporting learning and an understanding of how to

Design Science Research Guideline	Description of application to research process
	effectively formulate e-Government strategies.
Guideline 3: Design Evaluation. The utility, quality, and the efficacy of the designed artefact must be thoroughly demonstrated (Hevner <i>et al.</i> , 2004).	<p>An Observational Case study (Pries-Heje, Baskerville and Venable, 2008), supports the evaluation of the e-Government strategy formulation framework. The framework is employed in a real e-Government project, to formulate a strategy that will support the deployment and use of an e-service (MobiSAM) within a local government (Makana Municipality). Here a real e-Government planning problem is addressed, involving stakeholders and scenarios typical of a tentative e-Government project within local governments. Application of the framework in the project provides an appropriate environment to evaluate the utility of the framework.</p> <p>Whereas the application of the framework to support strategy development is done by a number of personnel from the project including the researcher, observation of the framework's application is primarily fulfilled by the researcher (through participant observation).</p>
Guideline 4: Research contributions. It is mandatory for DSR to provide clear contributions in one or more of the following areas: The design artefact, design construction knowledge, and design evaluation knowledge.	<p>The contributions made are as follows:</p> <ul style="list-style-type: none"> i) The design artefact: The designed e-Government strategy formulation framework is the design artefact. ii) Design construction knowledge: The development of the theoretical e-Government strategy formulation framework is influenced by Weick's theorizing approach. This theoretical approach proposes a three step process to support the design construction of the e-Government strategy formulation framework. Revisions to the framework through lessons learned from its application in the problem environment, constitutes the contribution to design construction practice. iii) Design evaluation knowledge: Pries-Heje, Baskerville and Venable (2008) substantiate the use of participant observation to evaluate the

Design Science Research Guideline	Description of application to research process
	<p>designed artefact. Participant observation of the application of the framework allows for a reflective evaluation, which supports the provision of a narrative of how and why the framework is applied the way it is (Pries-Heje, Baskerville and Venable, 2008).</p>
<p>Guideline 5: Research rigour. The construction and evaluation of the framework must ensure rigour considerations.</p>	<p>By employing Weick's theorizing concept, ten approaches on strategy formulation are thematically analyzed. The ten approaches are sourced from business related strategy literature, e-Government strategy literature, and NGO strategy literature. Selected strategy approaches are comparatively analyzed to determine components that are common to strategy formulation, and as such, possibly relevant to the tentative strategy formulation of an e-Government project in a local municipality.</p> <p>Rigour is further observed where the framework is evaluated through participant observation when it is applied in the real life environment. Reflection on this observed application process provides lessons, which contributes to the e-Government knowledge base.</p>
<p>Guideline 6: Design as a search process. With Design Science research, available means are used to achieve desired ends in search of an effective artefact while satisfying laws in the problem environment (Hevner <i>et al.</i>, 2004).</p>	<p>The constructed framework relied on existing strategy formulation approaches that inform e-Government strategy development for local municipalities. The designed framework is then applied within the MobiSAM project. Lessons learned as a result of reflections from the application aid in iterative revision to the framework. A first iterative revision occurs in the preliminary stages of observing the empirical site (Makana municipality). It is noticed that approaches analysed do not discuss methods of identifying active citizens and civil society groups to approach about participating in the strategy formulation process. Revealing of this knowledge gap results in modification to the framework. A second iterative revision occurs where it had initially been envisioned that a particular workshop proposed by the framework would only be required for municipal staff. However, inductive</p>

Design Science Research Guideline	Description of application to research process
	experience reveals that the said workshop would also be required for active citizens and civil society groups. A final iterative revision occurs upon complete application of the framework, based on lessons learned.
Guideline 7: Communication of research. Essentially, Design Science research must be communicated to technology oriented, as well as management-oriented audiences (Hevner <i>et al.</i> , 2004).	The framework is discussed, and its application is illustrated in a real e-Government project, with real stakeholders. Furthermore, the application of the framework produces a strategy document (Appendix Case E) targeted and well suited for the differing audiences (stakeholders) of the project. It is further anticipated that future publications on the research will also aid in communicating the research.

2.2.3 Design Science Research Process

The entire research is structured according to Peffers *et al.*, (2006) proposal for conducting Design Science research. This process structure consists of six steps, which sequentially illustrate how Design Science research can be conducted. These steps include: *Problem Identification and Motivation*, *Objectives of a Solution*, *Design and Development*, *Demonstration*, *Evaluation*, and *Communication*. Figure 2.3 Depicts the Design Science research process as employed in this research.

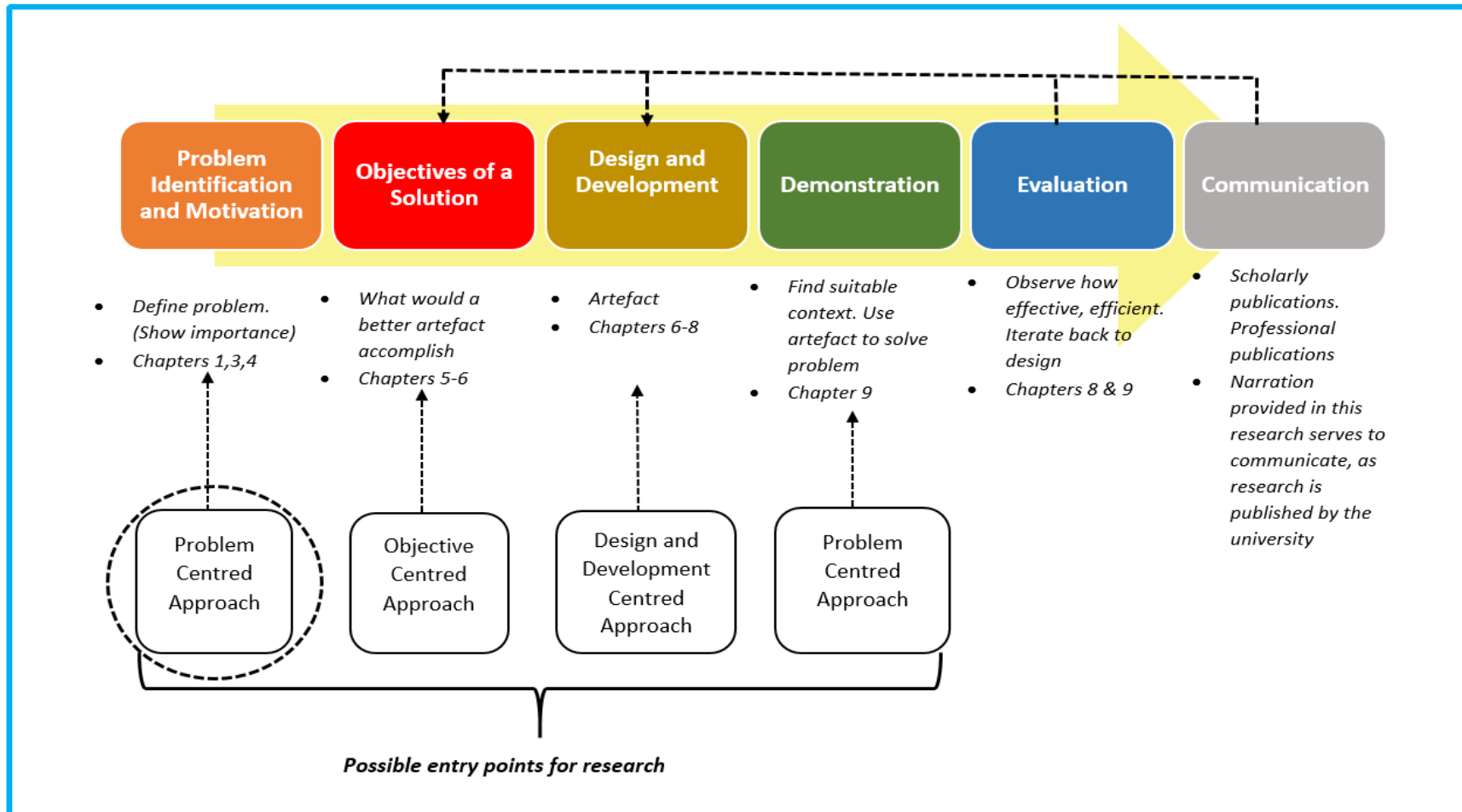


Figure 2. 3: Design Science Research Process

2.3 Conclusion

This chapter expounds on the *research paradigm* ascribed to in conducting this research. Here Design Science is selected as a suitable paradigm for conducting the research study. Underpinned by this paradigm, the research seeks to develop an e-Government strategy formulation framework to support collaborative e-Government strategy development at the local government level. The development of the framework also demand that the researcher applies it, as well as evaluates the application process in order to determine its suitability in solving the problem for which it is developed. On a final note, the chapter summarizes the research development process through which the focal research questions are investigated, and answered.

Chapter 3

Public Service Delivery and Local Government Stakeholders in South Africa

This chapter provides insight on public service delivery in South Africa, with a focus on the water service sector. Challenges with the provisioning of services are highlighted, noting that service delivery challenges are more prevalent in areas populated by marginalized citizens. The chapter then brings to attention the government's decision to devolve service delivery responsibility to the local level, where service providers are closest to the people who they are mandated to serve, and who are considered to need the services the most. The chapter goes on to elaborate on the stakeholders involved in service delivery at the local level, and the resulting information exchange and communication that is required in the value chain of public service delivery.

3.1 Introduction

Local government is mandated with providing basic services to local residents. One of such services is water. Service provision aspects such as water service delivery are reliant on information flows amongst varying stakeholders. The effective and efficient communication of these information flows is a determinant of the extent of effectiveness with which services will be provided. This chapter provides insight on water service delivery processes and stakeholders within South African local governments, highlighting the reliance of service provision on communication between varying stakeholders.

The chapter commences with a discussion of the importance of water and the challenges of water service provision. A review of the water service provision sector from a South African perspective is then provided. This reveals how the historical injustices of the former apartheid led government bears on currently disadvantaged groups. Subsequently, the origins of the municipal structures in place in South Africa are explained, highlighting the categories that are more prone to poor service delivery. An outline is then provided of the many stakeholders involved in water service delivery, their specified roles, and the basic processes involved in water provision. This is presented with particular intention to illustrate why successful water service delivery is relentlessly contingent on communication between all of these stakeholders who play different but important roles. In conclusion, it is determined that information and communication technologies (ICTs) can strategically contribute to supporting the improvement of water service delivery.

3.2 Overview of Water Service Management in South Africa

Water is vital on a regular basis to sustain all living matter including humans (Statistics South Africa, 2010). Essentially, it is an indispensable resource requiring judicious management. Its utility ranges from its use for commercial tasks such as irrigation, mining, energy resource-extraction, manufacturing and electric power production (Tissington *et al.*, 2008; USEPA, 2013), to its domestic applications, such as, its use for sanitation and hygiene. Though possessing immense value, water resources available to sustain living entities are challenged. Molobela and Sinha (2011), list the following as some constraints to adequate water availability and management: limited physical resources, long cycles of rain droughts, an exponentially increasing population, and stagnant economies. Bhagwan (2012), additionally suggests that commercial processes, such as mining, significantly reduce available usable water by polluting them. Noticeably, these highlighted constraints are exogenous to the water

service provision sector. There also exists endogenous factors that may limit the performance of water service provision and its management. For instance, habitual practices of poor decision making and mismanagement on the part of institutions responsible for overall water resource management contribute significantly to challenges in the water sector (Rivett *et al.*, 2014). In-fact, four years ago, Biswas and Tortajada (2010) predicted that much more than external factors, mismanagement and poor governance will be the primary reason for water scarcity in the near future. Poor management practices may be due to the fact that water, as opposed to other natural resources like crude oil, is highly subsidized. As such, its management and governance is often not given utmost priority (Biswas and Tortajada, 2010). In light of this knowledge, Ivey *et al.*, (2004) and Biswas (2004) in Molobela and Sinha (2011) inform on the need to pay attention to aspects such as: processes through which water is managed; the competence and capacities of institutions that manage these processes; supply management; the appropriateness and implementation status of existing and supporting legal frameworks; availability of funds; levels of available and useable technology; transparency; corruption levels; and the quality of research being conducted in the water sector. These amongst other factors play key roles in determining the success or failure of a country's water service sector – however, addressing them is no easy task.

Water service related concerns are not uniform or consistent across regions. They often vary considerably depending on space and time. Even within a single country they may differ from one season to another or from one year to another (Molobela and Sinha, 2011). Added to this is the dilemma that arises when trying to address governance and management issues. For instance, much of the recent literature on good governance and public sector management practices (Arendse *et al.*, 2012; Ndou, 2004; Prasad, 2012; Rivett *et al.*, 2014; Seng-Wong, Hideki and George, 2011), advocate for governance efficiency, as well as governance systems, which eschew citizen participation. The question of whether or not both of these practices can be achieved simultaneously at a high level arises. As Lautze *et al.*, (2011: 4), probes; what if the drive to implement one practice, compromises the ability to implement the other practice adequately? For instance, what if citizen inputs as a result of increased participation compromises service efficiency? There are no easy ways to answer such questions. However, it needs to be noted that as with all forms of resource management and all aspects of public service delivery, water resource management and its service delivery unavoidably will involve trade-offs (Clifford-Holmes, 2014).

The South African context, which this research concentrates on is further disadvantaged, as South Africa is considered to be a water scarce country (Ashton, 2002; Molobela and Sinha, 2011). Bhagwan (2012) suggests that this is due to its inadequate rainfall levels, and the unevenness of its surface and groundwater distribution. This makes it the more critical in this context for water resources to be managed efficiently, and wastages eliminated. Notwithstanding the numerous documented ails and challenges that the water sector faces, the South African government has committed to ensure that all of its citizens are provided with adequate water to meet their basic needs. This commitment is clearly stated in Section 27 (1) (b) of the Constitution, which indicates that everyone has the right to have access to sufficient water (Algotsson *et al.*, 2009; Rivett *et al.*, 2014; Tissington *et al.*, 2008). While this desire is clearly expressed in writing, implementing it has proved to be difficult. Tissington *et al.*, (2008) explain this by stating that although South Africa possesses one of the most progressive legislative and policy frameworks for water service delivery, when it comes to implementation at the local level the reality is somewhat different. Mismanagement is still a major concern, which consequently affects equitable distribution (Molobela and Sinha, 2011). Bearing much of the burden, are members of the populace situated in informal settlements, rural areas and poor black communities (Algotsson *et al.*, 2009; Molobela and Sinha, 2011). These individuals more often than not have to endure poor water services. The pattern and structure of service delivery that these marginalized individuals have had to endure, has historical roots in the previously run Apartheid system of government. This system segregated non-White population groups from most aspects of national life, and in the process curtailed their freedom, political representation, land possession, access to quality education, health services and basic social services (Clifford-Holmes, 2014; Nnadozie, 2013). Though dismantled in the early 90's, due to mounting international pressure, isolation and bankruptcy (Clifford-Holmes, 2014), the legacy left behind by the apartheid run administration, continues to affect the water service provision sector (Turton, 1999). This is consistent with the theory of path dependence. This theory, categorically suggests – that while a number of options are available over the course of a system's development, once one of these developments becomes entrenched, it impacts on the range of future opportunities for development (by constraining future options) (Clifford-Holmes, 2014). As a result, the bulk of water available at the national level continues to be consumed by a privileged minority of the population (Turton, 1999).

The newly appointed democratic regime in the years following the despotic rule of the apartheid government, aware of these service inequities, thought it necessary to give absolute priority to water service provision injustices (African Ministers Council on Water (AMCOW), 2011). Even with this renewed commitment, the above highlighted drawbacks exist. Thus, the commitment to ensure adequate water services to all must be underpinned by carefully thought out, effective and efficient methods. This must encompass research at the local level as well. Evidently, there is a huge deficit in research at the local/municipal level of the water sector in South Africa (Clifford-Holmes, 2014). This is solely based on the fact that most of the research conducted is done at the catchment scale, considering that most fresh water resources in South Africa are located in trans-boundary watercourse systems and river basins shared between neighbouring countries (Herrfährdt-Pahle, 2010; Statistics South Africa, 2010). Due to this shared trans-boundary resource, collaboration amongst these neighbouring governments is necessary. In hind sight, complete focus on research at the catchment and trans-boundary scale, leads to neglect of research at the local scale. Besides, the new constitution mandates that responsibility of service delivery (water included) should be a function of local governments (Algotsson *et al.*, 2009; Rivett *et al.*, 2014; Tissington *et al.*, 2008). As such, this research will focus on water service provision at the local level. Understanding water service provision at the local level, however, requires a holistic look at the water service structure in South Africa. Essentially, this should include; operations and processes, management structures and the stakeholders involved in water service delivery.

3.3 Water Service Structure: Operations, Management Structure and Stakeholders

Seemingly, water service provision is a government function or public sector responsibility. Though this is true, the process involves numerous stakeholders who must collaborate in a cohesive manner if water service delivery is to be effectively and efficiently realized. At the top of this multi-stakeholder relationship is the National government, represented by the Department of Water Affairs (DWA) whose responsibility is to act as the national custodian of water resources, as well as ensuring that subordinate institutions mandated with service provision responsibilities are indeed adequately performing their tasks (AMCOW, 2011; Clifford-Holmes, 2014; Rivett *et al.*, 2014). While the DWA is the main stakeholder in charge of the water service sector at the national level, other national government departments are involved. These include; the Department of Environmental Affairs, the National Treasury, the Department of Health, and the Department of Human Settlements (Clifford-Holmes, 2014;

DWAF, 2002; Mackay and Ashton, 2004). Their responsibilities in relation to water service provision can be summarised as follows (DWAF, 2002):

- **The Department of Water Affairs (DWA):** Is the overall custodian of water resources, tasked with supporting and strengthening water service authorities at the provincial and local level.
- **The Department of Environmental Affairs:** This department is tasked with conducting environmental impact assessments, prior to the implementation of water service infrastructures.
- **The National Treasury:** This department is the overarching authority responsible for the monitoring and regulation of all public finances. This includes the disbursement of funds to representing water service authority stakeholders at the provincial and local level.
- **The Department of Health:** This department ultimately determines suitable levels or standards for potable water quality.
- **The Department of Human settlement:** Formerly known as the department of housing (Clifford-Holmes, 2014), this department amongst other responsibilities is tasked with collaborating with the DWA to ensure that housing plans are well synchronised with water services development planning.

At the intermediate level, critical to the multi-stakeholder relationship of water service provision is the provincial government, which is mandated with directly providing support to local governments, as well as planning of water resources at the municipal level (Algotsson *et al.*, 2009; DWAF, 2002; Rivett *et al.*, 2014). Furthermore, the provincial government is tasked with assuming the water service responsibilities of the local/municipal government in the event that they are incapacitated or unable to fulfil their duties (Algotsson *et al.*, 2009; Rivett *et al.*, 2014). Commonly referred to as Catchment Management Agencies (CMA) (Rivett *et al.*, 2014), provincial status was given to 19 CMA's, each responsible for one of the 19 Water Management Areas in the country (DWAF, 2002).

The local government level, as has been indicated, is responsible for bulk water supply, as well as direct water service delivery to households within varying municipal jurisdictions. As provided for in the *Water Services Act* of 1997, these authority institutions at the municipal or local level are referred to as Water Service Authorities (WSA's) (Algotsson *et al.*, 2009; Clifford-Holmes, 2014). An appointed WSA may provide water services itself, or may

outsource this responsibility to an outside Water Service Provider (WSP) (Malzbender *et al.*, 2009). However, it is crucial to note that any relationship between the WSA and a service provider must be guided by a service contract (Tissington *et al.*, 2008). According to DWAF (2002) potential WSP's may include:

- **The municipality:** As mentioned these are the WSA's at the local/municipal level of water service provision. As the authority figure, they may decide to undertake water service provision roles themselves or outsource the responsibility.
- **Water boards:** Prior to the revised constitution, water boards were mandated by the National government to supply bulk water to municipalities. This allowed them to become monopolies, as they were previously the sole institution responsible for this task. However, considering that the new constitutional clause gives municipalities full autonomy over service provision, they have an option to use or not use water boards for service provision.
- **Community Based Organizations (CBO's):** In the South African context, these are locally formed organizations within particular communities, authorized by the community to provide water services. The elected authorizing members within the community must be permanently residing in the community. Additionally, the employees responsible for service provision must be residing members of the community.
- **Private Entities:** These are registered private entities, which can vary from small and medium enterprises, to multinationals that specialize in the supply of water.
- **Intermediaries:** These are private entities or groups of individuals in a community who undertake to provide water related services for their mutual benefit. A good example of this WSP group is a Water User Association (WUA). For instance, where employees of a farm, receive water services from their employers, as part of their contract. The employer is an intermediary on behalf of his employees with regards to a number of services including water.

At the municipal level, local government arrangements are disproportionate across the country. Certain local governments are much larger than others. This unevenness is further manifest in the apportioning of funds and the operating budgets of municipalities. The Municipal Structures Act, promulgated post-apartheid clearly illustrated this distinction between municipalities, by classifying them into three types (Clifford-Holmes, 2014). These

included: (Category A) Metropolitan, (Category B) Local, and (Category C) District (Clifford-Holmes, 2014). This categorization was meant to aid the National government in determining, which municipalities necessitated priority in terms of support, due to their lack of capacity (Cloete *et al.*, 2008). Clearly, a one size fits all methodology would be impossible to accommodate the best interests of municipalities with varying characteristics, capacities and financial resources (Eberhard and Yorke, 2011).

Making this distinction, however, was challenging, as some municipalities classified as local or category B, were almost as sizable geographically and economically, as the metropolitan class municipalities (Clifford-Holmes, 2014). Also, the service levels of these so-called local municipalities were deemed to be substantially satisfactory (Clifford-Holmes, 2014). This dilemma resulted in the reclassification of municipalities, using more defined criteria. Table 3.1 below depicts this more recent grouping, which has been widely employed by government departments and agencies.

Table 3. 1: Municipal Classification developed as part of the Municipal Infrastructure Investment Framework (The Department of Cooperative Governance of Traditional Affairs (COGTA), 2011:10).

Category	Description	Characteristics	No. of Municipalities
A	Largest Cities	Metropolitan Municipalities	6
B1	Secondary Cities	Local Municipalities with largest budgets	21
B2	Large Towns	Municipalities with a large town as core	29
B3	Small Towns	Municipalities with Relatively Small populations but with no large town as core	111
B4	Mostly Rural	Municipalities which are mainly rural with, at most, one or two small towns in their area.	70
C1	District Municipalities that are not water service authorities	District Municipalities with few service obligations: Typically Aligned with relatively strong local municipalities.	23
C2	District Municipalities that are water service providers	District municipalities with more service delivery responsibility: Typically aligned with weaker and more rural municipalities.	21

As can be observed from Table 3.1, Municipalities that are metropolitan or those possessing large budgets (A, B1 and B2), constitute a smaller proportion, than those that are small towns and rural (B3 and B4). These latter categories of municipalities (B3 and B4) are particularly vulnerable, as they attempt to provide free basic water services to residents with little revenue generation from within their jurisdictions (Clifford-Holmes, 2014). For this reason, they are greatly dependent on National government for grants and subsidies (Eberhard and Yorke, 2011). Retrospectively, there is motivation for research at the levels of (B3 and B4) municipalities, as they face greater odds in financial and other limitedness than the more advanced municipal categories. It is imperative for these municipalities to find ways of providing water services in the most efficient manner, notwithstanding their constraints.

WSA's in category B3 and B4 type municipalities that are responsible for water service provision are made up of two important stakeholder groups. These two groups can be referred to as councillors and administrators respectively (Clifford-Holmes, 2014). Councillors are further sub-divided into two groups. These include those who are elected by residents of different geographical wards within a municipality, and those who represent the political party currently ruling in the municipality (Paradza, Mokwena, and Richards, 2010). The representation from these two groups of councillors must be split evenly. This means that, 50% of elected council members must be ward councillors, and the other 50% political party representatives (Cloete *et al.*, 2008). Ward councillors, advocate for, and promote water service matters related to their geographical wards, while the politically elected councillors, address water service matters related to the entire municipality (Paradza, Mokwena, and Richards, 2010). The councillors as a group are responsible for: approving water service related policies, and budgets; communicating progress reports on the status of water services to municipal residents, as well as disclosing incentives for actions taken; and, assessing the quality of service provision (Paradza, Mokwena, and Richards, 2010). Councillors are authorised to appoint an executive committee amongst other committees. An appointed executive committee acts in an advisory capacity to the councillors, in addition to being the primary decision makers, in determining what matters get tabled before the council (Cloete *et al.*, 2008). The councillors elect a Mayor from amongst the executive committee, as well as a chief whip, and a speaker for the council. These three act as the most senior members or leaders of the executive committee (Clifford-Holmes, 2014).

On the administrative end, the councillors appoint a municipal manager after deliberation who will head the administration of services delivery (Cloete *et al.*, 2008). The municipal manager is responsible for executing municipal policies. He/she does this by overseeing the internal operations of the municipality (Clifford-Holmes, 2014). The municipal manager has a Chief Financial Officer (CFO) as his subordinate, to assist him with all matters that are financially related (Eberhard and Yorke, 2011). Additionally, it is deemed essential on the administrative end to have a Technical Director (Clifford-Holmes, 2014). Any other created positions are primarily dependent on the discretion of the sitting council, as they see fit, considering the responsibility for service provision has been devolved to the local level (AMCOW, 2011; DWAF, 2002). However, any appointments made must be within the confines of, and meet the minimum standards of the National government, as defined in the Water Services Act (DWAF, 2002). All administrative appointees are accountable to the mayor and the council. Table 3.2 below summarises the municipal governance framework for water service provision in South Africa.

Table 3. 2: Summary of the municipal governance framework. Source: adapted from National Treasury (2004: 6) in Clifford-Holmes (2014).

	Responsible for	Oversight Over	Accountable to
Councillors	Approving policy and budgets.	Mayor	Municipal Residents
Mayor	Policy, budgets, outcomes, management of / oversight over Municipal Manager	Municipal Manager	Council; public
Municipal Manager	Outputs and Implementation	Administration	Mayor; council; public
Chief Financial Officer (CFO)	Financial outputs	Financial management	Municipal manager
Technical Director	Infrastructure and planning outputs	Technical management	Municipal manager

Day to day operations of water service delivery, are also divided into a number of functions. As mandated by the Municipal Systems Act, these internal operations are divided amongst directorates (Clifford-Holmes, 2014). However, it is not specified what these directorates should consist of. Notwithstanding, the National government does specify a set of key performance indicators, with regards to operation. Imperative expectations from the National government include; the reliability of water supply, which essentially implies minimal service disruptions; additionally, the National government demands adequacy and efficiency when it comes to staffing (DWAF, 2002). This seems somewhat ambiguous to make reference to

when attempting to identify operational functional areas of water service delivery. As such, it is particularly difficult to list what functional aspects operations should consist of, as they may vary from one municipality to another. Given the highlighted challenge, this research makes reference to an empirical study conducted by Clifford-Holmes (2014), which gives some insight into potential aspects that operational functions of municipal water services should consist of. Note that the extensive citation of Clifford-Holmes throughout this chapter, is based on the fact that he has conducted extensive research in South African local governments. Succinctly outlined in this study are functional areas of water service operations in the Sundays River Valley Municipality (SRVM), located in the Cacadu district of the Eastern Cape. This is used as an appropriate example, considering that this research focuses on municipalities similar to the SRVM (category B3 municipalities). The instituted directorates, which operations are divided into in the SRVM include; a technical division, a financial division, a corporate services division, and a community division. In the event that the municipality decides not to outsource the task of provision of water services to a third party, this responsibility will be one of several responsibilities relegated to the technical division. The financial division in subordination to the Chief Financial Officer manages all matters relating to credits, payments, and administration of capital and operational grants for the SRVM's water services. The corporate services division acts as the municipality's human resource department, and hence deals with activities related to staffing and employee welfare. Finally, the community services division oversees the environmental health practitioners to ensure that potable water is of appropriate quality. As Nyarko, Oduro-Kwarteng and Owusu-Antwi (2011) imply, these functional areas are all integral, and no particular operational entity should be considered more important than the other. Importantly, this makes communication and synchronization between stakeholders a high priority for water service provision. For instance, gaining knowledge of water bill defaulters by water service providers is contingent on their communication with the financial division. Similarly, water treatment works must routinely communicate minimum water capacity needed by domestic households, to bulk water suppliers well in advance. The annual financial equitable share, which municipalities receive from the National Government, is contingent on the submission of a list of qualified indigents¹ within a municipality by the WSA (Clifford-Holmes, 2014). Furthermore, communication is essential for monitoring purposes by WSPs, and the DWA,

¹ In order to be considered an indigent, a person must be a South African citizen, and own the property he or she resides in. Also the total gross income of all members of the property owners household must not exceed R1700 (SzabŰ, 2013).

overall. For example, WSP's must demonstrate their service competence to WSA's by submitting regular water service operation reports that must be consistent with standards agreed to in their service contract (DWAF, 2002, Nyarko *et al.*, 2011). Tissington *et al.*, (2008) sums it up well, by stating that while the Water Services Act acknowledges that municipalities have the authority to administer water and sanitation services, all spheres of government have roles within their physical and financial capabilities, to work towards this goal.

The need for coherency and communication amongst water service stakeholders is further motivated for, when considering the processes that must be undertaken prior to domestic and commercial consumers receiving water. Water must be collected, transported, stored, treated and purified (Franceys and Gerlach, 2011) before its delivery, in the case of domestic use. Where commercial use, such as, irrigation is concerned, it has to be collected, and delivered, however with precision, as commercial user businesses require water in a timely fashion (Goldhamer. 2005). Figure 3.1 depicts a basic representation of how water service delivery to domestic and commercial users works in South Africa. As Figure 3.1. illustrates, raw water is sourced from water bodies within particular geographical boundaries where municipalities are situated, also referred to as catchment areas (Herrfahrdt-Pähle, 2010). Sourced bulk raw water is guided through constructed canals into water service provider (WSP) reservoirs/storage (Clifford-Holmes, 2015). Underpinned by pipelines, and pumps raw water is either transported in bulk to farms for commercial use or to water treatment works to be treated to potable or drinkable levels (Clifford-Holmes, 2015). Subsequently, pumps and pipes support the distribution of potable water to domestic users (Clifford-Holmes, 2015). With this succinct description, it may be observed that there are a number of stakeholders who need to communicate in order for the water service delivery value chain to operate effectively. For instance, where domestic users experience water cuts, they should be able to get answers from responsible WSPs as to why such cuts are occurring. Similarly, if there is a water leak, in a residential area, domestic users should be able to inform WSP's of such leaks. Also in cases where WSPs are supplied with raw water, there must be interchange with their suppliers informing them of their reserves, as well as capacity (reservoir) to hold more bulk water reserves. These represent three of many examples of aspects that require communication between stakeholders involved in water service delivery processes.

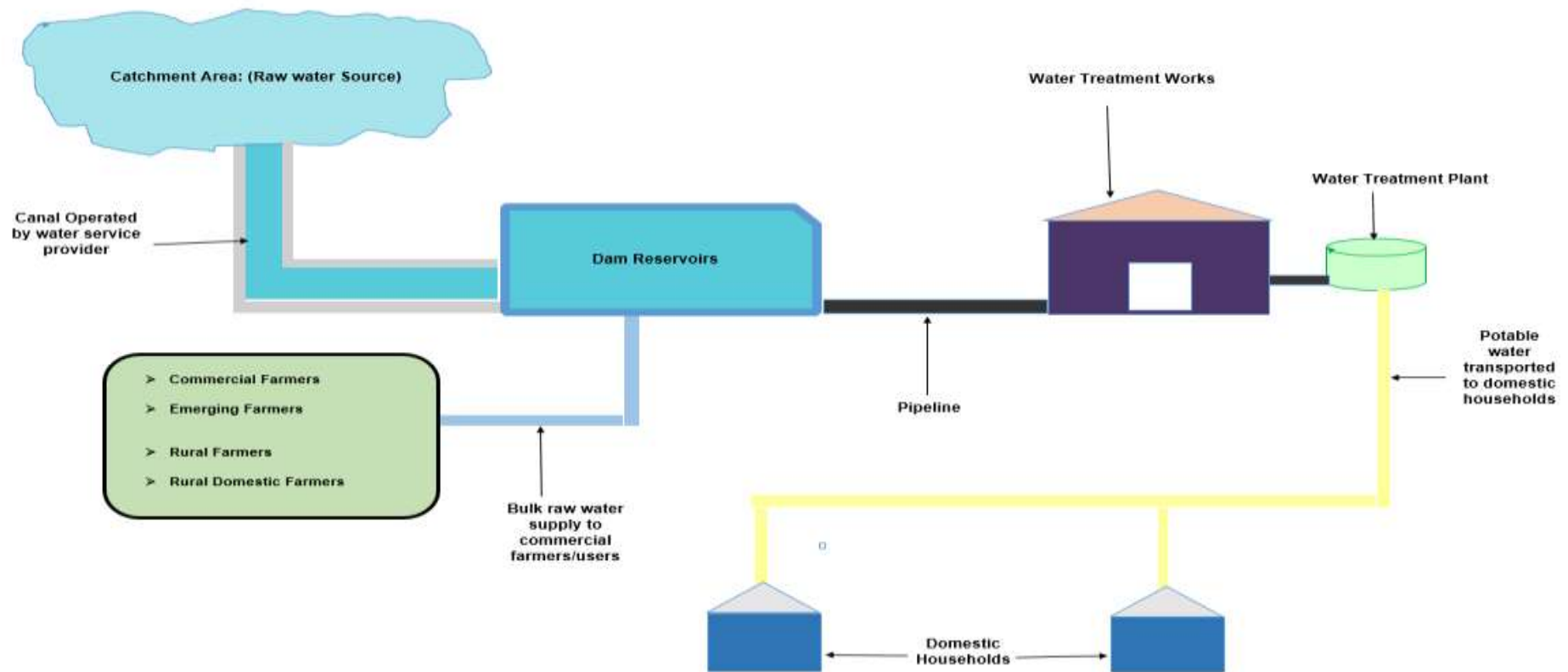


Figure 3. 1: Basic activities and processes of water service delivery in South African Municipalities. Adapted from processes in (Franceys and Gerlach, 2011).

The communication requirements of this process, and the necessity of timeliness during communication, suggests the need to integrate effective and efficient communication tools capable of supporting the process. It is also imperative to ensure that records of every step of these processes are kept, to allow for analysis and monitoring (Palmer *et al.*, 2013). Such documented evidence, serves as learning points for creating knowledge on what combination of resources and processes work the best (Batchelor and Norrish, 2006; Bliss and Emshoff, 2002; Linnan and Stekler, 2002; Rossi *et al.*, 2004). Even further, its dissemination to all stakeholders keeps everyone abreast and knowledgeable on critical success factors of water service delivery. Information and Communication Technologies (ICTs) can adequately support this role of information storage, analysis and communication (Garai and Sahadrach, 2006; Gerster and Zimmerman, 2003; Heeks, 1999; Tinio, 2003). While this tool may not be a solution to the historically instigated challenges that water services face in especially marginalized areas of less developed countries, it may help the process significantly where ICTs are integrated strategically.

3.4 Conclusion

Water is a resource possessing immense value, nonetheless, it is a finite resource. Therefore, it is imperative that it is managed effectively and efficiently. Though uncontrollable factors may contribute to water service challenges, in most cases challenges experienced are due to poor management. In spite of existent challenges, the South African government seeks to reverse injustices in the water provision sector, stemming from the past apartheid legacy. The government hopes to achieve this by improving service delivery (water included) in marginalized areas. Improving service delivery will require interaction amongst numerous stakeholders, who constitute part of the service delivery value chain – thus making communication key. ICTs where employed strategically can help this process, by enhancing information and communication flows, which is a critical component of water service provision.

Chapter 4

E-Government for Water and Related Service Delivery Aspects

This chapter elaborates on how ICTs may be used within the public sector to provide value to water service delivery. The chapter discusses some challenges that may be encountered in integrating and employing ICTs within the public sector. The chapter concludes that an e-Government strategy is essential to guide the integration and sustained use of e-Government solutions to be deployed in local government.

4.1 Introduction

ICTs may be applied in the public service delivery sector in various ways. Where used strategically, they may significantly contribute to improvements in service delivery (Champanis *et al.*, 2013). For instance, their deployment can bring about savings on transactions, aid in the enhancement of management practices, and provide better support for marginalized groups, amongst other benefits. Even though a number of benefits can be brought about with e-Government deployments, a number of constraining factors impede the potential value that may be derived from their integration within the public sector. One particular constraining factor is the lack of strategies to guide e-Government implementations (Naidoo, 2007). Well-articulated strategies need to be developed to guide e-Government implementation processes, and avoid situations where electronic related public projects are implemented arbitrarily.

The chapter begins with an overview of e-Government in the service sector. Following this, potential areas where ICTs can be applied in the water sector are discussed. Subsequently, the chapter investigates e-Government challenges related to public service delivery. An examination of the role of strategy in successful e-Government implementation is then summarised. The chapter then highlight factors that may cause strategies to fail. The conclusion stresses the importance of conducting an e-Government strategy formulation exercise correctly, as this is fundamental to a strategy's successful execution.

4.2 An Overview of E-Government for Service Delivery in South Africa

Information and communication technologies (ICT's) that are applied strategically by public institutions can duly support service provision to citizens. Such technological initiatives can significantly contribute to, or enable; savings on transacting, enhance management practices, and better support and empower marginalized groups, amongst other benefits (Al-Khoury, 2012; Nkohkwo and Islam, 2013; Seng-Wong, Hideki and George, 2011; Vaisla and Pant, 2012, Venkatesh, Ann-Sykes and Venkatraman, 2012). Simply, this integration of ICTs can be referred to as electronic Government (Holmes, 2001) in (Nkohkwo and Islam, 2013), or e-Government. To elaborate on the above-mentioned benefits, it may be helpful to employ some examples. E-government may underpin transaction savings by automating services, hence eliminating the need for physical building infrastructure, service desks, office electricity bills, and unnecessary human resources (Al-khoury, 2012; Mann *et al.*, 2013). Similarly, enhanced management practices could stem from making better decisions, as a result of employing ICTs such as Decision support systems (DSS). For instance, as

particularly related to water services, deriving or setting appropriate tariff prices for excessive water consumption by certain groups, requires accurate data (Tissington *et al.*, 2008), which ICTs such as DSS's can provide (Arnott and Pervan, 2008). Furthermore, operational processes could be expedited through automating the information and communication flows of multi-stakeholders involved in service delivery aspects (Ndou, 2004). With respect to the last example, ICTs can be used by marginalized groups to increase their participation levels (Rivett *et al.*, 2014). Increased participation can be achieved, as marginalized citizens become more equipped to efficiently communicate their views on the services they receive. Consequently, they become empowered where the government obliges to their views or requests (Rivett *et al.*, 2014). Likewise, marginalized groups become empowered where the government provides service delivery related information through ICT mediums (Prasad, 2012), thus potentially increasing their knowledge base on service delivery processes and stakeholders.

It has been established that value may be derived from the integration of ICTs in public service provision tasks. Nonetheless, Champanis *et al.*, (2013) suggests that it should be noted that incorporating these technological tools alone is not a solution to intrinsic challenges a public sector may be experiencing, especially in developing country contexts like South Africa. In their view, even when ICTs are implemented appropriately they may not be able to address institutional challenges, budget constraints and resource limitations. McNamara (2003: 30) sums it up well, by stating that ICTs should not be viewed as a substitute to addressing the deeper; social, resource, and historical challenges, which developing countries face. As such, cognizance must be taken where expectations lie, and misconceptions suggesting that ICTs are the solution to all public sector challenges must be avoided. In the words of McNamara (2003), these tools remain as enablers.

Notwithstanding, the fact that there are deeper challenges that ICTs are incapable of addressing, where these technological tools are employed in the right environment, as well as when implemented strategically, they can prove to be valuable. According to Naidoo (2007) a conducive environment entails one in which, potential e-government users have adequately been trained to use electronic interfaces that they will be required to use, the necessary infrastructure is in place, and readiness by the government in terms of a plan for ICT integration. In this case e-government initiative need to be more holistic, taking into consideration the many facets that need to be established and built in local government,

especially resource constrained contexts that are typical of category B3 and B4 municipalities.

The water sector represents the largest field where ICT solutions can be developed and implemented (Business Innovation and Skills, 2013; Gourbesville, 2011). As such, by using the water sector as an example, the next section attempts to provide descriptions of how ICTs may potentially support service delivery.

4.3 Potential Areas of ICT Application for Water Service Delivery

This section elaborates on some functions that ICTs can support within the water service delivery sector in South Africa. Functions identified range from: operational, administrative, to communication related:

4.3.1 Management and Networking of Water Infrastructure and Water Resources

ICT use in the management and networking of water infrastructure and resources, encompass aspects such as, asset management, crisis management, water plant management, water resource management and water distribution networks (Gourbesville, 2011). To elaborate on how ICTs underpin asset management, it may be useful to briefly outline what assets consist of. Every water and waste water system consists of assets, which may be visible or buried (Environmental Finance Centre New Mexico Tech (EFCNMT), 2006). These encompass physical components, such as pipes, valves, tanks, pumps, wells, hydrants, treatment facilities and other components that make up the system (EFCNMT, 2006). Over time, these assets depreciate and deteriorate, thus making it more challenging to deliver services at the optimal standard (EFCNMT, 2006). Monitoring of such assets amongst other tasks, requires Geographic Information Systems (GIS) and mapping software, to identify and monitor buried assets (Gourbesville, 2011). Essentially, mapping software aids in identifying what resources public utilities own, where they are located (especially when they are buried), and their current conditions (Kohlmann and Boudon, 2012; Mann *et al.*, 2013; EFCNMT, 2006). Ultimately, these assets affect water distribution networks to commercial and domestic users. Therefore, it is critical to have a full map of where assets are, in case changes need to be made to deteriorated assets (EFCNMT, 2006). Furthermore, to appraise the conditions of water resources, for instance, hydro-meteorological states, ICTs such as remote sensors may be employed (Kumar and Reshmidevi, 2013; Ochola and Ochola, 2012). Sensors are ICTs, which take stimulus, such as, heat, light, magnetism, or exposure to particular chemicals and change them to signals (Gourbesville, 2011). The underlying aim of employing remote sensors is to enable the collection of information about an object, area or phenomenon

without the need for human physical contact (Kumar and Reshmidevi, 2013). This provides value, as it allows water providers to understand current water system conditions, which will consequently enable them to make more informed decisions (Ochola and Ochola, 2012). Kohlmann and Boudon (2012) imply that such technological tools can also support crisis management. For instance, where augmented with powerful software modelling tools, hydraulic models can be designed, which allow engineers to identify problem areas in water distribution networks during crises. ICTs also enable the remote monitoring of water plants, garnering information in the process, and subsequently using this information to improve decision making thus positively influencing operations (Toida, Hatori and Takemoto, 2013).

4.3.2 Smart Water Metering (SWM) and Automatic Meter-reading (AMR)

Increasingly, water utility providers are beginning to see value in SWM technologies to conduct meter reading activities. As Gourbesville (2011) states, water reading is one of the core business processes of water utility companies in charge of drinking water supply. This innovative metering option eliminates the human element from meter reading (Mann *et al.*, 2013), in addition to providing a number of other benefits. At its minimum capability, SWM is expected to within a day, elicit water usage data, provide asynchronous communication between water meters and utility companies, and potentially include communications to the water users (Gourbesville, 2011; Ochola and Ochola, 2012). The underlying basic concept of this ICT is the integration of a flow meter to the traditional water meter or the installation of a new meter with smart capabilities (Champanis *et al.*, 2013). The flow meter records water usage data at regular intervals and either logs it to a memory device or transmits it to a central database mutually accessible to consumers and water service providers (Champanis *et al.*, 2013). Some advantages of this innovation are real-time leak detection, reduced need for on-site meter reading, increased awareness of water usage, and improving the ability to conduct preventative maintenance (Champanis *et al.*, 2013; Gourbesville, 2011). While thought to be advantageous, there is still scepticism over the adoption of this technology. Sceptics especially in developing countries worry that the initial overhead cost of adopting this innovative option to meter reading may trump traditional methods: they also worry that maintenance costs may be too overwhelming (Champanis *et al.*, 2013; Mann *et al.*, 2013). Therefore, public water service providers are advised to initiate rigorous research to determine whether or not this technology enables cost savings (Champanis *et al.*, 2013).

4.3.3 Research and Development

A very integral part of any organization, whether public or private is research and development. ICT resources, such as, the Internet, when coupled with analytical software can support research tremendously. When such tools are used together, they can, for instance, aid water utility companies in determining how climate change and variability occur, and consequently affect water quantity, quality, and processes (Ochola and Ochola, 2012). Other research efforts may attempt to understand how more successful water utility providers undertake their operations, undertake research on the most durable materials to use in asset design, and embark on research seeking to understand water conservation techniques. Furthermore, based on extensively collected data, decision support systems could enable forecasting or estimation of future scenarios for water utility suppliers (Willuweit and O'Sullivan, 2013).

4.3.4 Information Flow Enhancement and Collaboration amongst Water Service Stakeholders

The process of water service provision involves varying stakeholders, all of whom must coordinate, synchronize and communicate in a coherent manner to effectively and efficiently carry out water service provision. Though not limited to these, stakeholders such as, the office of the minister of water and environmental affairs, water service authorities (WSAs) at the provincial/municipal level, water service providers (WSP) contracted by WSAs, and water users (Algotsson *et al.*, 2009; Tissington *et al.*, 2008), must constantly communicate as a matter of process. As such, ICT tools may inherently support these communication proceedings. Data flows between these stakeholders consist of – supply chain logistics, transparency exhibition, service delivery requests and feedback from citizens on service quality, billing transactions, subsidy considerations and water demand management aspects, amongst others (Molobela and Sinha, 2011; Tissington *et al.*, 2008). This is a widely known form of ICT use, for all forms of public service provision.

4.3.5 ICTs for Transaction Processes (Bill Payment)

This business process represents a very important category where ICTs are needed in the water sector. Importantly, its significance lies in the fact that it is one of the bases or activities that generates revenue for water service institutions. According to Foster *et al.*, (2012) in Champanis *et al.*, (2013), if a water service provider slips into a position of poor operational performance and low cost recovery, due to its inability to generate revenue from bill collection, it increasingly becomes difficult to sustain its existence. There exists a culture of

non-payment of bills deeply rooted in South Africa (Turton, 1999). Being aware that basic water services are supposed to be free, consumption beyond basic water supply and sanitation carry a responsibility of payment, which is imperative for operation continuance, maintenance, and investment (Nleya, 2008). Bhagwan (2012) and Nleya (2008) suggest that inefficiencies in tariff collection may be one of the factors that affect low rates of bill payments. Retrospectively, mobile money collection could be a solution to increasing revenue collection from domestic and commercial water users (Champanis *et al.*, 2013). Champanis *et al.*, (2013) notes that mobile payments of water bills provide benefits that make it mutually beneficial for both consumers and service providers. For instance, for service providers there are reduced labour costs, reduced processing time, and savings on stationary for printing. Similarly, consumers save on transportation costs, and there is reduced time spent away from their occupational activities. A very good example of the mobile payment scheme is M-pesa, a Kenyan initiative, which the Nairobi water providers make use of (Mann *et al.*, 2013).

4.3.6 Awareness, Capacity Building and Information Dissemination to the Public

ICT portals, such as, government websites, serve as information dissemination outlets for mass or public consumption. In this way, ICTs can be used by water service providers to raise awareness (Ochola and Ochola, 2012), on aspects, such as, water conservation mechanisms, automated bill payment procedures, and service complaint protocols, amongst others. Furthermore, it is believed by many e-Government proponents that such platforms enhance the prospects of governments exhibiting more accountability and transparency, with regards to service delivery functions (Al-Khouri, 2012; Cecchini and Raina, 2004; Matavire *et al.*, 2010; Nkwe, 2012). This may over time, motivate the public to have more trust in public institutions where such practises are carried out consistently.

4.4 E-Government Challenges Related to Water Service Management

While the above examples illustrate the potential benefits that may motivate for the adoption of ICTs in the water sector of South Africa, a number of challenges inhibit this from happening. Some of the challenges are particular to the water sector, while others are generic to the integration of ICTs for public service provision. Challenges identified are as follows:

4.4.1 Unidentified Conceptual Prerequisites

Any ICT or information system introduced into an organization is introduced with the intention to support a task, a process, or a business function, amongst other intents. This

concept also applies to public service provision by the government. As implied by Twinomurinzi and Gharthey-Tagoe (2011), government agents provide services to principals (citizens) through a series of work processes. Such sequential steps or processes require definition prior to integrating ICTs to support or enhance their outputs (Champanis *et al.*, 2013). Unfortunately, this is not the case for many developing country governments, including South Africa. According to Twinomurinzi and Gharthey-Tagoe (2011) a principal stumbling block in integrating ICTs to support public service provision is that subroutine work processes are rarely defined within the departments that aspire to integrate ICTs. Therefore, it becomes onerous to determine where ICTs should fit, and what their roles in enhancing service provision should be. Furthermore, Dada (2006) advises on the need to identify the information needs of public service providers, prior to system design. To add on, systems must be designed alongside potential users of the system (Dada, 2006). Essentially, this suggests that a prerequisite to technology development and implementation must be a conceptual understanding, description and blueprint of work procedures by the government in conducting their service provision duties. Such blueprints undoubtedly will provide a starting point for system implementers to determine how best ICTs may be used to support public service delivery.

4.4.2 Self-Centred Motivations

It needs to be noted that not every public or civil servant, department, or function is enthusiastic about the prospect of ICT integration to support service provision. Sometimes the motivation for such opposition is likely to be self-centred. Ndou (2004) and Naidoo (2007) suggest that a determining factor of whether or not ICTs in the public sector are successful is employee resistance to change. There seems to be a phobia towards change by some employees, especially where it involves the integration of ICTs. Such employees may be of the belief that the integration of ICTs will result in them losing their jobs (Ndou, 2004; Champanis *et al.*, 2013). Similarly, government officials may view automated transaction processing as a threat to their power and viability (Nkohkwo and Islam, 2013). As such, they become vehemently opposed to the idea, and may frustrate endeavours to implement ICT systems. Additionally, some employees may be opposed to the idea of ICT implementation based on their perceived uncertainty about how much effort it may take to learn to use the new system (Champanis *et al.*, 2013). Furthermore, instances arise where employees misuse deployed technological systems (Champanis *et al.*, 2013). For instance, employees provided

with Internet capabilities may resort to using it for recreational purposes, as opposed to employing it for work assignments for which the Internet resource is provided.

4.4.3 Financial Constraints

Mann *et al.*, (2013) state that financial resources are critical to the successful integration of ICTs to support public service provision. However, this remains a huge concern and challenge to the integration attempts of ICTs in the public domain, especially in local municipalities. Cost categories may include, but are not limited to: initial investments, long-term financial commitment and replacement costs (Mann *et al.*, 2013). More so, particularly in the water sector in South Africa, it is further escalated due to reluctance to invest in ICTs as a result of the dearth of research surrounding cost versus benefits of employing ICTs (Mann *et al.*, 2013; Champanis *et al.*, 2013; Naidoo, 2007; Ochola and Ochola, 2012). While anecdotal accounts suggest that ICTs do indeed bring about cost savings and enhance service delivery, there is limited rigorous research to support this. Furthermore, Arendse *et al.*, (2012) and Nkohkwo and Islam, (2013) also highlight the high cost of Internet provision and accessibility, more especially for marginalized groups. Matavire *et al.*, (2010) also refers to fragmentation of finances, where even within the same department, finances are distributed in a fragmented manner, thus making it difficult for a department as a whole to implement projects cohesively. Moreover, it is felt that there are other pressing needs such as, housing, infrastructure maintenance, and salaries that demand attention. For this reason, ICTs are viewed as less of a priority to invest in (Naidoo, 2007).

4.4.4 Leadership Convictions

Good leadership is a major driving force for new initiatives and innovation in any establishment (Ndou, 2004). Top management involvement, including clear lines of accountability are critical to: overcoming an institution's natural resistance to change, marshalling the resources needed to enhance management, and building and maintaining an institutional wide commitment to novel ways of doing things (McClure, 2001 in (Ndou, 2004). Leadership roles may include, establishing policies, ensuring resources are available, encouraging and motivating subordinates to buy into the vision, amongst others. While thought to play a critical role, Nkohkwo and Islam (2013) note that in many Sub-Saharan African countries, needed leadership traits are missing. Consequently, this affects the implementation of e-Government initiatives. Matavire *et al.*, (2010) highlight a number of reasons responsible for the leadership challenges being experienced in public institutions in South Africa, especially in relation to the adoption of ICTs. Firstly, they suggest that due to

the hierarchical leadership structures, which governments are modelled after, leaders at the top are oblivious to the plights of the common citizens, and as such, do not see reasons for changing customary ways of doing things. Such oblivion may result in top leadership relegating responsibility for overseeing e-Government implementations to lower departments who are likely to follow the same pattern, thus weakening the project's success chances as responsibility is passed down the chain (Champanis *et al.*, 2013). Furthermore, Matavire *et al.*, (2010) allude to continuity of leadership, where an incumbent may not have the drive of his predecessor with regards to the integration of ICTs. Often, in the course of a public leader's tenure, when faced with bureaucratic concerns, he/she may lose enthusiasm for e-Government projects, even where such passion was previously possessed (Matavire *et al.*, 2010). Leaders must be sensitized to the long-term benefits of e-Government, because their buy-in will ultimately determine the outcome of such an initiative.

4.4.5 Technophobia and Illiteracy

There are often preconceived notions about technology. Most commonly, it is believed that using technology is a challenging process requiring time devotion and high cognitive processing. According to the United Nations Development Programme (UNDP) (2001) and Aquilina (2011), the technological aspects of ICTs can be highly intimidating for most people, even for those privileged few who feel somewhat comfortable using a computer and the Internet. This is evident in many developing contexts, where the lack of ICT skills in the public sector impedes the successful adoption of e-Government initiatives (Nkohkwo and Islam, 2013). Champanis *et al.*, (2013) imply that some public servants may presume that employing ICTs will increase the time needed to complete routine tasks, and as such are reluctant to adopt these tools. To deal with these negative perceptions, Naidoo (2007) and Ndou (2004) recommend training and capacity building to reduce the illiteracy levels of public service providers in aspects of technological use. Such training should not happen just once, but essentially must be ongoing (Mann *et al.*, 2013).

4.4.6 Fragmented Functional Areas

A well-documented aspiration for the introduction of ICTs to public service tasks is to improve the information flows between varying functional areas of a public service department, or to improve the information flows between various departments. Such information flows are essential for cohesive service provision by multi-stakeholder groups responsible. While deemed essential, this aspiration is diminished by the fact that information

sharing is not common among public sector organizations, and even sometimes within a particular functional area (Naidoo, 2007). Furthermore, according to Matavire *et al.*, (2010) fragmentation and silo mode of operations affect finance disbursement, service integration, and policy formulation and adherence. For instance, regarding financial disbursement, an ICT project may be negatively affected due to contrasts in processes for accessing funds by different functional areas within the same department. Similarly, policy differences by collaborating departments, or functional areas may create conflicts, while attempting to determine which policy trumps the other. Ultimately, fragmentation negatively influences the success rate of an e-Government initiative (Matavire *et al.*, 2010).

4.4.7 Infrastructure Needs

Infrastructure is a fundamental and underlying element, which must be in place prior to the implementation or integration of ICTs to support public service delivery. However, this is lacking in many developing countries (Mann *et al.*, 2013). Even in more advanced developing countries like South Africa, infrastructure is still a concern, especially in marginalized geographical areas that were negatively affected by the past apartheid legacy (Naidoo, 2007). Where there is infrastructure present, unreliable IT infrastructure can also further degrade the e-Government performance, thus impeding its success (Nkohkwo and Islam, 2013). Infrastructure challenges may in-fact extend to non-ICT related aspects such as electricity (Champanis *et al.*, 2013); as such infrastructure needs require a government wide collaborative and cohesive approach if it is to be addressed.

4.4.8 Haphazard Implementation (Lack of Strategy)

ICT integration in the public sector needs to be underpinned by a very meticulous, analytical and dynamic strategy (Ndou, 2004). This seems to be an onerous task, requiring focus on a range of aspects, such as work processes, a holistic purview, a long-term focus, and realistic objectives (Ndou, 2004). Such a strategy will delineate a transformation plan from a point of poor e-Government implementations to well-functioning systems, which effectively and efficiently support service provision (Al-khouri, 2012; Naidoo, 2007). Though critical, evidently such strategy is lacking in many service provision aspects of the South African context (Naidoo, 2007). As particularly related to the water sector in South Africa, Champanis *et al.*, (2013) reveals that ICT integration strategies are lacking especially in rural and under-resourced municipalities. Being ignorant of the underlying analytical processes required to achieve successful ICT integration, such municipalities often resort to implementing systems haphazardly. For them, ICTs may be deemed as a mere exercise of

keeping up with trends, or a flashy technological piece to show off to donors (Mann *et al.*, 2013). The importance of an e-Government strategy cannot be overemphasized. Principally, this is because the strategy is fundamental to decision making during implementation, re-engineering processes, and support processes of the e-Government integration exercise (Lowery, 2001). This particular point (lack of strategy) needs to be expanded upon more, as this is a basic building block for successful e-Government implementation.

4.5 The Role of Strategy in Successful E-Government Implementation

An e-Government strategy can be defined as a plan for the realization of e-Government systems and their supporting infrastructure, which maximises the ability of the government to achieve its objectives (Heeks, 2006) in (Rabaiah and Vandijck, 2009). Typically, the plan is described in a top-level document encompassing areas such as; strategic directions, goals, components, principles and implementation guidelines (Rabaiah and Vandijck, 2009). Furthermore, this plan may also be referred to as a long-term future oriented process of assessment, goal setting, and decision making that maps an explicit path between the present and a vision of the future (Abdollahi, Fasanghari and Azadnia, 2009; Wang, Walker and Redmond, 2011). An e-Government strategy should be deemed a prerequisite for the integration of ICTs to support public service provision. Essentially, it should be considered as necessary for a variety of reasons, some of which are listed below:

- An e-Government strategy, aids in anticipating and preparing for change (Lowery, 2001). This preparation is particularly important, considering that prior to implementation of ICT systems, the intending public sector must undergo business process re-engineering, where necessary, to support the prospective way in which business will be conducted (Alghamdi *et al.*, 2011; Lowery, 2001). A strategy formulation process encompasses a thorough reflection process, which brings to attention current ways of doing things, and determining whether or not they will be appropriate, when new ICT systems are incorporated to support service delivery (Lowery, 2001).
- A well designed e-Government strategy helps in identifying and outlining priorities (Bryson, 1988; Lowery, 2001), as such, making it less cumbersome for the government to make decisions while in the process of implementing e-Government initiatives (Bryson, 1988; Sterling, 2003).

- A strategy aids in improving the performance of the e-Government implementation (Bryson, 1988). This improvement may be achieved through a risk assessment (Lowery, 2001), financial evaluation (Sterling, 2003), or other forms of assessment (Alghamdi *et al*, 2011).
- Delineating an e-Government strategy, prior to implementation plays a role in encouraging team work, coherence, and enhanced communication amongst the stakeholders who will be involved in the project's implementation (Bryson, 1988; Lowery, 2001; Fred, 2011). A sought after resulting impact of enhancing communication through the strategy, is to achieve greater commitment from the varying stakeholder groups (Fred, 2011). By making the proposed strategy simple, succinct and in a common language understood by all stakeholder groups, the propensity for people to commit to the e-Government project greatly increases (sterling, 2003). Ultimately, cohesive buy-in leads to consistent execution (Sterling, 2003).
- Considering that the strategy seeks to map an explicit path between the present and a vision of the future (Abdollahi *et al.*, 2009; Alghamdi *et al.*, 2011), it may be implied that the strategy aids in prospectively looking at the long term future (Alghamdi *et al.*, 2011). According to the International Telecommunication Union (ITU) (2008), interviews with government officials in developing countries revealed that officials saw significant value in strategic planning while anticipating the adoption of e-Government services. Reason being that such strategies aided the government to develop a vision of how to deploy ICTs and a road map to follow in realising their plans (ITU, 2008).

As the points above suggest, an e-Government strategy has quite a significant role to play in the process of integrating ICTs in the public sector. While literature deems such strategies as integral, it is also generally agreed that such strategies are overlooked by many developing countries, including South Africa. As Ndou (2004) and Matavire *et al.*, (2010) presuppose, this may be because it is a demanding task, requiring complete focus on a range of aspects, encompassing, work processes, setting objectives, prioritization, as well as being holistic. It makes matters worse that sometimes strategies are designed but are of little use, as

implementation still fails to deliver expected results (Sterling, 2003). Sterling (2003) and ITU (2008) highlight a number of reasons that may cause strategic plans to fail. The majority of these reasons, however, are revealed by Sterling (2003), which relate generically to factors that influence strategy failure and not particularly to e-Government strategy failure. According to Alghamdi *et al.*, (2011), e-Government is a relatively new research area, as such, organizational ICT architecture and strategy related areas of e-Government projects have not been widely discussed in the literature.

Sterling (2003) and the ITU (2008) list the following as potential factors that may inhibit successful strategy development and execution:

- *Failure by an entity to understand and highlight the factors* that have the greatest impact on their strategy's success.
- *A lack of flexibility in the strategy's narrative.* An entity must be prepared to change the direction of their strategy or implementation tactics, as the external environment changes (Sterling 2003).
- *Failure to include a financial evaluation of a draft strategic plan.* This is an imperative element, considering implementations of plans are directly contingent on available resources.
- *The proposed strategy lacks in clarity to some or all stakeholder groups,* hence inhibiting cohesive buy-in. ITU (2008) suggests that as particularly related to e-Government projects, personnel who will be responsible for implementing the strategic plan, must be part of the planning process.
- *Failure by a strategy to demonstrate or exhibit focus.* An entity in formulating a strategy must focus on its strengths. Strategies that do not focus on entities strengths try to focus on all areas. Consequently, resources are dissipated and priorities are never articulated (Sterling, 2003). A strategy not built on the core strengths of an entity is likely to fail.
- A strategy is most likely to fail if *simplicity is not taken into consideration* during its formulation process. Once it is simple enough to get people focused, they are better able to execute (Sterling, 2003).

The points highlighted above illustrate the importance of the strategy formulation process, and not just the process of implementing the strategy. Essentially, the point being made here is that where a strategy is not formulated correctly, implementation is likely to be

unsuccessful (Hummelbrunner and Jones, 2013; ITU, 2008). The formulation process is a foundational aspect, which if overlooked could directly or inversely affect its execution. A systems view to e-Government strategy formulation that takes into consideration a holistic view of the government environment where ICTs are to be deployed may support improved e-Government strategy development (Checkland and Scholes, 1990).

4.6 Conclusion

The public sector may potentially benefit from e-Government implementations. These benefits include, but are not limited to, cost savings, efficiency, and decision making. However, a number of factors impede the realization of anticipated gains. Undesirable factors include, unidentified conceptual prerequisites, self-centred motivations, financial constraints, leadership convictions, technophobia and illiteracy, fragmented functional areas, infrastructure needs, and haphazard implementation. Chief amongst these opposing factors is lack of, or a poorly constructed strategy to guide e-Government integration processes. Considering that the strategy explicitly delineates the vision, while seeking to map a path between the present and the future vision, it should be deemed a fundamental or foundational element, prior to implementation aspirations. Notably, the formulation process of the e-Government strategy will bear on how successfully the developed strategy can be implemented. Consequently, the strategy formulation process requires attention, considering that its successful implementation is contingent on it. A systems view to e-Government strategy formulation can improve e-Government strategy development processes.

Chapter 5

A Systems View to Strategy Formulation

This chapter discusses the need to understand the strategy formulation process in the pursuit of deriving an e-Government strategy. A systems view to understanding the strategy formulation process is recommended, as systems have been considered as useful tools for conceptualizing complex aspects of the world. It is concluded that to commence a systematic understanding of a problem (strategy formulation), a framework may be constructed to represent the researchers initial understanding and conceptualization of e-Government strategy formulation.

5.1 Introduction

The importance of a strategy cannot be overemphasised, and is well documented. However, it is also important to stress the need to understand the process that results in a created strategy. The importance of understanding the strategy formulation process, can be attributed to the possible opportunity the process presents – to account for the formed relationships between the various stakeholders that need to coherently buy into the strategy. Furthermore, monitoring the process, ensures that there is input from all concerned stakeholders, which as a result better enhances the prospect of buy-in.

This chapter begins by discussing the importance of understanding the strategy formulation process. Following this, a systems thinking approach to strategy formulation is proposed, as systems have been considered as useful tools for conceptualizing aspects of the world. Here two schools of thought on systems thinking are discussed – hard systems and soft systems. Subsequently, the chapter explains why the soft systems methodology (SSM) is appropriate for research on strategy formulation. It is concluded that SSM supports the identification of components of an e-Government strategy formulation process in an effort to address the problem of e-Government strategy development at local government level.

5.2 Importance of understanding the Strategy Formulation Process

It is one thing to understand the components of a strategy in its most rudimentary form, and it is another thing to recognize and articulate fully what is required to formulate a comprehensive strategic plan or action (Thompson and Strickland, 1980). Accounts indicate that numerous authors argue that the process that an organization undertakes to produce its strategic plan and its transformative effect is more important than the (artefact) strategic plan document (Lawrie, 1994 and David, 2003 in Malunga (2007); Liukkunen, Pohjonen, Sariola, 2005). Organizations that take the time to adequately formulate their strategic planning process will actually gain both in time and speed, as well as save resources (Malunga, 2007). These advantages apply to all sectors – profit, not for profit, and government organizations alike. The importance of the strategy formulation process lies in the fact that it helps to account for the formed relationships between the various stakeholders that need to coherently buy into the strategy. According to Bryson, Crosby and Bryson (2009) questions such as the following must be answered: Who is considered to be a stakeholder in the said organizational context? How inclusive should the process be? How do we gain consensus on how the process should be organized? What must be accepted as a given by everyone, and what is

open to discussion? What are the organizations real mandates? What should be the agreed on mission? What strategic issues does the organization face? What strategies should potentially be pursued to address them? How should the action plan be implemented? How should performance be judged?

Strategy formulation is a complex cognitive, behavioural, social and political practice of which acting, thinking, knowing and learning play an intricate part in which some associations are reinforced, some created, and still others dropped in the process (Bryson, Crosby and Bryson, 2009). Drucker (1974) in Malunga (2007: 29) who refer to strategy formulation, with the term strategic planning, define it as “the planning for an organization’s future that includes setting major overall objectives, the determination of basic approaches to be employed in potentially pursuing set objectives, and the means to be used in obtaining the needed resources to achieve set objectives”. Essentially, the process is about determining what is important in the long term for the organization (Adair, 2002). What makes it a complex process is that consensus has to be reached amongst a bevy of stakeholders on long term issues concerning the organization. This makes the process a delicate or fragile one, as a discord between two or more stakeholder groups involved in the process could likely jeopardise it. This then highlights the necessity of paying attention to the strategy formulation process. Asplund (1975) asserts that such attention is necessary, because where there is some knowledge about the process by which the strategy is formulated; ideas may over time be derived on the type of process that may produce an efficient strategy. What is of concern is how the strategy formulation process is employed to promote strategic thinking, acting, learning and knowing (Bryson, Crosby and Bryson, 2009). Furthermore, getting the right actors involved and affecting stakeholders in the right way is crucial. It should come as no surprise if conflicts or controversies do arise amongst stakeholders. Without a doubt, controversies will arise, due to differences in views. Such controversies must be resolved appropriately. As Bryson, Crosby and Bryson (2009) suggest, if settlements of some sort are not arrived at, regarding the mission, goals, strategies, and implementing actions, things will fall apart, at least as far as the strategy formulation process is concerned.

Several critics argue against the value that strategies contribute to an organization. For instance, Mintzberg (1994), and Smillie and Hailey (2001) advise organizations against paying too much attention to strategies. In their view, there are more important aspects to an

organization requiring attention, such as, organizations having, core values, highly effective leadership and formal and informal systems for adapting to change (Malunga, 2007). However, Bryson, Crosby and Bryson (2009) suggest that a major reason for poor results attained from bad strategies may be attributed to the lack of an understanding of the process (strategy formulation) that resulted in the artefact or strategy document. This again points to the importance of duly paying attention to, and gaining an understanding of the process underpinning the strategy document. Asplund (1975) even goes as far as recommending that indicators on strategy formulation processes must be sought, which depict standards for efficient processes of formulating strategies that will put organizations in favourable positions within their environmental contexts. While criticizing strategic planning, Mintzberg (1994), advocates for strategic thinking. In his view, strategic planning takes a rigid approach where organizational employees are coerced to buy into goals and objectives instituted by top level management. Such an approach, according to Mintzberg (1994) does not encourage organizational learning. Rather he recommends strategic thinking where every stakeholder – subordinates and superiors alike are given an opportunity to jointly formulate a vision for the organization, through concerted action and learning. Importantly, such an approach provides a platform for understanding the process of strategy formulation, which as noted in the previous paragraph, will aid in more efficient strategy formulations.

Characteristically, these points bring to attention a long-standing problem related to e-Government strategies prevalent in developing contexts, including South Africa. While several e-related strategies do exist, there seems to be little documentation, if any, on how they came to be. As such, it should come as no surprise that as Naidoo (2007) suggests, there is very little learning on how strategies should be appropriately formulated, in order to achieve the best possible results during integration or implementation of ICTs to support public service delivery in developing countries. To illustrate the South African context, a few examples are as follows: The Gauteng ICT strategy (2010), and the province of the Eastern Cape e-Education implementation strategy proposal (Khaya, 2006) exist. These represent two strategy related documents in the South African context that are easily accessible. Both outline their strategies articulately; however, neither reveals what processes were undertaken to arrive at their strategies. Hoping to fill this integral knowledge gap, this research seeks to develop an e-Government strategy formulation framework. Essentially, such a framework will enhance the knowledge base of e-Government strategy development, which as a consequence will result in more effective strategies and their subsequent implementations.

In order to achieve the underlying objective, this research explores necessary components that should be included in an e-Government strategy formulation process. Components in this research context refer to factors, that must be considered in order to arrive at the strategy. This will be achieved by conducting a comparative analysis of selected strategy development documents from varying types of institutions (the business sector, Non-governmental organizations (NGO), and advanced country e-Government projects), which a local municipal e-Government environment can relate to. However, it should be noted that identifying these components is only part of addressing the problem. Importantly, this can be attributed to the inherent need for cohesive action amongst varying stakeholders in seeking to arrive at the strategy. Differences in opinions, unrelated agendas, and conflict of interests will make the process onerous. According to Checkland (2000), any situation in which individuals attempt to act together will be complex, simply because individuals are autonomous. Therefore, it follows that even if the right strategy related components are identified, along with how they should be applied, it will not suffice for dissimilarities amongst the human actors (Checkland, 2000). Some may argue that knowledge of well-defined processes or predefined steps, are sufficient tools to address problems that require human collaboration (Checkland and Scholes, 1990). Proponents of such a view, fail to acknowledge the fact that pre-defined tools might prove inhibiting if used prescriptively, as they may overlook exciting lines of thought, given the glorious richness, the human dimension brings to any task (Checkland and Scholes, 1990). Research like this, which is seeking to arrive at a coherent e-Government strategy, is particularly problematic, because it cannot be determined beforehand how actors or stakeholders in the real life situation will behave. Brenton (2007) and Checkland and Scholes (1990) refer to such problems, as unstructured problems.

To stray away from the point briefly, it may help to address problems, structured or unstructured alike, as systems (Checkland and Scholes, 1990). This idea is based on an old notion, that to attack a large problem effectively it should be done in an organized manner (Ramo and St.Clair, 1998). Organization as suggested by Ramo and St.Clair (1998) may be viewed as applying some kind of logic to address the problem. In other words, it can be expected that people will be logical (systemic) in their consideration of factors involved in selecting a solution (Ramo and St.Clair, 1998). The study of systems, which is commonly referred to as “systems thinking”, provides the ability to conceptualize wholes (Turpin and Alexander, 2014). The functioning of the whole, however, is dependent on its parts and the interaction of those parts (Jackson, 2003) in (Turpin and Alexander, 2014). Thought to be

lacking in information systems research, such approaches were employed appropriately, may increase the probability of appreciating how intended ICT integration may affect work practices, operations, employees and business results (Alter, 2004). According to Mingers and White (2010) in Turpin and Alexander (2014), although most information systems researchers view themselves as system thinkers, very few of them employ systems theories in their studies. With a deeper shared understanding of the scope, nature, and impact of proposed ICT support applications, the success rate of such projects can be enhanced (Alter, 2004). It is thus important to explore how a systems thinking approach may best support an e-Government strategy formulation process for local municipalities.

5.3 The Need for a Systems View to E-government Strategy Formulation in South African Local Municipalities

Conceptualizing problem situations as systems have proved to be rather successful in interpreting the world (Checkland and Scholes, 1990). Understanding the world as “parts of a system” has been so successful that the system idea, though abstract, has been used to refer to parts of the world (Checkland and Scholes, 1990: 20). For instance, there is common consensus on the idea of a judicial system, or a monarchical system, or a traditional system. The study of system enactments, commonly referred to as “systems thinking” stresses holism, when addressing complex situations, where understanding the relationships between parts of the system is imperative (Ramo and St.Clair, 1998; Turpin and Alexander, 2014). Jackson (2003) suggests that such studies do not consider only the immediate consequences of an action on a particular part of the system, but its effects on the overall system. Failing to conduct a good systems analysis or design at preliminary stages of problem conceptualizations make it difficult to understand and layout the necessary pieces of the solution (Ramo and St.Clair, 1998). Systems thinking can be applied in any tentative study and is not restricted to particular studies. As Turpin and Alexander (2014) suggest, a system is a subjective mental construct, conceptualized *based* on the objective of a study or project.

The idea of systems thinking, though thought to be generally beneficial to addressing problems, has been categorized into two schools of thought (Checkland, 2000). This categorisation is largely based on observations that suggest that problems may either be structured or unstructured. Prior to notice of this dichotomy or problem categorization, one systems idea (systems engineering) dominated systems thinking studies (Checkland, 2000). Experience and practice has revealed otherwise. For instance, with experience and practice, it became increasingly clear that the systems engineering approach was only appropriate for

well-defined problem situations (structured problems) to which solutions were sought (Brenton, 2007; Checkland, 2000; Checkland and Scholes, 1990). This brought to light knowledge that there are problem types outside the structured problem set. For instance, it highlighted that there are unstructured problems involving humans who are largely unpredictable, who possess conflicting views, and for whom solutions cannot be designed without an understanding of their problem situation (Checkland and Scholes, 1990; Checkland 2000). These two types of problems respectively came to be labelled as hard systems and soft systems (Brenton, 2007), with hard systems referring to structured problems and soft systems referring to unstructured problems.

Notice that it has been stressed throughout this chapter that the problem this research seeks to address is one involving numerous actors who may have conflicting views on how an e-Government strategy should be formulated. It thus makes sense to employ the soft systems approach, as its definition suggests that it is suited to such problems. Some may argue though that technology is often conceived as an objective and rational entity, and as such should be viewed as a hard systems related topic. It should be noted however, that whereas technology may be conceived as an objective and rational entity, how it should be integrated is largely political and cultural (Bolgherini, 2006). As defined by Checkland and Holwell (2005) the soft systems methodology (SSM), is deliberately intended to deal with unstructured problems involving humans seeking to coherently undertake purposeful action. More than a way of conceptualizing a problem situation, soft systems methodology is also considered to be a learning system (Checkland, 2000; Warwick, 2008).

Before addressing how the soft systems approach may underpin an e-Government strategy formulation process, it is helpful to elaborate on what makes the soft systems approach, a systems thinking approach. Previously, it has been established that the main difference between the hard systems and soft systems approaches is their focus on either structured or unstructured problems, respectively. However, there is another characteristic that distinguishes the two systems thinking approaches. This characteristic focuses on what each of these schools of thought refer to as systems (Checkland and Holwell, 2005).

Stated simply, while hard systems thinking involves the *conceptualization of a structured problem* situation as a system instance, soft systems thinking views the *process of inquiry (learning process)* as a system instance (Checkland and Holwell, 2005). Essentially, this

represents a cyclic process where the perceived world, that is understood through created models or through experience, is used as a starting point in enquiry or understanding of real world problems (Checkland and Scholes, 1990). Checkland and Scholes (1990) further clarify this by stating that humans interact with the world by employing concepts whose origin is their experience of the world – and this process of interaction takes place in the subconscious as we live everyday life. The systemic process of soft systems method of inquiry consists of seven stages (Brenton, 2007). However, it is important to keep in mind that the shared characteristic in all research attempting to use the soft systems approach is that they involve humans seeking to undertake a purposeful activity. As such, it may help a system analyst to conduct a preliminary definition and model of the purposeful activity to be addressed (e-Government strategy formulation in this instance), which will act as a guide into the study of the problem situation.

These preliminary enactments are commonly referred to as human activity systems (Brenton, 2007; Checkland, 2000). The phrase “human activity system”, is appropriate, because it aids in differentiating between what gets proposed in the enacted model ‘an activity’, and what exemplifies the real world, namely ‘action’ (Checkland and Scholes, 1990; Checkland, 2000). A human activity system is defined as an assembly of activities in which people are purposefully engaged, and the relationship between those activities (Brenton, 2007; Warwick, 2008). Purposeful engagement suggests that intended actions are not instinctive or random (Checkland and Poulter, 2006).

With any SSM study, the human activity system or model enacted is viewed as a subsystem, within the systemic process of inquiry. This model is used as a base to initiate debate and map real world actions to the activities described or contained in the model (Brenton, 2007; Checkland, 2000). According to the authors of SSM, in order for a human activity system to be accepted as a legitimate depiction of the problem situation necessitating action, it is required that it possesses four important characteristics (Checkland and Scholes, 1990; Checkland and Poulter, 2006). Notably, the addition of these four characteristics should enable the definition of a human activity system, which can adapt to a dynamic environment (Checkland and Scholes, 1990). These characteristics are as follows; emergent properties, the concept of hierarchy, communication, and control (Checkland and Poulter, 2006).

Emergent properties refer to the idea of combined parts, which together make up a whole for accomplishing a purposeful activity (Checkland, 2000). To illustrate this concept, the sought objective of this research will be used: In seeking to discover a suitable way to coherently formulate an e-Government strategy for local municipalities, this research will be composed of component parts and varying activities. However, only when put together will they form the emergent property of formulating an e-Government strategy. Hierarchy, which is the next characteristic suggests that no system can be conceptualized in isolation (Alter, 2004; Checkland, 2000). In this sense, every conceptualized system is part of, or is a subsystem of a larger whole. Checkland and Scholes (1990) illustrate this using an example of the biological hierarchy where atoms make up molecules, which then make up cells, which make up organs from which organisms are derived. In the context of this study, for instance, a formulated strategy may be deemed a sub-system of an implementation plan. Communication and control, which are the last two characteristics, go hand in hand. Every enacted system, due to environmental dynamics, receives shock, and if the system is to survive this shock, it requires communication processes to know what is going on, and control process to enable adaptive responses to the shock (Checkland and Poulter, 2006).

Brenton (2007) recommends that to determine how appropriate a human activity system or model is, you should compare the model against a root definition. A root definition is simply a core way of describing the observed problem as a statement (Checkland and Poulter, 2006; Saad, Alias and Rahman, 2005). The concept of a root definition and its significance will be elaborated on more, in the section describing the process of inquiry which is SSM.

It has been established that SSM's systems focus on the process of inquiry, as well as a human activity sub-system to make reference to when addressing a decided upon problem. The process of inquiry consists of seven stages, which when generally applied is used sequentially and iteratively (Checkland and Scholes, 1990). According to Brenton (2007); Checkland and Holwell (2005); Checkland and Scholes (1990) and Warwick (2008); the sequential process of inquiry, which SSM is made up of should include the following stages:

- I) The tentative problem situation is identified and considered.
- II) The problem situation is expressed using rich pictures.
- III) A root definition is outlined. The root definition as a single statement, expresses the primary intention of the purposeful human activity system to be

designed.

- IV) Based on the root definition, a purposeful human activity system (conceptual model) is designed.
- V) The designed conceptual model is compared to what routinely happens in the real life problem setting.
- VI) Changes, which are deemed to be systematically desirable, as well as culturally feasible are defined.
- VII) Lastly, action to improve the problem situation is taken. After which the process begins again, to improve the problem situation even better.

Before moving on there are a number of important factors to highlight about stages I, III and IV. Firstly, at the problem investigation stage, or stage 1, there should be three streams of inquiry undertaken to understand the problem context. These in SSM literature are respectively commonly referred to as Analysis 1, Analysis 2 and Analysis 3. Analysis 1, entails an investigation of various stakeholders who will actively be involved in the intervention, as well as an elicitation of their perceptions of the problem situation and their views on how it may be addressed. In this analysis at the minimum, the following stakeholder roles must be identified; client, practitioner and issue owners (Checkland and Poulter, 2006). In their stated orders, these roles describe the person who caused the intervention to happen, the person responsible for facilitating the investigation (researcher or interventionist), and the person or persons who will be affected by the outcome of the intervention (Checkland and Scholes, 1990). Analysis 2 seeks to understand the social reality of the organization or entity being explored. This second analysis is deemed necessary, because understanding practical action to enhance a situation must be informed by the cultural reality of the study context. Management Science enthusiasts try to solve problems by largely focusing on the logic of situations (Checkland and Poulter, 2006). This may not help considerably, as the influences of much of human action reside outside logic, either in cultural norms or emotions (Checkland and Poulter, 2006). While universally defining what culture represents is a difficult task, the SSM approach suggests one way of understanding the culture or social reality of any organization. As perceived by the SSM approach, a social system is one involving continually changing interaction between three elements (Checkland and Scholes, 1990). These elements include roles, norms and values (Checkland, 2000). Roles relate to an analysis, which attempts to comprehend positions that emphasise differences between members of a group or organization (Checkland and Poulter, 2006). In relation to roles, norms are defined as

expected behaviour, which distinguishes identified roles in the context of study (Checkland, 2000). Lastly, an investigation of values will reveal indicators upon which actual performance of identified roles should be judged (Checkland and Scholes, 1990). To conduct this stream of analysis, when in the context of study, it is important to closely observe all behaviour related to these three elements. Analysis 3 will comprise of a study to understand the political situation and power play present in the situational context (Checkland, 2000). Primarily, this analysis seeks to determine the disposition of power in the context being examined, and possible means of containing it (Checkland and Poulter, 2006). Politics is such an integral part, which requires analysis, as it is a powerful instrument in deciding what does or does not get done (Checkland and Poulter, 2006). According to Checkland and Scholes (1990), questions to ask here include; what are the mediums through which power is expressed in this situation? How are these mediums obtained, used, protected, preserved and passed on? It is expected that in any purposeful activity in which there is routine interaction amongst human beings, different interests will be pursued. If the purposeful activity is to be achieved, differing interests will have to be accommodated. This is the concern of the political analysis (Checkland and Poulter, 2006). Enserink *et al.*, (2010) provides 3 steps to complement Analysis 1, 2 and 3 in defining the problem situation from all stakeholders' perspectives (worldviews) – these steps include (Enserink *et al.*, 2010): *Problem demarcation*, *specifying objectives and criteria*, and *identifying means and mapping causal relations*.

- **Step 1: Problem Demarcation:** Here the researcher expresses the differing problem views of stakeholders as objectives – that specify their ideas of desired states as related to the problem. By probing stakeholders several times on what ideal situations they envision, and why their mentioned ideal situations are worth striving for, the researcher is able to get to the root of the problem expressed as the ideal situation (objective). Where several objectives may be identified, the researcher must guide stakeholders to narrow their objective selection to those that can feasibly be addressed.
- **Step 2: Specifying Objectives and Criteria:** Enserink *et al.*, (2010) propose the use of objective trees to better define the focal objective identified in the previous step. The process commences by outlining the focal objective, and then making one or more problem formulations that specify what may need to be addressed in order to achieve this objective. The problem formulations that are created as a result of the focal objective are presented as criteria. This may be illustrated by a hierarchical structure,

where the focal objective is outlined at the top of the hierarchy, while the lower problem formulations stated in the form of criteria are represented as branches stemming from the focal objective.

- **Step 3: Identifying Means and Mapping Causal Relations:** Here means and resources are deliberated on, to support the realization of criteria identified in the previous step. Identified resources and means should be mapped to the criteria that they will potentially affect. A causal map can support this process – by depicting the causal relations between the factors that are relevant to the problem (Warren, 2004). This map may be viewed as an expressive form of what-if analysis that helps in explaining the effects of resources/means, and external factors on the identified criteria (Enserink *et al.*, 2010). Constructing the causal map may be supported by knowledge from literature research, interviews with stakeholders, and expert reviews.

By conducting the exercise explained in these 3 steps with all stakeholders, the researcher is able to derive a rich picture, which adequately depicts the problem from all stakeholder's perspective (stage 2). In relation to Stage III, it has been established that a root definition succinctly states what the proposed human activity model seeks to achieve. The authors of SSM recommend that in order for the root definition to encapsulate the essential factors, the following mnemonics (CATWOE) should be made reference to (Brenton, 2007). The components of the acronym spelt out can be described as follows (Checkland, 2000):

- **Customers:** This calls for a definition of the people who will either benefit from or be victims of the purposeful activity.
- **Actors:** This calls for a definition of the people who will undertake the transformation process.
- **Transformation process:** This calls for an expression of the purposeful activity as inputs, transformation processes and outputs.
- **Weltanschauug:** Considering there will be a number of stakeholders with different views, the worldview that makes the transformation process meaningful in context needs to be determined.
- **Owner:** This calls for a definition or listing of people who can potentially stop the transformation process.
- **Environmental Constraints:** This calls for a listing of constraints in the environment, which the system takes as given.

Checkland and Scholes (1990) in fact state that a root definition articulated with attention to these components will be rich enough to be modelled. All components do not have to be explicitly mentioned in the root definition, however, any neglected component needs to be deliberate (Checkland and Scholes, 1990).

Next, with regards to the human activity system or model (Stage IV) it needs to be ensured that its components are logical or sequential. This entails a sequential ordering of the activities, which make up the model. For instance, if the human activity being pursued is the processing of fruit juices – fruits have to be bought or obtained, prior to the processing activity. The arrangement of activities is therefore logically contingent (Checkland and Scholes, 1990; Checkland and Poulter, 2006). The model or human activity system represents a tentative transformation process, which is used to initiate a healthy debate, about the situation of interest. In this sense, these models should not be viewed as the ultimate solution to the issue at the centre of discussion. They should primarily be viewed as sources of good questions about the issue of contention (Checkland and Holwell, 2005). The complexity of the real world will always exceed the complexity of any constructed models, however detailed such models are (Checkland and Holwell, 2005).

After much dialogue and deliberation between stakeholders about the issue of concern, a constructed human activity system in the course of the study must be defended, to determine its viability as a possible solution to the issue at hand. Warwick (2008); Brenton (2007) and Checkland and Poulter (2006) suggest that a good way to conduct such a defence process is producing after much discourse amongst interested parties, a human activity system, which is both arguably desirable and culturally feasible to the context in question. Indications that reveal whether or not the aforementioned criteria have been achieved include a test involving 3 E's. These 3 E's bring to bear the communication and control process referred to earlier. They represent *Efficacy*, *Efficiency* and *Effectiveness*. *Efficacy* seeks to determine to what extent the human activity system is used to complete the intended task (Checkland, 2000). *Efficiency* seeks to reveal whether the transformation is achieved with a minimum use of resources (Checkland and Poulter, 2006). *Effectiveness* is designated criteria to determine the extent to which the transformation aids in achieving some higher level or long term goal (Checkland and Scholes, 1990). It is imperative for monitoring and control subsystems intending to support communication processes in a human activity system to pay attention to all three E's (Checkland, 2000). As an illustration, it will be vital to this research to ensure

that the human activity system modelled supports the actual deliverable of a formulated e-government strategy (*efficacy*); additionally, the proposed model should show some supporting evidence that the strategy formulation process is conducted in a cost effective way (*efficiency*); finally, it will be important to provide criteria to reveal whether a formulated strategy helps the longer term goal of ICT integration to support service delivery in the public sector (*effectiveness*). These considerations exhibit that it may be helpful to express human activity systems as important statements, which can be written as follows: do P by Q in order to achieve R (Checkland and Scholes, 1990; Checkland, 2000; Checkland and Poulter, 2006). To add on, human activity systems may be derived from one of two distinct forms:

- i) *It may be derived as a result of routine activities carried out by the organization under study.* Such a human activity system is said to be one derived based on institutionalized boundaries (Brenton, 2007; Checkland and Poulter, 2006). That is, they are enacted with reference to agreed upon functions. Purposeful activity systems derived this way may be referred to as primary task human activity systems (Checkland and Scholes, 1990; Checkland, 2000).
- ii) *In contrast, situations may arise, where the human activity system required is not based on practices that are supposed to be routinely adhered to or specific to a particular organization.* These models are said to cut across organizational boundaries (Checkland and Poulter, 2006). This latter category of models allow for more extensive considerations than is the case with a model constrained to a particular organizational boundary (Checkland and Poulter, 2006).

As such, when issue based models are employed in an inquiry process, as opposed to primary task based models, there is an increased level of interest and attention (Checkland, 2000; Checkland and Poulter, 2006). However, most inquiries will best feature a hybrid of both categories of models (Checkland and Poulter, 2006).

Deciding whether or not changes agreed upon are systematically desirable and culturally feasible is an arbitrary act (Checkland and Holwell, 2005). Essentially, this means that the end of the study will be determined by the participants, as well as the practitioner facilitating the study. There are no permanent solutions, and the systemic process of inquiry has to be visualized as a never ending iterative process (Checkland, 2000).

In summary, SSM serves as an appropriate approach to apply in conducting a strategy formulation, as it will enable learning, which Bryson, Crosby and Bryson (2009) insist is important to a strategy formulation process. The learning emerges through a systematic process where a chaotic situation is investigated by employing a set of models of purposeful activity (Checkland, 2000; Checkland and Poulter, 2006; Checkland and Holwell, 2005). To add on, Checkland and Scholes (1990) and Checkland and Holwell (2005) explicitly state that the approach is appropriate for a task such as strategy formulation. It is important to state on a final note that SSM as a methodology should be adapted to the particular situation in which it is employed in (Checkland, 2000). The intention is not to introduce an approach that will be followed in its sequential steps (7 steps) to the letter, but one which allows necessary flexibility (Checkland, 2000; Checkland and Poulter, 2006). No two users will use SSM the same way (Checkland and Holwell, 2005). For instance, as implied by Checkland and Holwell (2005: 165) in situations where the researcher wants a process that can be replicated or recoverable, it may help prior to going into the problem situation to identify components essential for e-Government strategy formulation and then, propose a framework to support e-Government strategy development. This may be labelled the researchers worldview of the situation. Notably in retrospect of the seven steps, this should only happen at stage three; however, this will constitute the first activity for this research – as it will help the researcher understand, as well as articulate the problem better (Hevner *et al.*, 2004). This research will follow such a pattern, by conducting a comparative analysis of how an e-Government strategy should be formulated.

5.4 Conclusion

More than having a documented strategy, value may be derived from understanding the processes that transpire to arrive at the strategy. Monitoring the process will help to account for formed relationships amongst the differing stakeholders expected to coherently buy into the process. Additionally, with the process understood, insight can be gained into what works and what does not, as far as strategy creation is concerned. By making this standard practice, over time, knowledge on processes that result in good strategies can be gained. Understanding how an e-Government strategy should be formulated may be approached from a systems thinking perspective – based on the premise that system conceptualizations are useful ways of understanding the world. The unstructured nature of an e-Government strategy formulation task (problem), makes the SSM well suited for it. SSM is deemed appropriate for problems involving humans, who are thought to be largely unpredictable, hence requiring an

unstructured approach. However, it may help for a researcher to have a preliminary understanding of the problem, prior to seeking other stakeholder views. Such enlightenment can be arrived at by conducting a comparative study that results in a framework that may explain the problem better.

Chapter 6

An Analysis of Approaches to Identify Components of Strategy Formulation

This chapter undertakes an analysis of ten frameworks on strategy formulation. The chapter's intent is to identify components of strategy formulation relevant to e-Government projects in local municipalities. The components represent important factors and activities to be considered in conducting an e-Government strategy formulation exercise.

6.1 Introduction

Developing an e-Government strategy formulation framework, may be achieved by borrowing from the views, concepts and ideas of varying sectors on the topic of strategy formulation. Concepts on strategy formulation are borrowed from; e-Government of more developed countries; business related approaches; and NGO strategy formulation approaches. Aided by a template, a comparative review of 10 approaches from these three sectors, highlight components to support the development of an e-Government strategy formulation framework suited for local municipalities in South Africa. This chapter narrates the analysis process, as well as the results derived from the analysis process.

The chapter begins with a discussion of the theorizing approach employed to conduct the theoretical analysis. The criterion used for selecting strategy related approaches is outlined along with the template used to analyse selected approaches. A comparative study is undertaken across each sector. A discussion then ensues, in order to determine commonalties and differences revealed from the comparative analysis. The analysis seeks to identify common components of strategy formulation relevant to e-Government projects within South African local government. It is concluded that the findings serve to inform this study of the components necessary for developing a theoretical framework for e-Government strategy formulation in local municipalities.

6.2 The Theorizing Approach

The design science approach that this research is based on, seeks to understand through the development of an artefact (framework), how an e-Government strategy suited for local governments of South Africa should be appropriately formulated (Hevner *et al.*, 2004). As part of the approach, the artefact that emerges from the design process is applied in a relevant context in order to determine the extent of its suitability for understanding the observed phenomenon of localized e-Government strategy formulation. Theory development is primarily achieved through deductive reasoning, however, some aspects are informed by inductive experiences of the theorist's involvement with local government representatives in Makana municipality situated in the Eastern Cape of South Africa. The theory developed provides exact descriptions, and elaborations, of what is being adopted from theory – by investigating components of strategy formulation that contribute to the development of an e-Government strategy suited for South African local government (Weick, 1995). Hence, deductive reasoning, which constitutes the major part of the theory development, is based on

the analysis of select approaches or kernel theories (Baskerville and Pries-Heje, 2010). By relating a set of general components to a set of general requirements these kernel theories aid in the identification of components of strategy formulation relevant to e-Government projects of local municipalities in South Africa (Baskerville and Pries-Heje, 2010). This study adopts Weick's (1989) theorizing approach to support the development of the design artefact. The theorizing approach employed encompasses three processes: 1) problem formulation, 2) thought trials, and 3) selection criteria (Weick, 1989). Theorizing is viewed as disciplined imagination that emerges in a manner similar to artificial selection (Weick, 1989). Discipline is exhibited when there is consistent application of selection criteria to trial-and-error thinking, whereas imagination stems from deliberate diversity in the problem statement, thought trials, and selection criteria, which collectively makes up that thinking (Weick, 1989).

6.2.1 Problem Formulation

Theory development in design science is influenced by the need to solve a problem (Weick, 1989). Nonetheless, the challenge to be addressed, is better viewed as sense making, than as a problem. This is because the theorist attempts to make sense out of the observable world, by ordering the relationships among elements that constitute the theorists focus of attention (Dublin, 1976 in Weick, 1989). The likelihood of deriving a solution is determined in part by the way the environment is represented (Weick, 1989), or viewed by the theorist. This brings to the forefront, the need to explicate the problem in an intelligible manner, while also ensuring that assumptions are clarified (Gregory and Muntermann, 2011; Weick, 1989). Proper explication can only be achieved where the theorist has immersed himself in the problem, and as such, possesses a level of intimate familiarity with the problem domain (Van de Ven 2007 in Gregory and Muntermann, 2011). Structuring a problem this way is consistent with principles of middle range theories, which prefigure problems in such a way that the possible number of solutions are manageable and not overwhelming (Weick, 1989). Gregory and Muntermann (2011) recommend a number of methods that may be employed to develop a deep understanding of the problem. These methods include: direct field observation in the context of study, personal experiences, expert interviews, focus group meetings, and a systematic literature review. The range of methods that may support sense making allows for more criteria than validation to become relevant to the process – provided that validation in all scenarios does not help in sense making (Weick, 1989). As related to this research, the theorists experience with local government collaboration, and interaction provides a first experience for framing the problem or sense making. Furthermore, a thorough literature

review, for instance, studies of, Bryson, Crosby and Bryson (2009); Champanis *et al.*, (2013); David, (2003 in Malunga 2007); Liukkunen, Pohjonen and Sariola, (2005); Matavire *et al.*, (2010) and Naidoo (2007), aid in explicating assumptions, as well as depicting a more accurate representation of the need for local municipalities in South Africa to understand e-government strategy formulation processes from a systems viewpoint. Chapters 1 through 5 elaborate on the problem, setting the foundation for – the selection of frameworks to be analysed (thought trials). Contribution made by each of these chapters is outlined in Table 6.1.

Table 6. 1: Research chapters elaborating on problem formulation

Chapter	Contribution to problem formulation
Chapter 1: Research context	The problem as understood in a South African context is defined.
Chapter 2: Research Methodology	The research methodology applied to address the problem is discussed.
Chapter 3: An elaboration of public service delivery in South African local Municipalities	Using the water sector as an example, the value chain of public service delivery is explained. This is followed by a discussion of the reliance of this value chain on information and communication flows amongst the parties responsible for providing public services.
Chapter 4: E-Government and the challenges of implementing e-Government solutions in South African local municipalities	Though capable of supporting communication, it is revealed here that e-Government integrations in the South African local context face a number of challenges that impede successful use of such applications. Furthermore, the lack of strategies, in the South African context, with an emphasis on their importance is discussed as a significant factor, which hinders successful integration of e-Government solutions.
Chapter 5:	The importance of not only deriving a strategy, but understanding the process by which the strategy is arrived at is highlighted. Also, the need for ascribing to a systems view to undertaking e-Government strategy formulation is motivated for.

6.2.2 Thought Trials

Here, a trial and error selection process is undertaken of existing approaches that can contribute to the development of the e-Government strategy formulation framework (Weick, 1989). Selecting a variety of thought trials is advised, through a focus on heterogeneous selection (Weick, 1989). Therefore, it is decided that to increase the number of thought trials

at least ten approaches on strategy formulation will be explored. Heterogeneity of thought trials, which is assumed to enhance the quality of the resultant theory (Gregory and Muntermann, 2011; Weick, 1989), is achieved through eclecticism. Eclecticism is demonstrated through the decision to select tentative approaches to be analysed from varying sector perspectives on strategy formulation. This improvisation, using varying approaches is consistent with views expressed by Kuechler and Vaishnavi (2008), on the possible use of kernel theories from other fields, which help explain the phenomenon of interest. The ten approaches referred to are thematically analysed in order to determine the components essential for the development of a local e-Government strategy.

An e-Government strategy for local municipalities, seeks to delineate a transformation plan from a point of non-existent, or poor e-Government implementations to well-functioning systems, which effectively and efficiently support service provision for such municipalities (Al-khouri, 2012; Naidoo, 2007). The keyword being ‘strategy’ or ‘planning’, though for e-Government implementations in local contexts, gives some clue as to the focus of the study. Thus, concepts on strategy and planning are borrowed from other sectors, as well as from developed country e-Government planning contexts. The sequential process that the thematic analysis of the 10 approaches underwent is depicted in Table 6.2.

Table 6. 2: Thematic analysis sequential process of existing strategy approaches, adapted from (Braun and Clarke, 2006)

Activity	Description
1. Thorough acquaintance with data contained in the selected approaches	This activity involved studying all selected strategy approaches, and recording ideas from observations noticed in each approach about phases of strategy formulation.
2. Creating initial codes	This activity involved coding data considered to be interesting from each approach. With created codes, findings across analysed approaches could be grouped to the codes they belonged to.
3. Theme identification	Here codes are observed as themes, and data considered to be related to particular themes are grouped accordingly.
4. Reviewing themes	This involved observing and deciding whether themes relate to coded data, as well as to the entire data set. This aided in the mapping of the analysis.
5. Appropriating themes	Appropriate names and definitions are given to each emerged theme, in addition to refining their details – and the overall analysis story.

6. Report drafting	In this final activity, a comprehensive report is produced, detailing the story of the data. Importantly, the analysis is mapped back to the initial research questions, through an elaborate framework discussion.
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Strategy, which is this research's focus, is not only confined to e-Government projects, but applies to a wide variety of sectors and projects. Therefore, concepts and components that inform strategy formulation may be borrowed from other sectors to inform an e-Government perspective. With reasons provided, the following categories constitute the focus areas where approaches are selected from:

- **e-Government related strategy formulation approaches:** Considering that the main focus of the study is the need to understand how e-Government strategies should be formulated or developed in local municipalities, it may help to review existing e-Government strategy formulation approaches available (even those from developed contexts), as they may contain processes akin to the study intent. As implied by Nkwe (2012) and Trusler (2003), lessons and practices from e-Government implementation processes around the world may be adopted by developing country contexts.

Non-Governmental Organizations (NGOs) strategy formulation approaches:

Similarities exist between the functions that government institutions and NGOs undertake, at least as it relates to service provision. Both institutional forms focus on public concerns, and aim at enhancing development and improving the quality of the life of citizens, especially in resource constrained contexts (Aga Khan Development Network, 2007; Allard and Martinez, 2008). Furthermore, often times there are noticeable synergies between their objectives. For instance, NGOs may act as conduits for the government, where the government seeks to fulfil certain mandates to society (Allard and Martinez, 2008; Islam, 2013). Hence, it may be deduced that both institutional forms in their quest to fulfill their mandates may adapt similar processes, employ individuals with similar professional profiles, face the same type of constraints, engage with similar actors in society, and as it relates to this research, have analogous planning methods. As such, strategy formulation approaches from NGO perspectives may provide insight to the topic of concern.

- **Business related strategy formulation approaches:** Organizational strategic planning, (strategy formulation included), has its roots in the private sector (Bryson, 1981; Eadie, 1983; Bryson and Roering, 1987, and Gibson, 1993) in Edwards, 2012), hence a framework to guide a strategy formulation process within the public sector can adopt practices from the business environment. A simple observation will reveal parallels between the government and business/private sector. For instance, it is easily observable that strategic planning requires support from management, requires internal communication, and understanding of an organizations history and future, regardless of whether or not it is a public or private organization (Edwards, 2012). This implies that there are several similarities between strategic planning in the private and public sector (Edwards, 2012). Ring and Perry (1985) in Edwards (2012), however, advises public sector organizations that are deliberating on the possible adoption of private sector practices (such as strategic planning) to remain flexible during adoption, in order to account for possible sectorial differences. The selection of business strategy formulation approaches will include a combination of corporate strategy, as well as information technology integration strategy formulation approaches in the business sector.

It is anticipated that all of these categories will provide useful insights to the studies intent.

6.2.3 Selection criteria

All approaches thought to be relevant to the development of an e-Government strategy formulation framework cannot be selected, as such Weick (1989), recommends the consistent application of selection criteria across all possible selections. Consistent application of criteria is imperative, as alterations to criteria for any considered approach will potentially limit the amount of understanding that may be cumulated from the study (Weick, 1989). Furthermore, criteria is carefully articulated and selected, as it is understood that the credibility of the resultant e-Government strategy formulation framework is dependent on the credibility of the analysed approaches from which it is derived (Barkeville and Pies-Heje, 2010; Weick, 1989).

Selected approaches must not mandatorily be validated as pure sciences demand. However, in social science research of this nature, plausibility acts as a substitute for validation (Weick, 1989). The researcher judges the plausibility of selected approaches, based on assumptions of whether or not approaches are: “interesting, obvious, connected, believable, beautiful or

real”, as they relate to the problem context (Gregory and Muntermann, 2011: Weick, 1989). The researcher’s judgement – manifest in asking questions based on employed criteria hinges on considerable past experience with related problems that the researcher applies to each conjecture. The selected strategy approaches for analysis in this study are based on criteria listed in Table 6.3, which could best support the identification of components of an e-Government strategy formulation process for South African local municipalities.

Table 6. 3: Criteria used for selecting approaches to be analysed

Criteria	Description
1. Focus on strategy formulation components, or related factors to consider in formulating a strategy.	Approach selected deals with strategy formulation process, related behavioural traits of potential participants, or other factors to consider for a possible e-Government strategy development process.
2. Components identified from the approach can possibly be applied in a local government setting.	Identified strategy formulation components can possibly be applied in or are relatable to a local government setting.
3. The approach meets the template criteria provided in Table 6.4.	The approach can be analysed in terms of the themes contained in the template provided in Table 6.4
4. Source credibility	The source of the documented approach is deemed to be credible by the academic community. For instance ensuring that they are from peer reviewed journals, recognized conference papers, published thesis from higher institutions, or published books.
5. A mixture of theoretical propositions as well as case applications	Theoretical propositions provide conceptions of what factors should be considered in strategy development, as well as proposals on how the strategy should be arrived at. In contrast case applications provide narratives of vital lessons observed from the application of such exercises.

6.2.3.1 A Template for analysing Strategy Formulation Approaches

A template consisting of five facets is employed to analyse each selected strategy approach. The template created is based on the research questions of the study; that is the need to identify components vital to the formulation of an e-Government strategy for service delivery support at the local municipal level in South Africa, and determining how a systems view can be integrated into the design and development of the formulation process. The template is applied consistently to the ten selected approaches from the three sectors summarised above. This consisted of three approaches from the e-government sector, three approaches from the NGO sector, and four approaches from the business/private sector. The application of the

template to analyse each approach provides a comparative inquiry. The facets of the template are depicted in Table 6.4:

Table 6. 4: A template for analysing strategy formulation approaches

Template criteria	Description
1.Author/Organisation/Title and year of publication	This row or section outlines the author/Organisation responsible for composing the approach being analysed. Provision of the authors' profile will aid in giving identity to and distinguishing varying approaches. Furthermore, an outline of the title provides the reader with information about the sector of concern. Lastly, the year of publication provides the reader with knowledge of how long ago the strategy formulation approach was documented.
2.Summary/Aim of Approach	This facet briefly summarises the essence or aim of the approach. Thus the reader can get a full scope of what each approach is primarily about.
3. Components of Strategy Formulation and Definition/Role of Each Component in e-Government Strategy Formulation	This facet is a critical part of this template, as elicitation, which it seeks to reveal, forms the core of this analysis. Here described components of strategy formulation presented in each approach are summarised. Once this is done, similarities and differences across analysed approaches become more identifiable.
4. The Approach's contribution to adopted Systems thinking	As extensively discussed in chapter 5, the study being conducted subscribes to the soft systems methodology (SSM) as suitable to undertaking unstructured problems like e-Government strategy formulation. Therefore, this phase seeks to determine how each of the approaches being analysed contributes to or confirms criteria which the SSM recommends in fulfilment of such studies.
5. Limitations of the Approach	Flaws in the logic of varying approaches of strategy formulation are identified. For example, limitations may include an approach listing components, but not elaborating on how they should be employed to formulate strategy, or an approach not conforming to the criteria stipulated for addressing unstructured problems, as suggested by the SSM. Lastly, considering that the tentative context of framework application is in local municipalities of developing countries, findings from some analysed approaches may not directly apply to the studies intent.

6.2.3.2 A Comparative Analysis of Approaches to Identify Strategy Formulation Components

A number of documented approaches on strategy, outline components necessary for strategy formulation. With reference to the aim of the first research question of this study, this chapter conducts an analysis to aid in identifying components essential to the formulation of an e-Government strategy at the local municipal level in South Africa. Mohammadian *et al.*, (2010) in Chen *et al.*, (2013) who use the term 'elements', which is a synonym of 'components', suggest that elements as they relate to strategy formulation may comprise of; phases, roles and responsibilities, activities, factors, and expected human characteristics. As such, components here will be employed as an umbrella term to refer to all the different parts

that the strategy formulation process requires. An analysis of a select number of approaches serve as a base to inform the development of the framework. The decision to undertake this analysis is informed by Weick (1989), who emphasises the need to conduct trial and error selections (*thought trials*) of kernel theories, which may enhance understanding of the problem in question, as well as propose solutions. Such theories, sometimes from other fields, may be employed deductively to explain or predict the phenomena of interest (a localized e-Government strategy formulation) (Kuechler and Vaishnavi, 2008).

The analysis is comparative in nature, to aid in identifying generic aspects common to strategy formulation. As Eisenhardt (2002) in Walton and Heeks (2011) suggests, individual approaches may provide a rich understanding of an individual context, however, generality may be derived when used in unison with other approaches. A variety of thought trials is advised, through a focus on heterogeneous selection (Weick, 1989). Essentially, heterogeneity of thought trials is assumed to enhance the quality of the resultant theory (Gregory and Muntermann, 2011; Weick, 1989). Hence, to provide a more comprehensive analysis, the selected approaches vary in some respects. For instance, they vary by: sector, strategy-formulation focus, chronology/date, and scale. The ten approaches selected are thematically analysed using the template specified in Table 6.4. An e-Government strategy for local municipalities, seeks to delineate a transformation plan from a point of none, or poor, e-Government implementations to well-functioning systems, which effectively and efficiently support service provision for such municipalities (Al-khouri, 2012; Naidoo, 2007). The selected strategy approaches are summarised in Table 6.5.

Table 6. 5: Approaches Selected

Sector	Approach	Description
E-Government related strategy approaches	Approach 1: Lowery (2001) Developing a successful e-Government strategy	This approach suggests that a strategy is fundamental to the selection of potential ICTs which may underpin government's functions. The approach outlines a seven phase process for successfully developing an e-Government strategy.
	Approach 2: Alghamdi, Goodwin, and Rampersad (2011) E-Government Readiness assessment for governments in developing countries.	This approach outlines and discusses organizational requirements deemed necessary for the adoption of e-Government. It seeks to create awareness of ICT readiness factors for public sector organizations in developing countries.
	Approach 3: Dr. Ali M. Al-Khouri (2012)	The underlying purpose of this approach is to examine some of the challenges pertaining to the successful development and deployment of

<i>Sector</i>	<i>Approach</i>	<i>Description</i>
	e-Government Strategies: The Case of the United Arab Emirates (UAE)	e-Government initiatives, as seen from the UAE's point of view. As part of the process, the role of an e-Government strategy is highlighted. While the strategy formulation process is not elaborated on broadly, the approach uses a case example of the UAEs e-Governments strategic framework (2012-2014), to explain what a strategy document should comprise of.
<i>Business (private sector) related strategy approaches</i>	Approach 4: Duffy and Assad (1989) Information Management (Strategy formulation and implementation).	The authors suggest that the increasing role, which Information Systems play in strategic management, including strategic marketing and competitive strategy, make them an integral part of an organization's functioning. This approach therefore seeks to present and describe the most important information related issues confronting management; Provide approaches that will underpin more meaningful thinking about organizational information aspects, and provide strategies to make technology work for managers.
	Approach 5: Liukkunen, Pohjonen and Sariola (2005) A Management tool for ICT Strategy Processes in Universities	In response to weak executions of ICT strategies in Finnish universities, this approach sought to outline a framework for evaluating universities ICT strategies to ensure that they are viable or practicable.
	Approach 6: Chen, Ruikar, and Carrillo (2013) Strategic E-business Framework: A Holistic Approach for Organizations in the Construction Industry.	This approach presents a Strategic e-Business framework for organisations in the construction industry. The Framework provides a holistic approach for e-business strategy formulation and implementation. It is suggested that organisations in the industry can work out a comprehensive business solution for their e-business implementation using the Framework.
	Approach 7: Goran Asplund (1975) Strategy Formulation	The primary aim of this approach is to enlarge the empirical applicability of intervention methods, and to give insight into the nature of strategy formulation. These broad aims are achieved by: investigating the nature of corporate strategy and strategy formulation, deriving conceptual models of the strategy formulation group and its environment, and employing the theoretical knowledge gained to engage in a real life formulation (intervention) of a marketing strategy for a newly formed company.
<i>NGO strategy related approaches</i>	Approach 8: Malunga (2007) Improving the Effectiveness of Strategic Planning in Local NGOs in Malawi.	This approach primarily sought to investigate factors influencing strategic planning processes among local NGOs in Malawi. The approach employs two models: "levels of complexity" and "stages of organization development" to analyse factors influencing the strategic planning process, and the roles and responsibilities played by stakeholders of the

<i>Sector</i>	<i>Approach</i>	<i>Description</i>
		process. In seeking to fulfil this goal, the author identifies components, which a strategy formulation process should be inclusive of.
	Approach 9: UNAIDS 1998 Guide to the Strategic Planning Process for a National Response to HIV/AIDS	Influenced by the need to answer three important questions (the existing state of HIV in a country; measures, which have been taken to deal with the epidemic; and potential courses of action to be taken), this approach sought to outline a guide to underpin strategic planning processes for national responses to HIV/AIDS. The guide outlines a step-by-step process for formulating such related strategies.
	Approach 10: Bryson (1988) A Strategic Planning Process for Public and Non-Profit Organizations.	Here a practical approach to strategic planning for public and non-profit organizations is presented. The approach consists of eight steps thought to be useful to strategy formulation and implementation as they relate to public and non-profit organizations. Two case examples of the application of the process are then presented. It is emphasised here that more than having a strategic plan, it is more important for the stakeholders involved to always engage in strategic thinking.

It should be noted that these approaches do not constitute an exhaustive list of possible approaches. Hence, further research on the topic may be conducted using the employed procedure. The analysis commences by identifying components from e-Government related approaches, followed by business (private sector) related approaches, and lastly NGO, related approaches.

Twinomurinzi and Johnson (2015) recommend the use of Qualitative Meta Synthesis (QMS) for an analysis of this kind. QMS focuses on a particular problem, and conjectures relationships between various qualitative empirical studies on that problem, in order to create a common frame of reference about the problem (Twinomurinzi and Johnson, 2015). Comparisons must include the epistemological underpinnings of each constituent study being analyzed, as this will influence how the researcher conducting a QMS interprets the findings from that particular constituent study (Erwin, Brotherson and Summers, 2011; Twinomurinzi and Johnson, 2015). Drawing from the previous statement, it may be concluded that for a constituent study to be considered as fit for a QMS analysis, the study must possess an empirical component to it. Seeing that the selected studies being analyzed (due to the novelty of the study) are predominantly theoretical, it may be impossible to undertake a QMS

comparative analysis for this study. Nonetheless, determining how a QMS may be applied to comparatively analyze purely theoretical studies, may constitute a potent area for future research. Meanwhile in similar form to a QMS analysis, the comparative analysis conducted for the ten selected approaches will provide a general outlook on strategy formulation, in order to inform the intended localized e-Government strategy formulation framework.

6.3 A Critical Review of e-Government Strategy related Approaches

Similarities still exist in the implementation of ICTs in any government context (developed countries or less developed countries), even though there are contextual differences especially in terms of resources. For instance, in all contexts ICTs being integrated must support a number of business processes, rely on underlying ICT infrastructure and tools, and be used by humans.

A comparative look at e-Government strategy approaches, aids in the observation of generic factors typically considered in any e-Government strategy formulation exercise. This view is supported by Al-Khouri (2012), who implies that developing countries may study e-Government implementation of countries viewed as possessing successful e-Government programmes, with the intention of adopting some of their practices. Hence, as a prerequisite to the implementation of such projects, most thriving e-Government programmes also articulate strategies, which in like manner can inform developing country e-Government strategy developments. Generic factors particularly related to the strategy may encompass, the e-Government mission, its alignment with the governments mandate, ICT readiness factors, arriving at measurable objectives, and concerns for the sustainability of the e-Government project (Lowery, 2001). Three approaches expected to provide such generic insight have been selected for this analysis. The template outlined in Table 6.4 is applied to analyse each of these approaches, and then discussed in comparison to each other. Table A in Appendix 1 provides the full detailed comparative analysis of e-Government related approaches.

This section explores key aspects of the analyzed e-Government strategy related approaches (Approaches 1-3). The aspects that are discussed, compared, and contrasted include, the components of strategy formulation and their respective roles in the strategy formulation process. Furthermore, findings from each approach's contribution to a systems thinking view on strategy formulation, as well as their limitations are comparatively analyzed.

6.3.1 Components of Strategy formulation from an E-Government Perspective

Strategy formulation components may comprise of phases, roles and responsibilities, activities, factors, and expected human characteristics, involved in the strategy formulation process (Mohammadian *et al.*, 2010 in Chen *et al.*, 2013). A comparative analysis of e-Government strategy related approaches, aids in explicating a common understanding of what an e-Government strategy formulation process should consist of. The discussion that follows provides a comparative analysis of these components.

6.3.1.1 Establishing a common conception of e-Government

A review across all e-Government related strategy formulation approaches, suggests that establishing a common conception of e-government is the first activity that an e-Government strategy formulation process should be composed of. Approaches 1 and 3 respectively portray this. Terms employed by both approaches to describe this first activity differ, nonetheless, substantial reflection supports the notion of complementary meanings on this theme. Approach 1 proposes as a first step the need to clearly define e-Government, while eliminating the prospect of possible misconceptions by stakeholders about what e-Government seeks to serve. Approach 3 contributes to the subject by advising on the need to determine at the onset what e-Government will contribute to in the service sector where it is applied. Approach 1 does not suggest best practices for drafting a definition of e-Government that is clearly understood by all stakeholder groups. While Approach 3 does not suggest how best to do this, it advises on the need to ensure that the derived and shared conception of e-Government communicates its intended focus on supporting the vision realization of the said sector seeking to employ ICTs. Thinking of the overall service sector vision, when defining e-Government potentially narrows the focus to e-Governments role in prospectively supporting the vision. Neither approach discusses how this e-Government conceptualization process may be inclusive of, or garner input from all relevant stakeholders. Approach 1 further suggests that a succinctly defined e-Government vision, which depicts the desired future state of e-Government should be formulated. Approach 2 does not address issues related to the need to establish a common conception of e-Government, but rather dwells specifically on assessing ICT readiness factors that precede e-Government implementation processes.

6.3.1.2 Objectives Deliberation and Formation

Approaches 1 and 3 both share similar opinions on the need for the activity of ‘Objectives Deliberation and Formation’ to be included in an e-Government strategy formulation process.

Objectives deliberation and formation refer to outlined targets that the e-Government project hopes to achieve. Neither approach provides in-depth explanations on how to go about this process, nonetheless, they do offer some useful recommendations. Approach 1 advises on the need to ensure that objectives are measurable and capable of being monitored. Approach 3 suggests the concept of benchmarking here. According to Approach 3, developing countries may study e-Government implementations of countries deemed to possess thriving e-Government programmes, with the intention or objective of adopting some of their practices.

6.3.1.3 Government ICT Readiness Assessment

Government ICT readiness assessment is the next level of activity component that is observed from the comparative analysis. This component refers to an analysis, to determine the presence of certain prerequisites (infrastructure, tools, skills etc.), that serve as enablers for the effective functioning of deployed e-Government applications. All three approaches mention or discuss ICT readiness assessment needs. However, Approach 2 provides a more elaborate description, than the other two approaches. Beginning with Approach 1's view, an assessment of ICT readiness focuses on three key drivers: organizational operational processes, human resources, and technology. Approach 1 explains that an assessment of organizational operational processes seeks to carry out reviews on operational processes in order to determine where streamlining opportunities may present themselves to potentially support ICT integration. The second key driver – human resource – seeks to determine the extent to which staff possess the requisite skills to both employ, as well as support the ICTs that will be integrated. The third driver, which is labelled '*technology*' – seeks to assess the existing ICT infrastructure, while also illuminating areas needing improvement, in order to better support ICT integration. It is further proposed that an assessment of the technology should determine what legacy systems exist, and how they will potentially be integrated with new systems. Approach 2 solely concentrates on ICT readiness factors for e-Government in developing countries. Readiness factors addressed by Approach 2 are similar to those identified by Approach 1, however, in Approach 2, these factors are narrated more elaborately. With the exception of the first ICT readiness factor discussed by Approach 2 (ICT strategy), all other factors discussed may fall under one of the three (operational processes, human resource, technology) readiness factors alluded to by Approach 1. For instance, the user access medium, e-Government programme, ICT architecture, business process and information systems, ICT infrastructure, and human resources, ICT readiness factors discussed by Approach 2 may be categorised into one of the three ICT readiness

drivers from Approach 1. Thus, considering that Approach 2 addresses this level of activity in a more elaborate form, while also covering all aspects mentioned by Approach 1, it may be best to dwell on Approach 2's outlook on the subject of ICT readiness assessment. The decision to concentrate on Approach 2's outlook on ICT readiness assessment, may also be justified by the observation that while Approach 3 does mention the need to assess the current situation or ICT readiness, factors deemed necessary to consider under this level of activity are not discussed. With an exception of the strategy factor, it may be worth expanding on the other factors of ICT readiness addressed by Approach 2. The factors that are considered include:

a) User access mediums: As suggested by Approach 2, this factor refers to the physical tool (hardware), which will enable e-Government users to access, and make use of e-services. The authors mention of several indicators that may inform the choice of hardware appropriate for e-Government solutions in developing contexts (such as local municipalities in South Africa). Among these indicators are: functionality, time saving on tasks, increased convenience and accessibility. Definitions are not provided for these indicators by Approach 2, however, Delone and Mclean (2003), a useful model for measuring information systems success does provide some useful definitions in this regard. According to Delone and Mclean functionality seeks to determine the extent to which a user access medium or hardware serves the purpose for which it is designed. For instance, the question of whether a mobile phone supports effective communication between local government and service recipients on water service challenges. An assessment of time saving seeks to determine the extent to which a user access medium improves a user's output per unit of time on task related issues (Delone and Mclean, 2003). Accessibility and convenience are synonyms as used in this context, and as such, will be referred to as one concept. No definitions are provided, however, a common place definition of accessibility suggests that it refers to the extent of ease with which potential users access hardware. Information systems frameworks such as the Technology Acceptance Model (TAM) and the Delone and Mclean model, may provide more useful indicators for an assessment of this kind.

b) E-Government programme: Sub-factors addressed in this dimension of e-Government readiness, while important in the long run, may be substantially ambitious for local governments in developing countries. The goal on this assessment

aspect is interoperability and integration among all government organizations (Alghamdi *et al.*, 2011). The expectation here is that in accordance with the highest maturity level requirement of e-Government, all e-Government related applications, regardless of what sector they belong to, be integrated into a single portal. Such integration though signalling the highest maturity level of e-Government can only be achieved over time. Layne and Lee (2001) indicate that e-Government is an evolutionary phenomenon, which may possibly only attain the highest status of maturity level (integration) only after a decade. Considering that the framework sought in this research is intended for local municipalities, that may possess only fairly little experience with e-Government implementations, it may be unrealistic to expect ICT readiness criteria from this dimension to be presently fulfilled in such a context. Infrastructure must be built, policy aspects must be addressed, and interoperability achieved (Layne and Lee, 2001). These activities will require ample time to accomplish or realize the highest maturity level for e-Government deployment. Nonetheless, it is necessary to discuss these readiness factors, as it is expected that in the future e-Government implementations in local municipalities of South Africa will attain to the highest e-Government maturity level. The sub-factors addressed here are as follows:

Single-sign-on Portal: As an ICT readiness factor, this requirement demands that all related e-Government applications are accessible through a single web-enabled interface. Layne and Lee (2001) suggest that this will ease the process of electronically accessing government services. In expounding on the issue, they indicate that it is well anticipated that citizens will require more than one service type from the government. For instance, water, electricity, drivers licences and identification documents, are all administered by different functions or state departments; nonetheless, it will be a good idea if all of these services can be accessed from one portal. As an added advantage, the need for users to record multiple login details of different government sites to memory will be eliminated.

Government service bus (GSB): This e-Government readiness factor focuses on the underlying technology that allows the functioning of a single sign on portal, and service integration. Here there is an insistence on the need for a middle platform of integration and services for government e-services and transactions. The GSB uses

Service Oriented Architecture (SOA) rules to integrate and facilitate communication amongst applications, data and services of varying government functional departments. SOA is based on web service technology, built on open standards, which allow web services of disparate platforms and vendors to communicate with each other (Widodo, Istiyanto, Wardoyo and Santos, 2013). With such an underlying infrastructural platform, varying government applications may be accessible from a single point, thus potentially presenting a seamless feel to users of different government applications.

Government Secure Network (GSN): Security concerns inform this e-Government readiness factor. It is anticipated that government services will also consist of transactions, which sometimes require sensitive information communication amongst parties. The suggested requirement here is to have a dedicated communications network for electronic government transactions. It is expected that all government agency applications will be linked to the e-Government data centre, which should possess the highest technical specifications expected of Internet gateways. The GSN will enable the central e-Government portal to become a key connection point among government functions in a secure and reasonably priced manner.

c) ICT Architecture: This readiness factor refers to an assessment of the technical structure and orientation of ICTs, which may potentially support the functioning of e-Government applications. Stability and propensity for scalability are the indicators deemed to be most critical here. Alghamdi *et al.*, (2011) draw attention to a number of technical structure requirements that are demanded; for software development, hardware structure and standards, service orientation, and design. These technological structural requirements may be assessed by examining three categories: Portal design, layered structure, and Service Oriented Architecture (SOA). As related to the portal design, it is expected that the portal adheres to principles of customer centric portal design. For instance, addressing issues to do with, payment links, security, and deciding on the appropriate database management systems (DMS) to be employed. Layered structure addresses the assessment of the performance of the portal through a layered architectural framework known as Presentation Control Mediator Entity Foundation (PCMEF) (Maciaszek, 2004). Using this framework, the performance of layers such as the operating system, communication standards employed, and

infrastructure accessibility can be assessed. As regards the last category, it is advised that flexible SOA solutions are used with ICTs.

While the last two ICT readiness dimensions may be relevant to assess in more developed contexts, they may prove to be of little significance to local municipalities, that are still at earlier stages of the e-Government maturity level. This highlights a further note of importance, as it relates to the context that this study focuses on. Approach 2, in suggesting that these e-Government portal related assessment aspects are mandatory themes to assess for ICT readiness, assumes that e-Government solutions are restricted to websites or portals. As such, it fails to acknowledge that SMS communications with the government, using simple mobile phones also constitute e-Government applications. In fact, such simple applications may in some cases (for instance, in less developed regions) be deemed more appropriate than the sophisticated and complex applications described in certain aspects of Approach 2.

d) Business Process and Information systems review: This is one of the more critical ICT readiness assessment factors addressed by Approach 2. The aim here is to articulate and determine how ICTs seek to potentially support a local government's business processes and information systems flows. This essentially calls for an understanding of potentially required business process modifications, which will occur as a result of ICT supported information systems. Three activities are highlighted here in order to undertake a business process and information systems review. These activities include; *Business process reengineering (BPR)/change management, knowledge management, and determining specific ICT applications to be adopted*. BPR refers to an analysis of, and specific changes in workflows, which a local government will have to adopt as a result of newly integrated ICTs intended to augment business processes. In relation to BPR, change management seeks to employ systematic techniques in order to change the mind-set of organizational employees to buy into the new mode of operation (ICT supported processes) (Duffy and Assad, 1989). Knowledge management denotes a process of determining how newly integrated ICTs will strategically support the sharing of knowledge throughout the organization. Knowledge referred to here is that which aids in the fulfilling of organizational objectives. The last suggested business process review activity –

determination of ICT applications (software applications) to adopt – must primarily be based on the intended objectives of the organization in question.

e) Government ICT Infrastructure: ICT infrastructure constraints impede many developing countries from implementing ICT projects (Alghamdi *et al.*, 2011), and the government is not exempt from this. Approach 2 suggests that many developing countries are unable to install the suitable ICT infrastructure for e-Government deployment. ICT infrastructure is defined as a group of shared physical ICT resources that underpin the deployment, facilitation and use of existing and future business applications (Alghamdi *et al.*, 2011). ICT infrastructure considerations encompass aspects such as: web servers, application servers, storage devices, PCs, printers, routers, scanners, switches, operating systems, Local Area Networks (LAN), and Wide Area Networks (WAN) (Alghamdi *et al.*, 2011). Furthermore, security considerations must be deliberated on. According to Approach 2, security considerations may require the implementation of technologies such as; Public Key Infrastructure (PKI), biometrics, encryption techniques, as well as digital signatures and certificates. Lastly, it is indicated that infrastructure considerations must also envision operational aspects. This relates to the day to day work needed to monitor and ensure the continuous functioning of ICT infrastructure and operating systems. Tasks associated with this profile include, job scheduling, data backup/recovery, database administration, and proactive hardware maintenance, amongst others. If e-Government implementations are to attain to their full potential in the long run, all of these issues must be deliberated on, as part of infrastructure considerations needed to support e-Government.

f) Workforce concerns: This ICT readiness factor focuses on human roles and responsibilities, which will be fulfilled through ICTs in order to achieve local government goals (Macasio, 2009 in Alghamdi *et al.*, 2011). Approach 2 also deems this readiness factor to be one of the more important factors requiring consideration. Instituting plans for employee training, to enable them to use integrated ICTs to support organizational goals is the main concern here. However, a number of related concerns also require articulation. For instance, assessments must be conducted to determine the extent to which integrated ICTs, influence user satisfaction with their jobs, and impact on employees. Additionally, the extent to which employees are

adapting to change (use of technology) needs to be monitored, so that adequate IT support can be offered to them.

6.3.1.4 Policy Focus

Approaches 1 and 3 both indicate the need to draft policy statements intended to highlight areas requiring attention during the process of integration of ICTs to support government functions. Approach 1 proposes that policy statements should focus around operational processes. Furthermore, Approach 1 advises on the need for e-Government related policies to address issues of risk. Particularly, how to deal with issues of privacy and security as they relate to e-Government. Approach 3 suggests the need to address policy areas that will support e-Government solutions, however it does not state what such a focus should consist of. The mention of policy drafting by Approach 3 is addressed under the sub-theme “extract the e-Government strategy” in Table A of Appendix 1. However, its definition suggests that it draws parallels with Approach 1’s theme on the policy identification task. It is not clear why Approach 1 proposes these focus areas for policy formation, however, reflection brings to memory, the fact that ICT integration will inevitably bring about change in the way processes are performed. Change parallels transition to unfamiliar modes of operation for employees. This may result in confusion, and/or resistance to the proposed novel operational modes. Drafted policies, may address this situation, as employees making reference to set policies, become aware of what is expected of them, and likely consequences where they do not adhere to stipulated policies. It is not indicated by either Approach (1 or 3), how to go about the process of policy formulation. Nonetheless, literature provides varied approaches on the processes of policy formulation.

6.3.1.5 Determining specific e-Government Initiatives and Prioritizing Tasks

Matavire *et al.*, (2010) state that the issue of initiative prioritization is one amongst several factors responsible for e-Government failures in the South African context. Approaches 1 and 3 also deem this an important factor to consider in an e-Government strategy formulation process. Approach 1 advises on the need to implement a process for prioritizing e-Government initiatives. Resource constraints will impede the government from implementing all desired solutions; therefore, the more important ones must be focused on. Approach 1 goes on to stipulate a number of criteria, which may support the prioritization process. These include; availability of funding, potential for success, return on investment, user demands, and prerequisites required to implement the said initiative. Approach 3, outlines a phase

suggesting the need to identify specific e-Government initiatives, however it does not talk about the need to prioritize, neither does it make mention of criteria for aiding prioritization. Neither approach indicates potential stakeholders to be involved in this process.

6.3.1.6 Devise a Business Model to support the financial Sustainability of e-Government

This activity is addressed only by Approach 1. E-Government implementations are subject to deployment, operational, support and maintenance costs (Champanis *et al.*, 2013), amongst other costs. Such costs must be taken into consideration, especially as they relate to the long term continuous operation of e-Government (financial sustainability). While e-Government presents the prospect of cost reductions, this prospect will only be realized in the long-term. Hence, initial investments and costs for the foreseeable future may be high (Mann *et al.*, 2013). This serves as a reminder to presumptuous stakeholders who display exaggerated optimism, that ICTs will bring about immediate cost reductions in service delivery aspects ICTs seek to support. Such stakeholders must be aware that benefits will not be derived immediately, and that patience is required. A business model, serves to specify how e-Government related projects will be financed in the interim and foreseeable future. Approach 1 offers some potential funding mechanisms, which the government may ascribe to in order to support the continuous operation of e-Government. These funding options include: offering bonds to the public, charging transaction fees as part of e-Government transactions, or other self-funding options. It is not clear to what extent these are feasible funding options, considering that these funding alternatives proposed by Approach 1 are suggestions. To add on, Approach 1 does not discuss what the process of developing a business model should entail, and what potential stakeholders should be involved in the process.

6.3.1.7 Drafting of e-Government Strategy Document

This activity or e-Government strategy formulation component is discussed by Approach 3. Though prior to this activity, Approach 3 advises that before the document draft commences, the team or interventionist responsible for the strategy formulation process needs to discuss their proposed plan with the government. This statement implies that Approach 3 supports a process of outsourcing responsibility of the strategy formulation process to parties other than the government, while only relegating the role of approval or disapproval to the government. Such a view contradicts the essence of this research, which seeks to determine how the strategy formulation process may be conducted with input from the relevant stakeholders. It

is suggested by ITU (2008) that it is imperative that stakeholders participate in the e-Government strategy formulation exercise. Considering that one of the recipients of the strategy is the government, it only makes sense that they are involved in the formulation process. On a final note, Approach 3 does not provide any best practices or guidelines for drafting the strategy document.

6.3.2 E-government Strategy Formulation Approaches Contribution to Systems Thinking

All three e-Government approaches analysed contribute to the proposed systems methodology this research ascribes to. In Section 5.3 of Chapter 5, it is indicated that the soft systems methodology is well suited for unstructured problems such as strategy formulation. With this methodology, systems thinking is displayed as the process of inquiry (Checkland and Holwell, 2005). The process of inquiry, also known as a learning process, commences when the perceived world, that is created through models or through experience, is used as a starting point of inquiry or understanding of real world problems (Checkland and Scholes, 1990). Subconsciously, humans understand the world by employing concepts whose origin is their experience of the world (Checkland and Scholes, 1990). In a situation, such as in this case, where the inquirer (researcher), has no prior experience of e-Government strategy formulation, descriptions from the e-Government approaches analysed, may act as a first experience for the researcher on what an e-Government strategy formulation process should consist of. Therefore, it may be stated that Approaches 1-3, contribute to the process of inquiry, as they all in some way propose concepts on what an e-Government strategy formulation process should entail – which essentially acts as the researchers first experience of e-Government strategy formulation. For instance, Approaches 1 and 3, both outline and describe components, as well as possible steps for undertaking an e-Government strategy formulation process. Approach 2, while not proposing a process for carrying out an e-Government strategy formulation process, discusses useful assessment areas to consider when determining the e-readiness of a government institution. The e-readiness assessment activity also constitutes one of the e-Government strategy formulation phases discussed by Approaches 1 and 3, however, they do not elaborate on it as Approach 2 does. It should be noted that while these approaches contribute to the process of inquiry, their propositions are not final, as other stakeholders involved in the strategy formulation process, may have other views, or conceptions of how an e-Government strategy should be developed. As such, concepts derived here, as opposed to being considered as a final resolution to localized e-

Government strategy formulation, should be viewed as sources of good questions about the issue of concern (Checkland and Holwell, 2005).

6.3.3 Limitations of E-Government Strategy Formulation Approaches

A number of limitations are identified from each approach's (Approaches 1-3) proposition or contribution towards a localized e-Government strategy development. Firstly, while Approaches 1 and 3 propose steps that should be involved in an e-Government strategy formulation process, they barely indicate or elaborate on how the processes should be carried out. Also, Approach 2 while discussing in detail what factors to consider in an e-readiness assessment activity, does little in describing how such assessments may best be conducted. Additionally, it is not indicated by any of the approaches, what potential stakeholders should be involved in any of their described strategy formulation activities. Finally, to reiterate, Approach 3's suggestion that the e-Government strategy formulation process should be outsourced with little input from the stakeholders that will make use of the strategy, contradicts the concept of dealing with complexity in local municipalities. The e-Government strategy formulation process needs to include input of the local government organization and other relevant actors, as each actor has a different perspective on the use or implementation of e-Government initiatives in supporting service delivery (Enserink, Hermans, Kwakkel, Thissen, Koppenjan, Bots, 2010). For example, in the water and sanitation sectors, these include multiple actors from municipal departments, civil society, the private sector, and citizens. Excluding relevant actors from the process will put into question the relevance of the strategy, and its role in addressing challenges in multi-actor systems.

6.4 A Critical Analysis of Business related (private sector) strategy formulation Approaches

The aim of IT strategic planning in business organizations is to align integrated information technologies with the business goals and objectives of the adopting organizations (Duffy and Assad, 1989). Similarly, an e-Government strategy fundamentally seeks to align incorporated ICTs with government objectives, and goals. These statements serve as an indication that the goals/objectives of the sectors in question trump those of any technical (IT) considerations. IT strategy considerations, therefore, must begin with an understanding, as well as several assessments that will depict a clear picture of the reason an organization exists, and indications of what they hope to achieve (objectives). Only after this, does any technical consideration become relevant.

Considering that organizational strategic planning research has its roots in the private sector (Bryson, 1981; Eadie, 1983; Bryson and Roering, 1987, and Gibson, 1993) in Edwards, 2012), an analysis of a number of approaches on (private sector) strategy development, can inform the conception of a framework intended to guide local e-Government strategy development. With the breadth of research conducted by the private sector on the topic, strategy development approaches exist, which can provide insight into aspects such as: stakeholder engagement and assessment in strategy formulation (Asplund, 1975), organizational assessments – which inform the strategy formulation process (Duffy and Assad, 1989), change management considerations (Duffy and Assad, 1989), and assessment considerations for the developed strategy, amongst others. Furthermore, insights can be gained from documented empirical cases of applied strategy formulation in the private sector – which also inform the development of a strategy formulation framework suited for e-Government implementations in local government settings.

It has been pointed out in the last chapter, that while a number of e-government strategies exist in the South African context there is no documentation of how these strategies are arrived at. The private sector approaches elaborate on the typical processes and best practices that should be involved in strategy formulation from inception, to the point where the documented strategy has been drafted. The more descriptive contribution by the analysed e-Government strategy approaches, are limited to the ICT readiness assessment factors, however, ICT readiness assessment constitutes only a fraction of activities that a strategy formulation process should be comprised of.

Four approaches (Approaches 4-7) that focus on commerce strategies, as well as ICT integration strategies in the business environment, have been selected for analysis in this section. The template outlined in Table 6.4 is applied to analyse each of these approaches, and then they are discussed in comparison to each other. Table B in Appendix 1 provides the comparative analysis of private sector related strategy approaches. Aspects discussed include: components of strategy formulation and their respective roles in the strategy formulation process; contribution to strategy formulation through a systems thinking lens; and the limitations of approaches in relation to strategy formulation in a local government context.

6.4.1 Components of Strategy formulation from a Business/private sector Perspective

The following sub-headings constitute strategy formulation components noticed across approaches 4-7:

6.4.1.1 Study Preparation:

The term “study-preparation” is primarily employed by Approach 4, however, Approach 7, also describes attributes similar to Approach 4’s description of study preparation. According to Approach 4, study preparation should fundamentally involve two activities: A formal request communicated by the researcher/business analyst to the CEO of the organization about the intention to undertake the study, and strategy formulation process; and a preliminary research study of the organization, which aids in getting the researcher acquainted with the organization. This second activity according to Approach 4, will help the researcher to eliminate redundant questions from their research instruments. For instance, questions, to which answers may be accessed from easily obtainable publications by the organization, can be scrapped from an interview instrument. Approach 7 while not indicating a need to inform the organizational head about the intention to conduct the study, may have good reason. The approach assumes that in the first place, such a study can only be conducted where an organization recognizes that they are facing a challenge, which they neither possess the requisite skills nor capacity to address. As such, it is presumed that for such a study to take place, the CEO, or other influential personnel must have sought out the expertise of a business analyst, therefore making it unnecessary for the business analyst to formally inform the organizational head. However, Approach 7 in accordance with Approach 4 emphasizes the need to beforehand and prior to study commencement, get valid information about the organization, as well as the group that will be involved in the strategy formulation process. To achieve this, Approach 7 suggests the need to seek relevant information from an individual or a number of people familiar with the organization, as well as with the group members who will be involved in the strategy formulation process. Further suggested by Approach 7 is that relevant information for the study may be gathered from available documents about the organization. Approach 7 also suggests that to learn about the organization the following themes may be researched on; the type of organization, the size of the organization, the type of administrative routines employed by the organization, power of the organization in relation to its environment, the organizational structure and culture, and the type of human, and material resources possessed by the organization. It is not clearly indicated how potential strategy formulation participants should be selected, however, Approach 7 recommends that the formed group should consist of participants collectively possessing the following characteristics; personnel from within the organization concerned with and responsible for the topic of concern (for instance the ICT manager concerned with ICT integration within an organization); personnel regarded as influential, who possesses the power to persuade other

top management officials; the head of an opposing interest group to the topic of concern within the organization; and, an individual considered to have a good reputation around the organization, and thought to be in good standing with a substantial number of organizational employees. As a final step of the preparatory phase, Approach 7 suggests the need to prepare a plan to get the group to openly express their knowledge and beliefs about the organization in question, as well as a plan to get group members to feel relaxed during the strategy formulation process. Neither Approach 5 nor 6 discuss the need for a study preparation phase.

6.4.1.2 Management orientation sessions on ICTs

This activity is proposed by Approach 4. As interpreted, this is a preliminary workshop, which is held with top level management within the organization, prior to the study's commencement. It is suggested that such a workshop may serve some essential purposes, such as; updating management on suitable and contemporary ICTs that may underpin business processes and information needs in their line of business, arrive at a common understanding of ICT support vocabulary and concepts, explaining the strategy formulation process to be undertaken, and starting a relationship with the management team. Approach 4 while suggesting the need for such a workshop, does not take into cognizance that it may be difficult to get management to attend such a workshop. This is cause for concern especially in South African local municipalities where – Thinyane (2013) indicates that it is seemingly common practice for municipal officials to repeatedly miss scheduled meetings. According to Thinyane (2013), it is the belief by municipal staff that top management officials within the municipality are often too busy to fulfil their obligation to attend scheduled meetings. It may thus be a good idea to devise a plan to motivate management staff to attend such a workshop. No other Approach in this category indicates a need for this activity.

6.4.1.3 Understanding the organization (formal and informal aspects)

This component is discussed by Approaches 4, 6 and 7. Approach 6 explains it in summary fashion under the term “*analyze situation*”, while Approaches 4 and 7 discuss it quite elaborately. Nonetheless, all of these approaches deem this activity or component to be important. Approach 4 indicates that this activity should encompass an assessment of two categories; the formal organization, and the informal organization. Aspects of the formal organization that Approach 4 suggests are important for the business analyst to understand, include: An understanding of the organizational mission and purpose, the organizational structure, outlined/identified critical success factors by the organization for meeting their

fundamental objectives, measures of critical success factor performance, and the organization's operational processes (including information flows, and current ICTs that support these flows). Approach 6 highlights similar aspects as important to assess (for example, the organizations internal processes, resources, and external environment). According to Approach 4, understanding the formal organization essentially serves to give the business analyst insight or an idea of the information requirements and information flows within the organization. Approach 7, in its orientation phase explains the need to elicit information about the strategy formulation group, as well as information about the organization that the strategy is being formulated for. Though this assessment need is acknowledged by three approaches in this category, only two of the three approaches (Approach 4 and Approach 7) propose possible ways of conducting an assessment of the formal organization. Approach 4 proposes the use of semi-structured interviews to elicit information from the Chief Executive Officer (CEO), as well as several categories of managers (senior level, and the information technology manager) about the formal organization. However, as a note of caution, it is emphasized that only after it has been concluded that none of the sought information is available in document form, should interviews be scheduled. This as Approach 4 suggests is based on considerations of the busy schedules of personnel occupying those portfolios. In this approach's view, it may be deemed a redundant effort where such information is publicly accessible, and meetings are scheduled for them. Notwithstanding this view, using multiple sources is still a good idea to enable data triangulation and confirmation. Thus, even where data on such aspects is available in document form, confirmation through semi-structured interviews is still a good idea. A number of possible document types are proposed, from where information relating to the formal organization may be sourced. These include – corporate plans, and organizational charts – that may reveal the organizations structure, as well as its mission, objectives, work processes, information flows, and critical success factors. Then again, such documents may be non-existent, or may not contain the sought information. Where interviews have to be scheduled, it is important to be aware of the associated advantages and disadvantages, with conducting interviews, as (workshops) in group settings, as opposed to individually, and the related advantages and disadvantages, vice versa. According to Approach 4, conducting workshops as opposed to individual interviews provides the advantage of time saving, as the information can be gathered in a single sitting. Additionally, a workshop approach may aid in gaining group consensus. However, on the flip side, insight may suffer, and counter views may not be expressed (Duffy and Assad, 1989), due to power dynamics, among senior

management staff. Approach 7 in contrast proposes that interviews are best conducted only as workshops, as the sought goal is for the group in unison to formulate a strategy. To support more productive workshops and the strategy formulation process, Approach 7 suggests that an assessment of certain group structural elements and organizational structural elements should be carried out prior to, and possibly during the strategy formulation process. Structural elements, which relate to the potential group that will undertake the strategy formulation process include; the *group member relations*, *the degree of differentiation within the group*, and *the resources of the group*. The fundamental question this assessment seeks to reveal is – what structural elements will underpin or inhibit problem solving in the group, and to what extent can the business analyst influence these variables (Asplund, 1975).

Group member relations refer to issues of power within the organization or group. Approach 4, refers to this aspect as *power orientation*, which is a category it proposes requires assessment as part of the informal organization. The group leader of a strategy formulation group, with a high degree of power, who is constantly eager to exert such power, may stifle creativity within the group. Unstructured problems such as strategy formulation demand creativity of group members (Asplund, 1975). This requires an environment in which the participants feel free to contribute and deliberate, as well as criticize and learn through trial and error (Asplund, 1975). Such an environment cannot be brought about where the group leader is routinely eager to exploit his/her power base in order to be in control. Approach 7, therefore, recommends that a weak leader position power, is a better enabling power structure for strategy formulation. On the contrary, some possible negative effects of a low position power structure exist, which must be taken note of, as they may also potentially inhibit the problem solving task, or strategy formulation process. For instance, group members may, due to a lack of incentive (reward/punishment) refuse to participate in the strategy formulation process (Asplund, 1975). In Approach 7's view, where this is noticed, it may help to deliberately assign tasks to such members, thus making them also own the process. In relation to this, Plous (1993) brings to attention the concept of 'groupthink' – where all group members due to a desire to maintain harmony in the group, make irrational decisions. Groupthink refers to: "a deterioration of mental efficiency, reality testing and moral judgment that results from in-group pressures" (Janis, 1982:9 in Plous (1993: 203). With the anticipated possibility of groupthink occurring, it is important that an interventionist encourages dissenting views, as well as criticism of raised ideas by group members (Plous, 1993). While considering this structural element, the business analyst must also be aware of possible line-

staff relations, which may promote politics, and coalitions (Asplund, 1975). Such line relations may obstruct problem solving, where members are more focused on supporting allies, and interests instead of focusing on solving the shared problem (Asplund, 1975). Approach 4, addresses this assessment category, by encouraging business analysts to understand the *political structure* in the organization. It is imperative to be aware of the key decision makers in the organization, and how the emerging strategy will affect them (Duffy and Assad, 1989). The support of such individuals is critical, and their disapproval could be adverse to the entire process (Duffy and Assad, 1989).

Approach 7 points out the need to be cognizant of the extent of formalization in the organization, which the strategy is being formulated for. Approach 7 adopts a traditional organizational theorist's view, in defining formalization as the extent to which an organization possesses standardized – budgeting and planning instruments, information systems, job descriptions and organizational control processes. A highly formalized organization is advantageous to the strategy formulation process. Asplund (1975) explains this by stating that where there are formalized systems in place, decisions that are deemed to be in the best interest of the organization are better adhered to. On the contrary with low or non-existent formalization processes, communicated decisions for execution may be subject to intuition and interpretation. Approach 4 advocates for a similar assessment by advising on the need to determine the extent to which an organization is role oriented. Role orientation aims to disclose how preoccupied an organization is with legality, responsibility, and legitimacy. At this stage as Approach 4 suggests, it may also help to understand the organizational culture, and its possible effects on the strategy formulation process. In Approach 4's view, this should include the visible culture, the underlying values which encompass the genuine and perceived reasons for the visible culture, and the basic assumptions that drive the underlying values and the visible culture. Approach 4, adopts the definition outlined by Schein (1990) on organizational culture. This manuscript defines organizational culture as “a pattern of basic assumptions that a given group, has created, discovered or formulated in learning to cope with its challenges of external adaptation and internal integration, and that have worked well enough to be considered valid, and is therefore taught to new members as the right way to perceive think and feel in relation to those challenges” (Schein, 1990: 111).

To further understand the group, the organization, and their possible effects on the strategy formulation process, Approach 7 proposes that the business analyst determine the extent of differentiation within the group, and in the organization. Differentiation refers to the heterogeneity of the strategy formulation group, as well as key organizational employees in terms of their goal orientation, interpersonal orientation, time orientation, and cognitive orientation (Asplund, 1975). Approach 7 provides definitions for these dimensions of differentiation: Goal orientation seeks to determine the potential expectations of the group members from the strategy formulation process, as well as a determination of the fundamental objective/s of the organization. Time orientation reveals opinions or estimations of group members on possible completion dates of the strategy development process. Furthermore, time orientation discloses the organizations disposition to committing time to long term planning needs, as opposed to simply dedicating time to immediate operational needs. An assessment of interpersonal orientation seeks to determine the extent to which group participants are either task oriented or people oriented. Lastly, cognitive orientation reveals the basic education level and professional experience of group members and their similarities in this respect. A group and organization that is differentiated (heterogeneous) to some degree will potentially possess greater capacity to undertake more rigorous information gathering, as well as analysis during the strategy formulation process. Though homogeneity is welcomed with regards to goal orientation, all other sub-elements of differentiation serve the strategy formulation process better where results reveal a heterogeneous mix. Widespread view-points will be assessed, as opposed to narrow views, as will be the case if the group was homogeneous in nature. A vast cognitive map will be enjoyed where the group is comprised of members who are specialists in varying fields (Asplund, 1975). However, it must be pointed out that with heterogeneity within the group and amongst organizational members, also comes an increased challenge with integrating analysed information from the study, due to differing views and perspectives (Asplund, 1975).

As a final step to the assessment of the group and organizational structural elements, which may bear on the strategy formulation process, Approach 7, proposes an assessment to determine resources at the disposal of the group and organization to undertake strategy formulation. Also in Approach 7's view, the past success of the organization will potentially predict how receptive the organization will be to a strategy formulation exercise. An early, fairly consistent pattern of successes leads to a skill attribution, which in turn leads subjects to expect future successes (Plous, 1993). Approach 7 outlines two forms of resources –

tangible and intangible. Tangible refers to material resources that the strategy development may require. On the other hand, intangible resources refer to knowledge aspects needed to undertake the strategy formulation exercise. Where resources are not available, it is very unlikely that the process will be successful.

Approaches 4, 6 and 7, also highlight the need to assess the external environment, in order to identify factors that may influence the strategy proposals. Approaches 4 and 7 in their discussion of this aspect, mainly dwell on external factors relating to private and profit making firms (for instance competitors). As such, variables highlighted are not applicable to this research, which deals with public service delivery institutions at the local level. Approach 6 while also commercially oriented, proposes that for an assessment of external factors the analyst identify external opportunities and threats applicable to the purpose for which the strategy is being formulated.

Approach 7, proposes the use of qualitative methods such as observation, as well as interviews, to assess informal aspects of the organization. It is also duly pointed out by Approach 7, that the interventionist may find it challenging to deal with the effects of unwanted structural elements where he or she does not have a background in human psychology – as such, the services of a trained group therapist may be warranted in the process of understanding the group and getting them to agree to collaborative problem solving.

More critical to understanding the formal organization is the need to unearth the main reason for which the organization exists (its mission and vision), its objectives, its critical success factors and their performance measures, business processes, imbibed planning processes, strategic significance of information systems to the organization, and possible ways in which ICTs have been deemed useful to service provision improvement (Duffy and Assad, 1989). Approach 7, then as a point of note advises on the need to elicit challenges being experienced by the organization in seeking to fulfil its mandates. Determining problem areas, informs the business analyst where key priorities lie, and as such what is of importance to the group and the organization. Granted, the organization may have several functional areas, hence, creating differing problem areas of interest to different groups. Nonetheless, as a single entity (organization), there must be problem areas, which all stakeholders identify with. Stemming from an identification of problem areas, questions may then be posed to the group about their

current satisfaction with data processing support, information they deem most critical to performing their tasks, and their expectations from the study (Duffy and Assad, 1989). Data elicited from the workshop proceedings, should be analysed and subsequently presented to the workshop participants. Approach 4 provides a template, which summarises and duly communicates the key topics that would have been deliberated on in the workshops. Table 6.6 depicts an adapted template, with two examples of identified key areas. This may aid the presentation of workshop results to stakeholders.

Table 6. 6: Summary of organization information requirements, adapted from Duffy and Assad (1989: 177)

Organization Mission and purpose: <i>The agreed upon reason as elicited from respondents for why the organization exists is stated.</i>			
Problem/ Key areas	Objectives/Critical success factors.	Decisions to be made about identified key areas	Information Required
<i>Asset Management</i>	Ensuring that all water infrastructure assets are adequately managed.	Determine assets currently not being managed.	Information revealing the current status of buried water infrastructure assets.
<i>Customer care/communication and customer satisfaction.</i>	Ensuring that communication channels with customers are effective and efficient. Ensuring that customer satisfaction is at a high level.	Determining ways of receiving communicated service level reports from customers whose opinions are not being received.	Service level opinions of all customer niches.

As depicted in Table 6.6, key areas or problem areas, signify that the group deems such aspects as critical to the organizations existence. This further leads to expressions of their desired objectives from the identified key areas. In the subsequent column in a brief sentence, an articulation of potential actions to achieve objectives of key areas are identified. Lastly, information requirements needed to achieve objectives in identified key areas are listed. Though simple in appearance, this template aids in illuminating and communicating information requirements to group participants.

In undertaking this process, another challenge that may be encountered is identifying personnel who are responsible for the key areas, or essential business processes within the intended strategy scope. Approach 4 anticipates this challenge, and as such, proposes an effective tool for locating responsibilities and decision making to processes. This is especially

useful where the organization has never done this formally (Duffy and Assad, 1989). For the business analyst, this is a fundamental tool, because it identifies line profiles that need to be involved in the development of computerized information systems, where business processes require such. The construction of this tool hinges on the identification of business processes involved in the organization, as well as job profiles included in the organizational structure. Table 6.7 below as adapted from Approach 4, depicts this organizational/business process matrix tool. Note, the organizational structural profiles outlined, are not applicable to all organizations, but serve as an example.

Table 6. 7: Organization/business process matrix tool adapted from Duffy and Assad (1989)

Organization Profiles	Business Processes				
	<i>Asset Management</i>	<i>Crises management</i>	<i>Water resource management</i>	<i>Environmental management</i>	<i>Support services</i>
<i>General Manager</i>	*	*	*	\	X
<i>Technical Manager</i>	*	*	*	x	
<i>Customer service manager</i>	o	o	o	o	*
<i>Operations manager</i>	*	*	*	*	\
<i>Information technology manager</i>	*	*	*	*	*

* = signifies that personnel makes major decision in the business process.

X =signifies that personnel makes minor decisions in the process.

\= signifies that personnel will only play a minor role in this decision.

o =signifies that personnel plays no role in the process.

This process depicts a systematic approach to information elicitation, and role identification for a commercial organization (profit oriented), however considering that the framework this research seeks to develop is one suited for local municipal institutions in South Africa, it becomes imperative to include local municipal residents as part of the study group. Currently, in South Africa, local government structures are designed to offer meaningful opportunities for municipal residents to participate in decision making (Mogale, 2005 in Thinyane, 2013). Hence, while the frameworks being analyzed in this section do not emphasize this, it is important that views of such stakeholder groups are factored in.

Upon completion of these processes (information requirements elicitation and responsibility identification), the group can collectively commence deliberation on business processes that require systems (Duffy and Assad, 1989). Note, considered systems, may either be manual or computerized. Furthermore, it is advised that where there are manual systems in place for certain processes and such systems are deemed effective, it may be unnecessary to propose computerized systems. Thus current systems, computerized or manual can be judged as either being good, fair, or non-existent (Duffy and Assad, 1989). Note also, that a revealed situation, where systems do not exist for any business processes, (computerized or manual) – may signify fundamental issues of management proportions (Duffy and Assad, 1989), which the business analyst may be incapable of addressing. Table 6.8, which is adopted from Duffy and Assad (1989) depicts a checklist for determining system status of business processes.

Table 6. 8: Example of existing system support for business processes adapted from Duffy and Assad (1989)

Current system support	Computer based			Manual based		
	Good	Fair	Non Existent	Good	Fair	Non Existent
<i>Asset Management</i>	✓					
<i>Crises management</i>		✓				
<i>Water resource management</i>			✓			
<i>Environmental management</i>			✓		✓	
<i>Support services</i>		✓				

According to Approach 4, a business process for which a good system exists will most likely not require any intervention or modification. However, a business process for which systems are fair will require some work, which may range from simple discussions among the group and business analyst, to an intervention requiring several months (Duffy and Assad, 1989). As has been indicated, where there are non-existent systems, there may be larger organizational problems which need to be addressed.

6.4.1.4 Determination of ICT Vision and Objectives

Approach 6 proposes, that at this juncture, in the case that it is decided that information and communication technologies (ICTs), are considered necessary for business processes, a vision should be determined – succinctly describing the scope and broad aim of electronic implementation within the organization. However, Approach 6 advises, that the vision arrived

at should be aligned with the overall vision of the organization. It is further advised that there should be input from key stakeholders in arriving at this electronic vision. Approach 4 suggests, that where it is agreed by the strategy formulation group and business analyst that computer systems will provide more value as opposed to currently functioning manual systems, a technology forecast may be deemed necessary. Technology forecasting may simply be defined as a systematic endeavor to anticipate and understand the potential direction, rate, characteristics, and effects of technological change, especially as they relate to invention, novel artefacts, adoption and use (Firat, Woon and Madnick, 2008). As can be observed from this definition, technological forecasts essentially are key to novel technological tools, and their prospective adoption and diffusion tendencies. However, an activity of this kind may not be required in the context that this research seeks to address (a local government of a developing country). McNamara (2003) advises technology adopters against being too eager to adopt new technologies. He indicates this especially for developing contexts, newer is not necessarily better, and as such where less contemporary artefacts are capable of getting the job done, they should be employed. Mobile phones, which constitute one of the less contemporary information and communication technologies (ICTs), have been in recent times touted as a fitting tool to support development activities. According to Rivett *et al.*, (2015), for the vast majority of developing country populations mobile telephony is the primary tool connecting them to the information society. Even more related to the context of this research, it is implied by InfoDev (2012 in Rivett *et al.*, 2015) that in South Africa, the main tool of communication for the less privileged is the mobile phone, thus, allowing a conclusion that mobile technology may likely be a preferred medium in providing value added services. These two last sentences support the notion that new technologies may not be in-fact needed in developing contexts. What such contexts may rather require are systematic studies, or literature reviews, conducted to determine simple and less contemporary technologies deemed appropriate to support critical tasks or service delivery aspects.

As an ensuing activity, upon determining possible appropriate technological tools, which may support business processes, Approach 4 proposes that information systems or ICT objectives should be established. This phase may according to Approaches 4 and 7 commence with an identification of strengths, weaknesses, opportunities, and threats (SWOT analysis), as they relate to the organization's intention to support certain business processes with ICT tools. To underpin the SWOT analysis, Asplund (1975) proposes that a summary of the organizations history, and perceived restrictions on action within the organization should be identified.

Strengths and weaknesses are internal to the organization (Duffy and Assad, 1989), hence, the organization may have considerable control over these. On the contrary, opportunities and threats are external factors (Duffy and Assad, 1989), over which the organization may have little control. Nonetheless, it is essential that the organization at this stage, represented by the strategy formulation group – determine what strengths they currently possess, as well as what external opportunities they may take advantage of (Pearce, 2007), while seeking to integrate ICTs. With this established, the organization may be able to counter weaknesses and threats, which may impede the extent of value that may be derived from the integration of ICTs. Figure 6.1 below depicts an example of a SWOT analysis of the ICT department of an organization.

Strengths +	Weaknesses –
<ul style="list-style-type: none"> • <i>CEO confident in IT manager.</i> • <i>Organization employs a platform independent model.</i> • <i>IT department budget always a priority for the organization</i> 	<ul style="list-style-type: none"> • <i>Fragmentation and disunity in the IT department.</i> • <i>Lack of sufficient experienced personnel in the IT department.</i>
Opportunities +	Threats –
<ul style="list-style-type: none"> • <i>Many organizations in the industry are adopting the proposed application.</i> • <i>Application vendors are giving sizable/attractive discounts to organizations that purchase more than 20 licences for the proposed application.</i> 	<ul style="list-style-type: none"> • <i>The current CEOs tenure is coming to an end and the incumbent may not support the integration and continued implementation of the project.</i>

Figure 6. 1: Example of a SWOT analysis for an ICT department in an organization intending to integrate a new application.

With such an analysis conducted with input from key members of the strategy formulation group, clear objectives for the ICT project can then be articulated, by paying attention to strengths, taking advantage of opportunities, while being cognizant of weaknesses and threats. While Approach 4 refers to this aspect of the strategy formulation process as objective setting, Approach 6 prefers to use the term “critical success factor identification”. Approach 7 simply terms this activity as evaluation. Objective setting as Approach’s 4 and 7 suggest may be underpinned by systems modelling approaches. By employing a systems

modelling approach, a theoretical framework can be developed in order to describe general empirical relationships about how ICTs may, for instance best support water service delivery (Asplund, 1975). The aim of model building is to identify factors in the system under study – that may cause undesirable and unforeseen behaviour (Damle, 2003). By using a systems modelling approach, simplified abstractions of the system under study can be represented (Duffy and Assad, 1989), in order to support the identification of feasible objectives. Approach 4, advises on the need for objectives to be measurable, containing an attached timetable, resource breakdown, and responsibility delegation. Approach 7 emphasises the need to at this stage involve potential employees who will be responsible for carrying out activities, which will aid in the fulfilment of objectives. This is based on the fact that they may be in the best position to recognize the extent to which proposed objectives are realistic. Also at this stage, as Approach 7 suggests, it may not be necessary for all strategy formulation group members to be involved, however as has been stated, it is imperative for personnel from the functional areas most concerned with the strategy to work in tandem with the business analyst.

A final element primarily proposed by Approach 4 in relation to setting objectives, is the need to identify policy areas that deserve attention in order for the strategy to be potentially successful. According to Approach 4 integrating ICTs into an organization results in transformation. Such transformation may resonate through areas such as, reporting procedures, staff responsibilities, and systemic operational routines. Change anticipation requires mobilizing people around what is not yet known. This is a difficult process. Recipients of a change culture often perceive it as negative and threatening. Therefore, it is essential to draft policy statements, which address aspects that are important to an organizational context seeking to integrate ICTs to its working environment. Potential areas to be covered under this policy draft include: the appropriate organizational structure for the planned change, change management guidelines, human resource considerations, Information systems evaluation during the projects implementation, considerations for ICT flexibility, and, security and control aspects of the potential ICTs. Note, this is not, an actual policy, but an identification of areas that will require policy focus (Duffy and Assad, 1989). Ideally, documented sections of policy focus areas should not exceed two pages (Duffy and Assad, 1989).

6.4.1.5 Documentation of Derived Strategy

This component is primarily discussed by Approaches 4 and 6. Both approaches propose somewhat similar content, which should be included in the strategy document. Approach 4 in its ‘information systems planning’ component indicates that a strategy document should consist of; a summary of the corporate plan and relevant operating plans, ICT planning prerequisites, current ICT capabilities, objectives, cost/benefit analysis, schedules, and summary of policies regarding areas of special consideration. Approach 6, while recommending documentation at every phase, proposes the need for the strategy formulation affair to be culminated by an action plan document, which should include; required actions, an estimate of required resources to accomplish actions, and estimated time horizons for task accomplishment. Approaches 4, 5, and 6, also emphasise the need to evaluate the strategy once it has been documented. Approach 4, while urging on the need for an evaluation of the formed strategy, suggests that the feasibility of the newly documented strategy needs to be checked. Here five aspects of feasibility are alluded to – these include: technical feasibility, or the extent to which the organization possesses the required competence to tackle technical aspects proposed in the strategy; economic feasibility, which assesses the extent to which the required material resources to implement the plan are available; operational feasibility, which seeks to determine to what extent the strategy will work in the adopting organization; schedule feasibility, which seeks to learn whether or not time frames proposed in the strategy are realistic, and political feasibility, which constitutes an exercise to potentially learn how much political resistance there will be towards the strategy. Approach 4, suggests that evaluative studies should be done collaboratively, with the strategy formulation group. No suggestions are made by any of these approaches on tools that may support such an assessment. Approach 5, though suggests that evaluation of ICT strategies, must be centred around the mission and vision for which the organization intends to adopt ICTs. Approach 5 differing somewhat from Approach 4 in terming assessment focus, indicates that four themes should be focused on when assessing the ICT strategy: These include – services/functions, resources, competence and management aspects of the proposed strategy. While potential tools to support the evaluation of the strategy are not explicitly suggested by either Approach 4 or 5, their specification of these themes, highlight potential areas to focus on in evaluating the strategy. Approach 6 does not indicate potential themes to focus on where seeking to evaluate the strategy, however it does indicate that the created strategy should evoke confidence amongst concerned stakeholders that the strategic objectives are achievable in spite of time and cost constraints. Pade-Khene and Sewry (2011) who developed a

comprehensive evaluation framework for assessing rural ICT4D projects, propose as part of the framework, methodologies, which may be employed to assess strategies or project plans. Methodologies proposed are qualitative in nature, primarily consisting of observation, interviews and document analysis. These methods, may guide expert reviews, need comparisons and evaluability of the newly documented strategy (Pade-Khene and Sewry, 2011). For instance, through a process of observation and interviews with organizational stakeholders – and subsequent comparisons to outlined objectives in the strategy document – conclusions can be made about the extent to which the strategy design and content are aligned to the initial needs for which ICTs were deemed necessary (Pade-Khene and Sewry, 2011). Similarly, expert reviews may be conducted on the logic and plausibility of the created strategy (Pade-Khene and Sewry, 2011). Some questions, which may guide such a review, may include: determining how well defined the ICT goals and objectives are, how feasible the goals and objectives are, judging the extent to which activities, functions, and components contained in the strategy document are well defined, and judging the extent to which allocated resources to activities and projects are thought to be sufficient.

6.4.1.6 Strategy Communication and Persuasion for Acceptance

This component is primarily discussed by Approach 7. Taking into consideration, as it is expected, that the strategy formulation group will consist of a small fraction of the organization, mechanisms need to be put in place to disseminate the strategy to the rest of the organization. For a local government context, as this research seeks to address, the rest of the organization also includes local government residents. According to Approach 7, the principal goal here should be geared towards the acceptance of the strategy by subordinates who will be expected to partake in activities which will aid in the realization of documented strategic ideas. Approach 7 proposes some activities, which may support the intent of this component. These include; seminars hosted by strategy formulation group participants to present the formulated strategy to their subordinates, presentation of the strategy to top leadership, visits to similar organizations who are thriving with similar adopted strategies, and other seminars as deemed appropriate by the strategy group. Approach 7 further indicates that this phase serves as an opportunity for the interventionist to confirm that the group, as well as the organization is capable of moving forward with their strategic intentions, without the help of the interventionist. Once the interventionist confirms that this is the case, then he may withdraw (Asplund, 1975).

6.4.2 Supporting Elements

This sub-section highlights supporting elements, which do not constitute steps or phases, but are however imperative to consider in a strategy formulation process. These supporting elements include:

6.4.2.1 Expected competencies and characteristics of the interventionist

Approaches 4 and 7 in describing vital components that a strategy formulation affair should consist of, discuss certain characteristics, as well as competencies, which a business analyst, or interventionist should possess, if the chances for success are to be enhanced. According to Approach 4, an interventionist's ability to engage in interpersonal relations, and his understanding of group oriented social systems are essential attributes, which will potentially bear on the success of the intervention. Furthermore, it is suggested by Approach 4 that the interventionist's ability to diagnose problems, understand change processes, his relationship status with influential individuals within the organization, professional reputation, and proficiency in resource management, will also influence the success chances of the strategy formulation affair. Approach 7 in different words mentions some of the same desired characteristics. Identified characteristics highlighted by Approach 7 include: the need for a good working relationship between the interventionist and the client organization, his ability to investigate/conduct thorough research, the interventionists reputation, the relational dynamics between the interventionist and powerful personnel within the organization, and the interventionists understanding of human psychology. A careful look at propositions on this aspect by both approaches will reveal similar desired characteristics and competencies of the interventionist.

6.4.2.2 Phase Gates

The phase gate element is a concept adopted by Approach 6, from the process protocol framework. The Process Protocol framework designed for sequential processes, seeks to ensure that key decision points in a process are respected (Copper *et al.*, 1998 in Chen *et al.*, 2013). With this framework, the concept of hard gates and soft gates are proposed in order to separate phases of a sequential process, such as (e-Government strategy formulation). Where applied to the phases narrated in Section 6.4.1, a hard gate separating two phases, will indicate that the activities of a previous phase must be completed before commencing to the next phase. On the other hand, where two phase activities are separated by a soft gate, this will allow for the two activities to be carried out simultaneously. Also proposed by the

process protocol framework is the concept of process reviews. The review process illustrates or depicts how results should be fed back to previous decisions or phase activities.

6.4.3 Business/Private Sector Strategy Formulation Approaches Contribution to Systems Thinking

The systems thinking contribution provided by these approaches are similar to descriptions provided in Section 6.3.2. The system approach adopted here – which is the process of inquiry, is better informed by the selected business related strategy formulation approaches. The selected business approaches inform the study by providing a first narrative (experience) to the interventionist on how an e-Government strategy development process may possibly be conducted. Furthermore, anecdotal accounts from the empirical approach (Approach 7), provides the interventionist with some insight of how a strategy has actually been formulated in a real life environment. Approach 4 in detail explains how an IT strategy should be developed to ensure alignment with the adopting organizations goals. Approach 5 dwells on how a strategy should be evaluated upon its creation. Approach 6, similar to Approach 4, though in less detail discuss steps, as well as what content should be included in an (electronic) *e- related* strategy. Approach 7, focuses through an empirical account on stakeholder issues, as well as assessments that should be carried out in a strategy formulation process. Contribution by all four approaches provide sources of good questions to ask in the actual process (empirical) of formulating the localized e-Government strategy. It is anticipated that applications of the findings from these Approaches' proposals will better inform the theory, thus enhancing the system of inquiry.

6.4.4 Limitations of Business/Private Sector Strategy Formulation Approaches

The one limitation all four approaches have in common, is that considering that they are business related, they do not acknowledge customers or citizens as stakeholders who should contribute to the strategy formulation process. As has been stressed several times, citizens are important stakeholders to the government process, and as such, should be consulted with, and viewed as stakeholders in government decision making processes (Rivett *et al.*, 2015).

Also Approach 4 while elaborately discussing phases and activities that a strategy formulation process should consist of, fails to adequately address issues of group dynamics, and stakeholder engagement, which are key elements to a strategy formulation process. Amongst all four approaches, only Approach 7 addresses group dynamics substantially. It

would have been appreciated if more than one of these approaches addressed this issue, to create room for comparing and contrasting their views, on stakeholder engagement.

6.5 A Critical Analysis of NGO related strategy formulation Approaches

NGOs though distinct from government institutions share certain characteristics. For instance, they are initiated to complement, enhance, and offer alternative solutions to government development efforts (Malunga, 2007). It is also noteworthy that NGOs are often the most proactive within societal entities in helping the poor to ensure that their voices are heard (Korten, 1987). The parallels shared by both these institutional types suggest that a tentative framework for a government related strategy (localized e-Government strategy formulation framework), can adopt practices of strategic planning from the NGO sector. This idea is based on the fact that both institutional forms in their quest to fulfil their mandates may, adapt similar processes; employ individuals with similar professional profiles; face the same type of constraints; engage with similar actors in society; and as it relates to this research, have analogous planning methods.

In the 1970s and 1980s, NGOs were seldom viewed as permanent instruments. It was conceived that they were only established to solve a limited problem or gap, where the (state) failed to fulfil its mandate (Malunga, 2007). It was expected that NGOs would, be established, intervene, and withdraw/dissolve, once their mandate was completed (Malunga, 2007). As such, back then, it was believed that strategic planning was of no significance, due to the temporary nature of their mandate. However, over the years there has been an increasing recognition of the long-term relevance of NGOs to supplement, complement and provide alternatives to government development obligations (Holloway, 2000 in (Malunga, 2007). Moreover, of late NGO applications for funding from donors have become contingent on their presentation of a strategic plan (Malunga, 2007). Effective strategic planning is needed for the NGO to transform potential into realization of goals. As such, while relatively less thought and investment has been given to strategic planning within the NGO sector (Ramia, 2003:85 in Malunga, 2007), a number of strategy approaches, are beginning to emerge within the sector.

Three strategy related approaches (Approaches 8-10) are selected from the NGO sector. The approaches selected, provide comparative value, by observing the extent to which themes, processes, and components identified are similar to those identified in the business related,

and e-Government strategy approaches analysed. The template outlined in Table 6.4 is applied to analyse each of these approaches, after which they are discussed in comparison to each other. Table C of Appendix 1 provides the template comparative analysis of NGO sector related strategy approaches. Aspects that are focused on include; components of strategy formulation and their respective roles in the strategy formulation process; the contribution to strategy formulation through a systems thinking lens; and the limitations of approaches in relation to strategy formulation within a local government context.

6.5.1 Components of Strategy formulation from an NGOs Perspective

The following sub-headings constitute strategy formulation components noticed across *Approaches 8-10*:

6.5.1.1 Preliminary Preparation

None of the approaches in this category, term their proposed first activity as this, however comparisons suggest that the activities described by each approach for commencing a strategy formulation process, may be categorized as preliminary preparation activities. For instance, Approach 8 proposes that at the start, leaders within an NGO should select a team from senior management, who will be responsible for championing the strategy formulation process, from its inception stage to implementation stage. This approach deems this activity as important, based on the thinking that the extent of willingness, cooperation and enthusiasm exhibited by NGO employees will potentially influence the success of the strategy development process. Where the process is driven by an external interventionist, without support from within, the strategy formulation process is likely to fail (Malunga, 2007). The second proposed activity by Approach 8 also constitutes part of the preliminary preparation phase. At this stage, it is recommended that the interventionist or business analyst, engage in an orientation exercise to learn about the NGO. It is advised that orientation attempts should begin by sourcing documented text about the NGO to learn about it. Where sought information cannot be sourced from text material, it is suggested that the interventionist engage with employees from within the NGO, in order to understand the organization, as well as to get a sense of their expectations from the study. Prior document study is emphasized in order to avoid redundancy when interview sessions commence. Approach 9 as a first activity, also proposes that prior to study commencement, national guiding principles should be studied. The proposal to view national documents is due to the fact that Approach 9 seeks to design a nationally oriented strategy. In the case of this research a local government equivalent of national guiding principles may be studied or consulted. In Approach 10's view,

a study should commence with discussions with NGO stakeholders. This activity should primarily be carried out to understand the purpose of the study. This Approach in accordance with Approach 8 also suggests that at this stage, a team from within the NGO should be selected to undertake the study. It is further inferred that roles and responsibilities of the group should be highlighted.

6.5.1.2 Deriving a Common Understanding of NGOs Mission

A strategy is easier to agree on and adhere to, when there is a shared understanding of an NGO's mission, vision and eschewed values (Malunga, 2007). According to Approach 8, organizations have greater chances of succeeding when they are clear about their mission, vision, and values, and how best to fulfil their mission in their context of operation. The mission depicts the organizations reason for existence (*raison d'être*); the vision is the larger societal impact, which the organization seeks to contribute to; the values are accepted behavioral patterns, which guide staff conduct in the organization (Malunga, 2007). Approach 9 does not explicitly propose the drafting of a mission statement, however, in its proposed activity termed "conduct a situational analysis", it is advised that an analysis be conducted to identify constraints to the organizations reason for existence. Identifying these constraints aid in highlighting priority areas that need to be addressed (UNAID, 1998). However, it is not suggested how such an analysis should be carried out. Nonetheless, this confirms that it is important to identify the purpose for which the organization exists. Approach 10, similar to Approach 8 proposes two activities, which should be carried out successively at this phase. Firstly, it is indicated that an activity seeking to clarify the mandates of the NGO be performed. Mandates, especially as they relate to public service delivery and NGOs, may be sourced from; articles of incorporation, legislation, and charters. Following this, it is suggested that clarification be carried out, with the strategy formulation group. In this latter activity, Approach 10, advises that the group should begin with a stakeholder analysis to identify the extent to which there is a shared mission, and shared values within the NGO.

6.5.1.3 SWOT Analysis

This activity seeks to determine the NGOs strengths, weakness, opportunities and threats (SWOT) in relation to the intended focus area on which the strategy is to be formulated. This activity is proposed by Approaches 8, 9 and 10. However, it is elaborated on more by Approach 8. Approach 8, under the heading "environmental scanning", proposes that an NGO needs to conduct a SWOT analysis to determine how it will employ its available

resources to deal with environmental challenges. Approach 8, further indicates that tools such as PEST (political, economic, social and technological), 5-FORCES², and critical success factor identification may aid the process of conducting a SWOT analysis.

6.5.1.4 Goal Setting and Objective Elicitation

This activity is identified by all three approaches. However, these approaches do not correspond on when this activity should be conducted. Approach 9 suggests that this activity should be carried out upon completion of the shared mission and vision elicitation. Approaches 8 and 10, on the other hand indicate that a SWOT analysis be conducted prior to setting objectives. This forms a major part of the strategic planning process, as the output of this phase will act as a blueprint for the NGO in navigating towards the future. Approach 10 terms objective setting as “strategic issue elicitation”. It indicates that in setting objectives, planners should try to be as concise as can be. Furthermore, Approach 10 proposes the need to spell out why selected objectives are deemed to be priority areas, or critical areas that need to be addressed, as well as what potential consequences will be if these issues are not addressed. This way NGO stakeholders will better understand the urgency of proposed objectives. Approach 9, to add on indicates that objective setting should specify how priority areas will be addressed by some stipulated timeframe. Approach 8 contributes by reminding that strategic objectives should be aligned with the NGOs mission and vision. Approach 10 then in its proposed ‘strategy development’ activity advises that, as opposed to determining how alternative courses of action or elicited objectives will be accomplished – it may help for brain storming sessions by the strategy formulation team, to rather focus on highlighting potential obstacles, which may impede the realization of intended objectives. This suggested route to objectives setting is one way of focusing on implementation difficulties while eliciting objectives, and articulating action plans (Bryson, 1988). Proposals may then be solicited or drawn up to tackle identified challenges, which may potentially impede the realization of objectives. This proposal will support the emergence of an action plan containing work programmes and schedules. Potential tools to carry out obstacle identification and proposal creation are not discussed by Approach 10.

² Porters Five Forces Model is an illustration of how the Five competitive forces can be employed to explain low profitability and possible entries to an industry. The Five forces include: the threats of new entrants, buyer power, supplier power, threat of subsidies, and rivalry among the already established firms (Indiatsy, Mwangi, Mandere, Bichanga, and George, 2014).

6.5.1.5 Identification of Policy Change Areas

This activity is identified only by Approach 8. Readers of this approach are reminded that, the likelihood of strategies being successful are contingent on having the right policies in place. As such, this activity seeks to highlight areas where policies must be addressed. Suggested areas for policy reform focus mentioned by Approach 8 include; finance, administration, human resources, monitoring and evaluation, and organizational learning.

6.5.1.6 Strategy Documentation and Evaluation

This component is primarily proposed by Approach 9. Under the component termed “develop strategic framework”, Approach 9 proposes that a summary of all activities carried out in the previous phases be documented. It is then advised that this document be distributed to anyone the NGO anticipates will contribute to the realization of the strategic plan. The next component proposed by Approach 9 (identifying strengths and weaknesses of proposed strategy) constitutes the evaluation phase. It is proposed that three variables should be employed to evaluate the documented strategy. These variable include: *Acceptability*, which assesses the extent to which the strategy is supported by stakeholders who possess significant influence on the extent to which the strategy may be implemented; *Technical Soundness*, attempts to assess the extent to which tested initiatives are incorporated into the strategy (Tested initiatives are thought to be more technically sound than non-tested initiatives); *Feasibility and Affordability* assesses the availability of needed resources to implement a strategy. This assessment should include; institutional capacity, knowledge and skills, services and goods, people and funds. It is not proposed by Approach 9, how best to go about this evaluation. However, it is implied by the next proposed activity that revisions should be made to the strategy document based on the findings.

6.5.2 Supporting Elements

This sub-section highlights supporting elements discussed by NGO approaches, which do not constitute steps or phases, but are imperative to consider in a strategy formulation process. The supporting element identified includes:

6.5.2.1 Expected Characteristics and Competencies of the strategy formulation team

Approach 8 proposes this component. It is stated that in order to engage in meaningful strategy formulation process, the interventionist, as well as the strategy formulation team should have amongst them, the ability to compare and synthesise information, plan, build and maintain their formed relationship, manage conflict, and balance their professional and personal interests.

6.5.3 NGO Strategy Formulation Approaches Contribution to Systems Thinking

The systems thinking contribution provided by these approaches are similar to descriptions provided in Section 6.3.1.2. However, Approach 8 further emphasises organizational learning, during the strategy formulation process, which corresponds to the iterative nature of SSM, where results from a first iteration of the strategy formulation process produces learning that will improve subsequent iterations of the strategy development process.

6.5.4 Limitations of NGO Strategy Formulation Approaches

Considering that the Approaches analyzed in this category (Approaches 8-10), are broadly related to NGOs, they do not address or mention ICT aspects, which of necessity should be discussed, and analyzed during an e-Government strategy formulation process. To add on, while Approach 10, describes a logical process for undertaking strategy formulation, the phases highlighted are not elaborately discussed, only briefly summarized.

6.6 Discussion on the Three Analyzed Sectors

In this section, findings from all three analyzed sectors (e-Government, business, and NGO) strategy formulation approaches are discussed in summary fashion. The discussion is divided into three categories, which represent the systematic form in which the necessary components of an e-Government strategy formulation process were observed from the 10 analyzed approaches. The three categories observed include; *topical or content focus areas of a local e-Government strategy formulation process*; *the concept of gates and feedback*; and *phases of a local e-Government strategy formulation process*. Furthermore, in this section, the extent to which approaches contribute to systems thinking, as well as limitations observed across sectors are discussed.

6.6.1 Topic/Content focus in a local e-Government Strategy formulation process

As observed in Lowery (2001); Duffy and Assad (1989); and Alghamdi *et al.*, (2011) – topical or content focus areas that require attention in an e-government strategy formulation process are centered around five main themes. These themes include: i) the formal organization; ii) information requirements and flows; iii) people; iv) ICTs; and v) external environmental factors. Related activities in these themes are carried out in phases. In some phases, all of these themes are addressed, however, this is not the case with every phase. Proposing that the content focus of an e-Government strategy development process should be viewed as themes is not a mandatory procedure for structuring content focus, however, what this categorization does is act as a checklist – thus avoiding a scenario, where essential

aspects to be addressed in various phases of the strategy development process are not considered.

To illustrate that the above mentioned themes are the content focus areas observed, Table 6.9 summarizes identified activities proposed in the various phases of strategy formulation by all three sectors (e-Government, business, and NGO strategy formulation approaches) analyzed, along with how the five themes apply to the identified phases. The third column of Table 6.9 (related themes) demonstrates that fundamentally, there are 5 themes discussed by all analyzed approaches. The observed themes are defined as follows:

- **The formal organization:** Zenger, Lazzarini and Poppo (2001) imply that the formal organization encompasses all aspects of an organization, which can be easily observed as written rules, as well as explicitly specified structures agreed upon by members of the organization. Relating this definition to this research, the formal organization will include aspects such as; the organizations *raison d'être* (reason for existence), existing management systems, organizational structure and attached roles, policies, and work processes.
- **Information requirements and flows:** This theme refers to the information needed to support local government functions (Duffy and Assad, 1989). Information requirements as referred to here, consists of information that is: collected, stored, processed, and communicated amongst several stakeholders within local government, in order to facilitate service functioning.
- **People:** This theme relates to all matters concerning humans, and the effects of humans on realizing the strategy. People related issues also encompass; the need to identify key stakeholders of the organization, as well as potential participants of the e-Government strategy development process. It also encompasses, an understanding of group dynamics and the organizational culture's effect on its employees/stakeholders, the extent to which the required human resource capacity for executing the strategy is possessed, as well as matters of orientation and training.
- **ICTs (Information and Communication Technologies):** This theme relates to all aspects to do with ICT tools, including: infrastructure, hardware, software, associated costs, facilities, networks, critical success factors, vision for ICTs, related strengths and weaknesses.

- **The External Environment (Opportunities and Threats):** This theme relates to external opportunities, which the government can take advantage of in seeking to integrate ICTs, as well as external threats, which may potentially impede a successful ICT deployment and use.

The categorization of content focus themes shown in Table 6.9 is subject to interpretation; therefore, the incorporation of Table 6.9 also serves to give future research on the issue a reference point with which further analysis may be carried out, in order to determine whether content focus of an e-Government strategy development process should consist of other themes not mentioned here.

Table 6. 9: Theme identification from analyzed approaches

Sector	Phases	Related Themes
E-Government strategy approaches	1) Establishing a common conception of e-Government: Stakeholders deliberate and arrive at a shared understanding of what ICT integration seeks to serve within government functional areas.	<p>i) People: Stakeholders come together to deliberate on and arrive at a common understanding of what e-Government is refers to. People (human) factors must therefore be considered.</p> <p>ii) ICTs: The subject of the deliberation here are ICTs, and how they will potentially support particular government mandates.</p>
	2) E-Government objective deliberation and formulation: Setting objectives for ICT integration along with benchmarks.	<p>i) People: Stakeholders come together to deliberate on, and agree on a number of objectives that e-Government integration should accomplish. People (human) factors must therefore be considered.</p> <p>ii) ICTs: The subject of deliberation here, are objectives that ICT integration will support.</p>
	3) ICT readiness assessment: Assessing the extent to which the government is ready to integrate ICTs. Determining whether the appropriate ICT infrastructure and human resource skills are in place. Furthermore, at this phase the extent to which work processes in their current state can be supported/or not supported, by ICTs is assessed.	<p>i) ICTs: The subject of the deliberation in the ICT readiness assessment phase is mostly ICT components (Hardware and software). The extent of availability of these components will determine whether or not an e-government application can be successfully deployed.</p> <p>ii) People: Part of the ICT readiness assessment seeks to determine whether or not personnel (people) or government staff, expected to make use of e-Government applications have the requisite skills to both make use of, as well as maintain e-Government applications that will be deployed.</p> <p>iii) Formal organization: Also part of this assessment seeks to determine the extent to which ICTs can support work processes in their current state.</p>
	4) Policy focus (around work processes): Identifying policy areas, that require focus, where seeking to integrate ICTs.	i) Formal organization: Part of the component parts of the formal organization is a stipulation of how things should routinely work. Such a description encompasses work-processes. Here work process related policy areas that must be adjusted in order for e-Government to be effective are identified.
	5) Determining specific E-Government initiatives and prioritizing tasks: Prioritizing e-	i) People: Prioritization will involve deliberation by (people) stakeholders, who must decide on what projects should be given preference due to resource constraints.

Sector	Phases	Related Themes
	Government initiatives – as due to cost constraints all intended initiatives cannot be implemented immediately.	ii) ICTs: The focus of deliberation during prioritization are ICTs, or e-Government applications.
	6) Devise a business model to support financial sustainability: Articulating potential mechanisms for the long-term funding of e-Government operations.	i) People: Stakeholders (people) will deliberate on a business model to ensure the financial sustainability of deployed e-Government applications.
	7) Drafting of the e-Government strategy: Documenting the e-Government strategy.	i) People/ICTs/Formal organization: Documentation will encompass and provide narratives on the themes discussed in the previous phases of the e-Government strategy approaches analyzed.
<i>Business strategy approaches</i>	1) Study Preparation: This involves conducting a preliminary study to understand the organization prior to the strategy formulation intervention, as well as to identify potential strategy formulation participants. Also at this phase, a formal request is communicated to the organization – to elicit permission to undertake the study/strategy formulation process.	i) People: In preparing for the study, or ICT strategy formulation process, an interventionist must articulate how to approach the relevant people within the organization who are anticipated to be important to the process. ii) The formal organization: An understanding of the rules of engagement within the organization must be gained by the interventionist in order to ensure that protocol is observed, when undertaking the intervention.
	2) Orienting senior personnel on ICTs and their possible value to service functions: At this phase, a workshop is proposed, intended to orient senior management within the organization, on the values ICTs may contribute to service provision.	i) People: The interventionist at this phase must determine a means of orienting senior personnel (people) within the organization of the value that will be derived from the proposed ICTs. It must be communicated to these set of people in a way that they understand, especially where they are not tech savvy. ii) ICTs: ICTs are the topic of concern at this proposed orientation session.
	3) Understanding the organization (formal and informal aspects):	i) Formal organization: An ICT strategy must always be aligned to the adopting organizations strategy, which is primarily based on – the organizations reason for existence, organizations

Sector	Phases	Related Themes
	<p>in-depth study to understand the organizations – work processes, information flows, culture, strategy formulation group dynamics, existing ICTs, available resources and existing and needed policies.</p>	<p>structure, critical success factors, and operational work processes – all of which constitute part of the formal organization.</p> <p>ii) Information requirements and flows: ICT deployment is expected to provide valuable information meant to support enhanced decision making. It is proposed here that the interventionist have an understanding of the basic information flows, and information requirements of the functional area or business process that ICTs are meant to support.</p> <p>iii) People: It is proposed that the interventionist, gain an understanding of certain group structural elements of potential strategy formulation participants that may bear on the strategy formulation process. Also here it is advised that an understanding of the organizational culture be arrived at, as shared culture exhibited by people is a determinant of the extent to which ICTs will effectively support the tasks they are intended to support.</p> <p>iv) ICTs: An assessment to gain knowledge of the current ICTs in the organization is carried out in this phase as well. This assessment will reveal what ICTs (infrastructure, hardware and software) need to be acquired in order for the e-Government project to become a reality.</p>
	<p>4) Determination of ICT vision and objectives: Articulating a vision for ICT integration, as well as setting measureable objectives, along with assigned resources, and timeframes</p>	<p>i) Formal organization: It is suggested that where analysis from the previous phase indicates that ICTs are necessary the following must be determined: a mission and vision statement for the ICT project, modifications of work processes needed to support ICT use, mention of policy areas to be changed, articulate critical success factors that must be achieved with ICTs. All of these aspects constitute the formal organization.</p> <p>ii) Information requirements and flows: The proposed information flows will be narrated here, as well as critical success factors related to information requirements (information that deployed system must provide to each personnel to be involved with ICT use).</p> <p>iii) People: Objectives are collaboratively determined by people, (strategy formulation participants). Also roles are assigned to people, in terms of what they will contribute to the potential deployment and successful use of ICTs.</p> <p>iv) ICTs: Findings from the assessment of existing ICTs in the previous phase, will inform the proposition of ICTs that must be procured.</p>

Sector	Phases	Related Themes
		v) External environment: It is proposed that factors that will potentially affect the organizations successful use of ICTs to meet their objectives should be identified – these factors are not within the organizations.
	5) Documentation of derived strategy: Drafting the ICT strategy.	i) People/ICTs/Formal organization/Information flows and requirements/ external factors: Documentation will encompass and provide narratives on the themes discussed in the previous phases of the analyzed business related strategy approaches.
	6) Strategy communication and persuasion for acceptance: At this phase, the strategy is communicated to the rest of the organization, eliciting their feedback and persuading them to buy into the strategy.	i) People: The rest of the organization (people) who were not actively involved in the strategy development process must be convinced to buy into the strategy.
<i>NGO strategy approaches</i>	1) Preliminary preparation: This phase involves the selection of a team from within the NGO to champion the strategy formulation task. A second function of this phase is to learn about the NGO prior to study commencement.	i) People: It is proposed that leaders within an NGO select a team of senior management personnel who will champion the strategy formulation process, from inception to conclusion. Also a team is selected to undertake the strategy formulation process. ii) Formal organization: It is proposed that at this phase, the NGOs rules of engagement, and policies be understood. These aspects constitute part of the formal organization.
	2) Deriving a common understanding of the NGOs mission: At this phase, stakeholders are expected to arrive at a common understanding of the NGOs mission, vision and values.	i) People: Here the interventionist along with the strategy participants (people) discuss the NGOs mission in order to have a common understanding of the NGOs reason for existence. ii) Formal organization: The content of discussion here is the NGOs mission – which is part of the formal organization.
	3) SWOT analysis: Determining the NGO's strengths, weaknesses, opportunities and threats, in	i) Formal organization: At this phase, it is proposed that the NGO, reflect on the extent to which it can accomplish its strategic objectives with its existing resources, which is part representation of the formal organization.

Sector	Phases	Related Themes
	relation to the intended focus area on which the strategy is to be formulated.	<p>ii) People: SWOT analysis is expected to be conducted by the strategy formulation group (people). Additionally, human resource (people) are part of the NGOs existing resources.</p> <p>iii) External environment: Part of the SWOT analysis will include an assessment of external entities like opportunities and threats.</p>
	4) Goal setting and Objective elicitation: Identifying goals, objectives, as well as potential inhibitors to goals and objectives.	<p>i) Formal organization: Alignment of objectives with the NGOs mission and vision.</p> <p>ii) People: Objective setting is carried out by strategy formulation participants (people).</p>
	5) Identifying policy change areas: Articulate policy areas needed to support the strategy (e.g. around work processes)	<p>i) Formal organization: It is suggested that the intention here is to identify policy areas that need to be addressed to ensure that the strategy is well implemented. Suggested policy areas to address revolve around work processes, which is a part of the formal organization.</p> <p>ii) People: Identification of policy areas is carried out by strategy formulation participants (people).</p>
	6) Strategy documentation and evaluation: Activities of the previous phases are documented and the document is evaluated.	i) Formal organization/people/external environment: Documentation will encompass and provide narratives on the themes discussed in the previous phases of the analyzed NGO related strategy approaches.

6.6.2 Phase Gates

The phase gate is a concept adopted by Approach 6, from the process protocol framework. The Process Protocol framework designed for sequential processes, seeks to ensure that key decision points in a process are respected (Copper *et al.*, 1998 in Chen *et al.*, 2013). With this framework, the concept of hard gates and soft gates are proposed in order to separate phases of a sequential process, such as (e-Government strategy formulation). Where applied to the phases narrated in Table 6.10, a hard gate separating two phases, will indicate that the activities of a previous phase must be completed before commencing tasks on the next phase. On the other hand, where two phase activities are separated by a soft gate, this will allow for activities proposed in the two phases to be carried out simultaneously. Also proposed by the process protocol framework is the concept of *process reviews*. The review process illustrates or depicts how results should be fed back to previous decisions or phase activities.

6.6.3 Phases of A Strategy Formulation Process Identified Across Analyzed Approaches

There are a number of noticed similarities amongst analyzed sectors with regards to the phases, which a strategy formulation process should consist of. Table 6.10 supports the observation of similarities across the approaches analyzed from the three sectors (e-Government, business related, and NGOs). With the summary of the sectors, indications of phases that are common to sectors emerge, which aids in proposing potential phases that a local e-Government strategy formulation process should consist of.

Table 6. 10: Summary of commonalities noticed across the ten analyzed approaches

Phase	Summary of phase	Approaches that discuss the phase
1) <i>Study preparation phase</i>	Primarily proposed by business related and NGO strategy related approaches. As proposed, the phase seeks to gain base knowledge about the organization of focus, prior to the commencement of the strategy formulation process. This includes activities such as making a formal request on the intent to undertake the strategy formulation process, get a base understanding of the organizations (local government) rules of engagement, identify key stakeholders and potential strategy formulation participants, and get a base understanding of the functional areas ICTs seek to support.	<i>Approaches: 4, 7, 8, 9, and 10.</i>
2) <i>Orienting senior personnel on ICTs and their possible value to service functions</i>	This phase is proposed by only one approach (Approach 4), however, reflection suggests that it will be relevant to e-Government strategy formulation in developing contexts such as South Africa. The aim of this phase is to enlighten senior personnel within the target organization (local government) on the possible ways that ICTs can support business processes. This enlightenment may take the form of a workshop or series of workshops, or presentations. This proposed activity is important in a local government context, where decision makers may view ICTs as less of a priority, due to other pressing challenges that equally demand resources. For instance, decision makers may feel issues such as dilapidated water infrastructure should have more of a priority than ICTs.	<i>Approach 4</i>
3) <i>Understanding the local government (formal and informal aspects).</i>	This phase consists of an in-depth assessment of formal and informal aspects of the organization intending to adopt ICTs. ICTs are not being deployed just for the sake of it, but rather to support specific business processes – therefore, it is important to understand the formal organization. Furthermore, technology is used by people whose shared culture may determine how they use technology. Succinctly put, these points justify the need to assess formal and informal aspects of the organization (local government) intending to adopt ICTs. Assessing the formal organization may consist of knowledge of – the local government structure and roles played by personnel, work processes, information needs and flows that support work processes, critical success factors, and their measures, currently employed ICTs including ICT infrastructure, and the most critical challenges. This will provide an indication of where ICTs fit, if in-fact they are needed. Where it is determined that ICTs are indeed needed, an ICT readiness assessment must then be conducted. Assessing the informal organization consists of understanding the local government culture, as well as particular group structural elements of the potential participants of the strategy formulation process. Workshops and interviews may be employed to carry out these assessments.	<i>Approaches: 1, 2, 3, 4, 6, 7</i>
4) <i>E-Government mission and objectives elicitation /Evaluation of objectives</i>	The activities that this phase comprises of are proposed by approaches across all three sectors. This begins with the need to collaboratively arrive at a mission and vision statement for e-Government as proposed by approaches (1,3, 6, and 8). Essentially, the vision is the larger societal goal that e-Government hopes to contribute to, while the mission is the particular reason for why the local government has decided to adopt e-Government (Malunga, 2007). Collaboratively articulating these statements will clear up misconceptions about what e-Government seeks to serve (Lowery, 2001). Then according to approaches 4, 7, 8, 9, and 10, the established mission and vision statement should be followed by proposals to conduct a SWOT (strengths, weaknesses, opportunities, and threats) analysis. Strengths and	<i>Approaches: 1, 3, 4, 5, 6, 7, 8, 9, 10</i>

	<p>opportunities will tell the local government and project team what they may leverage off, in order to deal with or minimize weaknesses and threats. Approaches 1, 3, 4, 7, 8, 9 and 10 then propose objective setting. It is advised that objectives should be realistic and measurable. Objective setting should involve prioritization, as all possible solutions cannot be considered due to resource constraints (Lowery, 2001). It is specifically advised by Approach 1, that objective setting must include a plan for financial sustainability of the e-Government project. Approaches, 4, 5, 6, and 9 then discuss the need to document the articulated e-Government strategy. Then according to approaches 4, 5, 9, and 10, the following feasibility themes may guide the evaluation of the documented strategy: (technical feasibility, economic feasibility, operational feasibility, schedule feasibility, and political feasibility). Refer to section 6.4.1.5 for an elaboration of these feasibility themes.</p>	
<p>5. <i>E-Government strategy communication and persuasion for acceptance</i></p>	<p>This phase is proposed by a business-related approach (Approach 7). It is suggested that the intent of the activity here is to communicate the formulated strategy to the rest of the organization (local government stakeholders) that did not participate in the strategy formulation process. For a local government context as this research seeks to address, other stakeholders include the larger section of, citizens, businesses, and civil society groups that did not participate in the strategy formulation process. Approach 7, proposes some activities that may support the intent of this phase. These include: seminars organized by the strategy formulation group participants to present the formulated strategy to concerned stakeholders that did not participate in the strategy development process, presentation of the strategy to top leadership, visits to similar organizations that are thriving with similar adopted strategies, and other related workshops – as deemed appropriate by the strategy development group. At this phase, it is advised that the interventionist take a back seat, to observe whether or not the organization in question is capable of moving forward without the guidance of the interventionist. Where it is noticed that they are capable of navigating the implementation of the strategy, it may be time to withdraw (Asplund, 1975).</p>	<p><i>Approach 7</i></p>

6.6.4 Supporting Element

Several business-related and NGO approaches, propose competencies and characteristics, which an interventionist occupying the role of a facilitator in an e-Government strategy formulation process should possess. These competencies and characteristics where inherent in an interventionist according to these approaches will enhance the chances of success. Approaches 4, 7, and 8 jointly propose that the interventionist should: understand group oriented social systems, possess the ability to build and maintain relationships, be proficient at research processes, understand change processes, harmonize the backing of influential individuals within the local government, possess an impressive professional reputation, be proficient in resource management, manage conflict, balance professional and personal interests, and have an understanding of human psychology. A significant proportion of these desired traits, have to do with an understanding of human psyche. As such, while undertaking certain group related tasks, in the strategy formulation process it may help to consult the service of a trained psychologist. This is explicitly proposed by Approach 7, which explains that the services of a trained therapist (e.g. an organizational psychologist) may be warranted in the process of trying to understand the strategy formulation group, as well as getting them to agree to undertake collaborative problem solving.

6.6.5 Approaches Contribution to Systems Thinking

As proposed by the soft systems methodology (SSM) in Chapter 5, in the process of trying to understand a system, a Human Activity Model (HAM) ideally should be described. Simply defined, a HAM is an assembly of activities in which people are purposefully engaged, and the relationship between those activities (Brenton, 2007; Warwick, 2008). Intended by design to deal with unstructured problems, the HAM required in a SSM study, seeks to support a process of inquiry (systemic investigation) involving human's intent on coherently undertaking purposeful action (*e-Government strategy formulation*) (Checkland and Holwell, 2005). The HAM enacted is viewed as a subsystem, within the systemic process of inquiry. It is employed as a base, to initiate debate and map real world actions to the activities described or contained in the model (Brenton, 2007; Checkland, 2000). The approaches analysed in this chapter aid in deriving a preliminary HAM, which while not considered as a final solution to localized e-Government strategy formulation, may be employed as a source of good questions about a systemic view to e-Government strategy formulation. Hence, the term HAM is appropriate here, as it duly distinguishes what gets proposed in the model 'an activity', and what exemplifies the real world, namely 'action' (Checkland and Scholes,

1990; Checkland, 2000). It is expected that the challenges, which the real world will present will exceed scenarios exhibited by any model, however detailed they may be (Checkland and Holwell, 2005). Refer to Section 5.3 for an elaborate discussion of the SSM, and why it is the preferred systems thinking approach adopted.

The HAM derived is as a result of comparative findings from 8 of the 10 strategy approaches analysed. Similarities are observed from the different propositions made by the analysed approaches on phases, as well as activities that phases should be composed of. The breadth of selected approaches, spanning three sectors allows for more analytical insights, by deliberating on the possible reasons for observed differences in HAM propositions made by analysed approaches.

Evaluation of the derived HAM, as SSM demands must involve an assessment of the – *efficacy, efficiency, and effectiveness* of the HAM (Checkland, 2000). *Efficacy* has to do with the extent to which the HAM or strategy formulation framework is used to derive a strategy that is viewed as workable or implementable (Checkland, 2000). This essentially will be determined by the extent to which the formed e-Government strategy is deemed to be systematically *desirable* and culturally *feasible* to the adopting local government (Checkland and Holwell, 2005).

Gaining knowledge of the extent of these factors as suggested by Approaches 4, 5, 9, and 10 can be achieved by carrying out evaluations of the created strategy based on a number of themes. These themes include, determining the: *Technical feasibility, economic feasibility, operational feasibility, schedule feasibility, and political feasibility* of the proposed or created strategy. Qualitative methods employed by experts, an undertaking of needs comparisons to strategy proposals (Pade-Khene and Sewry, 2011), and interviews with the strategy adopters, can be employed to carry out the evaluation of the efficacy of the created HAM – (*that is the derived e-Government strategy*).

Efficiency of the created HAM in providing the deliverable, seeks to assess the extent to which the strategy is derived with minimum expending of resources (Checkland and Poulter, 2006). It may be somewhat tricky to assess the efficiency of the HAM (e-Government strategy formulation framework) in deriving the strategy, as there is no other tried method in

the context of study for arriving at a strategy, therefore, determination of efficiency may be arbitrary.

The last evaluation component – *effectiveness* seeks to gain knowledge on the extent to which the created strategy or output of the HAM, supports some long-term goal (Checkland and Scholes, 1990). The impact of the created strategy, on long term e-Government success cannot be assessed now, but only in the future after the project has been implemented. A continued comprehensive evaluation linking the strategy to e-Government project impacts may support such an assessment (Pade-Khene and Sewry, 2011).

Approaches 4 and 7 propose that in the objective setting phase of an e-Government strategy formulation process, systems modelling approaches may be employed. This is one of several system approaches that may be employed. Some other system approaches include – causal diagrams, objective trees, and means-end diagrams (Enserink *et al.*, 2010). In summary form, it is explained that by employing systems approaches, simplified abstractions of the system under study can be represented (Duffy and Assad, 1989), in order to support the identification of feasible objectives (Checkland and Holwell, 2005).

Finally, Approaches 6 and 8 support suggestions by the SSM that HAM configurations, are never finalized, but in an iterative manner can continuously be refined by applying lessons learned from prior iterations to subsequent ones.

6.6.6 Limitations of Analysed Approaches

A number of limitations are observed across the 10 analysed approaches. Firstly, some approaches (1, 3 and 10) while proposing phases, which a strategy formulation process should consist of, do not explain in detail activities or functions that should be carried out in proposed phases. Due to this limitation, a number of proposals in mentioned phases are limited to interpretation based on the researchers understanding of general e-Government literature.

On another note, Approach 2, examines quite elaborately, what an ICT readiness assessment should consist of, nonetheless little is done in describing methods and procedures, which may underpin such an assessment. It is also noticed that some approaches do not ascribe to, or emphasise the need for the strategy to be formulated collaboratively. This is noticed with Approach 3, where it is advised that once the strategy development process is completed, it

needs to be justified to and approved by the government. This statement suggests that the process is outsourced to an external party, whereas the strategy is only explained to the government once completed. Such a view contradicts the essence of this research — which seeks the input of all relevant stakeholders in formulating the strategy. In relation to this, none of the e-Government approaches indicate, which stakeholders should potentially participate in the formulation of an e-Government strategy. The business-related approaches do a better job at highlighting potential stakeholders that should be part of a strategy formulation process, however, these approaches exclude citizen groups from their list of possible stakeholders. This is understandable, considering that businesses (profit oriented firms) are owned by a group of individuals, whose primary goal is to maximize profit. Decision making needs to be conducted differently as it relates to public institutions, where citizens by virtue of living within a society and being affected by decisions made, automatically makes them stakeholders in public decision making processes (Gaventa, 2004; Kahane *et al.*, 2013). Furthermore, all but one approach (Approach 7) from all analysed approaches address issues related to group dynamics and stakeholder engagement, which should be a focus area in any strategy formulation process. The comparing and contrasting exercise would have attained more value, in the event that more than one approach addressed group and stakeholder engagement related issues. Lastly, considering that NGO approaches focus on humanitarian content in their strategy formulation discussions, there is little to no contribution on what aspects of ICTs should be considered. However, this is not a major problem, considering that e-Government and some business related approaches elaborate on ICT aspects with some significant depth.

6.7 Conclusion

The components that a localized e-Government strategy formulation process should consist of, may be elicited by a study of several sectorial views on strategy formulation. It is revealed that e-government, business, and NGO strategy related approaches, can aid in the identification of strategy formulation components intended to support e-Government strategy development within South African local municipalities. For this reason, these sectors are focused on, by employing a template consisting of 5 facets to undertake a comparative analysis of selected approaches from the three mentioned sectors. Furthermore, in hopes of incorporating a systems view, to e-Government strategy formulation, findings suggest that the components will only serve a preliminary purpose, as a source for good questions. This is based on the proposition that a systemic process of inquiry, requires that views of key

stakeholders inform the final strategy formulation framework, considering the unstructured nature of strategy development. Nonetheless, in the interim, the analysis of these varying sectoral strategy approaches reveal fundamental components, necessary to derive an e-Government strategy formulation framework suited for local municipalities in South Africa.

Chapter 7

A framework to guide the formulation process of a Localized e-Government strategy in South African Local Municipalities

This chapter based on the analysis conducted in the previous chapter, proposes a framework for carrying out an e-Government strategy formulation process within South African local governments. The framework comprises of three main components: phases, phase gates, and content focus areas to address in an e-Government strategy formulation process. The chapter concludes by informing on the need to apply the framework in an appropriate environment in order to determine its suitability to support e-Government strategy development in local municipalities.

7.1 Introduction

In local government, decisions to integrate ICTs should be underpinned by the direction from a created e-Government strategy. Such a strategy should be informed by a thorough analysis of the environment where ICTs are to be integrated. Furthermore, there must be input from a wide range of important stakeholders, with varying views and perspectives. An analysis of ten approaches to strategy design, informs the development of an e-Government strategy formulation framework. Development of the framework is also augmented by an understanding of deliberation dynamics within multi-actor systems. This chapter discusses the components of the framework.

The chapter begins by articulating a definition of a localized e-Government strategy formulation framework. This is followed by a specification of the components of the e-Government strategy formulation framework. Subsequently, the central part of the framework (the phases of an e-Government strategy formulation), are elaborately discussed. Finally, it is concluded that a reflective understanding of the framework requires its application in a real-life environment, where its appropriateness, including (its suitability and shortcomings) can be observed.

7.2 Defining a Localized e-Government Strategy Formulation Framework

An e-Government strategy cannot be insulated from the environment where it will potentially be applied in. The extent to which ICTs implemented conform to the requirements of the host organization, will inherently influence the degree to which such system implementations provide expected value (Duffy and Assad, 1989). Additionally, a derived strategy should be arrived at as a collaborative endeavour with representation from all concerned stakeholder groups. A number of characteristics noticed across Chapter 5's elaboration on strategy formulation, aids in arriving at a definition of a localized e-Government strategy formulation process. Firstly, Bryson, Crosby and Bryson (2009) point out that strategy formulation is a cognitive, behavioural, social and political practice, where thinking, knowing and learning play a part in. Secondly, Adair (2002) indicates that strategy development focuses on long term planning, as opposed to the present. Drucker (1974) in Malunga (2007) highlights; objective setting, as well as approaches to achieving objectives. Asplund (1975); Bryson (1988); Chen *et al.*, (2013); and Duffy and Assad, (1989) point out that strategy formulation is conducted in phases. Finally, Asplund (1975) and Bryson, Crosby and Bryson (2009) discuss the deliberative element, where it is emphasised, that a strategy formulation task,

should be conducted with input from key stakeholders. Focusing on these characteristic qualities, a localized e-Government strategy formulation process may be defined as:

The application of customised phases to facilitate a collaborative deliberation and determination amongst concerned stakeholders, about how best ICTs should be integrated to support effective short-term and long-term local municipal functioning

7.3 The Components of the localized e-Government strategy formulation framework for Water Service Delivery

Broadly, three categories of components are identified, and adopted from analysed approaches of strategy formulation. When systematically integrated, these observed categories of components produce a tentative framework to support e-Government strategy formulation in South African local municipalities. Observed component categories include:

1. *The topical or content focus areas of a local e-Government strategy formulation process;*
2. *The concept of phase gates and feedback; and*
3. *Phases of a local e-Government strategy formulation process*

Figure 7.1 below depicts the conceptualized e-Government strategy formulation framework to guide strategy formulation in South African local municipalities.

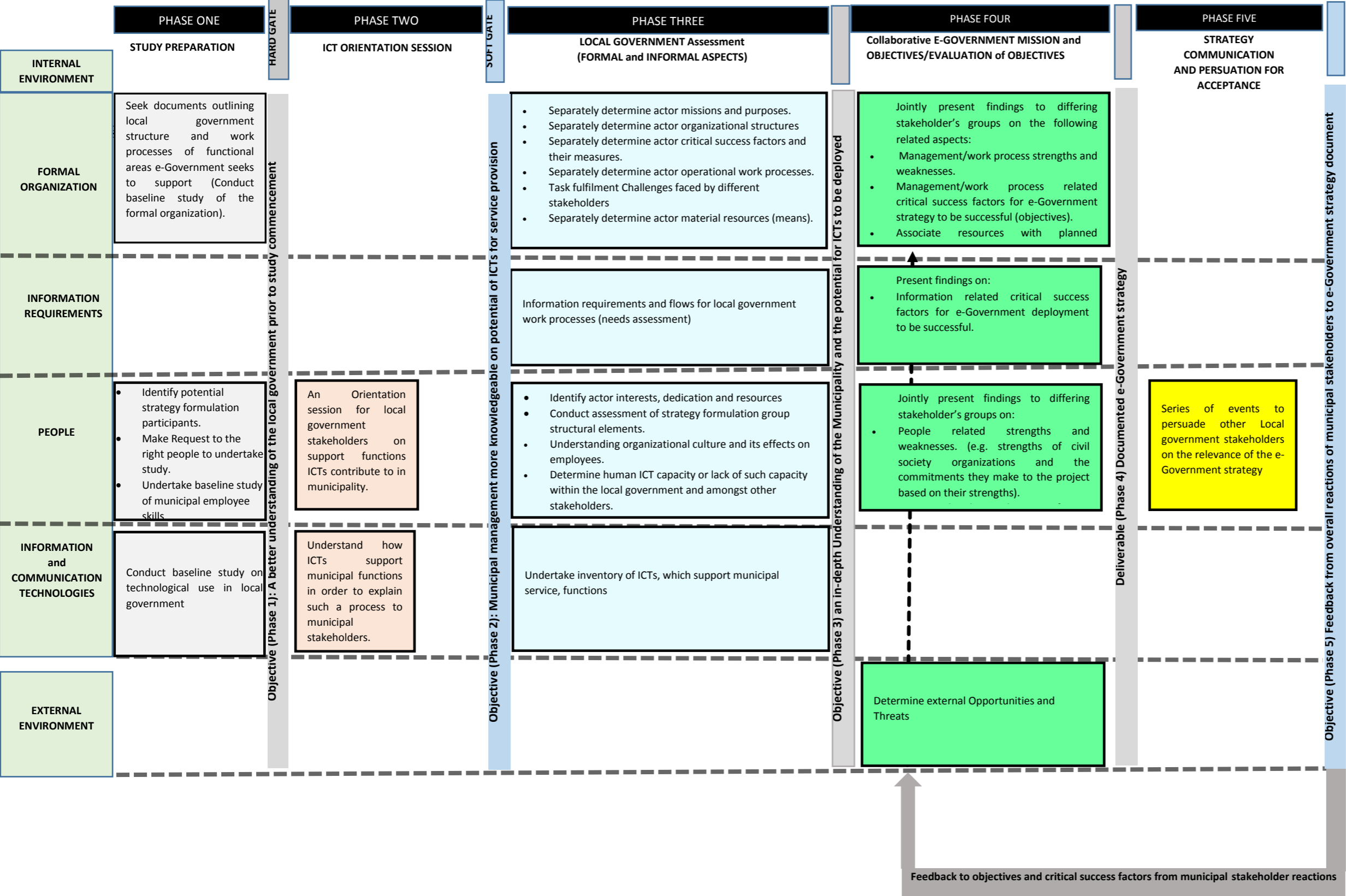


Figure 7.1: A Framework to guide e-Government strategy formulation in South African Local Municipalities

7.3.1 Content focus in a local e-Government Strategy formulation process

This component presents all themes important for consideration when undertaking an e-Government strategy formulation process for local government. To reiterate, breaking down the content focus into thematic aspects should not be deemed a requisite to structuring an e-Government strategy formulation process – nonetheless, this categorisation underpins better organization. Generally, content focus areas requiring attention in an e-Government strategy formulation process are centred around five main themes (Alghamdi *et al.*, 2011; Chen *et al.*, 2013; Duffy and Assad, 1989; and Lowery, 2001). These include: i) *the formal organization*; ii) *Information requirements and flows*; iii) *people*; iv) *ICTs*; and v) *external environmental factors*.

- i) **The formal organization:** The formal organization may be viewed as aspects readily observed as written rules, as well as explicitly specified structures agreed upon by members of a local government (Zenger, Lazzarini and Poppo, 2001). Therefore, the formal organization includes: a local government's mission and vision, existing management systems, the local government's organizational structure and attached rules and roles, related policies, and work processes.
- ii) **Information requirements and flows:** At the center of ICT use within any organization, is a concern for the information that users anticipate will provide value (for example, analytical, and decision making value). Simply, information requirements refer to the information needed to support local government functions (Duffy and Assad, 1989). Information flows, as referred to here, relate to the movement of information between organizational employees, functional areas, or other stakeholders (Hatala and Lutta, 2009), in order to facilitate task accomplishment. With computerized systems implemented – data and information can be better collected, stored, processed, and communicated (Drake *et al.*, 2004; Sinkula, 1994 in (Hatala and Lutta, 2009) between several local government stakeholders in order to facilitate service functioning. Awareness of appropriate information content, as well as knowledge of who such information must be communicated to (information flows), needs be understood, in seeking to derive an ICT strategy for local municipalities.
- iii) **People:** This theme concerns human related matters, and their effects on the strategy formulation process. Ideally, any holistic strategy should be developed by

a group of stakeholders involved in cognitive exchange (Asplund, 1975; Checkland and Scholes, 1990; Chen, Ruikar and Carrillo, 2013; Liukkunen, Pohjonen and Sariola, 2005). The group make up, may include individuals with egos, differences in opinion, and conflicts of interest. Perhaps, this should be expected, considering that humans are autonomous (Checkland, 2000). Checkland and Scholes (1990) point out that the human dimension brings along with it rich insight – which should be understood. These could range from psychological factors, to power relations, to desired skills. People related factors in this research will address issues such as; identification of potential strategy formulation participants, understanding group participant structural dimensions, as well as local governments employee culture.

- iv) **ICTs:** ICTs are an integral theme to be considered in any e-Government initiative. Factors to consider include: ICT infrastructure, hardware, software, associated costs, facilities, networks, critical success factors, ICT vision, and related strengths and weaknesses (Alghamdi *et al.*, 2011; Chen *et al.*, 2013; Duffy and Assad, 1989).
- v) **The External Environment (Opportunities and Threats):** With strategy development processes, consideration must be given to external factors (Malunga, 2007), which may potentially underpin or impede desired strategy outcomes. These factors may present themselves in the form of opportunities and threats (Pearce, 2007). For instance, the state of the country's economy cannot be influenced by the project, but can influence the project. Similarly, a drought will negatively influence the capacity of the local municipality to provide water resources. As such, even where there is effective reporting of water shortages, the municipality will be unable to respond adequately where there is a drought. In contrast, an opportunity may present itself where a large percentage of the citizen population in a municipality where a mobile government project is being implemented, own mobile phones. Even though a project may be unable to purchase mobile phones for all citizens whom they hope will utilize the m-government service, the fact that there is a large percentage who own mobile phones can work to the project's advantage.

7.3.2 Phase Gates and Feedback Mechanisms

Characteristically, an e-Government strategy formulation process to support water service delivery may be viewed as consisting of phases. Borrowing from concepts proposed by the process protocol framework (Copper *et al.*, 1998 in Chen *et al.*, 2013), the idea of phase gates are integrated within the tentative e-Government strategy formulation framework. Phase gates serve to ensure that key decision points in sequential processes are respected (Copper *et al.*, 1998 in Chen *et al.*, 2013). They may be classified as either hard or soft (Chen *et al.*, 2013). Duly applied to phases that will be elaborated on in the subsequent section, a hard gate separating two phases will imply completion of phase activities prior to proceeding to a subsequent phase. In contrast, where two phases are separated by a soft gate, phase activities between the separation may be conducted *simultaneously*. Here, the concept of process reviews is also proposed. The process review concept illustrates a mechanism to facilitate results feedback (Chen *et al.*, 2013), in order to enhance successive objective setting activities (Phase 4 activities), based on the feedback findings.

7.3.3 Phases of an E-Government Strategy Formulation Process

This component constitutes the focal point of the localized e-Government strategy formulation framework. Enserink *et al.*, (2010) is referred to quite substantially in proposing this framework, due to the noticed lack of context relevant literature in addressing particular issues pertinent to e-Government strategy formulation during the comparative analysis of frameworks. Whereas, Enserink's focus is primarily on policy formulation, it is common knowledge that synergies can be noticed between policy and strategy development activities (Checkland, 2000). Hence, it is thought appropriate to refer to propositions deemed relevant to policy formulation exercises in proposing the e-government strategy formulation framework. The phases are comprised of a series of steps, with each step consisting of activities, which are to be undertaken. Essentially, the e-Government strategy formulation process consists of five phases. These phases include:

Phase 1: The Study Preparation,

Phase 2: ICT Orientation for local government stakeholders

Phase 3: Local government assessment (formal and informal aspects)

Phase 4: Collaborative e-Government objective setting/evaluation of objectives

Phase 5: Strategy communication and persuasion for acceptance.

Phase 1: Study Preparation Phase

In this phase, a number of preparatory activities are carried out. Several reasons underlie the importance of this phase. Firstly, it serves to communicate a formal request to the local government – on the intent to undertake the strategy formulation exercise (Duffy and Assad, 1989). Such a request is especially imperative where local government personnel who initiate or desire external intervention do not possess ample authority to approve the exercise. Approval may be achieved either by writing a formal letter, or seeking an audience with powerful local government employees in tandem with the internal study initiator, if one exists. However, unlike a registered private company, local government is composed of other stakeholders that are not employed by the local municipal entity. Besides employees of local government, some stakeholders that should be considered in the South African context, include: citizens to whom the local government is responsible for providing effective public services; civil society responsible for gathering critical mass and creating awareness on the need to hold local government accountable, and community development workers, who represent the provincial government in ensuring that local government is effectively carrying out service provision.

Determining actors that should be involved in the e-Government strategy formulation process to support water services should be approached as an iterative process (Enserink *et al.*, 2010). This is based on the fact that the inventory of actors may change as their relevance to the problem situation is more clearly revealed to the interventionist (Enserink *et al.*, 2010). Enserink (2010) proposes a number of methods, which may be employed in a complimentary manner to make a first selection of actors who should be involved in a localized e-Government strategy formulation process. This is depicted in Table 7.1 below.

Table 7. 1: Methods for making a first selection of actors (stakeholders) to engage in an e-government strategy formulation exercise, adapted from (Enserink et al., 2010)

The Imperative Approach	Here stakeholders are identified based on the observed extent to which they are considered to feel strongly about a policy problem or issue to act on their feelings. (e.g. protesting citizens who feel strongly about a policy issue)
The Positional Approach	With this approach it is believed that reviews of existing policy making structures can aid in the identification of actors, based on formal position roles specified in the policy structures. Studying formal legislation, procedures, policy documents and the likes, provides this first indication of actors.
The Reputation Oriented Approach	Here key informants related to a policy issue are identified, and asked to point out important actors. Actors pointed out may then aid in nominating additional actors (snowballing)
The Social Approach	Somewhat similar to the Imperative Approach, actors are identified based on the extent to which they participate in activities related to a policy issue. For instance, identifying actors by their repeated presence in policy meetings, and committee meetings.
The Opinion Leadership	With this approach, the focus is primarily on actors that tend to shape the opinions of other

Method	actors (e.g. the media, and civil society)
The Demographic Approach	Here actors are identified based on demographic characteristics. (e.g. sex, age, occupation, level of education, and religion). Essentially, this approach is relevant where policy issues have different impacts on different demographic groups.

It is suggested to apply more than one method in a complementary fashions, rather than encourage the application of one particular method, over another. Moreover, a closer observation will confirm that there are overlaps between some of the methods described in Table 7.1.

Based on an understanding of the Imperative, Opinion Leadership, and Social Approaches, potential stakeholders besides the local government organization that should be involved in a localized e-Government strategy development process may include, the software application developers, academic researchers, organized citizen groups (civil society), municipal residents, the media, private entities and contracted service providers. A preliminary understanding of these organized groups and individuals must also be attained. Furthermore, at a later stage, they must be invited to engage in the e-Government strategy formulation exercise – as their differing views and perspectives will duly contribute to how ICTs will support service delivery moving forward (Enserink *et al.*, 2010). It is anticipated that the strategy formulation group will consist of a sub-set (representatives) of these groups, as all members cannot possibly effectively engage, considering findings by Ostrom (1990), which suggest that collaborative decision making works best when a group is small. As a rule of thumb, it is important to confirm that citizen group representatives approached to potentially participate are those possessing strong influences in the community (Irvin and Stansbury, 2004). To add on, an interventionist should observe the extent of willingness, keenness for cooperation, and enthusiasm displayed by the potential participants (Malunga, 2007). Participants who do not exhibit these traits may end up frustrating the process, or dropping out before the exercise is completed. Also as suggested by Asplund (1975), the collective make-up of the e-Government strategy formulation group, should include participants: concerned with the topic for which a strategy is sought (e.g. municipal communications manager and ICT manager, contracted service providers), personnel regarded as influential (both within the municipal work space and to citizen groups); the head of an opposing interest group to the topic of concern (if such a cohort exists), and an individual considered to have a good reputation in the municipality, and thought to be in good standing with a substantial proportion of the municipality (e.g. civil society representatives, capable of

building critical mass). One amongst these must also act as a champion, to keep enthusiasm alive, even in the absence of the interventionist (Malunga, 2007).

Considering that the local municipality is primarily responsible for service delivery, it becomes necessary to understand their functioning mechanism (how things work). This will be carried out more rigorously at a subsequent phase, however it is good practice for the interventionist to have a high-level view of the local municipality he or she will be working with. Aspects to focus on here may include: the municipality's organogram, key (powerful) stakeholders, employed ICTs and in what capacity they are employed, and work processes of functional areas, which ICTs seek to support (Duffy and Assad, 1989). These evaluations should be extended to other important stakeholder groups, who are not employed by the municipality (for example, civil society, media outlets, and interested citizens). For instance, civil society should be questioned on their processes for eliciting budget data from the local government, and how this information is used to mobilize critical mass. Similarly, citizens may be questioned on their current forms of communicating service faults to the municipality, and the degree to which these communication means support efficient resolutions to their complaints.

According to Asplund (1975); Bryson (1988); and UNAIDS (1998) informal discussions with the internal study initiator, as well as with other concerned identified stakeholders may be a good first step to facilitate learning about the local government, its key stakeholders, functions, ICT needs and other aspects thought to be relevant to this phase. Pade-Khene *et al.*, (2010) who encourage such information elicitation (*understanding the local municipality*), prior to ICT project planning activities, propose that instruments such as questionnaires, interviews, and participant observation, be employed to elicit such baseline data. Furthermore, information provision platforms such as local government websites, social media platforms, and local government related documents, may aid in providing a high-level view of the local government and its relevant stakeholders (Duffy and Assad, 1989 and Malunga, 2007).

In retrospect of the discussion on phase gates in Section 7.3.2, a hard gate separates this phase from the next phase – thus indicating that the proposed activities of this phase be completed, prior to advancing to the next phase. Completing this phase before advancing, gives the interventionist a sense of the extent to which the strategy formulation exercise will

be feasible. Based on the questions, which the interventionist seeks to answer in this phase, analysed data elicited should include: a high level understanding of the local municipality – including its functions and information flows, municipal ICT support needs, municipal and resident ICT infrastructure (hardware and software), municipal employee and resident ICT skills, local residents pattern and content of communication with local government, and an idea of other stakeholders who will be relevant to the process, and a formal authorisation by local government authority to undertake the study.

Phase 2: ICT Orientation Phase

The purpose of this phase is to inform or enlighten key municipal employees and other stakeholders on the possible value ICTs may contribute to service delivery improvement. This phase is primarily comprised of a workshop or series of workshops organized by the interventionist. This is particularly important in a resource constrained context, where decision makers may view ICTs as less of a priority than other pressing needs (Champanis *et al.*, 2013; Naidoo, 2007), such as, dilapidated water infrastructure, or other service related backlogs (Champanis *et al.*, 2013; Nnadozie, 2013). Reflection on the aim of this phase suggests that the following activities may be used to conduct ICT orientation sessions: power-point presentations by experts or the interventionist, video presentations, case study exercises, and open workshop discussions.

The heterogeneous mix of anticipated stakeholders, and their correspondingly varied objectives in a local government context, may require that at this phase, separate workshops be held for different groups with conflicting interests. Groups include i) citizens: ii) civil society organizations, and iii) local government employees. For instance, while highlighting transparency and accountability as strong value addition points may arouse enthusiasm amongst civil society representatives – these points may not spark the same level of excitement amongst local municipal officials initially. Governments often exhibit significant impedance to transparent forms of governing in hopes to sustain their influence, power and positions (Ndou, 2004). As such, it may serve the interventionist better if benefits presented to the government concentrates less on accountability, and more on how collated citizen feedback can underpin more informed planning of future municipal projects. Similarly, the extent to which improved local government communication can enhance citizen trust may be touched on – with an indication of how this may influence a reduction in service delivery protests. On the contrary, workshops held with civic organizations, may highlight how

increased transparency supported by ICTs, will over time induce local government to become more accountable – due to evidence provided by electronically aggregated citizen views.

A workshop of this nature may become the difference between an enthusiastic and uninterested key stakeholder. Hence, it is important that communications are well articulated to potential stakeholder representatives. At this phase, it is also expected that the interventionist will leverage the potential opportunity provided by the workshops to form relationships with key stakeholders, and explain the intention of the strategy formulation process to them (Duffy and Assad, 1989). Such formed relationships, hopefully, will provide a window for the interventionist to start observing attitudes and norms of key stakeholders. Such observation partly ties in on activities proposed in the next phase (understanding formal and informal aspects of the local government). This suggests that there is some overlap with this phase and the next phase. Hence, a *soft gate* separates this phase from the next phase, considering that in the process of conducting ICT orientation workshops, the interventionist begins a process of slowly learning about the informal organization by getting to know key stakeholders. The output produced here is a situation where key stakeholders are more enlightened on the potential value of ICTs in supporting service delivery plans.

Phase 3: Assessment of Local Government affiliated Organizations (Formal and Informal aspects)

The various local government stakeholder organizations, consist of formal and informal aspects. As has been mentioned in Section 7.3.1, formal aspects of any organized group, relate to facets that can be readily observed as written rules. Usually, such rules are explicitly agreed upon by members of the organization (Zenger, Lazzarini and Poppo, 2001), as critical to their existence. Relevant formal organizational aspects of various stakeholder groups, which will usefully inform the e-Government strategy development process include (Duffy and Assad, 1989): their *missions and visions* – indicating the main reason/s why they exist (central goal/s); stated *critical success factors* for meeting their objectives (a few key areas where things must go right); *critical challenges*; *planning processes*; *work processes* (systems of task accomplishment); and *currently employed ICTs*, which support work processes. To add on, the communication interdependence of stakeholder groups in relation to fulfilling their varied objectives should be mapped out (*information flows*) (Duffy and Assad, 1989). Data on these aspects may be collected by employing semi-structured interview questions (Duffy and Assad, 1989). These interviews may be conducted individually, as well as in

workshops (Asplund, 1975; Duffy and Assad, 1989). Preferably, both forms of data elicitation may be used. Some relevant information may also be sourced from text based sources (Duffy and Assad, 1989), such as, local government plans, organizational websites, or any other form of text based material where related information can be sourced.

Informal aspects of local government represented organizations, which will usefully inform the e-Government strategy formulation process relate to facets concerned with each organizations culture (Duffy and Assad, 1989). Furthermore, as this relates to the group, this assessment also extends to consider the human group, as well as organizational structural elements, which may impede collaborative problem solving in the strategy formulation process.

Prior to the interventionist investigating formal and informal aspects of local government affiliated organizations, it is a good idea for him or her to have articulated the problem from his/her own view (Enserink *et al.*, 2010). Analysed data provided from a Baseline Study conducted in the study preparation phase can help with this articulation process.

The following activities may be carried out in order to assess the formal and informal aspects of local government affiliated organizations:

Activity 1: Problem Articulation

It is imperative at this stage for the interventionist to systematically document the problem that prompted the need for an intervention (the need for an e-Government intervention) (Enserink *et al.*, 2010). In seeking to document the problem, it helps to begin with identifying the problem view, as perceived by one problem owner (Enserink *et al.*, 2010). Here, the view of the interventionist may be used as a starting point (Enserink *et al.*, 2010), as where the interventionist has properly articulated the problem, he will more likely be aware of relevant questions to ask other stakeholders about the problem. The problem view of the interventionist may be informed by the Baseline Study, observations at a meeting with local government stakeholders (public forums), literature reviews, and informal discussions with such stakeholders. The expectation is that the views of other stakeholders will be explored at a later stage. Hence, where exploring formal aspects of the municipal organization discussed in the previous paragraph, the interventionist must be focused on how this information will reveal what the problem is considered to be. Enserink *et al.*, (2010) provides a four (4) step process for systematically expressing and documenting the problem from the interventionists

perspective. These steps include: I) Demarcation of the problem, (II) specifying objectives and criteria, (III) Identifying means for achieving objectives, and (IV) integrating all of these components as a system diagram consisting of means, criteria, external factors and internal system components. These steps will be elaborated on below.

I) Problem Demarcation: Here the interventionist employs a means-end analysis to portray the identified problem as an objective that expresses his or her idea of the desired situation. This thought process should be taken further by the interventionist posing the question “why the said objective is worth achieving?”. When the reason for pursuing the said objective is arrived at, the interventionist should repeat the process again – seeking to determine why the identified reason is important. This question should be asked multiple times, until the thought process is exhausted, and no more rational reasons can be pointed to. The last rational reason provided will be referred to as the end objective, or the fundamental objective. The exercise described here can be referred to as a means-end analysis (Enserink *et al.*, 2010). Below is a practical example of its application as it relates to this research. Figure 7.2 illustrates a means-end analysis for plans to enhance communication internally amongst local government representatives and externally with the public.



Figure 7. 2: A mean-end analysis for plans to enhance communication within a local government.

In this illustration, an interventionist's problem expressed as an objective, may be the need to improve communication internally and externally within a local municipality (highlighted in red). The interventionist must then introspectively inquire why enhanced communication is important. This may further reveal that enhanced communication will contribute to the process of striving for an effective and accessible local government representation that is considered to be just and fair. Seeking to determine why it is important to have local government representation that is just and fair, may produce an answer like "because citizens pay taxes, and as such it is their right to have a fair and just representation. The answer arrived at on this last probe indicates that a further probe will not produce any sensible answers. Therefore, the topmost objective is recognized as the fundamental objective or the end objective. Besides, this objective is a mandate by the constitution of South Africa, the Municipal Systems Act, and the National Water Act (Algotsson *et al.*, 2009). All lower level objectives are considered to be means objectives intended to realize the fundamental or end objective. Now it has been established that there is a good fundamental objective, for the initially identified objective, which seeks to enhance communication. Looking at the means-end analysis, it can also be noticed that there are other possible means of arriving at the fundamental/end objective. For instance, promulgating appropriate policies – like the constitution at the national level, and a communications policy at the local level. This helps the interventionist to be open minded to other possible means, which may be resorted to in order to achieve the fundamental objective. Enserink *et al.*, (2010) propose that an interventionist adhere to certain rules when constructing a means-end analysis. It is suggested that these rules will aid easy interpretation where other analysts need to study documentation produced by the interventionist. Box 7.1 below lists the rules for constructing a means-end analysis, as specified by (Enserink *et al.*, 2010).

- 1) Rectangles represent means/ends. The text in a rectangle should be a verb phrase (for instance, improve, reduce), because this preserves the ambiguity of a means/end.
- 2) Arrows represent causal relations. It should be possible to read the diagram as $(X \rightarrow Y)$ X causes Y. Or if we do X we will arrive at Y.
- 3) Arrows should point upwards. This rule aids in ensuring that the most fundamental/end objective is at the top of the diagram.
- 4) More than one arrow may proceed from the same rectangle (e.g. a particular means can aid in the realization of several objectives).
- 5) Each rectangle should have either none or more than one ingoing arrow. This rule aids in ensuring that no objective can be said to be realized by only one means. If this is the case, then that means should rather be on the level above in the means end hierarchy.
- 6) A diagram should not consist of redundant arrows. An arrow $(X \rightarrow Z)$ is redundant, if the diagram also contains some indirect path $(X \rightarrow Y \rightarrow Z)$. Combined with rule 3, this rule compels the interventionist to place elements at the correct level, as well as to keep the diagram simple.

Box 7.1 Rules for constructing a means-end diagram from Enserink et al., (2010)

The interventionist may, however, finally decide that the initially selected objective aimed at enhancing communication should remain the focal means objective. If this is the case, the focal means objective is used to create an objectives tree. This is considered to be the next step.

II) Specifying Objectives and Criteria: Here the focal objective is more clearly defined. The tool that supports this more refined definition is referred to as an objectives tree (Enserink *et al.*, 2010). The focal objective is defined more clearly in terms of lower specific objectives. The process commences by outlining the focal objective, and then making one or more problem formulations that specify what may need to be addressed in order to achieve this objective. Figure 7.3 illustrates this process by using the focal objective identified in the previous step.



Figure 7. 3: An objective tree for implementing a cost effective communication platform

As depicted in Figure 7.3, the lower level objectives more broadly define what the focal objective at the top means. This gives the interventionist an idea of aspects that need to be addressed. They serve as criteria, which potentially indicate the extent to which the top level objective has been achieved. Applying this same concept, the lower level objectives can be further defined. Importantly, an objectives tree should not be mistaken for a means-end diagram (Enserink *et al.*, 2010). They do not serve the same purpose and should be distinguished as such. While a means-end diagram seeks to select a problem to focus on, the objectives tree is employed to define criteria for evaluating varying solutions for the selected problem (Enserink *et al.*, 2010). Similar to the means-end diagram, Enserink *et al.*, (2010) propose some rules to adhere to when constructing an objectives tree. Box 7.2 below lists these rules.

- 1) Highest and lower level rectangles represent objectives. The text contained in rectangles should be a noun phrase that indicates a desired state.
- 2) Connecting lines represent definition of relations. Lower level objectives suggest the meaning of higher level objectives to which they are connected.
- 3) Each higher level objective should have zero or more than one lower level objective connected to it. If only one is connected to it, then the lower connected objective should rather be on the higher level.
- 4) The lowest level objectives should be operational: Simply put, the noun phrases written in them should make clear which factor is to change or not, and the direction of the desirable or undesirable change. Also factors considered should be measurable on some scale (preferably ISO standard unit).

Box 7.2 Rules for constructing an objectives tree diagram adopted from Enserink et al., (2010)

However, as a point of note, it must not be forgotten that this systematic problem conceptualization represents the view of the interventionist, therefore, this view must be confirmed with other stakeholders to determine whether or not they conceive the problem the same way. Furthermore, stakeholders must be asked if there are other lower level objectives, which they deem critical to achieving the focal problem expressed in the desired state. Once this step is completed, means need to be identified for achieving lower level objectives specified in this step.

III) Identify Means and Map Causal Relations: Having articulated a higher level objective, and associated criteria, here the elements that influence the realization of criteria need to be investigated. To support this process, it is wise to develop an elaborate map of the causal chains in the system that link means to criteria (Enserink *et al.*, 2010). A causal map illustrates the causal relations between the factors that are relevant to the problem (Warren, 2004). It underpins an expressive form of what-if analysis that aids in articulating the effects of means, and external factors on the criteria. Additionally, it acts as a starting point for quantitative analysis that might be developed later in the process of problem solving (Enserink *et al.*, 2010; Scavarda, Bouzdine-Chameeva, Goldstein, Hays and Hill, 2004). Fundamentally, the causal map is a created theory about how a system works (Warren, 2004). It is produced by knowledge from literature research, and interviews with experts about vital causal mechanisms that are relevant to the problem (Enserink *et al.*, 2010; Scavarda, *et al.*, 2004). A causal map should focus on factors that are most relevant to the problem and its solution (Enserink *et al.*, 2010). Including more factors or elements than is necessary renders the causal map useless as a tool for clarification and communication (Enserink *et al.*, 2010).

Furthermore, ideally the causal map should be limited to twenty (20) elements, and if more elements are needed the map may be broken down into sub-systems consisting of several causal maps. Enserink *et al.*, (2010) provide some rules to guide the creation of a causal map. Box 7.3 below lists these rules.

- 1) Ovals represent factors. The text in an oval should be a noun phrase that represents some variable system property. Each noun phrase should be worded such that where it is read as “factor increases”, it is grammatically correct and meaningful.
- 2) Arrows represent causal relations. Each arrow $X \rightarrow Y$, should indicate that a change in X will result in a change in Y.
- 3) All arrows $X \rightarrow Y$, should be labelled with either a plus (to indicate that the value of X and Y are positively correlated), or a minus sign (to indicate a negative correlation).
- 4) Each oval should be connected to at least one other oval.
- 5) To increase legibility of the map, crossing arrows should be avoided as much as possible.
- 6) In instances where a causal map contains an arrow $X \rightarrow Z$, as well as some indirect arrow $X \rightarrow Y \rightarrow Z$, the interventionist should justify this multiple causality by explaining that the two paths have different underlying causal mechanisms. This rule seeks to ensure that the causal map is kept as simple as possible.
- 7) The map should focus on factors that can change, constants should be ignored.

Box 7.3: Rules for constructing a causal map

To avoid redundancy in the representation of system characteristics, when selecting alternative solutions to be evaluated, the interventionist should pay attention to the independence of criteria, or lower level objectives. Figure 7.4 below, depicts an example of a causal diagram based on the criteria specified in the previous example.

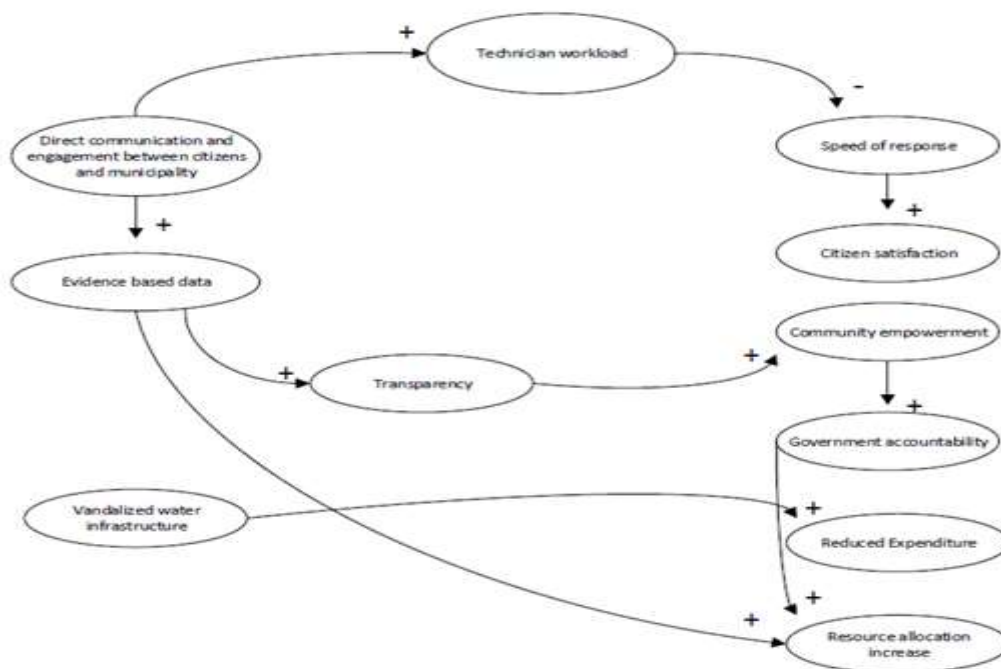


Figure 7. 4: Example of a Causal diagram

Note, where the interventionist concludes from his/her problem formulation that ICT integration will constitute part of the means to deal with the problem, an assessment of certain ICT related aspects should take place. Such an assessment is carried out to ensure that there is an enabling environment for ICTs to be integrated. Table 7.2 provides a summary of ICT aspects, which should be assessed, as adopted from Alghamdi *et al.*, (2011).

Table 7. 2: ICT readiness dimensions to assess in preparation for e-Government projects, adopted from Alghamdi et al., (2011)

ICT dimension	Description
User access mediums	<i>This dimension refers to access mediums (hardware devices) available to e-Government users (government, and citizens alike) to access e-Government services. Indicators assessed here include: functionality, time saving on tasks, and accessibility. Functionality seeks to determine the extent to which a user access medium or hardware serves the purpose for which it is designed. An assessment of time saving seeks to determine the extent to which a user access medium improves a user's output per unit of time on task related issues. Accessibility refers to the extent of ease with which potential users access hardware.</i>
ICT Architecture	<i>This readiness factor refers to an assessment of the technical structure and orientation of ICTs, which may potentially support the functioning of e-Government applications. Stability and propensity for scalability are the indicators deemed to be most critical here. Important technical structure requirements to access here include: Portal design, layered structure and Service Oriented Architecture (SOA) (Alghamdi et al., 2011).</i>
Business Process and Information systems review	<i>This is a critical dimension for any e-Government project. This assessment dimension seeks to articulate and determine how ICTs seek to potentially support a local government's business processes and information systems flows. This essentially calls for an understanding of potentially required business process modifications which will occur as a result of ICT supported information systems. Three activities are highlighted here in order to undertake a business process and information systems review. These activities include; Business process reengineering (BPR), knowledge management, and determining specific ICT applications to be adopted (Alghamdi et al., 2011).</i>
Government ICT Infrastructure	<i>ICT infrastructure constraints impede many developing countries from implementing ICT projects (Alghamdi et al., 2011), and the government is not exempt from this. ICT infrastructure is defined as a group of shared physical ICT resources that underpin the deployment, facilitation and use of existing and future business applications (Alghamdi et al., 2011). ICT infrastructure considerations encompass aspects, such as: web servers, application servers, storage devices, PCs, printers, routers, scanners, switches, operating system, Local Area Networks (LAN), and Wide Area Networks (WAN). Security and operational aspects should also be considered here.</i>
Workforce concerns	<i>This ICT readiness factor focuses on human roles and responsibilities, which will be fulfilled through ICTs in order to achieve local government goals (Macasio, 2009 in Alghamdi et al., 2011). Instituting plans for user training, to enable users to employ integrated ICTs to support their goals is the main concern here.</i>

It is also imperative to verify that the causal relations indicated in the causal diagram occur within the *timeframe* set by the problem demarcation. Where it is anticipated that a causal relation will occur slower within the timeframe selected for the analysis, they should be considered insignificant, and as such, should be removed (Enserink *et al.*, 2010). The interventionist must also be cognizant of loops in the causal diagram. Loops here are considered to be causal relations that proceed from one element to another element, however in reverse manner, the receiving element also has a direct causal relation on the first element (Enserink *et al.*, 2010). These loops represent a dynamic feedback mechanism, which may be one of two types – positive or negative. They can be distinguished by the number of minus

signs displayed along the cyclic path (Enserink *et al.*, 2010). An even number of minus signs (including zero) indicates a positive feedback, whereas an odd number of minus signs indicates negative feedback (Enserink *et al.*, 2010). The expected implication of a positive feedback is that over time the effects of changes that influence any of the factors in the loop may be amplified (Enserink *et al.*, 2010). On the contrary, with a negative feedback, over time it is anticipated that these effects will reduce (Enserink *et al.*, 2010). Additionally, the interventionist is expected to determine whether the causal map is inclusive of factors linked by more than one causal path. For instance, where X and Y are linked by more than one causal path ($X \rightarrow Y$, and $X \rightarrow Z \rightarrow Y$) (Enserink *et al.*, 2010). Where this happens, and the signs of the two linking paths are opposite, for example positive and negative, the interventionist should try to determine, which influence is stronger, and adjust the diagram accordingly (Enserink *et al.*, 2010).

The overview provided by the causal map further aids in facilitating the search for means of achieving objectives (Enserink *et al.*, 2010). For some causal factors this may reveal several means, for others none. Additionally, different factors may be influenced by the same means (Enserink *et al.*, 2010).

(IV) Integrating all components of the previous steps to derive a Systems Diagram: The interventionist may begin this phase by identifying critical external factors, which influence criteria identified in Step 2, but are not within the control of the interventionist or other stakeholders. Once these factors have been identified, the interventionist should integrate the external factor findings with all the other findings from the previous steps in a systems diagram (Enserink *et al.*, 2010). The systems diagram provides a summary of the system demarcation by pointing out elements relevant to the problem analysis (Enserink *et al.*, 2010). The diagram is primarily comprised of four elements, which are described in Table 7.3 below.

Table 7. 3: Components of a system diagram relevant to a problem situation adopted from (Enserink et al., 2010)

Elements	Description
Criteria	These elements/factors indicate the extent to which the problem has been addressed, they are indicated in operational terms.
External factors	These elements cannot be influenced by the client, but do affect one or more criteria.
Internal factors	These elements/factors play a role in the causal chains that affect the criteria

Means	These elements/factors are actions by the client that affect one or more criteria
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The systems diagram, represents a complete summary of the findings of the exploratory systems analysis, and as such, may act as a basis for further analysis (Enserink et al., 2010). Essentially, the derived systems diagram becomes a useful tool for communicating with stakeholders, by determining the extent to which they identify the same factors. Where the same factors are not identified, the extent to which differences pose implications for the problem formulation and system demarcation should be determined (Enserink et al., 2010).

The systems diagram may be employed for qualitative analysis, seeking to determine the effects of using particular means – or the effects of changes in external factors on the criteria (Enserink et al., 2010). A particular means or external factor may be focused on revealing the causal path to a specific criteria, which will be affected positively or negatively. A consequence table, such as that depicted in Table 7.4, may prove useful in tabulating the relationships between means and criteria.

Table 7. 4: Example of a consequence table for means/criteria relationship adopted from (Enserink et al., 2010)

Criteria effect	Means effect			
	C1	C2	C3	C4
M1	+			
M2	+	+	+	
M3			+	+
M4	-			+

Activity 2: Actor Analysis

Table 7.1 succinctly proposes several methods, which in tandem, may be employed to make a first selection of stakeholders. However, more than identifying them, stakeholders must be assessed in order to understand their stakes/views on the problem situation, the resources they possess to contribute to the solution, and the influence, which they may, or may not possess in making critical decisions to support or impede an agreed upon solution. The term actor is employed here to refer to a stakeholder. As related to this research, an actor is a social entity, a person or an organization, able to act on, or exert influence on a proposed decision to integrate ICTs intended to support local government service delivery (Enserink *et al.*, 2010).

The focus here being problem solving by multi-actors, it becomes imperative to conduct an actor analysis. With the unlikeliness that all actors will have similar views of the problem situation, accommodations must be made by seeking room for compromise – especially as related to conflicting views (Checkland, 2000). Expectation is that no single actor will possess unilateral will to impose their desired solution on others (Enserink *et al.*, 2010). In conducting the actor analysis, an interventionist must be aware that the capacity to influence the decision making of actors is as important as identifying their initial stake (Enserink *et al.*, 2010). In order to influence their decision-making intentions, as it relates to the problem, an interventionist must be aware of four dimensions that influence actor behaviour. These include: networks, perceptions, values and resources (Enserink *et al.*, 2010). These dimensions are briefly described below:

- **Networks:** This dimension refers to established forms of social relations between co-dependent actors, which may be observed through policies that define their relations. By understanding the networks between actors, an interventionist is able to identify rules that limit their structure, as well as possible relational activities.
- **Perceptions:** This dimension relates to the impressions that actors have of the problem, as well as how they view other potential actors who will be involved in the problem solving process. Perceptions may also be labelled as causal beliefs.
- **Values:** This dimension seeks to determine the direction, which actors would like to proceed, regarding the problem situation. Values provide an indication of the internal motivation of actors, and may be clarified by posing questions to actors about their; objectives, goals and targets. Preferences and positions translate values into priority ordering, related to preferred solutions or policy outcomes.
- **Resources:** This dimension focuses on the practical means available to actors to support the realization of their objectives. Resources may be tangible or intangible (Asplund, 1975). However, their common characteristic is that actors have control over them (Enserink *et al.*, 2010). With resources, actors are able to exert influence on the world around them, including other actors, relations, and rules in a network (Enserink *et al.*, 2010).

In order to commence an actor analysis an initial problem formulation should have been articulated. This relates to the problem articulation steps to be carried out by the interventionist as described earlier. This articulated problem is expected to change due to the

actor analysis, which will likely provide new insights to support the interventionists initial problem formulation (Enserink *et al.*, 2010). With an initial problem articulated, the interventionist may then follow the steps below in conducting an actor analysis:

1) ***Make an inventory of actors involved***: Table 7.1 proposes possible methods that may be resorted to in order to identify relevant actors. This identification process should be followed by a statement that describes the interest of each actor. Where different actor groups have distinct perspectives on a problem within an organization, it is advisable to include these units as separate actors (Enserink *et al.*, 2010). A suitable number of actors to be involved in the process should range from 10 to 20. Having less than 10 actors presents the likelihood that important actors may have been left out, whereas having more than 20 actors amplifies the risk that the analysis will not be focused enough to be useful (Enserink *et al.*, 2010). Table 7.5 depicts a tool that can aid in developing an inventory of actors.

Table 7. 5: A tool for making an inventory of actors from Duffy and Assad (1989)

Actor Role	Actor Interests				
	<i>Improved communication</i>	<i>Improved service delivery</i>	<i>Increased National government funding</i>	<i>Reduced local government expenditure</i>	<i>Local government accountability</i>
<i>Municipal Manager</i>	*	*	*	\	\
<i>Technical service customer desk</i>	X	X	*	\	o
<i>Civil Society</i>	*	*	*	\	*
<i>Unaffiliated Citizens</i>	*	*	\	\	*
<i>Application Developer</i>	*	*	*	*	*

* = signifies that an actor is majorly interested in solving this issue

X =signifies that an actor has minor interest in this issue

\= signifies that an actor has no interest in this issue.

o =signifies that an actor opposes this issue.

Contained in the rows of Table 7.5, are various actor roles thought to be relevant to a local government's related problem. Similarly, the columns contain various interests relevant to the problem. Depicting actors and their interests this way, can allow for a visualization of similarities and differences amongst actors in terms of interests. The tool presented in Table 7.5 may also be adapted to determine the tasks that actors are required to perform in their occupational capacity. This for instance, will be useful to this study, at the point

where key personnel within the local government responsible for receiving service complaints from municipal residents will need to be identified. It is also important here to specify the formal relations between actors (Enserink *et al.*, 2010). This may be achieved by referring to an organogram, if all actors are from one organization. Where this is not the case, after some investigation the interventionist may come up with a diagrammatic depiction of the observed pattern of relations between actors. Some questions that may aid this process include: Is there a hierarchical relationship between actors? Is there a formal membership of representational arrangement? Who has a formal advisory role in the decision-making process?

Defining this relationship should be augmented by a succinct description of the most important laws, procedures, legislation, and authorities that bear on the problem situation (Enserink *et al.*, 2010). This will aid in clarifying what factors of the problem situation have to be accepted as given, and what is open to compromise. This description may further give the interventionist clues about actor positions, interests, influence and ability to affect change.

2) *Drafting the problem formulations of the different actors:* In this step, the problem formulation of the different actors is investigated, by conducting a more in-depth study of their – interests, objectives, and causal beliefs as related to the problem situation (Enserink *et al.*, 2010). Though the interventionist should have a vague idea of actor interests, this idea is based on his/her perception of the problem. Interests signify the reason why an actor deems a problem to be important. Hence, the following questions can aid in determining actor interests (Enserink *et al.*, 2010): *Why is the problem situation important to you? How are you affected by the problem? Why do you care?*

Objectives more specifically indicate what actors hope to achieve after actions have been taken (Enserink *et al.*, 2010). All actors must be questioned on the changes that they hope to realize in relation to the situation. Objectives should be elicited in measurable terms, as they will serve as indications of the extent to which actors objectives have been realized once the projects implementation commences. The following questions can aid in determining actor objectives (Enserink *et al.*, 2010): *What do you hope to achieve in relation to this problem? When do you hope to achieve this? What are the associated costs and benefits of achieving these objectives?*

The perceptions of actors as has been indicated, provides information on actor's views of other actors, as well as views on causal factors thought to be related to the problem. By sketching different causal diagrams for the varying actors, the interventionist will be able to get a sense of causal perceptions of actors as related to the problem (Enserink *et al.*, 2010). The following questions can aid in determining actor perceptions as related to the problem (Enserink *et al.*, 2010): *What is your perception of the problem? What is the core of the problem? In your view, what are the causes of the problem? What possible solutions do you anticipate can be resorted to in order to address the causes of the problem?*

For each of these factors, reasons should be limited to a maximum of three (3) views from each actor group (Enserink *et al.*, 2010). Once the interventionist has investigated the problem from all actor perspectives, the results may be presented in a table similar to that depicted in Table 7.6 (Enserink *et al.*, 2010):

Table 7. 6: Overview table of actors' problem formulations adapted from Enserink et al., (2010)

Actors	Interests	Desired Situation/Objectives	Existing or Expected Situation and gap	Causes	Possible Solutions
Problem Owner					
Actor 1					
Actor 2					

The summary arrangement presented in Table 7.6 underpins a systematic comparison of all actor's views on the problem – this helps the process of observing similarities and differences by the varying actors (Enserink *et al.*, 2010). These views can complement the interventionists initial view of the problem. Furthermore, they can serve as a reference point for the recommendations to be made on how to deal with and influence relevant actors (Enserink *et al.*, 2010).

As part of the differing actor problem identifications, the interventionist should make an effort to understand the dominant cultures of actor affiliated organizations (Duffy and Assad, 1989; Checkland and Scholes, 1990; Schein, 1990). Note, defining any organizations culture is problematic due to the fact that the concept of the organization is ambiguous (Schein, 1990). Hence, simple metrics, which may be relatable to organizations may be employed. Checkland (2000) proposes that an idea of an organizations' culture can be determined by focusing on three elements namely – *roles*, *norms*, and *values*. Roles

relate to positions that emphasize differences between members of a group or organization (Checkland and Poulter, 2006). In relation to roles, norms are defined as expected behavior, which distinguishes identified roles in the context of study (Checkland, 2000). Lastly, values will reveal indicators upon which actual performance of identified roles should be judged (Checkland and Scholes, 1990). Some overlap may be noticed here, with regards to roles, which have been discussed in the step seeking to derive an inventory of actors. Thus, cultural elements will be limited to norms and values. Based on the definitions of these cultural elements, the following questions may be employed in order to gain an overview of the organizational cultures of relevant actors – What do people strive to achieve the most in relation to their job within your organization? What actions of staff within your organization will result in a reward, for instance, a promotion? In what particular aspects is your organization interested in creating incentives for staff? What are some of the expected characteristics attached to your job role? What is the most important thing your superior expects of you? What is the most important thing that your subordinates expect of you? Answers to these questions will give the interventionist an idea of the values eschewed by the organizations of actors represented.

3) **Identify and Analyse interdependencies:** In this step, the interventionist assesses the interests and resources possessed by the actors, in order to determine which actors he/she will need to depend on to address the problem. Four factors are considered, in order to derive an understanding of essential dependencies – these include: *The perceived importance of the resources possessed by actors to the interventionist, the ease with which these resources can be substituted; the degree to which actor's interests and objectives are aligned with that of the interventionist; and the urgency of the problem to the actors* (Enserink *et al.*, 2010). Some answers to these questions can be elicited from Table 7.6, however, an inventory of actor resources has to be carried out here. Note, resources considered should be relevant to the problem. Asplund (1975) and Enserink *et al.*, (2010), propose some resources, which may be generic to problem situations requiring multi-actor deliberation. These include: skills, information and knowledge, labour, money, power, position in a network, organizational ability, good-will, and land.

Once the inventory of actor resources has been listed, the interventionist is expected to carry out a systematic analysis of resources. This can be achieved by determining the

magnitude of importance of a resource, as well as the ease with which it can be replaced. Table 7.7 presents a tool that can be used to carry out this assessment.

Table 7. 7: Resource dependency Matrix adapted from Enserink et al., (2010)

	Limited Importance of resource	Resource has great importance
Limited option to replace resource	<i>Medium dependency</i>	<i>High dependency</i>
Resource can easily be replaced	<i>Limited dependency</i>	<i>Medium dependency</i>

Each resource possessed by each actor will fall into one of the four quadrants represented in Table 7.7. A comprehensive view of the interventionists dependence on actor's resources can be realized by outlining the replaceability and importance of each actors' resources in one table. Such an outline can reveal the criticality of each actor and their resources to solving the problem. Table 7.8 depicts an overview structure for determining crucial and non-crucial actors.

Table 7. 8: Overview Table for crucial and non-crucial actors

Actors	Important resource	Replaceable	Dependency: limited/medium/high	Critical actor: yes/no
Actor 1				
Actor 2				
Actor 3				

Importantly, analysing dependencies with a focus on power/resource dependency as criteria for relevancy of actors, may lead to a situation where the views of the disadvantaged are left out (Enserink *et al.*, 2010), as is common in South Africa. An interventionist must therefore deliberately ensure that representatives of these groups are considered to be part of the process. Marginalized groups though not possessing power individually, in large numbers are powerful. Hence, while there may be an illusion that they do not possess any resource or bring anything to the table, this is not true.

Following the assessment of resources and their criticality, a determination of the willingness of actors to employ their resources to address the problem will have to be carried out. An actor's problem formulation will reveal the extent to which his or her core interests are affected by the problem or by possible solutions (Enserink *et al.*, 2010). A possible question that may aid in determining the actors' interest in and willingness to

address the problem is as follows: How will you be affected by the costs and benefits of solving the problem with the explained means?

If an actor anticipates that he/she will be affected, they will most likely be dedicated actors. Once the willingness of actors has been determined, expected interdependencies on all possible actors can be visualized in a power/interest matrix. In this matrix, power is used to represent the extent to which resources possessed by an actor is deemed crucial to solving the problem. Interest as represented on the matrix, refers to the extent to which an actor anticipates that they will be negatively or positively affected by the problem's possible solutions, and as such are keen (dedicated) to support, or adamant about hindering progress. Figure 7.5 adopted from Enserink *et al.*, (2010) depicts how the power/interest matrix is employed.

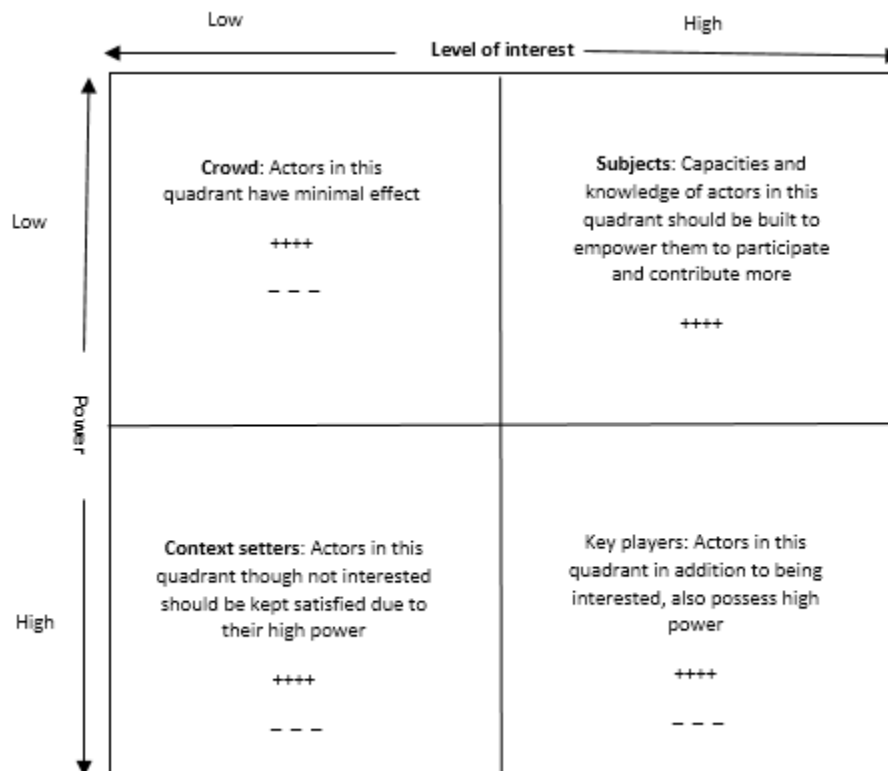


Figure 7. 5: Power/Interest Matrix adapted from Enserink *et al.*, (2010).

According to Figure 7.5, the category of actors who fall in the upper left quadrant are considered to have minimal effects on the problem-solving process due to their low power and low interest in the problem. The actors that fall in the lower right quadrant are highly critical to the problem-solving process, as they possess the power/resources to support the

problem-solving initiative and are also interested (either to support or hinder) – these are considered to be critical actors. Referring to the CATWOE mnemonic described in chapter 5, these actors in the lower right quadrant may also be considered to be the owners of the problem – as they possess the power to completely stop the intervention (Checkland, 2000). Actors who fall in the upper right quadrant though possessing low power status individually are considered to be interested in the problem. While these actors are not deemed to be powerful individually, when in groups, their power level is amplified. They constitute important actors. As such, their capacities should be built to enable greater participation. The category of actors in the lower left quadrant while not interested must be kept satisfied, as with their high power resource they can stifle the intended solutions where they become unsatisfied. The pluses (+) and minuses (–) in all four quadrants represent whether or not actors support or oppose the interventionists intended interests and objectives (Enserink *et al.*, 2010). The results of the actor analysis can be used to identify coalitions and alliances that need to be formed, encouraged or discouraged, particularly in relation to the dedicated and non-dedicated critical actors (Enserink *et al.*, 2010).

Phase 4: Collaborative e-Government objective setting/evaluation of objectives

In this phase of the e-Government strategy formulation exercise, the interventionist compares the findings of all actor's views (causal diagrams) to his/her initial problem formulation (Enserink *et al.*, 2010). This then could inform a revised version of the problem as a systems diagram to be jointly presented to the differing actor groups in a workshop. A joint workshop may aid in gaining group consensus on the problem roots, objectives, and possible means of addressing objectives (Duffy and Assad, 1989). Furthermore, a workshop involving all actor groups is important, as the sought goal is to derive an e-Government strategy that is acceptable to all parties (Asplund, 1975). In seeking to bring all the actors together, the interventionist is then expected to be aware of the extent to which certain group structural elements will affect group members jointly coming to some type of consensus on the way forward (Asplund, 1975). The results of the actor analysis should be able to reveal certain actor dynamics that will support or hinder collaboration amongst actors. According to Asplund (1975) these structural elements include: *group member relations*, *differentiation within the group*, and *resources of the group*. Resources of the group has been discussed in the section seeking to identify interdependencies, hence elaboration here will be limited to *group member relations* and *differentiation within the group* of actors. The interventionist should at this stage have an understanding of the power bases and relations amongst the

actors relevant to the problem-solving process. It is desirable to have an environment where power relations will not deter deliberation amongst participating actors. A low power relational interchange is more suited for collaborative tasks such as this, where it is desirable for participants to be creative without fear of reprisal (Asplund, 1975). Therefore, where it is noticed that some actors are more powerful than others, steps must be taken to reduce the negative effects that such a group set up may have on the potential of less powerful members to contribute. Whereas a low power structure is preferred, cognizance should be taken of potential negative effects that such a dynamic may have on deliberation. For instance, a low power structure may result in a situation where participants become disrespectful, or refuse to participate due to the fact that there is no incentive to do so (possible reward/punishment) (Asplund, 1975). In order to mitigate the potential undesirable effects that may arise from group structural elements, Asplund (1975) suggests that an interventionist should begin the group workshop with easy non-threatening topics; strengthen the relationship with participants; and increase the responsibility of group members where it is noticed that there is inadequate participation due to un-incentivised actors (who perceive that there is no possible reward/punishment).

Differentiation as explained by Asplund (1975) and Lawrence and Lorsch (1967) seeks to assess the extent to which there are differences amongst the strategy formulation actors in terms of their; *goal orientation*, *time orientation*, *interpersonal orientation*, and *cognitive orientation*. Again, most of these aspects have been covered under phase 3, which discusses actor interests. For instance, the interests and objectives of an actor as will be revealed from the problem formulation of each actor, will provide an indication of their *goal orientations*. Similarly, determining the extent to which an actor is dedicated to the problem will suggest whether or not he/she will have *time* for planning (strategy formulation) activities. Also the *cognitive orientation* aspects relate to knowledge resources possessed by actors, which would have been determined while seeking to identify actor resources. Hence, the only sub-element, which will be addressed as related to differentiation is the interpersonal orientation dynamic of the group. *Interpersonal orientation* seeks to determine the extent to which group participants are either task oriented or people oriented (Asplund, 1975). It is desirable to have a mix of participants, some of who are task oriented, while others are people oriented. A task oriented individual is not sensitive to people's feelings, and is only concerned with getting the task completed – even if the feelings of other actors are hurt in the process. In contrast, a

people oriented actor is concerned about perceptions and feelings of other actors more than they are the task. It is recommended that a group should consist of a healthy balance of both types of individuals (Asplund, 1975). Granted – the task must be completed, however, egos must also be managed by taking into consideration feelings of people within the group. A number of interview questions elicited from Asplund (1975) have been adopted to support an assessment of the interpersonal orientation of actors. Some examples of these questions include: When you intend to undertake a project, are you more concerned about getting the job done, than you are about how it will affect other colleagues?, In a group task, would you ask other members their thoughts on what needs to be done, or are you insistent on doing things the way you think is right?, Once a task you set out to do is completed, are you satisfied, even if a number of your colleagues are offended due to the outcome?, How do you handle conflict in a group situation – are you aggressive at getting your point across or do you prefer to come to some compromise for the sake of peace? When things are not going your way in a group task, where you are convinced that you are right, do you express your anger, or are you diplomatic enough to resolve the issue amicably? Would you subscribe to the use of humour to improve engagement amongst group members, or do you prefer a rigid approach where focus is on the task at hand? Answers to these questions may be analysed qualitatively. Preferably, all actors should have answered these questions prior to the group workshop, so that by the time the workshop commences, the interventionist through the results of this analysis may have strategies for dealing with possible negative effects.

As deliberation relates to the purpose of the joint workshop, analysis of the results of the previous phase (actor problem identification and actor analysis) would have revealed important insights related to the problem (Enserink *et al.*, 2010). Workshop discussions may therefore be centred around – synergies identified with respect to problem formulations of actors, their suggested criteria, as well as suggested means for dealing with the issue at hand. This will give the interventionist an opportunity, to observe the extent to which actors agree on problem causes, objectives, and means for achieving objectives. Disagreements on the issue may also be discussed. This deliberation will result in certain conclusions, strengths and weakness identifications, as well as threat and opportunity observations related to the problem (Bryson, 1988; Duffy and Assad, 1989; Enserink *et al.*, 2010; Malunga, 2007). Depending on the extent to which consensus is reached in the workshop, decisions will range from – the interventionist reformulating the problem, to agreement to involve other actors, or plans to undertake further quantitative research based on causal relationships observed in the

systems diagram, which require confirmation (Enserink *et al.*, 2010). Where an agreement, or some consensus is reached, the findings should be documented. Documentation will constitute the output for this phase. Documentation content may include (Duffy and Assad, 1989):

- The agreed upon mission and vision for which the e-Government integration is intended;
- Agreed upon objectives;
- Identified challenges;
- Articulated and agreed upon means for achieving objectives;
- Mention of – or indication of service delivery model and policies to be adhered to;
- Summary of ICT infrastructure;
- Funding mechanisms to ensure sustainability; and
- Policy areas, which may require change

Note though, it is not mandatory for every organization to strictly follow this template of documentation (Duffy and Assad, 1989). It only serves as a template, which may be refined or customized to suit the particular requirements of organizations.

Following documentation, the derived document should be evaluated. Aspects to evaluate should include – technical, economic, operational, schedule and political feasibility (Duffy and Assad, 1989). *Technical feasibility* will seek to determine the extent to which the proposed ICT application is technically feasible. *Economic feasibility* will seek to determine whether or not the financial resources to enact the strategy are available. *Operational feasibility* will try to find out whether or not the integration of the application will feasibly support the processes it is intended to support. *Schedule feasibility* will seek to determine if the time schedule for completing the project is reasonable. Lastly, *Political feasibility* will seek to determine the extent of resistance there will be to implementation by actors who were not part of the planning process. Pade-Khene and Sewry (2011) who develop a comprehensive evaluation framework for assessing rural ICT4D projects, propose as part of the framework, methodologies which may be employed to assess strategies or project plans – (Programme Theory Assessment). Methodologies proposed are qualitative in nature, primarily consisting of observation, interviews and document analysis. These methods, may guide expert reviews, need comparisons, and evaluability of the newly documented strategy

(Pade-Khene and Sewry, 2011). For instance, through a process of observation and interviews with organizational stakeholders – and subsequent comparisons to outlined objectives in the strategy document – conclusions can be made about the extent to which the strategy design and content are aligned to the initial needs for which ICTs were deemed necessary (Pade-Khene and Sewry, 2011). Similarly, expert reviews may be conducted on the logic and plausibility of the created strategy (Pade-Khene and Sewry, 2011). A hard gate separates this phase from the next phase. This is based on the fact that an incomplete document should not be communicated to the wider group of stakeholders.

Phase 5: E-Government Strategy Communication and Persuasion for Acceptance

Taking into consideration, as it is expected, that the strategy formulation group will consist of a small fraction or representation of all stakeholders, mechanisms need to be put in place to disseminate the strategy to the rest of the stakeholders (Asplund, 1975). For a local government context, as this research seeks to address, the rest of the organization also includes local citizens who did not participate in the strategy formulation process. The principal goal here should be geared towards the acceptance of the strategy by subordinates who will be expected to partake in activities that will aid the realization of documented strategic ideas (Asplund, 1975). Some activities that may support the intent of this component include; seminars or public forums hosted by strategy formulation group participants to present the formulated strategy to their subordinates or peers, presentation of the strategy to top leadership, visits to similar organizations who are thriving with similar adopted strategies, and other seminars as deemed appropriate by the strategy group (Asplund, 1975). Additionally, this phase serves as an opportunity for the interventionist to confirm that the strategy group, as well as the organization is capable of moving forward with their strategic intentions, without the help of the interventionist (Asplund, 1975). Once the interventionist confirms that this is the case, then he may withdraw (Asplund, 1975). However, it is hoped that the feedback from dissemination of results will inform a subsequent iteration of the objective setting phase. Activities contained in this phase are only proposed by Asplund (1975), hence this presents a potential focus area for future research.

7.4 Conclusion

A localized e-Government strategy seeks to guide the integration of ICTs within local government. However, in order to arrive at a well-informed strategy, an understanding of the environment, which the strategy is to be employed must be understood. Additionally,

considering that local government consists of varying stakeholders some of whom may have conflicting views and aims, it becomes imperative to understand the stakeholders and what they bring to the table. It is proposed that a localized e-Government strategy formulation framework, is centred around a number of themes, phases, and phase gates. With phases constituting the main component, five phases are proposed to support the formulation of a localized e-Government strategy. These include – *a study preparation phase, local government authority ICT orientation, local government assessment (formal and informal aspects), objectives setting, and strategy communication and persuasion for acceptance*. The framework seeks to guide the development of an e-Government strategy with input from differing groups of local government actors. A better understanding of the framework will be supported by a real-life case study investigation intent on revealing lessons (shortcomings and suitability) from applying the framework in a South African local municipality.

Chapter 8

Case Study Research Methodology

The research methodology that underpins the research is outlined and explained here. Furthermore, the research strategy, as well as the case study design process is described.

8.1 Introduction

A framework intended to support e-Government strategy development for water service delivery can be explored in an existing South African local government organisation. The application of the framework provides an opportunity to observe the suitability and shortcomings in its applied context. Underpinned by a rich case study, insight is gained into what e-Government strategy formulation as a collective process entails. This chapter discusses the research methodology and underlying strategy for exploring the application of the framework.

The chapter commences by providing a summary of the adopted research paradigm - Design Science). The selection of the case study strategy is then motivated for. Following this, the intended case study site in summary form is introduced, also motivating for its appropriateness for this particular study. Subsequently, the case study design, comprising of the case study research questions, unit of analysis, research instruments, approach to data analysis, and ethical considerations are elaborated on. The design described here will support the elicitation and analysis of data to illustrate the exploration of the localized e-Government strategy formulation framework in Makana municipality.

8.2 Research Paradigm

The research is conducted using the Design Science research paradigm described in Chapter 2. The paradigm is thought to be well suited for research that seeks to create innovations that define the ideas, practices, technical capabilities, and products through which the analysis, design, implementation, management and use of ICTs can be effectively and efficiently accomplished (Denning, 1997; Tsichritzis, 1998 in (Hevner *et al.*, 2004)). This suggests the paradigm's appropriateness for novel research in information systems – hence its selection. Furthermore, the paradigm's appropriateness for research where a designed artefact is constructed in order to understand and solve a problem (Hevner *et al.*, 2004), makes it suitable for the research study. The artefact created must be evaluated in an appropriate environment in order to determine its utility (Hevner *et al.*, 2004). Here an e-Government strategy formulation framework is constructed, in order to understand, as well as address the challenge of e-Government strategy development in South African local municipalities. Subsequently, the utility of the framework is evaluated by employing it to create a strategy for an e-Government project expected to be relaunched in 2017 in a South African local

government. Here, its suitability and shortcomings are identified in supporting the e-Government strategy development exercise.

8.3 Research Strategy

A case study strategy is employed to explore how the framework is applied in a real life local government context. The Design Science paradigm demands that the framework be applied in a relevant application domain or context (Hevner and Chatterjee, 2010). A case study is conducted in natural settings, with the intention of comprehending the nature of a contemporary phenomenon (Andrade, 2009: 42). Hence, it allows the researcher to grasp a holistic understanding of how the strategy formulation framework is applied, and why it is applied appropriately in particular ways (Andrade, 2009: 42). According to Yin (2003), a case study aims to investigate in-depth a contemporary phenomenon within its real life context. Exploring and applying the strategy formulation framework in a real life local municipality enables the researcher to learn lessons from such an application. In retrospect, lessons are learned through the identification of shortcomings and suitability of applying the strategy formulation framework.

Parallel to the intent of the Design Science research described here, Creswell (2003), suggests that case studies as research strategies are well suited for, studies that: focus on how and why questions, focus on depth, seek to richly describe and explain/evaluate phenomenon, involves the study of a contemporary phenomenon in a real life context, use of multiple sources of evidence, study of theoretical propositions, and employment of interactive data gathering approaches. All the above are considered to be characteristic of the research described here, therefore the case study is thought to be well suited for the research.

Case studies are designed to provide rich descriptions, assessments, or explanations of occurrences or programmes. They provide an opportunity for an observer to explore and understand complex phenomenon (Creswell, 2003; Welman and Kruger, 2001). Distinguished as an appropriate means for answering “how” and “why” questions –in-depth data that is elicited presents new perspectives that are used to revise the e-Government strategy formulation framework. Additionally, the case study strategy allows the observer to gain a holistic interpretation of the proposed framework in a real life context.

The case study strategy helps the observer to understand how, and why the e-Government strategy formulation framework is appropriate or not (Andrade, 2009). Observation opportunity provided by the case study, allows the researcher to determine how well the proposed framework supports e-Government strategy development within a local government in South Africa. With this opportunity, the researcher becomes privy to data suggesting how the varying components of the framework converge and produce results.

The study objective is achieved through a single rich case study. While commonly subject to criticism about their propensity for generalization, single case studies, may be generalized based on deductive reasoning and analytical generalization (Johansson, 2003; Yin, 2009). Deductive reasoning employs a conceptual framework to investigate possible consequences when the framework is applied. By making reference to the proposed theory (Strategy formulation framework), comparisons can be made about expected and actual findings, which are derived from the empirical application. Thus this allows for an adequate assessment of the proposed theory. To state it succinctly, single cases generalize to theoretical propositions with the intention of expanding theory (Johansson, 2003:9; Yin, 2009: 15).

Selected Case Study

The prospective case study is the Mobile Social Accountability Monitoring (MobiSAM) project, an e-Government project being re-launched in Makana municipality (*local government*), located in the Eastern Cape of South Africa (Thinyane, 2013). Initially, the project commenced in 2011 to support social accountability monitoring, among residents largely dissatisfied with service delivery by the local government (Thinyane and Coulson, 2012; Thinyane, 2013). This citizen engagement focus, led to the development of an automated system known as MobiSAM. MobiSAM was developed to provide capabilities for Makana residents to communicate with, as well as answer polls, on the extent of satisfaction with public service related issues. A one-year pilot commenced to evaluate the feasibility of the project operating long-term, and being fully adopted and managed by the municipality. A hands-off approach by the project team in the operation of the project within the municipal organization was part reason for the project not succeeding. Furthermore, shortly after the deployment of the system within the municipality, the local government was rocked with political instability. These challenges lead to a short lived project, whose objectives did not come to fruition.

The paragraph described above was deemed phase 1 of the MobiSAM project. It was not considered all negative as lessons were learned from the failure of the first project phase. In 2015 the project was relaunched, with a renewed focus (MobiSAM phase 2). It was thought wise that instead of trying to strong arm the local government into doing their jobs through threatening them with the prospect of publishing and broadcasting service delivery dissatisfaction through the media, it will be a better idea to aim at working in collaboration with the local government to support the effective use of MobiSAM to fulfil their service delivery mandates. Therefore, a key word in this phase of the MobiSAM project is *government responsiveness*. Though focused on government responsiveness, it is also decided that all stakeholders (local government, citizens, and civil society), must be involved in the strategy formulation (planning), of MobiSAMs deployment and sustainable use. It is agreed that a plan must be mapped out, to avoid a haphazard relaunch. Even more so, it is agreed that any plan that is articulated must be informed by an assessment to understand the challenges being faced, as well as an awareness of the context where MobiSAM is to be deployed and sustainably employed. MobiSAM platform's success will be contingent not only on a properly functioning application, but also on the cooperation of departments and functional areas that must respond to service faults, for example, (the technical division) amongst others. This requires a process where the relevant stakeholders (MobiSAM team, municipal staff, civil-society and municipal residents), can come together to engage on how best MobiSAM should be deployed to support service delivery, and social accountability monitoring. Therefore, this represents an appropriate real life e-Government project to apply the e-Government strategy formulation framework to. The lessons learned from applying the proposed e-Government strategy formulation framework are used to inform potential revisions to the framework.

The in-depth case study will consist of two levels of inquiry:

Level 1: At this level, the e-Government strategy formulation framework is applied. With this application, the aim is to derive a strategy that is well suited to Makana local municipality to support the quest to integrate MobiSAM. The design of this level of enquiry is elaborately depicted by the e-Government strategy formulation conceptual framework. A descriptive narrative of the strategy formulation process is presented in the case study chapter (chapter 9).

Level 2: A reflective approach is undertaken seeking to understand how the conceptual framework is applied. This phase forms the core function of this research. Here the intent is to critically observe the application of the framework to determine its suitability and shortcomings in developing an e-Government strategy for MobiSAMs deployment (Hevner *et al.*, 2004). Essentially, this allows for eliciting of lessons, which result in revisions to the conceptual framework. This brings to bear, a further advantage of this level of inquiry – it forces the researcher to overcome his/her apprehension about uncovering, mistakes, shortcomings and decisions while applying the framework (Irvine and Gaffikin, 2006). Rather, the researcher exposes such vulnerable spots to criticism by the observant audience (Irvine and Gaffikin, 2006). Revisions to the framework result in the re-application of particular aspects of the framework, which supports reflection and subsequent lessons learned. This illustrates the iterative nature of the design science approach (Hevner *et al.*, 2004; McKay and Marshall in Islam and Grondlund, 2012). However, it should be noted that there are no set indicators to determine when the framework does not require further revisions. This remains an arbitrary decision, subject to the context in which the framework is applied (Brooks, 1987 in Hevner *et al.*, 2004). For instance, satisfaction exhibited by the stakeholders involved will determine when the strategy derived is deemed acceptable. Such satisfaction may vary from context to context.

8.4 The Case Study Design

The case study design described here primarily focuses on the second level of enquiry. The design described represents a conceptual guide, which links the empirical data to be collected, as well as conclusions to be drawn to the proposed case study questions (Yin, 2009: 24). As a frame, the guide seeks to circumvent a situation in which data elicited and analysed fails to address the initial case study questions posed (Yin, 2009: 27). The case study design consists of the following elements, which guide the second level of enquiry:

8.4.1. The Case Study Research Questions:

The case study aims to undertake an in-depth exploration of the application and performance of an e-Government strategy formulation framework, which results in the development of an e-Government strategy for a South African local municipality. The two research questions that are focused on to achieve the aim of the case study are:

- How can a localized e-Government strategy formulation framework be applied in order to develop an e-Government strategy for a local municipality?

- Why is the strategy formulation approach applied in a particular way to develop an e-Government strategy for a local municipality?

8.4.2 The Unit of Analysis

The unit of analysis, essentially is what is being observed (Yin, 2009). As such, the unit of analysis for this study is the application of *activities/practices proposed in the phases* of the localized e-Government strategy formulation framework within Makana municipality in order to develop an e-Government strategy.

8.4.3 The Research Instruments

Three research instruments primarily support the elicitation of data for the case study. However, participant observation and reflection by the researcher is the primary instrument employed. Described below are brief summaries of research instruments used in conducting the evaluation of the frameworks application:

8.4.3.1 Interviews

As an instrument, interviews support data collection, by giving the investigator insight into stakeholder views on the related e-Government strategy formulation framework, its application to their local context, and its relevance to ICT integration in local municipalities. Though there are interview variations, the semi-structured form is employed. Open ended by nature (Gillham, 2000; Knox and Burkard, 2009), semi-structured interviews allow the researcher to propose a standard set of questions to which respondent's answers may vary in level of detail (Turner, 2010). Further inquiry may then proceed from answers of differing depth by respondents (Knox and Burkard, 2009).

The topics of the semi-structured questions are tailored to stakeholders such as the project IT manager of MobiSAM, project co-directors, municipal staff, as well as local community residents. Interviews are conducted in the form of focus groups or on a one on one basis with individuals. Focus group settings are better suited for eliciting data, which requires communication and dialogue amongst the stakeholders (Creswell, 2007). Conversely, one on one interviews are deemed appropriate where observation suggests that individual stakeholders, key to the investigation process are reluctant to voice their opinions and views among other group members. Particularly for each targeted interviewee group the focus of

questions asked vary. Listed below are the focus areas of interview questions pertaining to each group:

- **MobiSAM project co-directors:** questions seek to determine the extent to which certain assessments, and workshops demanded by particular phases of the strategy formulation framework, are deemed relevant to an e-Government strategy formulation process in a local municipality. Additionally, their perspectives are sought on possible ways in which the framework may be improved to better support the formulation of an e-Government strategy suited for local municipalities. As the individuals responsible for conceptualizing phase two of the MobiSAM project, it is expected that project co-directors will have views and impressions on how a strategy development process for the project should be improved.
- **Municipal staff and citizen groups:** Municipal staff and citizen groups are quizzed to get their input on other stakeholders, that have not been considered by the project team, but who they deem necessary to include in the strategy formulation process. Questions to municipal staff are also directed at gaining their insight on protocols that need to be observed in applying the strategy formulation framework within the municipality. For instance, municipal staff provide insight on municipal personnel that the project should be presented to, before approaching citizens of particular wards in the municipality to participate in the project.

8.4.3.2 Participant Observation

When employing this instrument, the investigator is tasked with a dual role. On one hand, he is required to partake in the e-Government strategy formulation process along with other relevant stakeholders, as the interventionist and facilitator of several strategy related workshops (Yin, 2009), however simultaneously, he is expected to observe the strategy formulation process he is intent on documenting (Hume and Mulcock, 2004). This process essentially aids the researcher in observing how the exercise is undertaken, as well as aids in reflecting on why particular actions are taken during the strategy formulation process (Creswell, 2007). Importantly, the observer and the observed are not totally separate entities, as the observer also deemed to be a stakeholder, partakes in the strategy formulation process. The knowledge and experiences of the researcher, which this process offers constitute a contribution to the case study through lessons learned. A stepwise approach is specified by Creswell (2007), which is adopted by this research to guide the participant observation process. The process is as follows:

- a. ***Identification of the subject of observation:*** The observation subject consists of the, activities, procedures and guidelines involved in the e-Government strategy formulation process. Additionally, reactions and responses of involved stakeholders in the e-Government strategy formulation process, as well as those of the investigator are observed and recorded.
- b. ***Determining the role of the observer:*** The observer primarily assumes a participatory role, considering that he is significantly involved in the e-Government strategy formulation process as a facilitator, and personnel responsible for data analysis and drafting of a strategy document.
- c. ***Developing an observation protocol:*** The observational protocol is employed to record notes about the strategy formulation process. Observation notes are comprised of two categories – these include *descriptive notes* and *reflective notes*. *Descriptive notes* chronologically outline how the e-Government strategy formulation process proceeds. *Reflective notes* are reflections of the investigators articulated perspective of the process.

Tools such as note pads, pens and pencils, an audio recorder and a camera, aid in the process of depicting an accurate picture of the observed phenomenon of e-Government strategy formulation for local municipalities (Creswell, 2007).

Understanding that the researcher and the researched are not separate (Shaw, 2010), the researcher is not oblivious to the possible bias that may stem from his past experiences, context of operation, and exposure on the findings of the study. As such, a reflexive exercise is undertaken to reveal reasons for actions exhibited by the researcher. To accomplish this, the researcher seeks to ensure that his experiences are understood within the context that they occur (Shaw, 2010). For instance, the researcher is cognizant of the fact that Makana municipality is a resource constrained municipality, and as such, his initial predisposition will be to view human resource capabilities within the municipality as lacking. In turn this automatically breeds cynicism in the researcher that due to a lack of human resource, the municipality will be unable to spare the few staff that they possess to participate in e-Government strategy formulation activities, due to the amount of responsibilities the few existing staff may have. The researcher being aware of this predisposition prior to data collection will seek to ensure that optimism is kept when extending invitations to municipal staff to attend strategy related workshops. As a general strategy the researcher hopes to remain open minded, ensuring that his biases do not cloud interpretation of the findings.

Additionally, as consistent with propositions made by Mruck and Breuer (2003), teams may help in reflexive activities – as such, the researcher is also prepared to be continuously receptive to criticism to shape the study, based on feedback from the MoiSAM team, citizens, and local government officials.

8.4.3.3 Document Analysis:

It is imperative in any data collection design process to systematically refer to, or consult relevant documents (Yin, 2009). Documents such as the South African Local Government Association Strategy (SALGA strategy), national e-Government policy, and national water service strategy are reviewed, considering that an e-Government strategy being formulated must align with the local government strategy, as well as national strategic frameworks. Furthermore, documentation describing the e-Government strategy formulation framework (outlined in chapter 7) is consulted to guide the application process.

8.5 Overall Data Collection

Data elicitation is achieved through two means – *primary* and *secondary* means. The primary data collection encompasses the case study reflective exercise described in this chapter. The secondary data is collected through a review of existing literature. Data collection unfolds in the following manner:

a) *Review of existing strategy formulation approaches:* The literature review conducted in chapters 3-6 of the research informs a systematic analysis of existing approaches to strategy formulation. The analysis focuses on revealing theoretical components of an e-Government strategy formulation process thought to be relevant in guiding e-Government strategy development in local government settings.

b) *Reflection from the application of the proposed framework in an e-Government project:*

The application of the proposed framework in the strategy formulation process of an e-Government project to be relaunched in a South African local government, aids in a reflective process of the application exercise. The Design Science approach that is driving the research requires that a created artefact (framework) be applied within an appropriate environment to determine its utility. The proposed framework is used to support the strategy development exercise of the MobiSAM project. The application of the framework is then evaluated and reflected on.

8.6 Data Analysis

Analysis of data throughout the overall development of the e-Government strategy formulation framework is achieved through *thematic analysis* and *Explanation Building*. The analysis of existing strategy formulation approaches was carried out through thematic analysis, as a means to determine strategy formulation components, that contribute to the development of an e-Government strategy formulation framework. The application of the e-Government strategy formulation framework employed the explanation building technique.

8.6.1 Thematic Analysis

Thematic analysis aims to support the analysis of qualitative data. Where employed, it supports the search and analysis of themes (vital aspects of gathered data targeted at addressing the research question/s) or patterns in data (Braun and Clarke, 2006). Comprised in the analysis are open and closed thematic processes. Firstly, data is analysed through open coding where themes are discovered as they emerge from the data itself. Subsequently, the emergent themes are viewed through the lens of the e-Government strategy formulation themes (*phases*) depicted in chapter 7, and then categorised according to these themes with the aid of a closed coding process. Depicted in Table 8.1 is a six-phase process that supports the thematic analysis exercise.

Table 8. 1: Six-phase process for thematic analysis

Activity Phase	Description
1 Thoroughly acquainting yourself with your data	At this stage, the researcher engages in a process of reading interview transcripts, as well as descriptive and reflective narratives – and then noting down initial ideas on strategy formulation emerging from the data itself.
2 Creating initial codes	Here a coding exercise of interesting data across all transcripts and narratives is carried out. This involves grouping of relevant data to each code.
3 Theme identification	Here codes are observed as themes, and data considered to be related to particular themes are grouped accordingly.
4 Reviewing themes	This involves observing and deciding whether themes relate to coded data, as well as to the entire data set. This aids in the mapping of the analysis.
5 Appropriating themes	This stage comprises of a process intended to refine the details of identified themes. Included in the refining process of the themes is the categorising of findings according to the components of strategy formulation identified

	from the critical analysis of strategy approaches (Chapter 6). Proposed themes relevant to a strategy formulation process are identified based on findings from the field.
6 Report drafting	At the final stage, the analysis is related back to strategy formulation components and key research question.

(Adapted from *(Braun and Clarke, 2006)*)

8.6.2 Explanation Building

The derived theoretical e-Government strategy formulation framework supports the analytical strategy adopted for this research. Clearly, the proposed framework aids in directing concentration to certain data, while disregarding other data (Yin, 2009:130). Hence, the e-Government strategy formulation framework may serve as a suitable guide for the data analysis phase. This analytical process further relies on explanation building analytical technique, as part of the general strategy employed. Explanation building, which is common to case studies, aids researchers seeking to analyse case study data (Yin, 2009). As the title suggests, analysis with this technique is achieved by building an explanation about the case and developing causal links (Yin, 2009). The outlining of propositions in the theoretical framework constitutes the first phase of the explanation building techniques application. Afterward, the findings from an initial case application are compared against the proposition. This serves as a base for the revision of the initial proposition. The process is iterative by nature (Yin, 2009). The adopted analytical approach draws parallels with the design science paradigm, where the design and subsequent evaluation of an artefact requires an iterative process to enable refinement of the artefact. Here, the findings from the application of the e-Government strategy formulation framework in Makana are compared to the proposed theoretical framework, thus allowing for revisions to be made to the e-Government strategy formulation framework (Yin, 2009). Explanation building is applied in the following way (Yin, 2009:143):

1. The derived localized e-Government strategy formulation framework (theoretical framework) is reviewed.
2. The findings from the case study application of the framework to Makana municipality, is compared to the original theoretical framework.
3. Findings from the enactment of step 2 inform revisions to the theoretical framework, in a continuous iterative manner – adjustments are made to the framework as case study activities unfold and phases of the framework are implemented.
4. Further details of the case are compared to the revision of the theoretical framework.

Future research

5. Compare the revised version of the theoretical framework to other case studies.
6. Repeat the process as necessary.

8.7 Data Validation

In qualitative research, it is imperative to check the reliability of findings. In conducting this research, data reliability checks are achieved by incorporating the following practices: *member checking*, *data triangulation*, and *chain of evidence*. These practices are adhered to during the data elicitation and data analysis process (Creswell, 2003).

- **Member checking:** Member checking involves the provision of checks to ensure that conclusions and findings drawn from data are accurate. As applied in this research, findings arrived at are checked with case study participants through follow up discussions and informal interviews. Responses provided by participants in these follow-up sessions confirm or dispel conclusions drawn from the findings.
- **Data triangulation:** A number of data generation methods, and several data sources are used. For instance, the utility of the framework is checked by making use of alternative methods such as, semi-structured interviews, participant observation, and, document analysis. Furthermore, multiple sources of data are used in the construction phase of the e-Government strategy formulation framework. For instance, sectorial views on strategy formulation spanning three sectors (e-Government, business related and NGOs), are investigated during the construction of the framework. Lastly, insight on the utility of the framework is gained by conducting interviews with not one, but several case study participants.
- **Chain of evidence:** Creating a chain of evidence in the research is important. Conducting the case study over a considerable period of time allows for the observation of links between occurrences. Also, the researcher presents thick descriptions of findings drawn in the form of an e-Government strategy document, and the reflection of the strategy formulation process (Chapter 9).

8.8 Ethical Considerations

The research adheres to certain prescribed ethical considerations deemed necessary for conducting social research of this nature. These ethical considerations are briefly elaborated on below:

- **Ethical Approval is sought:** Prior to commencing empirical aspects of the research ethical approval was obtained from the institutional Ethics Committee at Rhodes University.
- **Informed Consent:** This is a principle deemed to be fundamental to the relationship between the investigator and the tentative participants (Kimmel, 1988). Informed consent places an obligation on the investigator to disclose sufficient research related information, which enables potential participants to clearly articulate their decision to participate or not participate in the research (Kimmel, 1988). This research adheres to this principle by giving informed consent forms to respondents to sign, prior to eliciting information from them. Consent forms contain summaries of the purpose of the research, as well as potential uses of the findings. Additionally, respondent's rights to participate or not participate are indicated on the form. It is also verbally emphasized to them that they are allowed to demand clarity on any subject they are asked about, and that they are not obligated to continue participating where they feel the need to withdraw. The researcher also provides his signature at the end of the informed consent form to symbolize agreement with the terms listed on the form.
- **Confidentiality and Anonymity:** Expectation suggests that research participants will share their thoughts, experiences, and attitudes. Hence, it is important to assure participants that their identities will not be disclosed and that communications offered in confidence will remain discrete (Tarling, 2006). To adhere to this principle, the names of research participants in the empirical study are not disclosed. Furthermore, all participants are adequately informed on the conditions of confidentiality and anonymity, prior to any sharing of thoughts, experiences, and attitudes – with respect to the strategy formulation process of the MobiSAM project (Creswell, 2003).
- **Protecting participants from Undesirable effects:** Subjects of social research are potentially exposed to a number of undesirable effects (Kimmel, 1988: 37). Steps are taken to ensure that anticipated risks to participants are mitigated. For instance, with respect to this study, it is anticipated that the citizen network, which constitutes part of the stakeholder group that this study seeks to quiz, may attempt

to place blame on particular municipal employees, who in their opinion should be responsible for shouldering the functions of strategy development, as well as ensuring enhanced service delivery. Therefore, the following risk mitigation procedures are adopted in conducting the research: it is emphasized to participants at every given opportunity that the essence of the research is not to encourage finger pointing, but to work together towards the common goal; pointing out at joint engagements, the need to focus on overcoming challenges, and analysing the future rather than dwelling on the past; anticipating the employment of the services of a trained therapist if deemed necessary (*so as to avoid contentions amongst opposing stakeholder groups*); and, collaborating with, and seeking appropriate guidance from a researcher who has conducted extensive research and workshops with local government stakeholders, and as such is familiar with handling conflict. Furthermore, with the expectancy that participants may get overly excited in anticipation of improvements they envision research of this kind should produce (Pade-Khene and Sewry, 2011), it is thought important to inform participants at intervals of the study, that desired changes will occur gradually and not instantly.

8.9 Conclusion

This chapter elaborates on the research methodology. A brief description of the research paradigm that the study is based on is presented. The appropriateness of a case study strategy for conducting Design Science research is outlined. A case study strategy is well fitting for an exploration of a localized e-Government strategy formulation framework in a South African local municipality – as the case study is intended to be conducted in natural settings, with the purpose of comprehending the nature of a contemporary phenomenon. Consisting of two levels of inquiry; the study firstly, seeks to in collaboration with the relevant stakeholders develop an e-Government strategy, through the application of a localized e-Government strategy formulation framework; secondly, the application of the framework is evaluated primarily through participant observation, in order to determine the suitability and shortcomings of the framework for the intended task in that particular context. The narrated case study design depicts a guideline to effectively elicit data. Furthermore, it highlights suitable strategies and techniques for analysing elicited case study data, thus enabling an understanding and systematic presentation of the framework's application in a real life environment. A number of ethical considerations are deemed necessary for conducting social

research of this nature. Depicted in Table 8.2 is an overview summary of the research design guiding the study.

Table 8. 2: Summary of research design guiding this study

Research Component	Research Decision
Research paradigm	Design Science
Research strategy	Case Study
Case study site	MobiSAM project within Makana municipality
Case study unit of analysis	The application of activities proposed in the phases of the localized e-Government strategy formulation framework within a real life context
Data collection techniques	<ul style="list-style-type: none"> • Literature review • Interviews • Participant observations • Document study
Data analysis	<ul style="list-style-type: none"> • Thematic analysis • Explanation building
Data validation	<ul style="list-style-type: none"> • Member checking • Data triangulation • Chain of evidence
Ethical considerations	<ul style="list-style-type: none"> • Ethical approval sought from ethics committee • Informed consent • Confidentiality and anonymity • Protecting participants from Undesirable effects

Chapter 9

A Case Study Exploration of Strategy Formulation for MobiSAM

This chapter describes a case study of the application of the e-Government strategy formulation framework to the strategy development process of an e-Government project (MobiSAM). The utility, and shortcomings of the framework are reflected on, and discussed – and lessons learned from the application of the framework are taken note of.

9.1 Introduction

An investigation of how e-Government strategies are created may over time provide concrete knowledge on how e-Government strategies should effectively be developed. The e-Government strategy formulation framework proposes an approach to collaboratively formulate e-Government strategies with represented input from all relevant stakeholder groups, while also undertaking relevant assessments that should underpin the strategy development process. Essentially, an exploration of the framework in a real-life case study investigation of a tentative e-Government project can reveal lessons (*suitability and shortcomings*) from applying the framework in the project environment. This chapter elaborates on a case study description of the strategy formulation process for MobiSAM, a tentative e-Government project in the Eastern Cape of South Africa. Here the description narrates how the e-Government strategy formulation framework is employed to create a strategy for MobiSAMs deployment and use. The observed lessons from the application of the framework seek to inform research of its applicability and appropriateness for developing e-Government strategies in South African local municipalities.

The chapter begins with an overview of MobiSAM, detailing its history and purpose. Subsequently, a summary of Makana municipality is provided, touching on aspects such as its socio-economic make up, and reasons why it serves as an appropriate local government for MobiSAM's deployment. The chapter goes on to describe the municipality's ICT readiness for an e-Government project, by delineating its ICT infrastructure. Following this, MobiSAM's stakeholders are outlined. Next, the application of the e-Government strategy formulation framework is described. This includes a narrative on the observation of themes, and application of each of the strategy formulation phases, along with observed lessons. The conclusion sums up the findings and indicates that the results obtained aid in reflection and subsequent revisions to the proposed strategy formulation framework.

9.2 An Overview of MobiSAM

MobiSAM (*Mobile Social Accountability Monitoring*), commenced as a research project in 2011, intended to explore the use of mobile phones to enhance citizen participation in local government service delivery. The research started off focusing on water service delivery only, and then later expanded its focus to other service delivery aspects (sanitation, electricity, and roads). In this six-year period, the project has progressed through two phases.

The first phase, funded by the Ford Foundation sought to investigate a number of research questions:

- Determine how citizens at that time were employing technology – specifically mobile phones?
- Determine ways in which citizens were participating in local government?
- Determine the conceptual and technological tools that were accessible for local media to hold local government to account for service provision?
- Determine suitable visualizations for big data viewing on mobile phones?
- Determine the extent to which mobile devices could be used to increase citizen participation in local government?

Being that the initial motivation for the project came from realizing that the high penetration rate of mobile phones in developing countries has the potential to contribute to empowering citizens to participate in democratic governance processes – a baseline study was conducted in 2014 – in the geographical area where the project initiators hoped to pilot the project (*Makana municipality*). The study sought to determine how a representative sample from Grahamstown, in Makana municipality were using technology at the time, as well as determine the extent to which they were active in local government functioning and decision making. The findings of the baseline study revealed that there was a significant percentage of mobile phone ownership within Grahamstown. This lead to a decision by the project initiators to develop a tool to enable citizens to report service delivery concerns to the municipality using their mobile phones. This tool also comprised of a portal for municipal employees to view reported concerns by citizens, as well as functionality to facilitate responses to citizens on reported concerns. The holistic functioning of the developed system (*MobiSAM*), was designed to be transparent, such that both municipal employees, and citizens who register with MobiSAM would be able to view reported concerns. Reported concerns were primarily depicted as answered poll questions that were created by municipal employees, on particular service delivery issues. However, there was an option included, to report on issues not related to polls. Design consideration also allowed generated data (*citizen responses*) to be visualized as, graphs, heat maps, and charts (Thinyane, 2013). The intention with the generated data was that it would augment a methodology for Social Accountability Monitoring (SAM) at local government level.

The SAM methodology, developed by the Public Service Accountability Monitor in South Africa, proposes a rights-based and evidence based framework for understanding and participating in government service delivery processes (Thinyane, 2013). The methodology was established on the belief that citizens have a right to obtain explanations for the way in which public resources are dispensed, and to obtain justification for the way in which such resources serve to continuously realize human rights (*specifically socio-economic rights*). Congruent to the methodology's intent, five interdependent steps are proposed to map onto the public resource management system (Thinyane and Coulson, 2012). Figure 9.1 below depicts the methodology employed by SAM to enable participation in local government processes.

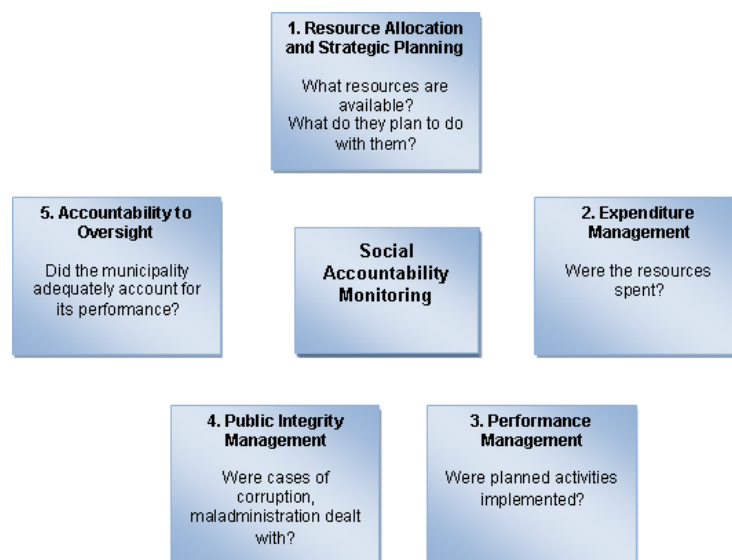


Figure 9. 1: Social Accountability Monitoring Methodology

As Figure 9.1 illustrates, firstly, citizens can participate in local government processes by engaging in a systematic inquiry about what resources are available and (1) expected to be allocated to planned activities (Thinyane, 2013). Following this, with the expectation that allocated resources must be spent on planned activities – citizens can engage in (2) expenditure management, by determining whether the (3) planned activities are implemented (*performance management*) (Thinyane and Coulson, 2012). Where a discrepancy is observed, between planned activities and projects implemented (*without justifiable reasoning*), – investigations must be carried out on possible cases of corruption or mismanagement, (4) corrective action should then be taken (Thinyane, 2013). Lastly, it is envisaged that citizens should be able to observe the extent to which local government is (5) accountable to oversight bodies. Essentially, these five processes represent opportunities for citizens to

participate significantly in local government functioning. Basic tools are provided by the methodology to enable the accomplishment of each process. This involves interrogating the government documents that are outputs of the processes (*including budgets, financial reports, performance reports, plans, audit findings, and oversight committee minutes*) (Thinyane and Coulson, 2012).

With knowledge gained through findings from applying the SAM methodology, and an understanding of how government processes should operate, citizens are expected to become capable of engaging in evidence based advocacy – soliciting explanations and justifications for local government performance, and where applicable corrective measures (Thinyane, 2013).

MobiSAM's role in SAM is envisioned, as it is believed that technology could be employed to add real-time data to the more traditional desk-based research that SAM ascribes to (Thinyane, 2013). For instance, with respect to the first SAM process of monitoring of resource allocation, it is anticipated that MobiSAM could provide data on citizen needs, through their reported concerns, with the potential for such data to inform resource allocation decisions, based on recurring reported critical needs. It is also envisaged that over time expenditure management can be monitored through the extent of citizen satisfaction with delivery of critical service needs that local government plans are expected to reflect. It was also planned that MobiSAM would support public integrity management, by providing a convenient communication channel for reporting noticed incidents of corruption and misappropriation of public resources. Lastly, it was intended that MobiSAM would be used to evaluate the effectiveness of oversight bodies while also evaluating the municipality's responses to the oversight committee (Thinyane, 2013). Specifically, in the first phase, the MobiSAM application allowed for:

- *Problem reporting and feedback:* As was conceptualized in the first phase, citizens would be able to communicate service delivery concerns to the municipality, using any type of mobile phone, possessing: a feature phone client, a smart phone client, or SMS functionality. Similarly, the municipality would be able to reciprocate to reported concerns, by providing feedback on the status of reported concerns.
- *Poll creation and dissemination:* This feature allowed municipal staff possessing administrative rights to create poll questions related to the most pressing service delivery concerns, which registered users would be expected to provide answers to.

- *Collating and visualizing reported problems:* Once reported, service concerns were by default collated – with provision for visualization, as maps, as well as a number of different graphs. Map portrayals could be used as indications of the severity of service delivery problems (for instance, number of reports from people who indicate that a particular concern deserves attention, as well as, the stretch of time for which a reported concern has remained unattended).
- *Monitor reports:* Registered users (*citizens, media houses, and the municipality*) were able to view and monitor reported service cases. This transparent approach to service delivery reporting, it was hoped, would underpin evidence based engagement between Makana municipality and its citizens.
- *Service delivery broadcasts by the municipality:* Functionality is included to enable municipal employees with administrative rights to make mass service delivery broadcast messages to all citizens that are registered to use MobiSAM.

At conception, it was planned that the MobiSAM architecture will take into consideration differences in mobile platform capability, and therefore ensure that reporting could be realized using any mobile device. Support is provided for low end phones, through the use of SMS (and an SMS gateway). Support functions are also extended to feature and smart phones. To add on, cross platform support is integrated. Figure 9.2 illustrates the MobiSAM architecture.



Figure 9. 2: MobiSAM Architecture

With the MobiSAM architecture, the PHP Framework, and the Representational State Transfer Application Programming Interface (REST API), are used. These components employ standards of the Model-view-controller (MVC) architecture – which ensures adherence to the principle of “separation of concerns” – thus providing room for particular flexibility in its service provisioning (Thinyane and Coulson, 2012). The separation created between the client (*user interface*), and server (*data storage concerns*), improves the portability of the user interface across multiple platforms, as well as enhances scalability through simplification of server components. This architecture enables customization and adaptation of services for various clients (Thinyane and Coulson, 2012). Thus, the Views component of the application can easily be adapted for different mobile handsets, depending on their varying capabilities (Thinyane and Coulson, 2012). Functionality is also extended to allow connectivity from various clients through web service interfaces that are exposed by the platform (Thinyane and Coulson, 2012).

With this infrastructure in place, users were provided with a simple tool to support reporting of service concerns, as well as an option of including their location (using GPS where available or positioning via cell phone towers otherwise), and an image upload option of their service concern (assuming their phone possesses such capability). Once communicated, citizen requests or concerns would be stored on the MobiSAM backend (*database*).

Training was provided to municipal staff, and a one-year pilot study commenced to observe the feasibility of MobiSAM being deployed long term. However, the study was not completed as planned due to political instability within Makana municipality in 2014, which resulted in the municipality being placed under administration according to *Section 139(1) (b)* of the South African constitution. This along with other reasons, resulted in a situation where municipal staff stopped attending to service requests communicated through MobiSAM. Several evaluations conducted in this period revealed that the MobiSAM system needed to be better integrated into the municipal workflow, and not simply handed to the municipality to use – by certain individuals who were not willing to engage with the initiative. The key lesson learned from this phase was the need to build government responsiveness before introducing the technology.

With the feedback provided and lessons learned from the first phase of the project, a number of components are planned to be integrated into phase 2 of the project that commenced in

2016. These include i) *Problem Demarcation and Strategy Formulation*; ii) *Social Accountability Monitoring*; iii) *Comprehensive Evaluation*; iv) *Interaction Design*

- i) *The Problem Demarcation and Strategy Formulation component*: This component is incorporated in order to understand the functioning, as well as challenges of service delivery within Makana municipality (from all stakeholder perspectives). Furthermore, it seeks to investigate how particular service delivery related business processes are undertaken within the local government. It is hoped that with this understanding, the project team would be able to better articulate what aspects of service provisioning the MobiSAM system can support. Thereafter, a strategy for how MobiSAM should be deployed, as well as function to support particular municipal business processes can be mapped out collaboratively with all stakeholder groups. The MobiSAM strategy will delineate a plan for the realization of MobiSAM's deployment along with supporting infrastructure that will maximize the ability of the local government stakeholders to meet the objectives the project aims to achieve (*enhanced citizen engagement*, and *government responsiveness*). The application of the problem demarcation and strategy formulation component, forms the core of this research.
- ii) *Social Accountability Monitoring (SAM)*: The project hopes to retain the SAM component described earlier. Citizens' ability to successfully participate in government processes is highly dependent on the extent to which they are informed, as well as, possess the skills required to embark on meaningful engagement with the local government.
- iii) *Comprehensive evaluation*: Parallel to the life cycle phases of an ICT project, assessments should be conducted at every phase of the project's life – from inception to post implementation (Davies, Owens, and Lloyd-williams, 1999; Pade-Khene and Sewry, 2011). For MobiSAM, a comprehensive evaluation is conducted by ascribing to the Rural ICT Comprehensive Evaluation Framework (RICT-CEF) (Pade-Khene and Sewry, 2011), that has been developed and applied in other ICT4D initiatives by one of MobiSAM's project co-directors. By employing different approaches to analyse various phases of the MobiSAM project (*initiation, planning, implementation, and post-implementation*), a holistic

evaluation is achieved. Although with the RICT-CEF, assessments are distinguished by the phases they seek to provide analysis on, assessments on all phases combined are interlinked, thus making the whole evaluation comprehensive in nature. The idea is to have adequate checks at each phase of the project's implementation to ensure that the project is indeed being reflected on. Reflection provides an opportunity for corrective actions to be taken where necessary, while ensuring that there is learning that may support project replication and scalability.

- iv) *Interaction design*: With interaction design, it is intended that modifications will be made to the already existing MobiSAM system, by taking end user design proposals into consideration. Representatives of all stakeholder groups are going to be consulted early in the modification process of the MobiSAM system to ensure that the modified prototype matches expectations, while also fulfilling user needs.

With these added components to MobiSAM phase 2, it is envisioned that the project team will not just create a beautiful solution, but essentially, ensure that the system responds to the requirements of citizens and the Makana municipal organization.

9.3 Makana Municipality Context

Makana Municipality is located in the Eastern Cape, which is considered to be one of South Africa's poorest provinces (Thinyane, 2013). The Municipality covers a land mass of 4,379 km² (Thinyane and Coulson, 2012), with an estimated population of 83,062. Unemployment, and low levels of education are in significant proportions, with percentages as high as (67.9%) for unemployment, and uneducated citizens in the range of 42% of the population (Thinyane, 2013). Due to this socio-economic make up, almost a quarter of households in the Municipality live below the poverty line (Thinyane and Coulson, 2012). Measures aimed at easing poverty are stifled by a slow economy – hence, there is an increasing reliance on social grants, with half of the population receiving some form of grant (Makana Municipality, 2011 in Thinyane and Coulson, 2012).

The municipality is mandated to provide a range of services including – municipal road maintenance, sanitation, electricity reticulation, potable water, refuse removal, refuse dumps and solid waste disposal, local tourism and, child care facilities (Municipal systems Act, No.

32 of 2000 in (Thinyane, 2013). It is no surprise that only a small fraction of residents in the municipality have access to sanitation and portable water.

To exacerbate issues, numerous instances of misspending have been noticed in the municipality, with the supreme audit institution repeatedly being unable to get the municipality to account for dispensed public resources (Thinyane and Coulson, 2012). It is commonly thought by the print media, that these expenditures are fruitless and wasteful, thus escalating a yearning for accountability of public officials. There is also account from 2009/10, where the Auditor-General was unable to get enough relevant evidence to justify almost R30 million rand of municipal expenditure. Evidently, these findings suggest that state checks and balances (*accountability mechanisms*) are not sufficient, or ultimately fail to function as expected (Briones, 2014). The states limited capacity to solely ensure accountability of local government highlights the necessity of instituting external accountability mechanisms to ensure that government is answerable for its decisions and actions (Brione, 2014). Essentially, this is what Social Accountability Monitoring (SAM) seeks to accomplish. Brione (2014) suggests that SAM is a concept carried out by citizens, intended to facilitate constructive dialogue with the government, and monitoring of appointed officials use of public resources to improve service delivery, promote community welfare, and protect rights.

Executing the SAM concept, however, requires that citizens are *assertive*, as well as possess the requisite, *skills*, *tools*, and *information* to undertake it. Being assertive, is a term synonymous with an individual's confidence in taking a particular stance (Briones, 2014) – and this is a catalyst for demanding that the government is answerable for its decisions and actions. Unfortunately, as is often the case – citizens are reluctant to exhibit assertiveness for fear of reprisal (Fox, 2014). Nonetheless, citizens must begin to realize the power that they have in numbers to demand government accountability. In Makana municipality, this realization is increasingly growing, with a number of emerging citizen and civil society groups, such as, the Grahamstown Residents Association (GRA), the Unemployed Peoples Movement (UPM), the Legal Resource Centre, and Umthathi. Furthermore, as has been indicated, citizens should possess the needed skills as a collective, in order to effectively undertake SAM. Skills such as negotiation skills, literacy skills, and systematic knowledge of how to read government documents are needed. A large proportion of Makana municipality residents still do not possess these skills. This indicates the need for capacities to be built in these areas. As related to the last two requirements, MobiSAM hopes to leverage off the high

mobile phone (*tool*) ownership in the municipality, to systematically support collation, organization, analysis, and presentation of *information* intended to complement SAM processes.

As Thinyane (2013) notes, the situation in Makana municipality is analogous to most local municipalities across South Africa. More so, in the larger scheme, these are not challenges that are unique to South Africa, but have been demonstrated on numerous occasions and across a number of varying contexts (Thinyane and Coulson, 2012).

9.3.1 The ICT Infrastructure of Makana Municipality

The operation of MobiSAM technology is largely dependent on the Internet, as well as the availability of mobile and other electronic communication devices by both the municipality and citizens. This then highlights the need to describe the information and communication technologies (ICT) infrastructure in Makana municipality, as it provides an indication of the municipality's infrastructure readiness to integrate the MobiSAM system. Figure 9.3 illustrates a high level view of their network infrastructure.

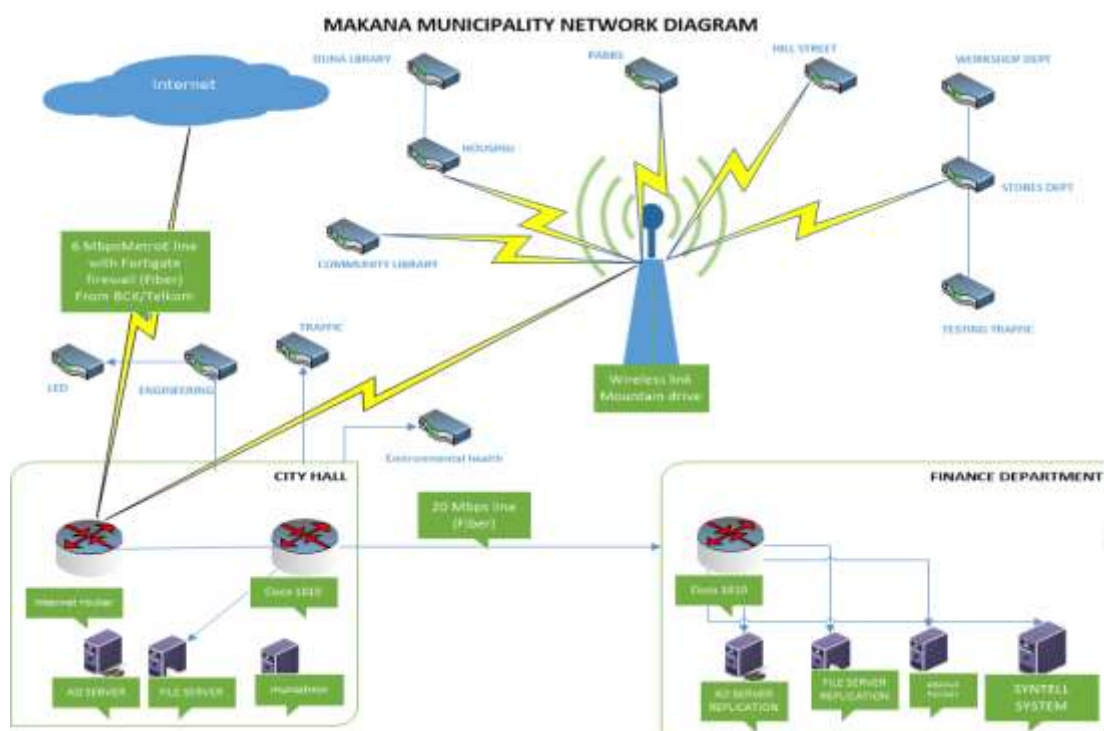


Figure 9.3: High level view of Makana Municipality's internal computer network infrastructure

As Figure 9.3 depicts, the major municipal offices where ICT infrastructure is hosted include: City Hall, and the Finance Department. These two offices are located within close proximity of 250m. However, there are satellite offices, which serve the following functions: Local

Economic Development (LED), Engineering, Traffic, Community Library, Housing, Duna Library, Parks and Recreation, Hill Street (Communications Department), Workshop Department, Stores Department, and Testing Traffic Centre. The various offices are linked together either through Fibre Optic cables or WiFi connections. Particularly, Fibre Optic connection is limited to the offices located in City Hall, and the Finance Department. All departments besides the Finance department, are in some ways linked to the wireless network through a deployed 'high site' tower at a location known as Mountain drive. BCX and Telkom, the Internet service providers subscribed to, install a 6Mbps (*megabytes per second*), fibre link to support connection to the Internet. This link is terminated at City Hall from where there is a connection to the Finance Department, through a 20 Mbps Fibre link. City Hall is also connected to the wireless network at Mountain drive with the use of WiFi technologies. Satellite offices are only connected to each other through the wireless link.

Within the varying departments, offices are linked using Ethernet cables, allowing nodes on the network to communicate internally, and externally. Though possessing a satisfactory network infrastructure, Internet access is restricted within the municipality in order to discourage unnecessary and unproductive Internet use. For instance, whereas a number of WiFi access points are present in the municipality, municipal employees indicate that they do not possess access privileges. This indicates that while some municipal owned computers are wirelessly networked, staff who make use of these computers do not have Wifi passwords to make use of this service. Nonetheless, the existing network infrastructure indicates that MobiSAMs integration can be adequately supported within Makana Municipality.

Within the municipality, all staff who require access to computer systems have access to assigned personal computers. As depicted in Figure 9.3, computers are networked and supported using Windows Server and Active Directory Network. Municipal staff attitudes towards the adoption of customized software currently supporting routine municipal tasks have been somewhat less than impressive. Currently, there are three software systems used by the municipality – these include: MunAdmin, PayDay, and a financial management system. MunAdmin is a document management and document routing system designed to support archiving of received documents and routing of such documents to concerned recipients. There has however been less than adequate uptake of the system by municipal staff. PayDay, which is primarily employed by the administration staff of the municipality is employed to handle municipal finances. The performance management system has also not been well received by municipal staff, who are not particularly keen to have their

performances managed. Municipal staff are provided with training to make use of these systems, however, they still refuse to make use of them (*with the exception of the PayDay system used by the administrative staff*). When the ICT manager of the municipality was asked to provide his thoughts on possible reasons that may be responsible for the non-receptive attitude of staff to the use of software systems intended to support routine tasks – he suggests that it is an organisational cultural challenge. It is important that this challenge is revealed, so as to avoid a situation where MobiSAM is re-launched, and not used by municipal employees.

There are also a number of concerns related to security, as municipal staff point out. Firstly, there is currently no offsite backup of municipal servers. This challenge will not particularly affect MobiSAMs functioning, considering that MobiSAM employs Cloud services to support storage needs. However, a number of other challenges exist. One in particular echoed throughout the municipality is the lack of a business continuity plan documentation to support business continuity in the case of an abrupt resignation or fatal tragedy to an employee solely responsible for critical functions (*such as Information and Technology (IT) support*). Such a document is necessary, given the high employee turnover rate in Makana municipality.

Technical support within the municipality is provided by the IT department. This support is provided by a combination of phone based support (*IT help desk*), on site assistance, and remote assistance (*using TeamViewer*). A challenge exists here as well, given that the IT department is undermanned, with only two interns, a system administrator, and an ICT manager, responsible for providing support services for over 280 users in the municipality.

9.4 MobiSAM Service Delivery Focus

As with the launch in the first phase (where the focus was initially on water service delivery), MobiSAM will not be employed to support all service delivery reporting, but rather will be used for reporting and monitoring of a select number of services. It is decided that initially, a more narrow scope of service delivery reporting will allow for a more manageable project. It is anticipated that with the experience gained, the scope of service delivery that MobiSAM focuses on will be scaled. Based on this reasoning, it was initially decided that MobiSAM will be limited to – *electricity, water, sanitation, and roads*, service related issues. However, based on elicited feedback from citizens and municipal officials at respective meetings, it was decided that *finance*, and *stray animal* challenges will be incorporated into MobiSAMs scope.

In order to make use of MobiSAM, citizens will be expected to:

- *Register:* In order to register, citizens will be required to visit the MobiSAM website, or access the application interface sign up page in cases where the application is being used. Here users will be expected to provide some basic identification information (names, password setting, phone number, email, and address). This information will be stored in the MobiSAM systems backend.
- *Sign in:* Once registered, a user will be expected to sign in using credentials provided during the registration process (user name and password).
- *Lodge service request or Answer poll:* Users can either lodge a service request or answer a poll question on a service delivery issue that will be communicated by a municipal administrative staff responsible for administering and communicating poll questions to citizens.

The operation model of the MobiSAM project is illustrated in Figure 9.4, where one can clearly see that the project involves activities, that are more than just about the technology, but mechanisms to manage the uncertainty and complexity of the context of digital citizen engagement initiative (Pade-Khene and Lannon, 2017). The components of the operational model consist of 1) Citizen Education and Training, 2) Building Government Responsiveness and Citizen Engagement Capacity, 3) Stakeholder Engagement, 4) MobiSAM technology platform development, and 5) Comprehensive Evaluation.



Figure 9. 4: The MobiSAM Operational Model

9.5 Key Stakeholders of MobiSAM

There are four groups of stakeholders that have vested interests in MobiSAMs intent. These groups include – i) *Making All Voices Count (MAVC) Organisation*, ii) *MobiSAM project team*, iii) *the Makana Municipal local government entity*, and iv) *citizen and civil society groups*. Each of their responsibilities are outlined below:

- i) **Making All Voices Count:** MAVC are the funders of Phase 2.0 of the MobiSAM project. As an entity, MAVC is made up of a partnership between three organisations: Hivos, Ushahidi, and Institute for Development Studies (IDS). MAVC is supported by four donors: the Department of International Development (DFID), U.S Agency for International Development (USAID), Sida, and the Omidyar Network. As an entity, MAVC is passionate about citizen engagement, and as such, seeks to fund projects intent on developing and deploying technological solutions for improving government engagement with citizens, as well as promoting government accountability. The key word that drives their mission is *government responsiveness* – however with the support of innovative technologies, such as MobiSAM. Whereas,

they prefer a hands-off approach, where the recipient project organisations are responsible for planning and implementing project ideas, their criteria demands that recipient organizations are subject to project evaluations. Such evaluations are designed to ensure that projects incorporate the needs and views of more marginalized groups while demanding government responsiveness.

- ii) **MobiSAM Project Team:** The MobiSAM team, primarily made up of academic personnel are the main stakeholders responsible for the planning, implementation, and operational support of the MobiSAM project. This team is made up of personnel from two universities – Rhodes University in South Africa, and the United Nations University in Macau. The team comprises of individuals from the following disciplines: *Computer science, Information Systems, Journalism, and Sociology*). Specifically, the team has been responsible for: the development of the MobiSAM initiative and system (*however with input from the municipality and citizen groups*), approaching the local government (*Makana Municipality*) – to propose a collaborative working relationship towards realizing the projects objectives, approaching civil society and citizen groups to request possible partnerships in the quest to implement MobiSAM, civic education, monitoring and evaluation exercises, research and knowledge management, coordination, project planning and strategy development, user training for the deployed MobiSAM system, and support functions to ensure a smooth transition to modified operational municipal processes with MobiSAM integrated. The following are the personnel roles in the MobiSAM project:

- **Project Co-Director and Technical Manager** (computer science background): Prof Hannah Thinyane: A project head, responsible for overseeing the technical development of the MobiSAM system.
- **Project Co-Director and Strategy and Evaluation Manager** (information systems background): Prof Caroline Khene. A project head, responsible for overseeing the strategy development and evaluation of MobiSAMs integration and deployment process within the municipality.
- **Communications and Citizen Engagement Officer** (political science/sociology background, and citizen engagement): – Leroy Maisiri.

Responsible for identifying and liaising with MobiSAM's potential partners, and supporting/building citizen engagement.

- **Communications and Citizen Engagement Officer** (journalism background, with a research focus on community communication ecologies): Hancu Louw. Responsible for identifying and liaising with MobiSAM's partners and supporting/building citizen engagement.
- **Makana Community Coordinator** (social and drama background): Thozamile Enock Ngeju. Responsible for fostering relationships with active citizens and community champions, as well as championing MobiSAM in more marginalized communities around Makana municipality.
- **Technical officer** (computer science background): Ingrid Sieborger. Responsible for working on technical aspects of the MobiSAM system in collaboration with the technical manager.
- **Programmer** (computer science background): Mamello Thinyane: Responsible for programming (application development) related aspects of the MobiSAM system.
- **Strategist and Evaluator** (information systems background): Hafeni Mthoko: Responsible for supporting strategy development and evaluation of various aspects of the MobiSAM project.
- **Strategist and Evaluator** (information systems background): Mwazvita Machiri: Responsible for supporting strategy development and evaluation of various aspects of the MobiSAM project.
- **Strategist and Evaluator** (information systems background): Joshua Osah (the interventionist): primarily tasked with the MobiSAM strategy development as a research project. (Responsible for supporting strategy development and evaluation of various aspects of the MobiSAM project).

- iii) **Makana Municipal local government entity:** Makana municipal entity is employed by citizens to ensure effective and efficient service delivery, transparency, and accountability. In order to dispense the mandates for which they have been appointed, it is important for the municipality to routinely dialogue with citizens to understand their views on the state of service delivery, as well as get their input on how municipal plans should be implemented. Effective dialogue demands effective

communication channels such as MobiSAM, which are to be used to by municipal staff – considering that they are public resource custodians, and as such, have the answers to citizen concerns. Integrating MobiSAM within the municipality will require knowledge about – protocols for requesting meetings with municipal management, municipal work processes, which MobiSAM will support, personnel in charge of particular functional areas, critical information needs, and communication ecologies. Such information can only be provided by municipal representatives; therefore, it is important that they are consulted for input on these aspects throughout the project's tenure. Furthermore, the municipal entity is involved in the problem demarcation, and strategy formulation phase – to jointly develop a strategy for MobiSAM's integration.

- iv) **Citizen and Civil Society groups:** Civil society and citizen groups are expected to act as intermediaries, to enable greater reach by the project. With a population that exceeds 80,000, it seems unrealistic to think that the MobiSAM team will be able to solely foster citizen registration for the entire Makana populace to use the MobiSAM system. It must be kept in mind that even though a large section of the municipality (88%), have access to mobile devices, this is not the case for everyone. Intermediaries, acting as MobiSAM champions can aid in awareness campaigns, as well as help with the registration of less fortunate residents who are unable to access a mobile device to make use of the MobiSAM service. Partnership is also required, considering that the MobiSAM project team does not possess expertise in Social Accountability Monitoring (SAM) processes. Competence on SAM processes is possessed by a particular civil society organisation based in Makana municipality. Public Service Accountability Monitor (PSAM) as a core objective seeks to hold the government accountable for the way in which it dispenses public resources – an act intended to ensure that resources are spent judiciously. With this possessed expertise it is only right that MobiSAM seeks to partner with them. PSAM, as well as other civil society, and citizen's groups have made commitments to act as MobiSAM intermediaries and partners. Besides PSAM, the following are some organisations that have made commitments to partner with MobiSAM: Radio Grahamstown, Umthati Training project, Legal Resource Centre, Families South Africa (FAMSA),

Unemployed Peoples Movement, Joza Youth Hub, Grahamstown Residents Association, and Rhodes University Community Engagement Centre.

9.6 Strategy Formulation for the MobiSAM Project

It is not clear as to whether or not a strategy document was created during the first phase of MobiSAM's deployment, nonetheless even if one was created, the process by which it was derived was not observed and documented. It has been explained earlier in the research that the importance of the strategy lies in its ability to delineate a plan for the realization of MobiSAM's deployment along with the supporting infrastructure, and processes that will maximize the ability of involved stakeholders to meet the project's objectives (*enhanced citizen engagement, and government responsiveness*). More essential to note is that entities that take the time to adequately formulate their strategic planning process will actually gain both in time and speed, as well as save resources (Malunga, 2007). The importance of the strategy formulation process lies in the fact that it helps to account for the formed relationships between the various stakeholders that need to coherently buy into the strategy. Moreover, where there is some knowledge about the process by which the strategy is formulated, over time ideas may be derived on processes that may produce efficient strategies (Asplund, 1975). Table 9.1 below provides information and participant numbers for the planned activities for MobiSAMs strategy development value chain.

Table 9. 1: Information about planned activities for MobiSAM strategy development based on framework proposal

Activity	Methods employed	Number of municipal staff	Combined number of civil society and citizens	How participants are selected
Baseline studies	Questionnaires/	11 participants	400 participants representing varying wards within Makana municipality	Perceived relevance of participants to the study
Needs assessments	Workshop	8 participants	5 participants	Perceived relevance of participants to the study
Problem demarcation/strategy formulation workshops	Workshop	4 participants	15 participants	Perceived relevance of participants to the study
Joint strategy presentation	Workshop/Presentation	0 participants	12 participants	Perceived relevance of participants to the study

This section describes, and provides a reflective narrative of how the e-Government strategy formulation framework has been applied and tailored to the needs of the MobiSAM project. Notably, some aspects of the framework are tailored for the MobiSAM project – to support an effective strategy formulation process, that takes into consideration the uniqueness of the local government (*Makana municipality*) hosting the project. The application of the framework, reveals lessons associated with the suitability and shortcomings of the framework for the MobiSAM project.

9.6.1 Content Focus in the Strategy Formulation Process

This component presents all the themes important for consideration when undertaking the strategy formulation process. All content focused themes proposed by the framework are observed in the application of the e-Government strategy formulation framework. However, a new theme previously not identified in the initial presentation of the framework is observed. *local government functional area of focus* as a theme is noticed to be key to the MobiSAM project, and is a primary reason for the conceptualization of the project. Hence, as observed, the following themes are important for consideration when undertaking an e-Government strategy formulation process for local government: i) *the formal organization*; ii) *Information requirements and flows*; iii) *people*; iv) *ICTs*; v) *external environmental factors*; and vi) *local government functional area of focus*. Aspects of the framework's application that each of the above themes cover are described below.

- i) *The formal organization*: The framework proposes that the formal organization may be viewed as aspects readily observed as written rules, as well as explicitly specified structures agreed upon by stakeholders of the local government (Zenger, Lazzarini and Poppo, 2001). Characteristic subjects related to the formal organization include: the local government's mission and vision, existing management systems, the local government's organizational structure and attached rules and roles, related policies, and work processes. As observed from the framework's application formal organizational themes identified include: elicitation of protocols expected to be observed in formally proposing MobiSAM to Makana municipality; gaining insight into the municipality's service reporting structure; knowledge on job roles of personnel expected to make use of MobiSAM; an understanding of municipal rules on external parties collecting data within the municipality; knowledge of protocols to observe in order to interview ward councilors, as well as interviewing the citizens in their respective ward constituents; municipal role structures and powers; and municipal policies important for MobiSAM to consider.

- ii) *Information requirements and flows:* The framework proposes that information requirements have to do with aspects related to required information that users anticipate will provide value (for instance, analytical, and decision making value). In this context, information requirements refer to information needed to support local government functioning, as well as citizen social accountability responsibility (SAM).

Closely related to information requirements are information flow concerns. Information flow aspects relate to the movement of information between local government employees, functional areas, or other stakeholders (Hatala and Lutta, 2009), in order to facilitate task accomplishment. With the deployment of computerized systems such as MobiSAM – data can be better collected, stored, processed, and communicated (Drake *et al.*, 2004; Sinkula, 1994 in (Hatala and Lutta, 2009) between several local government stakeholders in order to facilitate service delivery. Awareness of essential information content, as well as knowledge of the expected flows of such information must be understood, in seeking to derive an e-Government strategy for Makana municipality. As observed from the frameworks application information requirement and flow themes encompass aspects such as: activities aimed at determining the current service reporting information flows within Makana municipality; information requirements expected from citizens for reporting a service concern, or for internal communication of reported concerns; and an exercise aimed at articulating a proposed flow structure for reporting-related information when MobiSAM is integrated.

- iii) *People:* The framework proposes that this theme concerns human related matters, and their effects on the strategy formulation process. As implied by Asplund (1975); Checkland and Scholes (1990); Chen, Ruikar and Carillo (2013); and Liukkunen, Pohjonen and Sariola (2005) any holistic strategy should be collaboratively arrived at by a group of stakeholders involved in cognitive exchange. Humans expected to form part of this process may include individuals with egos, differences in opinion, and conflicts of interest. Also it is expected that there will be a pool of intellectual resources, as well as other resources at the disposal of individuals within this group. As such, the framework proposes that people related factors will encompass areas such as, the identification of potential strategy formulation participants, understanding

of group participant structural dimensions, resources possessed by the group, and the extent of willingness by participants thought to be important to the strategy formulation process. As observed from the frameworks application people related themes identified include: initiating relationships with municipal staff and active citizen/civil society groups; collaboration amongst MobiSAM team members in planning for the strategy development and overall project; observations of discord amongst project team members; descriptions of meeting arrangements with municipal staff; duties of municipal staff, ward councilors, community development workers, and active citizens; challenges encountered in seeking to meet certain stakeholders (e.g. ward councilors, and municipal speaker); group structural elements that may possibly impede or encourage stakeholder participation in project planned strategy activities; processes intended to identify appropriate stakeholders to extend invitations to – to participate in the strategy development exercise.

- iv) *ICTs*: The framework proposes that this theme concerns technological components that make up the computerized e-Government system to be deployed. As noted by the framework, ICTs are an integral theme to be considered in any e-Government initiative. According to proposals from the framework, ICTs comprise of aspects such as: ICT infrastructure, hardware, software, associated costs, facilities, networks, critical success factors, ICT vision, and related strengths and weaknesses, and, maintenance support (Alghamdi *et al.*, 2011; Chen *et al.*, 2013; Duffy and Assad, 1989). As observed from the frameworks application ICT related themes identified include: Discussions on the use of collaborative technological tools (shared drive, email), used by the project team to undertake virtual group collaboration; an investigation of communication tools possessed by municipal staff, ward councilors, CDWs, and citizens; an assessment of hardware and software applications possessed by the municipality; knowledge of ICT maintenance human resource in the municipality; an understanding of user access issues, use attitudes to municipal computerized applications; security related concerns; and an understanding of interoperability of municipal systems.
- v) *The External Environment (Opportunities and threats)*: The framework proposes that this theme concerns external factors that may potentially underpin or impede desired

strategy outcomes. As noted by the framework, these factors may present themselves in the form of opportunities or threats. As observed from the frameworks application external factors considered included: the investigation of opportunities and threats thought to possess the potential to enhance or impede project objectives. Some opportunities identified include: ubiquity of mobile phone ownership in Makana municipality, the presence of a substantial number of active citizen groups, the municipality's commitment to implement an integrated service delivery model aimed at enhancing service delivery to citizens. Some threats identified include: identified national security laws that may possibly place limits on public citizen's access to sensitive information, and possible political change and influence.

- vi) *local government functional area of focus*: This theme represents the particular function for which ICTs are to be integrated. For this particular project, the function is citizen engagement. Even though this theme is not initially proposed by the framework, it is considered to be key to an e-Government project strategy formulation process. Citizen engagement as a concept is the idea of the government adhering to the principles of – *accountability, transparency, participation, and inclusion* as this concerns the relationship dynamic with the people they are appointed to serve. Based on these principles, local government structures in South Africa are designed to offer meaningful opportunities for its citizens to participate in government processes, by locating more power and resources, at a more reachable and more easily-influenced level of government (Mogale, 2005 in Thinyane, 2013).

Greater accountability is sought, as it is anticipated that when state institutions are accountable, they are more likely to employ public resources constructively, rather than misappropriate them. Government transparency enables citizen monitoring (*Social accountability monitoring*), thus allowing citizens to observe where political leaders may be going astray, hence providing citizens with an opportunity to exert well-intentioned pressure to put political custodians back on track (Carothers and Brechenmacher, 2014). Avenues for public participation in governance decision making at the local level will provide state institutions – with direct inputs on preferred ways of responding to citizen needs, as well as provide additional information about blockages and inefficiencies related to decision making processes.

Moreover, the purpose of the MobiSAM system creation is to enhance citizen engagement with Makana local government. As empirically observed, citizen engagement themes were exhibited where: project team members are assigned to investigate the extent to which there is citizen engagement between Makana municipality and its citizens; observations of the extent to which citizens in fact care about Social Accountability Monitoring (SAM); activities aimed at identifying active citizens and civil society organizations passionate about SAM; seeking opportunity to make proposals to municipal ward councillors and Community Development Workers (CDWs) to act as MobiSAM intermediaries; and , deciding how citizen engagement could be best encouraged in the community.

9.6.1 b Lesson Learned: Human relational challenge

It is suggested by Gichoya (2005) and Sunden and Wicander (2006: 44), that technical competence is one of the core factors that inhibits successful implementation of ICT projects in developing countries. Also authors such as Mann *et al.*, (2013); Naidoo (2007); and Nkohkwo and Islam, (2013), imply that the lack of ICT infrastructure within South African local governments act as impedances to e-Government projects. Observation of the frameworks application suggests that this is not the case with this context. Human relational issues proved to be the more challenging aspect with this project, and to a lesser degree technical aspects. For instance, almost all attempts at building a relationship with ward councillors who are deemed important to the project's success (due to the influence they presumably exert on citizens in their wards), were foiled. Furthermore, often times in the process – getting desired municipal staff to attend workshops aimed at developing the strategy was challenging. In contrast, as this relates to this particular e-Government project (MobiSAM), most of the technically required aspects were deemed satisfactory. The municipality's technical infrastructure was believed to be adequate for the system's deployment. Furthermore, the systems development team were proficient at their development task. This minimized the typically expected technically related challenges that an e-Government project may be predictably subject to. Challenges were more intensified around themes related to people and municipal rules. These challenges illustrate the possible extent of difficulty of human relational aspects of an e-Government project.

9.6.2 Phase Gates and Feedback Mechanisms

An e-Government strategy formulation process can be conceptualized as consisting of phases. Phase gates serve to ensure that key decision points in sequential processes are respected (Copper *et al.*, 1998 in Chen *et al.*, 2013). This is indeed the case as observed from the framework's application. However, in contrast to propositions in the framework – on where *hard gates* and *soft gates* should be situated, there are a number of modifications. For instance, it is proposed by the framework, that the problem demarcation (*part of phase 3*), and objective setting (*part of phase 4*), should be separated by a hard gate. Nonetheless, in applying the framework, both of these activities were carried out simultaneously in the same workshop. The reason for this modification during the framework's application process will be elaborated on when narrating the application of activities proposed during phases.

The concept of process reviews, which the framework presents, seeks to enable feedback (Chen *et al.*, 2013), in order to enhance successive objective setting activities (*phase 4*). This concept is not observed in the frameworks application, as feedback on the created strategy document, has not been received from stakeholders (*municipal staff* and *citizens*).

9.6.3 Application of Phases of the strategy formulation Framework

9.6.3.1 Phase 1: E-Governments strategy formulation preparation Phase

The study preparation phase serves a number of functions aimed at initiating the e-Government strategy formulation exercise. The functions that were applied included: 1) initially building relationships with local government and its stakeholders, 2) making a formal request to the local government to conduct the strategy formulation exercise, 3) gaining insight into the baseline status of stakeholder groups and organizations, and 4) analysis of baseline data. A summary is provided below on how these functions were realised:

1. Initiating relationship building

Initiating relationship building efforts with local government employees and other stakeholders was achieved by:

- *Attendance at local government public forums*, by the interventionist and other MobiSAM project team members. Municipal organized meetings included: communications forums, water and sanitation forums, and water catchment forums.
- *Attendance at a community engagement initiative* aimed at enhancing development within the municipality. MobiSAM representatives were present at several meetings of

a community engagement initiative (Makana digital) organized by the local University, where municipal, employees were expected to be in attendance.

Attendance at these meetings was instrumental in promoting the MobiSAM initiative and its role in the state and welfare of the local government. More specifically, attendance at such meetings served as an introductory platform for meeting key stakeholders through whom the interventionist and more broadly the team gained access into the municipality. For example, these meetings provided an opportunity to meet with Makana municipality's communications officers, who became the champions for MobiSAM within the municipal institution. Becoming acquainted with the communications officers provided an opportunity to request a meeting aimed at formally proposing that the municipality work with MobiSAM in seeking to formulate a strategy.

2. Formal request to the local government

A number of activities were carried out to formally inform the municipality on the intent to undertake the strategy formulation process. These activities included: A meeting with the municipality's administrative manager to inform him about the study, a meeting with the acting municipal manager to introduce the idea of the strategy formulation process, and a presentation of the MobiSAM project and strategy formulation plans to the Senior Management Team (SMT) of the municipality. All of these meetings culminated in the approval of the municipality, as well as their agreement to work with the interventionist on developing a strategy for MobiSAM. Furthermore, the municipal manager garnered an action plan in getting senior management to support the implementation of MobiSAM project activities within the municipality.

3. Baseline Study

The baseline study is specifically important to the strategy formulation process, as it helps the interventionist to learn about the local government, its key stakeholders, current operational performance of service functions MobiSAM seeks to support, and ICT infrastructure capacity. The baseline study was categorised into four key aspects: *communication ecologies in the municipality, the technical status of the municipality, the communication ecologies in the community, and the extent of citizen engagement in the municipality*. Due to the diverse nature of the baseline study, project team members were split into four groups – to focus on one of the four aspects of the study. Some team members were assigned to more than one of

the four facets. Project planning activities such as logistic planning of the baseline study, deliberating on a plan for how project team members will collaboratively work together, and data collection instrument design, needed to be jointly articulated by the project team.

The decision made by the Strategy and Evaluation Manager (co-director), to split the baseline study into four facets is taken in order to increase the efficiency of the study completion. In line with the principles of ‘division of labour’, dividing a huge task or production process into smaller tasks enables assigned personnel to focus on specific tasks (specialization) (Smith, 1776). Consequently, workers concentrating on particular aspects of the huge task, are afforded the leverage of better understanding their focused task due to routine execution. This enables each personnel to complete their tasks more efficiently, and as a consequence completion of the whole in less time (Smith, 1776). More importantly, the four categories provide an indication of the complex nature of government functions. Government responsiveness needed to be looked at separate from citizen aspects. Instruments for the assessment of these baseline facets were designed, based on the two main categories of the study, that is: i) *communication ecologies in the municipality*, and ii) *communication ecologies of the citizens*.

I) Communication ecologies in the municipality

Questionnaires were developed to elicit baseline data from the municipality, in collaboration with the communications officers (project champions) on the relevance and implementation of questions contained in the questionnaire. The municipal baseline questionnaire is presented in Appendix (Case A).

A list of potential respondents from within the municipality, mainly involved in internal and external communication on service delivery reports, were selected to participate in the survey (see Appendix (Case G) for a list of selected respondents). Municipal project champions informed the interventionist on how selected respondents may be approached. However, this required a written email to the municipal manager informing her on the intent to undertake a baseline study. It is emphasised that this written request must be done at every stage of the project. Once consent is granted, data collection is undertaken by two MobiSAM project team members. The team also intended to collect baseline data from ward councillors and community development workers (CDWs), but were unable

to get a hold of them. Ward councillors and CDWs are citizen representatives, who table citizen concerns to the local government. As a contingency the team requested that the communications officers provide baseline information about ward councillors and CDWs.

As part of the communication ecologies of the municipality, the technical status of the municipality was also assessed. This category was created to generate data on the municipality's ICT network infrastructure, hardware, software, and ICT maintenance human resource capacity. Considering that MobiSAMs' prospective functioning is contingent on a satisfactory ICT infrastructure (*the internet and appropriate hardware and software*) within the municipality, it was important to understand the technical status of the municipality. The interventionist conducts this assessment in tandem with the technical manager (co-director). The assessment was carried out by employing an interview protocol – to ask a number of questions related to the technical status of the municipality. The questions were informed by propositions from the e-Government strategy formulation framework, for assessing ICT readiness of a local government. Furthermore, the questions were informed by time spent brainstorming by the technical manager (co-director) on possible aspects that such an assessment should include. A copy of the interview protocol can be accessed in Appendix (Case C). Interview questions were solely asked to the municipal ICT manager as he primarily oversees the ICT infrastructure within the municipality.

II) Communication ecologies in the community

Questionnaires were developed to elicit baseline data from citizens within the municipality. A list of wards within the municipality was determined including population numbers within each ward. Sample sizes of potential respondents are agreed upon based on the population sizes of each ward. Data collectors were hired and trained to administer questionnaires within municipal wards. The citizen baseline questionnaire is presented in Appendix (Case H).

9.6.3.1 b Lessons Learned from Phase 1

1. Mobilising a team to undertake baseline study: It is implied by the framework presented in chapter 7 that the interventionist will solely be responsible for organizing and facilitating the entire strategy formulation process. Observation from the application of the framework

reveals otherwise. Note that activities aimed at gaining a preliminary understanding of the municipality extends beyond the municipal organization, and also encompasses municipal citizens, civil society, and the media. Based on this broad focus a team must be mobilized to undertake the process – which is expected to be immense. As can be noted from the narrative above, the baseline study was divided into four facets constituting two main categories. This lesson emerged from noticing that the baseline study required more than a single individual to conduct (*the interventionist*). With the initial assumption by the interventionist that all activities of the strategy formulation process will be achieved solely, there was no anticipation that formal planning by the project team would have to be undertaken as part of the study preparation phase. Therefore, this is not mentioned in the presentation of the proposed framework in chapter 7. Applying the framework contrary to this initial assumption reveals that – project planning activities such as *logistic planning of the baseline study*, *deliberating on a plan for how project team members will collaboratively work together*, and *data collection instrument design*, needed to be jointly articulated by the project team.

2. Building relationships early in the process is important: In seeking to initiate the study, the project team's presence at municipal organized forums, and meetings prior to making any request, was helpful in starting a relationship (e.g. *with the communications officers, citizens, and civil society representatives*). Attendance at such meetings portrays the project team as stakeholders interested in the welfare of municipal functioning. Moreover, such meetings provide an opportunity to meet key municipal personnel, as evident with the project team being introduced to the communication officers at such a meeting. With the amicable relationship formed with the municipality's communication personnel, they became open to arranging a formal meeting with the administrative manager, where MobiSAM's team is provided with an opportunity to introduce the idea of the project and to a lesser degree the strategy formulation plans to the administrative manager. This became the first step in officially making the projects intention to work with the municipality known.

3. Ensure constant consultation with municipal officials during the study process: Constant consultation must be made with municipal staff to clarify assumptions about protocols to be adhered to – when undertaking studies within the municipality. This is evident where the interventionist had assumed that the consent provided by the municipal manager at the SMT meeting to undertake the study will suffice for all activities of the strategy formulation process. It is only revealed prior to the commencement of the baseline study in the

municipality that the municipal manager must be informed in writing at every stage that an activity will be undertaken within the municipality. In the event that the interventionist assumed that the granting of permission by the municipal manager at the SMT meeting was an automatic go ahead to commence data collection within the municipality, employees would most probably have been less responsive. Knowledge of this protocol at the baseline study, provided a foundation for planning subsequent evaluations and workshops that the strategy formulation process would require. Additionally, as can be noted from the narrative in the case description (Appendix Case I), inviting municipal communications officers to evaluate the questionnaire, was instrumental in making well informed revisions to the instrument – thus making it more suited to the municipal context.

4. The evaluation should be sensitive and flexible to the local government context: It was important for the municipal baseline study to be sensitive to the factors that are characteristic of South African local government settings. These factors were particularly observed in two areas: firstly, it was revealed that the speaker, needed to be notified, and her consent sought prior to conducting any interviews with ward councillors, also with anticipation and intention to hire data collectors to elicit municipal baseline data it was discovered by the MobiSAM team that the municipality exerts caution with who is allowed to come into the institution to collect data (*thus demanding that MobiSAM project team members undertake data collection as opposed to hiring data collectors*).

9.6.3.2 Phase 2: ICT Orientation Session

This phase aims to inform or enlighten key municipal employees and other stakeholders on the possible value ICTs may contribute to service delivery improvement. An activity of this nature was carried out in Phase 1, where the project team was invited to a municipal SMT (*Senior Management Team*) meeting to illustrate how MobiSAM would potentially be valuable to the municipality's service functions. This presentation had only senior management staff in attendance, who essentially are not the sub-ordinate staff expected to routinely use the system. Furthermore, there was no such presentation made to other stakeholder groups (*citizens, civil society, and the media*) in phase 1.

It was decided that an ICT orientation workshop would be carried out for municipal employees that were expected to use the system, and subsequently for civil society and citizens. Incorporated into the two planned ICT orientation sessions is a needs assessment

workshop. The needs assessment is incorporated based on propositions by the Rural ICT Comprehensive Evaluation Framework (Pade-Khene and Sewry, 2011), that a needs assessment be conducted following a baseline study. A needs assessment specifically aims to elaborate on, understand, and set the desired priorities of the target population, and propose appropriate solutions that can be supported by MobiSAM (Pade-Khene and Sewry, 2011). It gives room for an opening position between the MobiSAM project team and the potential users of MobiSAM, as such, revealing pre-existing assumptions and aspirations of the project (Harris, 2001). Particularly, the project co-directors had intended that the needs assessment, will reveal from the potential users' point of view – possible additions or modifications they may desire in the MobiSAM system. More precisely, the needs assessment sought to determine whether the information and communication solutions provided by MobiSAM were considered as relevant to both the municipality and citizens. Importantly, the needs assessment informed the interventionist of the extent to which the strategy to be developed took into consideration the needs that the MobiSAM project expects to address (Pade-Khene and Sewry, 2011). Respectively, narratives for the, 1) municipal ICT orientation session, and the 2) civil society/citizen ICT orientation session are summarised:

1. Municipal ICT Orientation and Needs Assessment Session

- **Planning for the ICT orientation session:** A programme was drafted for the workshop session which included: an ice breaker session intended to support acquaintance amongst attendees, as well as to prepare their minds (stimulate the brain) to focus on the tentative workshop task; an introductory session to give a brief summary about MobiSAM, its history, and what the system is intended for; a demonstration of the current system to municipal staff; and a section to elicit user views, and potential suggestions for additions to the system and its functionality. The Technical Manager (co-director) had some reservations about some of the indicated activities on the drafted programme. Particularly the inclusion of an ice breaker session, and the intent to employ a use case diagram to demonstrate system functionality to the potential users. The Technical Manager felt that an ice breaker should only be used where it is anticipated that the potential participants will be meeting for the first time, which was not the case with municipal staff expected to attend the workshop. In relation to the second issue she felt that employing a use case diagram to describe system functionality may confuse workshop attendees. Activities that there were reservations about were removed from the programme even though the

information systems oriented project team members felt that these activities will play useful roles. Prior to arriving at a decision, there was some disagreement amongst project team members on whether or not these activities should remain.

- **Identification of potential municipal workshop attendees:** Job description roles revealed by the baseline study, as well as suggestions from the champions (communications officers in the municipality), provided knowledge on the potential functional areas and representing personnel that would be expected to use MobiSAM.
- **Eliciting consent to permit staff attendance:** An email was drafted and communicated to the acting Municipal Manager – informing her of the intent to: conduct an ICT orientation and needs assessment workshop with municipal staff.
- **Municipal ICT orientation workshop proceedings:** Eight of eleven invited municipal employees attended the workshop, as well as five members from the MobiSAM team. The Technical Manager aimed to use the workshop to elicit feedback from participants on functional additions to the existing system, or suggestions of functionality that they find to be irrelevant. There was not a lot of feedback on system functionality, however some concerns were raised by municipal staff following the demonstration. Concerns raised included: the need to emphasise the scope of service delivery issues that the municipality is responsible for addressing to municipal residents, proposal of a centralized team to receive service requests reported through the system, municipal resource constraints, unique identity attachment for each reported concern, notification functionality for each reported concern. There was some concern that the system demonstration was not interactive enough, as it was not sufficiently interactive – one could observe that some participants chose to alienate themselves from the engagement required of them. Nonetheless, the workshop was useful in presenting the value of the system to the users, as well as getting some feedback on some factors to consider (*issues identified*).

2. Civil society/ Citizen ICT Orientation and Needs Assessment Session

- **Planning for the civil society/citizen ICT orientation workshop:** A programme was drafted for the workshop session which included: an ice breaker session intended to support acquaintance amongst attendees, as well as to prepare their minds (stimulate the brain) to

focus on the tentative workshop task; an introductory session to give a brief summary about MobiSAM, its history, and what the system is intended for; a demonstration of the current system to civil society and citizens; and a section to elicit user views, and potential suggestions for additions to the system and its functionality.

- **Identification of potential civil society and citizen workshop attendees:**

The baseline study was useful in providing knowledge on suitable participants. However, at the time of planning for the citizen needs assessment, the baseline data on citizens had not been analysed. As such, one of MobiSAMs communications and citizen engagement officers who prior to the project had been working with particular civil society and active citizens in the municipality was helpful in identifying a few active citizens and groups. Letters were drafted and communicated to the identified active citizens and civil society groups.

- **Citizen ICT orientation workshop proceedings:**

Participants consisted of two representatives from the local community radio station in Grahamstown (*within Makana municipality*), two community members who may be viewed as marginalized, and one civil society member thought to be more opportune (*privileged*). Also in attendance were seven MobiSAM team members. The Technical Manager and Interventionist particularly used the workshop to elicit the perceptions of participants on the usefulness of the MobiSAM system. A participant from the radio station indicated the usefulness of the system. His view was representative of a significant number of people, as on a daily basis, radio listeners call in to the radio station where he is a presenter to complain about how unresponsive the municipality is. Noticeably, there was little to no contribution by the two attendees considered to be from marginalized backgrounds. As observed in the municipal needs assessment session, there was some concern that the system demonstration was not sufficiently interactive. Having all of the functionality presented at once, without any engagement with citizens while presenting may have been a lot to take in at once. Therefore, a lack of understanding in addition to the marginalized attendees' feelings of inadequacy may have influenced their lack of contribution. In closing it was suggested by one of the attendees that including more functionality at this point is not as important as actually getting the system running, and ensuring that reported requests are responded to by the municipality. It was further indicated that once the system is operating efficiently, in its most basic form, then suggestions for additions may be considered.

9.6.3.2b Lessons Learned from Phase 2

1. Prioritizing analysis of sections of the baseline study aimed at identifying potential citizen participants for the needs assessment: The turnout at the citizen needs assessment workshop was less than impressive. This was due to the limited knowledge of proactive civic groups and individuals within Makana municipality. Considering that the baseline study ultimately is expected to reveal active civil society and citizen groups within the community, perhaps it may help the needs assessment process better where the analysis of baseline data aspects that reveal residing active citizens/groups are prioritized.

2. Possibility of project team discord: e-Government projects are situated at the centre of technical and people related components. That being said, it is expected that at the minimum, an e-Government related project team will consist of personnel from purely technical disciplines (e.g. computer science), as well as some from disciplines intent on bridging the gap between technology and people (e.g. information systems). As such, differences in discipline philosophies may come into play when undertaking collaborative project team planning. As was the case while planning the needs assessment, there was some disagreement amongst project team members from differing disciplines. Whereas the project co-director with a computer science background was purely focused on the MobiSAM application functionality, the information systems oriented co-director and the interventionist in addition to functionality, were also very concerned about how the system was perceived and understood by potential users. This difference in purview brought about some debate on how needs assessment activities should be approached. This suggests the need for consideration of conflict resolution strategies where undertaking e-Government planning activities, where team members are possibly expected to be from different disciplines with different philosophical stances.

3. A needs assessment aimed at eliciting feedback on a created systems functionalities should be interactive: In addition to illustrating the usefulness of MobiSAM, phase 2 (ICT orientation and needs assessment), was aimed at eliciting views of municipal employees and citizens on the systems functionalities for task accomplishment. There was however little feedback on system functionality at both workshops by attendees. It is anticipated that the non-engaging manner through which the systems functionality was demonstrated, may have impeded feedback. An audio-less video was presented to attendees at both workshops to illustrate all system functionality. This may have been overwhelming for most participants

who were only being exposed to the system for the first time. It is highly likely that by the time the presentation was being concluded, participants had forgotten the functionalities that were presented to them. An activity aimed at functionality elicitation feedback, should be more interactive. This means it should involve reciprocity upon completion of every illustrated function. Feedback should be elicited after each functions demonstration – an approach, which may be supported by use cases of each function.

Additionally, facilitators presiding over such workshops should remain observant, paying attention to attendees who are not participating, and then attempting to engage them in the process.

4. Healthy balance of demographic representation: At the citizen needs assessment workshop, it was noticed that there was little contribution from the two marginalized individuals that were in attendance. They each only spoke once in response to general questions that were posed to them. Reflection when compared to other workshops where there were more marginalized individuals in attendance reveals that, they felt inadequate (*like they did not belong*) to contribute. This conclusion is reached based on observation of subsequent MobiSAM workshops, where there was a lot of contribution from marginalized groups, where they were of a significant proportion in number. According to Hochbaum (1954) social groups form very strong referent points, and as a consequence can support the confidence of particular members where such members are aware that other members share in their social reality. In much the same way, it is expected that where there is a significant amount of marginalized groups at such a workshop, there is some confidence that there are people in attendance who share in the social reality, which their views express.

9.6.3.3 Phase 3: Problem demarcation/strategy formulation

This phase is aimed at systematically documenting the problem MobiSAM hopes to address (refer to activity 1 of phase 3 of the e-Government strategy formulation framework). Linking objectives, which the e-Government strategy hopes to target to related problems, enhances the validity of the objectives. Furthermore, this phase aims to get a common understanding of the conflicts of interest of between different stakeholder groups (*municipal representatives and citizens/civil society*) within the municipality, in order to achieve consensus between stakeholders. Moreover, considering that there was a first phase/version of MobiSAM – where a fully developed system was deployed, but barely used, it was thought important to

find out what particular challenges (from citizens and municipality's point of view) may have impeded use of the system in the first phase.

The e-Government strategy formulation framework suggests that to undertake this task, the interventionist should attempt to simulate the major problem (or conflicts of interest amongst stakeholders), derive objectives from the outlined problem, and then propose means for achieving objectives. Once this simulation has been carried out, the actual process should be carried out by the different stakeholders at a joint strategy workshop.

The idea was shared with the projects Strategy and Evaluation Manager (*co-director*). She however, did not feel that it will be a good idea to bring both groups (*municipal representatives* and *citizens/civil society*) together, without having them air their views in separate strategy workshops. It was perceived that there were conflicting views between both groups, and that bringing them together without separately understanding what their group perceptions are, may result in emotions running high, and as such leading to uncivil verbal exchanges.

Based on this thinking, it was decided that in order to fulfil the problem demarcation/strategy formulation process, separate workshops will be organized for municipal staff, and then for the civil society/citizen group. Respectively, narratives for the, 1) municipal problem demarcation/strategy formulation workshop, 2) civil society/citizen problem demarcation/strategy formulation workshop, 3) analysis of data from both workshops, and 4) actor analysis are summarised:

1. Municipal problem demarcation and strategy formulation

- **Planning for Municipal Problem Demarcation/strategy formulation:** Potential municipal staff were identified from the baseline analysis, and the municipal champions. The majority of the selected staff were those who were present at the needs assessment conducted for the municipality. A programme was drafted by the interventionist, but with input from other strategists and evaluators on the project team. Activities planned were mainly informed by phase 3 of the e-Government strategy formulation framework, which proposes ways of understanding stakeholder problems, outlining objectives based on identified problems, and suggesting means of achieving objectives.

- **Assessing group structural elements amongst municipal staff:** A week prior to the planned workshop, a number of municipal staff (four in number) were assessed to determine whether or not there are undesirable group structural elements among them that may deter contribution at the planned strategy formulation workshop. No particular harmful structural elements are revealed. A copy of the interview protocol for assessing group structural elements can be accessed in Appendix (Case D).
- **Municipal strategy workshop proceedings:** Of twelve municipal staff invited, only four were in attendance. It was realized later on that the low attendance rate was due to the tenure end of the acting municipal manager, who had instructed participants to be in attendance at the workshop. The four employees in attendance included – the municipal communications officer (*champion*), a newly appointed communications assistant, the operations manager of the DEIS, and a newly appointed information and communications technology (ICT) manager of the municipality, as the previous one had also resigned. From the MobiSAM project team, there were seven personnel in attendance. The following activities took place in the workshop:
 - a. *An ice breaker session:* The icebreaker was centred around service delivery and communication. It was carried out in order to get people relaxed, but more importantly to prepare their minds (stimulate the brain) for the planned workshop activities.
 - b. *Summary of MobiSAM:* The summary indicated MobiSAMs intended purpose, its history, and the audiences (*municipality* and *citizens*) it seeks to serve.
 - c. *Problem identification and demarcation:* This was the first collaborative task that took place at the workshop. Although the strategy formulation framework proposed the use of a means-end diagram to undertake this task, a problem tree was used instead – as it was easily understood by participants. Municipal staff were requested to draw a problem tree which included a *Trunk* (representing the municipality's most prevalent problems as they relate to service delivery), *Roots* (representing the perceived causes of these problems), and *Branches* (representing the symptoms that suggest that these issues are existent). Finally, on the side of the tree participants were expected to list some positive aspects related to what the municipality is doing right. Figure 9.5 is an example of the problem tree generated by municipal attendees.

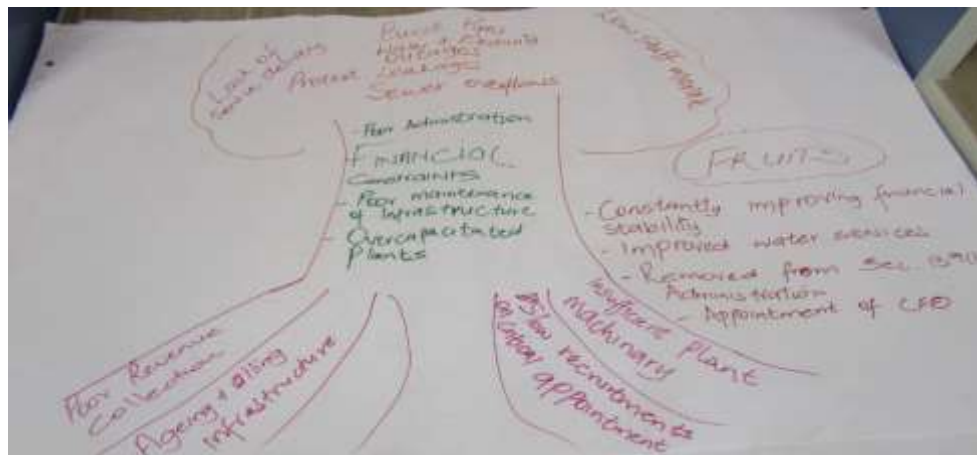


Figure 9. 5: Problem tree generated at municipal strategy workshop

This activity assisted in scoping the problem – hence relating particular problems to MobiSAMs capabilities to address the problem.

- d. *Objective Setting and identification of possible costs:* Here ideas were brainstormed (objectives) to deal with the scoped problems, as well as the possible costs of achieving such objectives. The e-Government strategy formulation framework suggests that an objective ‘tree’ should be employed, to define the focal objectives. However, this was not used in the workshop, based on the rules that the participants would have had to internalize where using the proposed objectives tree. The interventionist had taken time to reflect on the problem prior to the workshop, and as such had a number of questions articulated in relation to how communication could be improved between the municipality and citizens. The interventionist rather used a means-end diagram, and objective tree on his own to conceptualise and understand the problem. Figures 9.6 and 9.7 respectively depict the means-end diagram and objective tree that was generated by the interventionist.

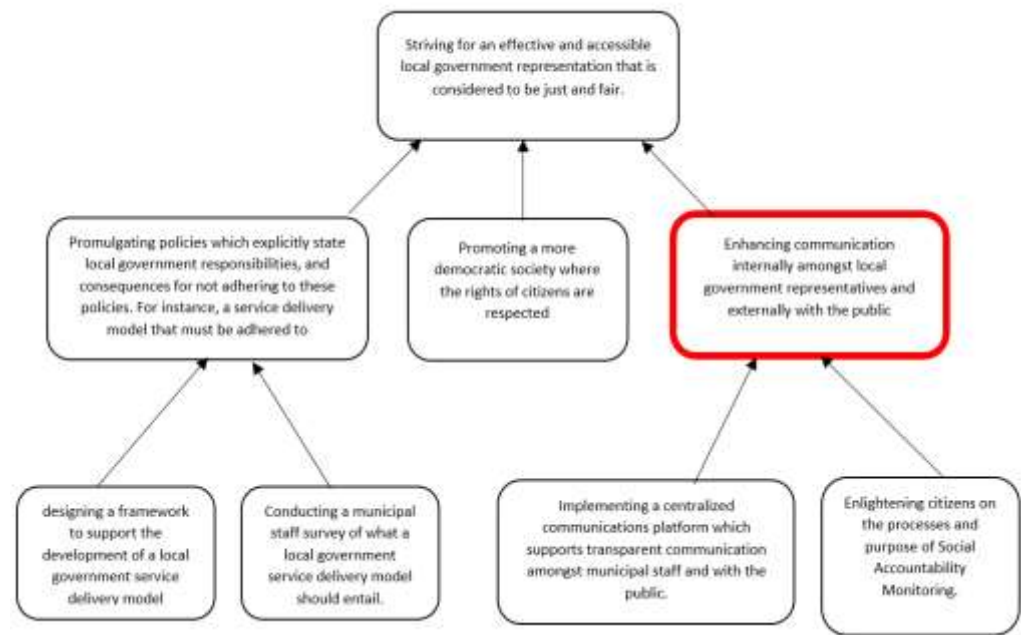


Figure 9. 6: A mean-end analysis generated by the interventionist

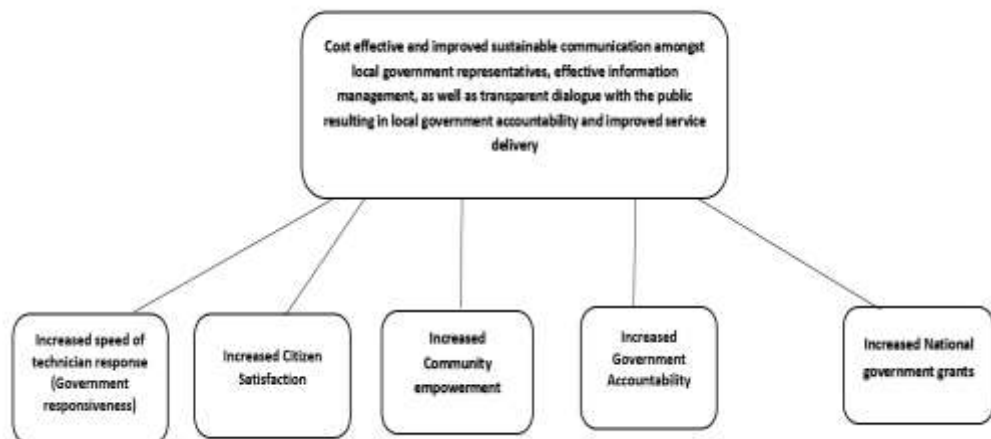


Figure 9. 7: An objective tree generated by the interventionist

- e. *Presentation of current flow of service delivery reporting:* Results from the baseline study enabled the development of a diagram that illustrated the existing service delivery reporting structure – depicting the internal/external information communication flows when service delivery concerns are being reported (see Figure

9.8). The diagram was presented to municipal staff to confirm the analysis of the existing reporting structure so that in proposing a new structure, an explanation could be provided as to why modifications were deemed necessary.

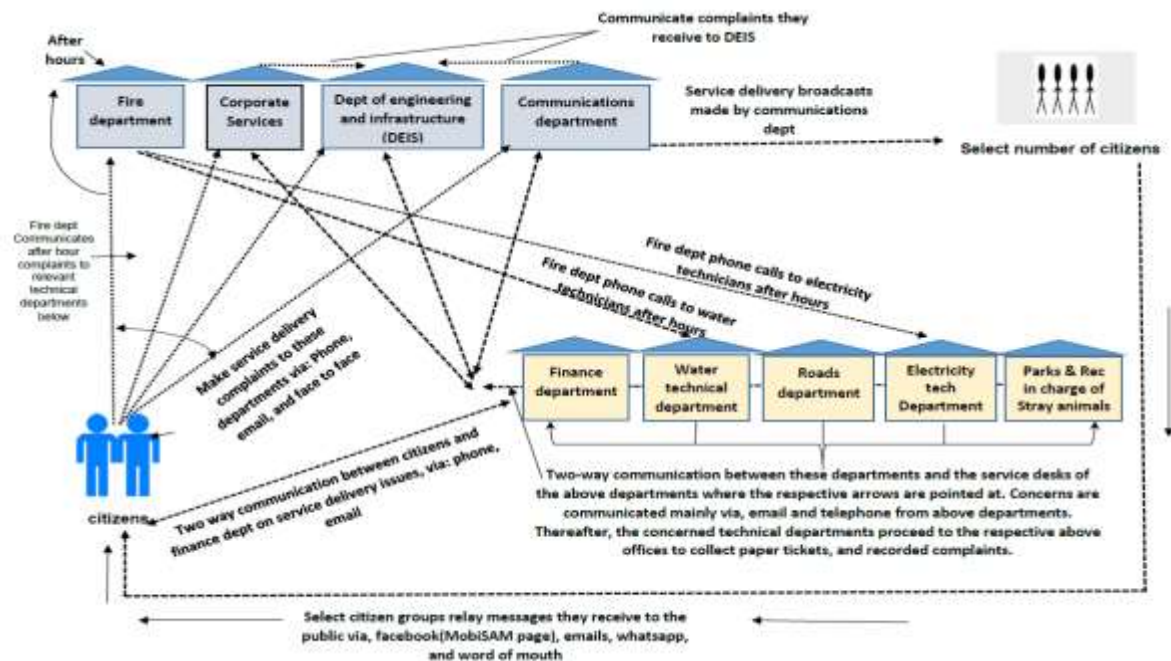


Figure 9. 8: Current municipal service delivery reporting structure

Municipal staff agreed that the presented reporting structure was accurate – and were able to identify the chaotic nature of the existing structure, which left little room for accountability and feedback internally and externally.

- f. *Articulating a proposed flow for service delivery reporting:* Led by the Strategy and Evaluation Manager (co-director), all attending members together articulated a proposed flow for service delivery reporting – from the point of citizens lodging requests, to the reported message getting to the concerned department, and subsequently to where a case has been handled and it is closed, and feedback is provided to the reporting citizen. It was anticipated that this data will inform planned modifications to the MobiSAM system. Hence, this was also deemed one of the more important aspect of the municipal strategy formulation workshop. With the proposed reporting structure, it was suggested that all communicated service concerns from citizens should be relayed to a centralized unit of information entry. It was then proposed that the centralized team would be responsible for communicating received concerns to the various departments. Each concern as was

proposed would be issued a ticket number to act as its unique identification. Departments would then be expected to assign jobs to technicians within their functional areas. Similarly it was suggested that once a concern has been addressed by technicians, they would relay status feedback to their departmental desks, who would then communicate to the centralized unit responsible for providing feedback to service recipients. Figure 9.9 below depicts the articulated service reporting structure.

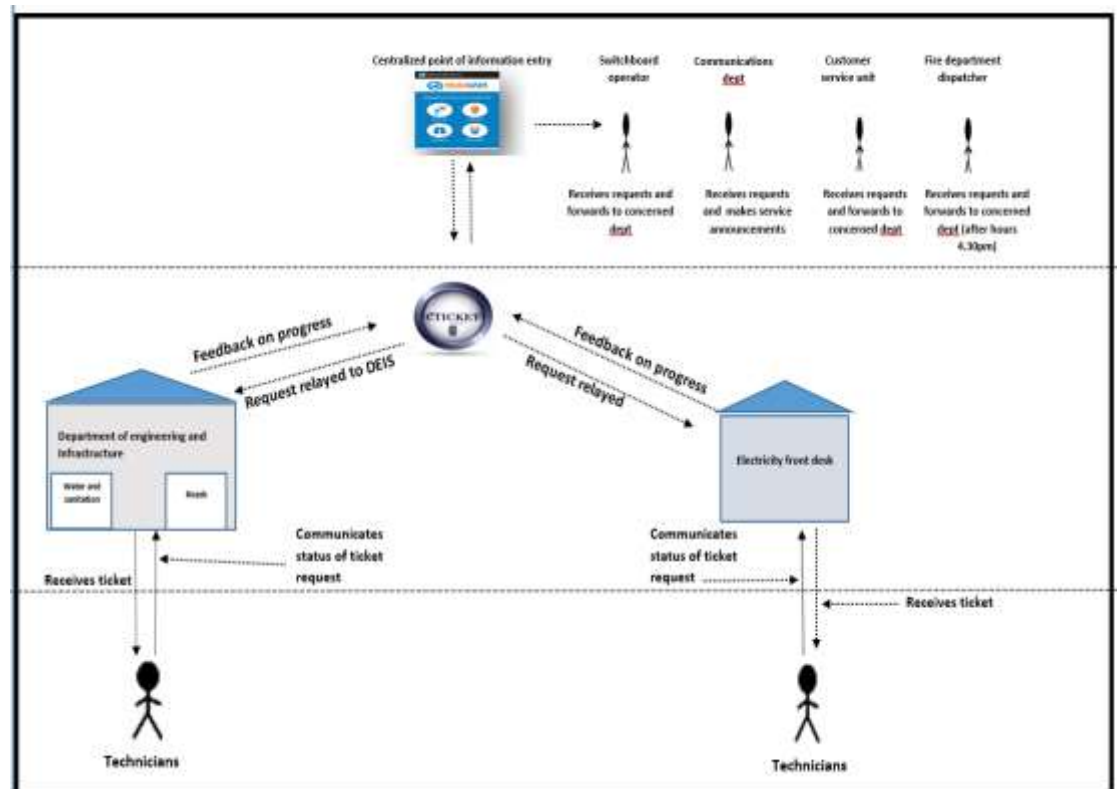


Figure 9. 9: Proposed reporting structure articulated at municipal strategy formulation workshop

Full confirmation could not be garnered, due to the absence of a number of the expected municipal staff at the workshop. It was suggested that these absent employees will be visited in the near future to discuss the newly articulated service delivery reporting structure, as well as elicit any information requirements they may have for reporting of service delivery issues.

- g. *Confirmation of equipment needed and policies:* This was the final activity of the workshop. It was aimed at confirming any equipment that may be needed, which however, had not been considered. Furthermore, it sought to confirm from municipal staff any

policies they believed would be important to guide MobiSAMs integration, which had not been considered.

Following the municipal strategy formulation workshop, a meeting was arranged at the municipal offices to elicit information requirements from the representatives of each municipal department of service areas within MobiSAMs scope. The meeting as it was anticipated would also serve to illustrate the proposed service delivery reporting structure articulated at the strategy workshop to municipal staff who were not in attendance at the workshop. There were eight municipal staff in attendance, some of whom were not present at the municipal problem demarcation/strategy formulation workshop. Copies of the reporting structure depicted in Figure 9.8 were distributed to all municipal staff in attendance. Staff from the municipality's Finance Department had been specifically invited as it had been anticipated that their service function should be incorporated into MobiSAMs scope of service concerns to be addressed. This was based on indications that finance issues are one of the more frequently reported concerns by municipal residents. The finance personnel in attendance, were concerned that with the proposed reporting structure, all communication of opened tickets are expected to go through the centralized unit, with no room for intra-departmental ticket communication. They expanded by stating that often times, in order to provide feedback to citizens on a particular issue, they have to confirm certain details with other departments (e.g. electricity or water department). They therefore requested that the conceptualized reporting structure should be modified to allow intradepartmental communication of tickets between the Finance Department, and the Water and Electricity department (who they may need to make confirmations with). It is also mentioned at the meeting that stray animals are a huge problem within the municipality, and as such should be included in MobiSAMs scope. Concerns and modification propositions voiced at the meeting resulted in changes to the originally proposed reporting structure, as shown in Figure 9.10.

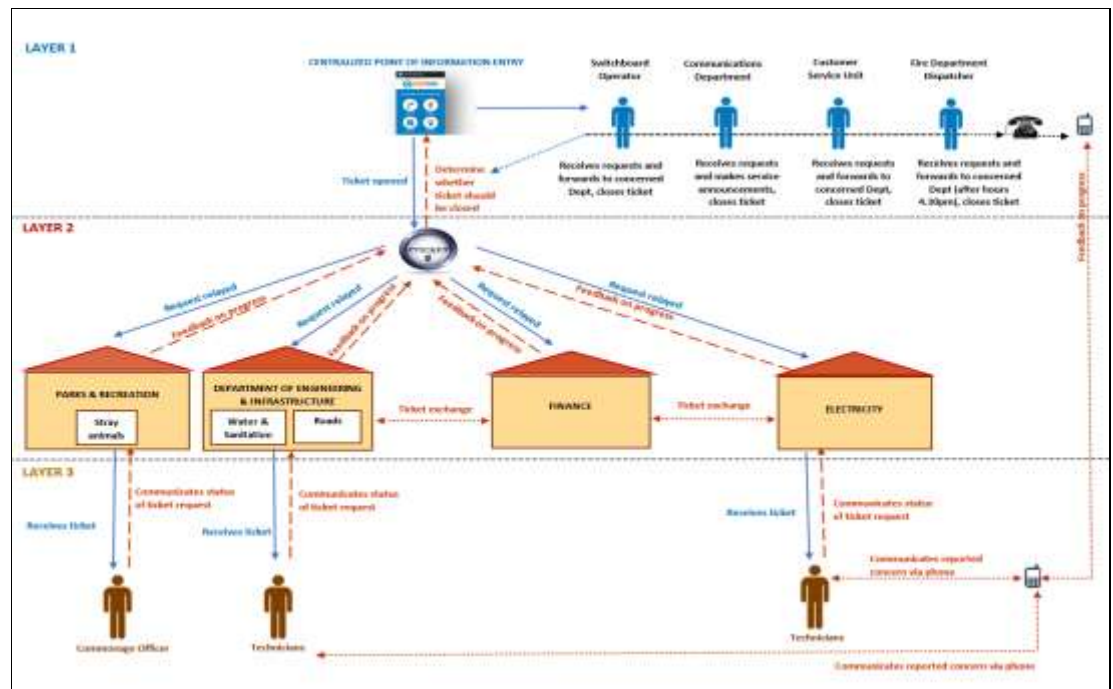


Figure 9. 10: Modified proposed reporting structure based on feedback

2. Citizen problem demarcation and strategy formulation

- Planning for the Citizen Problem Demarcation and strategy formulation:** Baseline data provided information on potential active citizens and civil society groups to invite to the workshop. In tandem with MobiSAMs communications and citizen engagement officers, a list was drafted. The list of potential attendees drafted included 20 civil society groups, and two active citizens (*individuals*). In collaboration with MobiSAMs citizen engagement officer's letters are drafted to invite the identified groups.
- Civil society/citizen Strategy workshop proceedings:** A significant number of the invited stakeholders attended the workshop. These included 15 individuals representing 8 different civil society groups. The following activities took place at the civil society/citizen strategy formulation workshop:
 - An ice breaker session:** The icebreaker was centred around service delivery and communication. It was carried out in order to get people relaxed, but more importantly to prepare their minds (stimulate the brain) for the planned workshop activities.

- b) *Summary of MobiSAM:* The summary indicated MobiSAMs intended purpose, scope of service delivery issues to be addressed, the audiences (*municipality* and *citizens*) it seeks to serve, and a brief recap of what was discussed at the municipal strategy formulation workshop.
- c) *Problem identification and demarcation:* Here the fifteen attendees were split into four groups and it was requested that each group draw a problem tree similar to that drawn by municipal employees at their strategy formulation workshop. This activity helped the MobiSAM strategists and evaluators to map identified problems to MobiSAMs capabilities. Figure 9.11 depicts the problem trees generated by citizens at the workshop.

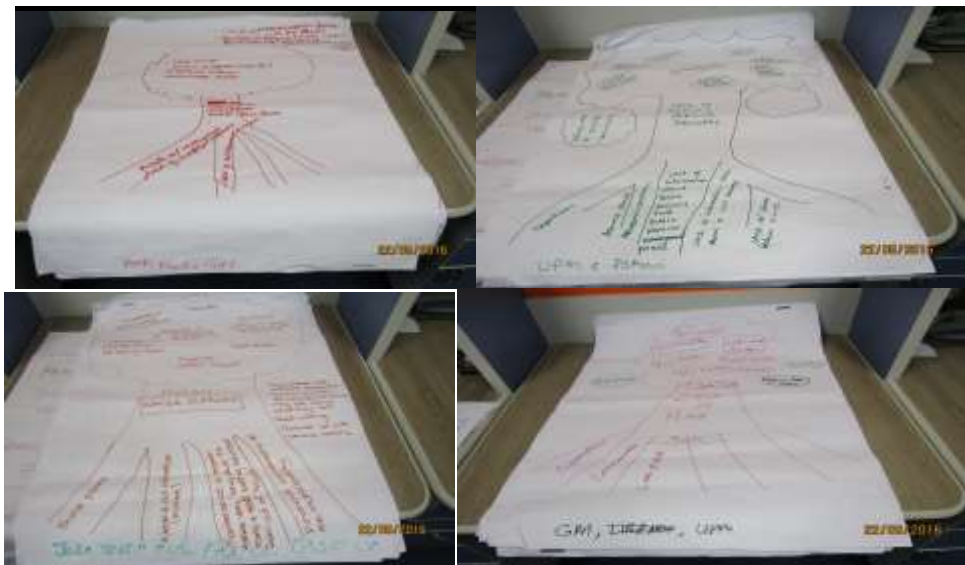


Figure 9. 11: Examples of problem trees generated at citizen workshop

During the problem demarcation activity, one of the attendees exited the workshop upset. She was a staff of the municipal library, and as such was the only individual in attendance employed by the municipality. She indicated that she felt that she was invited to be verbally attacked – as all that was being pointed out by other participants were the shortcomings of the municipality. She further accused the team of inviting her purposefully, to ensure that the municipality and its representatives were humiliated in front of citizens. However, this was not the reason she was invited. In planning for the citizen workshop, the project team had thought it wise to invite a librarian from the

municipal local library, as the library is a centre where community members go to access internet services. This essentially meant the library could potentially act as central access point for MobiSAM – especially for the underprivileged.

- d) *Objective Setting and identification of possible costs:* Here objectives to address scoped problems and possible costs of achieving objectives were identified. Attendees were impressively engaging here – pointing out objectives such as: greater levels of citizens sensitized on their rights, increased government accountability on their mandates and expected responsibilities, and an increased level of evidence backed engagement with the local government. A number of costs were also identified. It was conjectured that in discussing potential costs attendees will become more empathetic to the hurdles the project has to overcome, thus urging them to visualize what their roles as intermediaries may possibly entail. Opinions on possible indicators for measuring the extent of objective achievement were sought as well.
- e) *Garnering commitment from workshop attendees:* This is considered to be an important activity, as it is anticipated that the MobiSAM team does not possess the capacity to reach all residents in Makana municipality. Therefore, it is hoped that active citizens and civil society, with the newly gained understanding of what the project is attempting to achieve, will offer to act in the capacity of intermediaries. As intermediaries they would be expected to champion the project in wards within the municipality where they have a presence. Furthermore, they would be expected to support underprivileged citizens, who are incapable of accessing mobile or computer devices and internet services to register, and make use of MobiSAM.

3. Analysis of data from both strategy formulation workshops

The problems were thematically analysed obtaining: a core set of problems, objectives, key performance indicators, (Strengths, Weaknesses, Opportunities, and Threats) SWOT factors for the project to consider, challenges and risks that the project will potentially face, costs and benefits, targeted municipal processes to restructure, the proposed flow of service delivery reporting with MobiSAMs integration, human and material resources required, policies the project is expected to adhere to, and commitments made by active citizens and civil society groups. Also contributing to data analysed were views from a participant who while keen to attend the citizen workshop was unable to due to other commitments. To contribute to the

process he requested that the topics to be discussed at the workshop be emailed to him promising that he will provide his views on the topics. He kept to his promise. The analysed themes form the core categories of MobiSAMs drafted strategy document. Refer to Appendix (Case E) for a copy of the strategy document. These topics also formed the core categories of MobiSAMs drafted strategy document.

4. Actor analysis

This activity was intended to determine the potential influence that each of the actors analysed will have on the project, as well as determine the extent to which actors were perceived to be committed to or against the project. To conduct the analysis, all actors were listed on a table, the importance of each of their resources was assessed in relation to the objectives that MobiSAM seeks to achieve. Furthermore, the criticality of stakeholder resources was determined by the extent to which it was perceived that their resources could easily be replaced. This determined the degree to which it is anticipated that there will be dependency on them, and as such, whether or not they should be deemed critical actors.

Once this activity was completed, the interventionist created a power/interest matrix, as shown in Figure 9.12, depicting MobiSAMs foreseeable dependency on all actors. With this analysis as the framework suggests, it was possible to view coalitions and alliances that needed to be formed, encouraged or discouraged, particularly in relation to the dedicated and non-dedicated critical actors. Refer to Appendix (Case F) for a copy of the actor analysis.

the point of the municipal strategy formulation workshop, municipal employees had been impressively cooperative. They availed themselves for the baseline study, majority of them were present at the municipal needs assessment, and they were notably civil to the MobiSAM team. However, as observed, the perceived cooperation was as a result of directives communicated by the previous acting municipal manager who they were answerable to, and who exhibited great support for the project. Nonetheless, as was also revealed, a number of these employees did not complete group structural assessment interview protocols emailed to them. Additionally, a large percentage of them were not present at the municipal strategy formulation workshop. The narrative reveals that the then acting municipal manager had just stepped down, the week that the strategy workshop was planned for, as her tenure had come to an end. Most of the expected municipal employees who noticeably had been exhibiting reluctance to the project did not have an incentive to attend the workshop. It was recognized that as long as the then acting municipal manager was not occupying the municipal managerial role anymore, there will be no reprisal for their absence at the workshop. This illustrates the importance of leadership support at every point of the project. Importantly, always keep leadership up to date on the projects progress. Also, find ways to keep them satisfied.

2. Interventionist/project team must exhibit considerable understanding of the municipal business processes e-Government seeks to support.

Twinomurinzi and Gharthey-Tagoe (2011) reveal that vaguely defined work processes can pose a challenge to ICT integration within public institutions. Therefore, it is considered vital to understand such processes prior to proposing any automated systems. With respect to the MobiSAM project, the baseline data once it had been analysed, and discussions with MobiSAMs champions (*municipal communications staff*), aided in deriving an understanding of the processes MobiSAM is expected to support (*service delivery reporting*). This exhibited work process understanding proved relevant at the municipal strategy formulation workshop when the session sought to determine how MobiSAM will potentially be employed within the municipality. A discussion could be embarked on, as the project team had illustrated that they understood the current process. The diagrammatic representation helped municipal staff to visualise how chaotic service delivery reporting currently is. The dialogue that resulted from this visual representation, resulted in a proposal for the current reporting structure to be modified. The proposed centralized structure of reporting was in fact suggested by one of the

municipal staff. This lesson illustrates that as a prerequisite to discussing potential objectives for an ICT systems integration within local government, it is imperative to gain considerable understanding of how the business process in question currently functions. This will serve as a base for discussing potential changes. Note, a problem can only be addressed when it is well understood.

3. Assembling conflicting groups to undertake a problem identification activity is not advisable at the onset.

Aside from the MobiSAM project team, two other stakeholder groups (*municipal employees*, and *citizens*), were involved in the strategy formulation process. Whereas the idea is to bring all groups together to jointly formulate the strategy, having all groups in the same venue for some of the processes leading up to the joint strategy formulation may not be advisable. Separating groups is particularly relevant to the problem identification phase. Initially, the framework had proposed that conflicting groups should be brought together at the onset, however when the idea was discussed with the Strategy and Evaluation Manager (co-director), she was opposed to this suggestion. In her opinion, conflicting groups brought together for a problem identification exercise may end up blaming each other, while also being disrespectful. An incident, which took place at the citizen workshop in fact proved that this would have been the case, if both groups were brought together at the onset. As the citizen strategy workshop proceedings revealed, the municipal library employee who was invited to the citizen workshop, ended up exiting the workshop upset. She accused the MobiSAM team of inviting her to encourage a situation where a municipal representative is humiliated in front of citizens. Prior to bringing conflicting groups together their grievances should be elicited in separated workshops. Once this is done, the interventionist and the project team, can then diplomatically present on behalf of all conflicting parties, as the project and its representatives are expected to act in a neutral capacity. A diplomatic representation of all parties concerns at a joint workshop will ensure that the different challenges are communicated, however without offending any parties.

4. Devising other means of contribution for invited stakeholders who are unable to attend planned workshop, but are keen on contributing to the strategy development

Scenarios may arise where for some reason an invited stakeholder is genuinely unable to attend a planned strategy workshop. It may be impossible in such instances to reschedule the

workshop, considering that other people would have also been invited as well – who are willing to attend. Where this happens, such stakeholders should be asked whether they would be willing to share their views, in the event that questions related to the proposed workshop content is communicated to them. An example of this occurred, where an active civil society representative was unable to attend the strategy workshop, but requested that questions be communicated to him, and promised to provide feedback. His feedback is analysed alongside the data elicited at the citizen strategy workshop.

Another example, which illustrates the project team's willingness to make alternative arrangements for data collection, was with municipal staff who did not attend the municipal strategy formulation workshop. It was considered that if perhaps a meeting was planned with them at a venue of their convenience, they would be more willing to attend. As such, a meeting was planned to be held at the municipal office to elicit information requirements, as well as recap what was discussed at the municipal strategy workshop, in order to get some input from staff who were absent. As was anticipated, concerns were noted by the municipal finance personnel about the proposed service reporting structure articulated at the municipal strategy workshop. The noted concerns aided in making revisions to the proposed reporting structure.

5. Drafting an actor analysis document in a format that can be understood by multiple stakeholder groups

Initially it was thought that the actor analysis conducted will solely be used by the project team. Requests by the project funders for a draft of the actor analysis illustrated that this is not the case. As the narrative revealed, the funders were interested in the analysis to be able to visualize: the targeted project beneficiaries, as well as powerful stakeholders who are capable of changing the project. This suggests that in preparing an actor analysis, consideration should be made for other audiences. To succinctly state it, a drafted actor analysis document should be prepared in such a way that it is understood by multiple audiences.

6. *Healthy balance of demographic representation:* In contrast to the citizen needs assessment workshop, it was noticed that there was impressive contribution by marginalized groups at the citizen strategy workshop. As it seems, based on the fact that they were more in

number they felt more comfortable contributing to the session. Essentially, this confirms suggestions by Hochbaum (1954), that social groups form very strong referent points, and as a consequence can support the confidence of particular members where they are aware that other members share in their social reality.

7. Employ easily understood tools for conducting activities in the strategy workshops

The framework initially proposed that a means-end diagram, and objective tree, be employed to undertake the problem identification, and objective setting activities respectively. These tools were not employed in the strategy related workshops organized for both groups (*municipal staff* and *civil society/citizens*). Rather an easily understood problem tree was used for the problem identification activity, and a simple brain storming session for the objective setting activity. The decision not to employ the means-end diagram, and objective tree, was due to the number of stipulated rules that their use demands. Referring to box 7.1 and box 7.2 in chapter 7, these rules can be observed. It was considered that explaining the use of these tools to workshop attendees, and expecting them to follow the rules while undertaking their problem formulation and objective setting activities, may have required a significant amount of time and training. The profile and lack of technical/conceptual know-how by most stakeholders typical of a local municipality, would have made these approaches difficult or impossible to implement.

9.6.3.4: Phase 4: The Joint Strategy Workshop

This phase was intended for consensus generation, or arriving at accommodations by the differing stakeholder groups involved in the strategy formulation process. The strategy document that is to be adopted was finalized based on agreements reached by different stakeholders at this joint workshop.

Respectively, narratives for the, *i) planning of the joint strategy formulation workshop, ii) proceedings of the joint strategy formulation workshop, iii) presentation of project and strategy to ward councillors, and iv) evaluation of the strategy document* are summarised:

i) Planning for the Joint strategy workshop

It was decided that the municipality's communications officers who had become champions should be invited to represent the municipality at the joint strategy workshop. This decision came after there was no response from the newly appointed municipal manager to an email

requesting the presence of municipal staff at the joint strategy workshop. With the alternate decision, to invite the communications officers, the municipal manager did not need to be notified as it had become customary for the project team to often invite them for meetings. As anticipated, invitation communications were accepted by the municipal communications personnel. Letters were sent to civil society and citizen groups inviting them for the joint strategy workshop. The interventionist drafted a programme for the joint strategy workshop with the help of the Strategy and Evaluation Manager. It was decided that the separate problems of the different groups must be diplomatically presented in order to avoid igniting disputes among the two groups (*municipal employees* and *citizens*). Also, in line with proposals by the e-Government strategy formulation framework, the interventionist attempted to articulate a mission and vision for MobiSAM, which was also to be presented at the joint workshop. The articulated mission and vision was informed by: the municipality's vision which is stated on the home page of the municipal website, the objectives MobiSAM seeks to realize, and the objectives articulated with civil society and citizens. Other aspects prepared for presentation at the joint workshop included: joint objectives, and means for achieving objectives.

ii) Joint Strategy Workshop Proceedings

Most of the civil society groups that attended the previous strategy workshop had representation at the joint strategy workshop, however there were a few new groups represented at the workshop. The communications officers could not attend the workshop, due to work commitments (attending to a traditional king who was visiting the municipality). The workshop commenced in their absence. The presentation content at the workshop included – the MobiSAM mission and vision presentation, MobiSAMs scope (considering it is not expected that MobiSAM will address all service delivery areas), service delivery challenges identified by both groups in the separate strategy workshops, amalgamated objectives from municipal staff and citizen perspectives, foreseeable challenges and risks of integrating MobiSAM, revised service delivery reporting flow to be adopted by the municipality, commitments made by civil society/citizens, and a brief communication on the way forward. At the point where the interventionist presented the proposed service delivery reporting structure the municipality had agreed to, it was deemed regrettable that the municipal staff were not in attendance to confirm this, in the presence of the civil society/citizen groups. This would have been appropriate, as it would have illustrated to

citizens that the municipality is also serious about the project. Civil society groups/ citizens in attendance who had made commitments at the strategy workshop held for citizens, confirmed that they indeed made those commitments. An attendee expressed disappointment that there was no municipal representative in attendance.

iii) Presentation of MobiSAM to Ward Councillors

At the municipal strategy formulation workshop it had been indicated, that it is important for the MobiSAM project to be presented to ward councillors in the Council meeting. This is suggested, in order to circumvent displeasure by councillors who as it is anticipated, if not informed, would feel like the project is deliberately seeking to bypass them to work with citizen intermediaries within their ward constituents. As such, shortly after the joint strategy workshop, the MobiSAM team, sought occasion to present to the ward councillors. The MobiSAM team had constantly sought occasion to meet with ward councillors from the inception of the project, as revealed in the baseline study narrative section. However, all attempts had been futile. Shortly after the joint strategy workshop, the municipal communications officer (*champion*) aided in arranging a meeting with ward councillors. She spoke to the Director of Infrastructure and Engineering (DEIS), on behalf of MobiSAM. This was a fitting employee to speak to, as he is one of several important municipal employees who routinely presents at council meetings (presenting updates on the municipality's service delivery operation as related to his directorate). He therefore created a 5-minute slot in his assigned section of the council programme, creating room for the MobiSAM team to introduce the project to all ward councillors who were expected to be in attendance. At the council meeting, MobiSAM was represented by the Strategy and Evaluation Manager (co-director), the interventionist, and two other team members. The presentation was carried out by the Strategy and Evaluation Manager (co-director). She briefly tried to describe the value of MobiSAM, the important role ward councillors could play (as intermediaries) when the system is integrated, the proposed service delivery reporting structure articulated at the municipal strategy formulation workshop, and the projects progress to date. After the 5-minute presentation, it was indicated by a council representative that it is a noble initiative. A number of questions were asked. The questions asked were, what it would cost the municipality?, and when the municipality would be able to take ownership of the system? To answer these questions, the Strategy and Evaluation Manager (co-director) indicated that the system is being implemented as research aimed at improving citizen engagement, and is fully funded, and as such, will not cost the municipality anything in the interim and

foreseeable future (2 to 3 years from now). It is further indicated that at some point it will be expected that the municipality take over the operation of the system, when it is determined that they can manage it on their own. Once the presentation was over, the MobiSAM team exited the council chamber.

iv) Evaluation of the strategy document

Findings at the separate strategy workshops, as well as confirmations made during the information requirements elicitation and joint strategy workshop, informed the development of the strategy document that was drafted by the interventionist. The e-Government strategy formulation framework proposes as a last activity in Phase 4 that the strategy document needs to be evaluated for its feasibility. Feasibility aspects considered relevant to evaluate by the framework include: *technical feasibility*, *economic feasibility*, *schedule feasibility*, *operational feasibility*, and *political feasibility*. There is no schedule feasibility conducted in the empirical application, as the strategy document does not contain any time schedules.

To assess the technical feasibility of the created strategy document, all technical proposals (e.g. the addition of a centralized layer to the system, and the addition of a ticketing function), were discussed with the technical officers, and the programmer at meetings, once they had been proposed. As such, only after the technical personnel had consented to the technical feasibility of these proposals were they included in the strategy document.

Economic feasibility of proposals in the strategy document was assessed by both project co-directors, who are responsible for managing the financial resources required to implement the project.

Operational feasibility was assessed by municipal staff, who were responsible for proposing (in collaboration with the project team), the modified reporting structure for MobiSAMs planned integration.

Assessing political feasibility revealed that there may be some resistance from ward councillors. This was revealed by observations of the attitudes of the political arm of the municipality (the speaker's office and ward councillors) towards the project. Every attempt to meet with this particular group was circumvented. The only opportunity to meet with them,

was at a council session, where the MobiSAM team was given 5 minutes to introduce the project. Though there has been perceived resistance from this group, the team continually seeks to persuade them to see the value of the project. It however helps that the project has the support of the acting municipal manager who was in office at the commencement of the baseline study. She was recently reinstated. Hence, there is some optimism that the systems deployment and use within the municipality will not be inhibited.

9.6.3.4b: Phase 4: Lesson Learned

1) Alternatives to less than ideal plans may have to be resorted to by the project team

Whereas a joint workshop was considered ideal to present the findings of both stakeholder groups to each other, this did not occur, due to the absence of municipal representatives. As an alternative, the interventionist upon completion of the planned joint workshop had a discussion with the municipal communications officers (*champions*) – bringing them up to speed on the workshop proceedings, especially commitments made by civil society/citizen groups. Upon communication of the workshop proceedings, the municipal communications officers indicate their contentment with the implied municipality's commitment, as well as commitments made by citizens. The absence of any municipal representatives at the joint strategy workshop illustrates one of the challenging realities of working within South African local government contexts. Things may not always turn out as planned by an intervening team, and they may have to resort to less than ideal expectations or seek contingencies.

9.6.3.5: Phase 5: Strategy Communication and persuasion for acceptance

This phase of the strategy formulation framework was not applied, due to the municipality's resource constrained nature, and limited expressed interest in taking ownership of the strategy process. At this phase, it is suggested by the strategy formulation framework that the municipality organize workshops to disseminate the strategy content to their subordinates. Reflection however reveals that left alone this may never be planned by the municipality, given that they have only been responsive to the strategy process, and project as a whole, when pushed by the MobiSAM team. Additionally, suggestions that visits be made to other local governments with thriving e-Government implementations may be unrealistic, due to the municipality's resource constrained nature. As a contingency, after notice of these factors, the project team intends to continue working with the local government for the foreseeable future (*even after the systems implementation*), until there is notice that they will be capable

of assuming full responsibility of the systems sustained use. This again brings attention to the realities of working in resource constrained South African local municipality's.

9.6.3.5b: Lesson Learned:

1) Sustained support by project team

As a contingency to the realities of working in resource constrained local governments, the MobiSAM project team has to almost act as an 'external support' to sustaining the operation of the initiative in local government practice. This is a need in local municipalities in South Africa that are constrained, as the external influence addresses the existing gaps and incapacities that exist. Such an external source should work with the municipality, building capacities and addressing e-governance gaps until they are capable of assuming full responsibility for the sustainability of the e-government initiative.

9.7 Conclusion

A case study exploration of strategy development for MobiSAMs deployment, provides a real-life descriptive narrative of e-Government strategy formulation. As a tentative e-Government project, MobiSAM was conceptualized to explore the use of mobile phones to enhance citizen participation in local government service delivery provisioning. Significant to MobiSAMs deployment and sustained use is a holistic strategy, collaboratively arrived at by concerned stakeholders. The strategy delineates a plan for the realization of MobiSAM's deployment along with supporting infrastructure that will maximize the ability of the local government stakeholders to meet the objectives the project aims to achieve (*enhanced citizen engagement, and government responsiveness*). A developed e-Government strategy formulation framework proposes a suitable tool to undertake collaborative development of MobiSAMs strategy. The suitability and shortcomings of the framework are revealed through a reflective description of the application of each phase of the framework. Observed lessons suggest changes in proposals initially made by the framework. Thereupon, the findings of the case study analysis represent the foundation of reflections and revisions to the themes, and processes of phases proposed by the e-Government strategy formulation framework.

Chapter 10

An Enhancement of the e-Government Strategy Formulation Framework

This chapter presents a revised version of the applied e-Government strategy formulation framework, based on the revealed lessons from reflections, observations and evaluation of the framework during its application in the MobiSAM project.

10.1 Introduction

A case study exploration of strategy formulation for MobiSAM, investigates the applicability of an e-Government strategy formulation framework in an existing South African local government context. Essentially, the case study analysis reveals the suitability and shortcomings of the framework, which enables reflections and enhancements to identified themes and phase activities of the framework. This chapter seeks to revise the initially proposed e-Government strategy formulation framework based on lessons learned from the case study analysis.

The chapter begins with suggested additions to the proposed (*thematic*) content focus areas of the e-Government strategy formulation framework. Lessons learned from the application of phases of the framework are then pointed out, suggesting how these lessons should be incorporated into the framework. Following this, a revision to the overall structure of the framework, is illustrated. An overview of the application of the framework is then presented. Lastly, the findings are summarised, and it is concluded that the application of the e-Government strategy formulation framework to tentative e-Government projects of other South African local governments will potentially contribute to the incremental and iterative enhancement of the framework, through lessons learned. Moreover, it is anticipated that the application of the framework to different e-Government projects provides a platform for comparative learning.

10.2 Revision of the Theoretical e-Government Strategy Formulation Framework

The theoretical e-Government strategy formulation framework is derived from fundamental propositions on strategy formulation, informed by: *e-Government strategy approaches*, *business related strategy approaches*, and *NGO strategy approaches*. The conceptualized framework is framed and constructed by integrating the fundamental components identified in the comparative analysis of the varying sector approaches propositions on strategy formulation. Furthermore, soft systems methodology (SSM) concepts considered to be relevant to addressing challenges such as collaborative strategy formulation are subscribed to, in developing the framework. An exploration of the MobiSAM project case study illustrates the application of a prototype of the e-Government strategy formulation framework. The observed appropriateness of the framework to support e-Government strategy development is

determined through reflecting on its suitability and shortcomings. These observations contribute to specific revisions to the framework as described below.

10.2.1 Observation of Content Focus of e-Government Strategy Formulation Process

As observed from the application of the framework, all initially proposed themes (*content focus areas*) are noticed as imperative to consider in an e-Government strategy formulation process. Nonetheless, the application of the framework also reveals a theme not previously considered. The new theme identified is '*local government functional area of focus*'. The identified local government functional area of focus for this particular project is citizen engagement. As a concept citizen engagement is the idea of the government adhering to the principles of – *accountability, transparency, participation, and inclusion* as these concern the relationship dynamic with the people they are appointed to serve. A summary of the proposed addition to the thematic focus areas is depicted in Table 10.1

Table 10. 1: Proposed Addition to Thematic focus of e-Government strategy Process

Thematic Addition to content focus areas	Lesson Learned	Suggestion for incorporating lesson learned for frameworks enhancement.
Strategy formulation content focus areas		
I. local government functional area of focus	The strategy formulation process must consider aspects related to the functional area that ICT's seek to support. For this research, it is citizen engagement. Essentially, local governments are established to strategically position government representation that is close to the citizens that the government is mandated to serve. This is done in order to ensure that the government is within reach of the people, thus allowing more dialogue and engagement. For this reason an e-Government project aimed at communication enhancement between the local government and citizens must compulsory consider citizen engagement. Citizen engagement as revealed encompasses the local government's adherence to accountability, transparency, participation, and inclusion as these concern the relationship dynamic with the people they are appointed to serve. Fostering citizen engagement in an e-Government project can be as challenging, if not more challenging than technological aspects of the project, and as such, must be given as much attention as technical aspects are.	<ul style="list-style-type: none"> At the study preparation phase (as part of the baseline study), stakeholders must be quizzed on the current performance of the functional area that ICTs seek to support. At the objective setting stage of the strategy formulation process, plans and means for the enhancement of the functional area of focus must be included as part of the strategy.

10.2.2 Application of Phases of the Strategy formulation Framework

The application of the strategy formulation framework phases was quite successful. However, the last phase (*strategy communication and persuasion for acceptance*), was not applied due to resource constraints, and the observed challenging realities of undertaking an e-Government project in a South African local municipality. Nonetheless it is anticipated that an external source (the project team) will support the application of this phase. There is limited change to the structure of the framework. Hence, revisions proposed are based on lessons learned, which inform enhancements or reconsiderations of processes within particular phases. Phases applied included: *study preparation, ICT orientation and needs assessment, local government assessment (problem demarcation and strategy formulation for differing stakeholder groups)*, and *joint strategy presentation*. A table format is used to explain suggested enhancements to processes within the phases of the e-Government strategy formulation framework.

10.2.2.1 Study Preparation Phase

As originally proposed in the framework, this phase is composed of a number of preparatory activities aimed at commencing the strategy formulation process. Whereas the application of the framework suggests that this is indeed the purpose of this phase, a number of lessons are revealed, which were not initially discussed in the originally proposed framework. Table 10.2 summarises these findings, and proposes incorporations into the study preparation phase.

Table 10.2: Revisions to Study Preparation Phase

<i>Reflection/Lesson Learned</i>	<i>Aspect of study preparation phase affected</i>	<i>Suggestion for incorporating lesson learned for frameworks enhancement.</i>
<i>Study Preparation Phase</i>		
1. <i>Mobilise a team to undertake baseline study.</i>	Baseline study planning and preparation	Based on the holistic and diverse nature of a baseline study, it is recommended that it is conducted by a team (and not only an individual interventionist) – with different team members, depending on discipline background/skill, addressing different aspects of the baseline study. Meetings should be organized by the e-Government project team to undertake planning activities for the baseline study. Factors to discuss at such meetings may include: deliberation on division of tasks, rules of engagement, and assessment instrument design.
2. <i>Building relationships early in the process</i>	Activities to support formal request to undertake strategy formulation process.	Even though the theoretical framework proposed that a formal request should be made to local government to undertake the strategy formulation process, it does not elaborate on how this may be achieved. As narration reveals, the project team's

<i>Reflection/Lesson Learned</i>	<i>Aspect of study preparation phase affected</i>	<i>Suggestion for incorporating lesson learned for frameworks enhancement.</i>
		attendance at municipal public forums, served as a platform to meet <i>other</i> key municipal employees, who pointed the team in the right direction on who to speak to (about formally undertaking the strategy formulation process). As such, a good starting point for interventionists intending to undertake a strategy formulation process is to constantly find ways to attend municipal public forums, contributing to forum discussions, and seeking opportunities to network and build relationships with key stakeholders at such gatherings.
3. <i>Ensure constant consultation with municipal officials throughout the process.</i>	Municipal baseline study assessment.	An interventionist must never make assumptions about municipal protocols, but must always consult and confirm whenever unsure of how aspects are expected to transpire. Even after general formal approval to undertake the baseline study, the municipal manager needed to be informed in writing prior to all data collection activities and progress with municipal staff. Hence, constant inquiry must be practiced not only at the baseline study stage, but for any subsequent activities that will require the participation of municipal staff.
4. <i>The baseline study should be sensitive to and flexible in the local government context.</i>	Baseline study data collection	Project team must seek contingencies when municipal rules or challenges impede them from executing initially planned actions. For instance, when it was becoming increasingly difficult to interview ward councillors, due to certain hurdles, an alternative is sought to gather data about ward councillors, though unfortunately, without their involvement.

10.2.2.2 ICT Orientation Session

The proposed framework suggests that the ICT orientation phase is intended to inform, or enlighten key municipal employees and other stakeholders on the possible value ICTs may contribute to service delivery improvement. However, this also involved a needs assessment aimed at eliciting potential user views (municipal staff and citizens) – on possible system functionality additions, modifications, or removal of functions deemed irrelevant. Considering that the framework did not initially propose the importance of a needs assessment, this is a noteworthy lesson learned from the application of this phase. Furthermore, a number of factors considered important to successfully conduct a workshop (*ICT orientation session and needs assessment*) of this nature, contribute to lessons learned. Table 10.3 depicts these findings, and highlights proposed incorporations into the ICT orientation and needs assessment phase.

Table 10. 3: Revisions to the ICT orientation phase

<i>Reflection/Lesson Learned</i>	<i>Aspect of ICT orientation/needs assessment phase affected</i>	<i>Suggestion for incorporating lesson learned for frameworks enhancement.</i>
ICT Orientation Phase and Needs Assessment		
1. <i>Needs assessment should be incorporated into the ICT orientation session</i>	Relates to the entire phase	Though not initially proposed by the framework, it is important to include a needs assessment as part of the planned activities for an ICT orientation session. The needs assessment ensures that in addition to illustrating the systems value to potential workshop attendees, their views on the system's potential functionality can also be sought in order to elicit possible concerns, which may aid in enhancement of the system.
2. <i>Prioritizing analysis of sections of the baseline study aimed at identifying active civil society and citizen groups.</i>	Preparation for citizen ICT orientation and needs assessment workshop.	An ICT orientation and needs assessment workshop is targeted at active civic representatives within a community. Such representatives may serve as intermediaries and champions of the e-Government initiative in their situated geographical locations. With its potential to aid in the identification of such groups, aspects of the baseline study that may reveal active civic representatives should be prioritized during baseline data analysis. This action will ensure that there is knowledge of the presence of such groups well in advance of the planned needs assessment workshop.
3. <i>Conflicting priorities between project team disciplines</i>	Planning for ICT orientation and needs assessment workshops.	Project team members may be from different disciplines with varying philosophical stances on how to approach an activity like a needs assessment. Such differences may bring about conflict in deciding how project assessment activities should be conducted. Discipline differences between computer science and information systems personnel on the project team brought about some debate and discord amongst project team members about how a needs assessment should be conducted. As such, in planning for an activity of this nature, conflict resolution strategies must be considered.
4. <i>A needs assessment aimed at eliciting feedback on a created systems functionalities should be interactive.</i>	ICT orientation and needs assessment workshop	A needs assessment is aimed at eliciting views of municipal employees and citizens on the system's functionality for task accomplishment. An activity aimed at system functionality elicitation feedback, should be interactive. This means it should involve reciprocity between the party presenting system functions, and the audience. The presenter must engage the audience, ensuring that each function presented is understood – various modelling techniques may be used to illustrate functionality and process reengineering.
5. <i>Ensure a healthy balance of socio-economic demographic representation of workshop participants</i>	Citizen ICT orientation and needs assessment workshop	This lesson is especially useful to ensure that there is adequate contribution from marginalized individuals attending such a workshop. Where marginalized groups are well proportionally represented in a workshop, their confidence levels will most probably be raised, as there is a feeling that others in attendance share in their social reality.

<i>Reflection/Lesson Learned</i>	<i>Aspect of ICT orientation/needs assessment phase affected</i>	<i>Suggestion for incorporating lesson learned for frameworks enhancement.</i>
		Hence, where planning for a needs assessment workshop, it is important to ensure that attendance numbers of more enlightened members of society do not overwhelmingly exceed attendance numbers of marginalized groups.

10.2.2.3 Assessment of Local Government Stakeholders (formal and informal aspects)

This phase as proposed by the e-Government strategy formulation framework, is aimed at systematically documenting the problem that an e-Government system hopes to address. The phase also included objective setting activities. The e-Government strategy formulation framework suggests that to undertake this task, the interventionist – should attempt to simulate the major problem (*or conflicts of interest amongst stakeholders*), derive objectives from the outlined problem, and then propose means for achieving objectives. However, a different approach is taken to accomplish this task. As opposed to the interventionist undertaking a simulation exercise to determine stakeholder problems, objectives, means and criteria, as proposed by the framework, separate workshops are held for the differing stakeholder groups (*municipal representatives, and civil society/citizens*) – intended to understand their most concerning service related challenges, possible objectives to focus on, and means for achieving objectives. Table 10.4 outlines lessons learned from organizing separate problem demarcation/strategy formulation workshops, and how these lessons may support enhancement of the framework.

Table 10. 4: Revisions to the assessment of local government stakeholder phase

<i>Reflection/Lesson Learned</i>	<i>Aspect of local government assessment phase affected</i>	<i>Suggestion for incorporating lesson learned for frameworks enhancement.</i>
<i>Local government stakeholder assessment and objective setting</i>		
1. <i>Municipal leadership support is paramount in order to obtain municipal employee participation in strategy related workshops</i>	Planning for municipal strategy formulation workshop	Municipal leadership possesses a great amount of influence, and is capable of convincing desired municipal employees to attend strategy related workshops. Importantly, it is imperative to always keep leadership up to date on the project's progress. Also, it helps to find ways to keep them interested.
2. <i>Interventionist must exhibit considerable understanding of the municipal business processes e-Government seeks to support.</i>	Municipal problem demarcation and strategy formulation	Vaguely defined work processes can pose a challenge to ICT integration within public institutions. Therefore, it is considered vital to understand such processes prior to proposing any automated systems. An activity aimed at illustrating the current business process that the tentative e-Government solution seeks to support must be undertaken at a municipal strategy workshop – using varied modelling approaches. Such an illustration will most likely ignite a conversation about the appropriateness of this business process

<i>Reflection/Lesson Learned</i>	<i>Aspect of local government assessment phase affected</i>	<i>Suggestion for incorporating lesson learned for frameworks enhancement.</i>
		structure to support the effective integration and use of the proposed ICT systems.
3. <i>Assembling conflicting groups to undertake a problem identification activity is not advisable at the onset.</i>	Overall planning for the problem demarcation and strategy formulation process.	It was initially intended that both groups of stakeholders (municipal employees and citizens) would be brought together to jointly undertake the problem identification and strategy formulation exercise. It is quickly realized that this would not be a good idea. Having groups separately perform problem identification activities is especially advisable to avoid uncivil verbal exchanges by conflicting groups. Where conflicting group problems have to be aired in front of each other such an activity should be performed by a neutral party (e.g. the interventionist), who can diplomatically articulate each group's problems without offending either group.
4. <i>Devising other means of contribution for invited stakeholders who are unable to attend planned workshops, but are keen on contributing to the strategy development.</i>	Overall planning for the problem demarcation and strategy formulation process.	Scenarios may arise where for some reason an invited stakeholder is genuinely unable to attend a planned strategy workshop. Where this happens, such stakeholders should be asked whether they would be willing to share their views, in the event that questions related to the proposed workshop content can be communicated to them. Related questions may be e-mailed or discussed in person, with relevant stakeholders.
5. <i>Drafting an actor analysis document in a format that can be understood by multiple stakeholder groups.</i>	Actor analysis	Initially it was thought that the actor analysis conducted would solely be used by the project team. This was not the case, as the project's funders also requested the actor analysis. Hence, in preparing an actor analysis, consideration should be made that it may be requested by other audiences besides the project team.
6. <i>Healthy balance of socio-economic demographic representation</i>	Citizen strategy workshop	In contrast to the citizen needs assessment workshop, it was noticed that there was significant contribution by marginalized groups at the citizen strategy workshop. Where planning for a citizen problem demarcation of strategy workshop, it is important to ensure that attendance numbers of more affluent members of society do not overwhelmingly exceed attendance numbers of marginalized groups.
7. <i>Employ easily understood tools for conducting activities in the strategy workshops</i>	Municipal and civil society/citizen strategy workshops	In planning workshop activities, consider tools that can easily be understood by workshop attendees. This way, they can focus on the task at hand, rather than on how to adhere to activity rules. Bearing in mind the context of the study, it should be taken into consideration that workshop attendees may not be highly literate.

10.2.2.4 Collaborative E-Government Mission and Objectives determination (Evaluation of Objectives)

This phase, as originally suggested by the framework, was intended to present the problem and objective findings of the differing stakeholder groups in a joint strategy workshop attended by both stakeholder groups (municipal staff and citizens). Furthermore, it was anticipated that they would then have a debate on their perceived differences. Having both groups debate their problems would not be a good idea. This planned joint workshop would have been the only workshop organized for the problem demarcation/strategy formulation, had the additional separate workshops not been proposed by the strategy and evaluation manager.

With the separate workshops held, an opportunity was created for the interventionist to observe emotions and feelings of conflicting groups (municipal staff and citizens) towards each other, though without either group having to confront each other in an antagonistic fashion. This phase was limited to presenting findings from the separate workshops to both stakeholder groups. For this reason, this phase was renamed, “*joint strategy development presentation*”. Table 10.5 summarises the lessons learned from the joint strategy development presentation.

Table 10.5: Revision of Joint strategy development presentation

Reflection/Lesson Learned	Aspect of joint strategy development phase affected	Suggestion for incorporating lesson learned for frameworks enhancement.
Joint strategy development presentation		
1. Applying supplementary methods for strategy elicitation when key stakeholders cannot participate in the workshop	Entire joint strategy development workshop	Whereas a joint workshop was considered ideal to present the findings of both stakeholder groups to each other, this did not occur, due to the absence of municipal representatives at the workshop. Where this occurs, an interventionist may have to apply a supplementary approach to elicit feedback on the findings of the strategy formulation workshop. For instance, the interventionist may have to present the findings to municipal representatives in separate dialogue, as was done with the municipal communications officers post the joint workshop.

10.2.2.5 Strategy Communication and Persuasion for Acceptance

This phase was not applied for two particular reasons. Firstly, due to their resource constrained nature it is believed that the municipality would not be willing to spend the resources required to make trips to municipalities thought to possess thriving e-Government programmes. Secondly, it is noticed that there is limited expressed interest to the strategy formulation process by municipal employees. As observed, they are only responsive to the

process, and project as a whole, when pushed by the MobiSAM team. Therefore, the MobiSAM team plans to provide continuous support and encouragement until it is noticed that the municipality is willing and capable of fully taking ownership and responsibility of the project.

Table 10. 6: Revision of the strategy communication and persuasion phase

<i>Reflection/Lesson Learned</i>	<i>Aspect of phase affected</i>	<i>Suggestion for incorporating lesson learned for frameworks enhancement.</i>
<i>strategy communication and persuasion phase</i>		
<i>1. Sustained support by project team</i>	<i>Entire phase</i>	<i>A project team may need to continually provide sustained support for the project past the anticipated or scheduled time of the projects end. This will especially apply to resource constrained municipalities' and situations where there is noticed reluctance by municipal staff to the strategy formulation process.</i>

10.2.3 The Overall Structure of the E-Government Strategy Formulation Framework

There are some notable changes to the overall structure of the framework, which include: *the identification of an additional content focus area, and additions to activities proposed by particular phases.*

An additional content focus theme identified, included *Local Government Functional Area*. This is specifically as a result of the lesson learned from observing whether or not the initially proposed five content focus areas are indeed the only areas to be considered in an e-Government strategy formulation process. *Local Government Functional Area focus* is succinctly described in Table 10.1 above. This revision provides for the generic application of the framework, as each government functional area will have unique aspects to focus on in relation to e-government implementation.

Suggestions for additions and modifications of activities initially proposed by the phases of the framework, are based on the case study findings – specifically, from the application of phases. These changes are minor and as such, do not change the general structure of the framework. Figure 10.1 below, depicts an enhanced version of the e-Government strategy formulation framework. Additions are marked in purple.

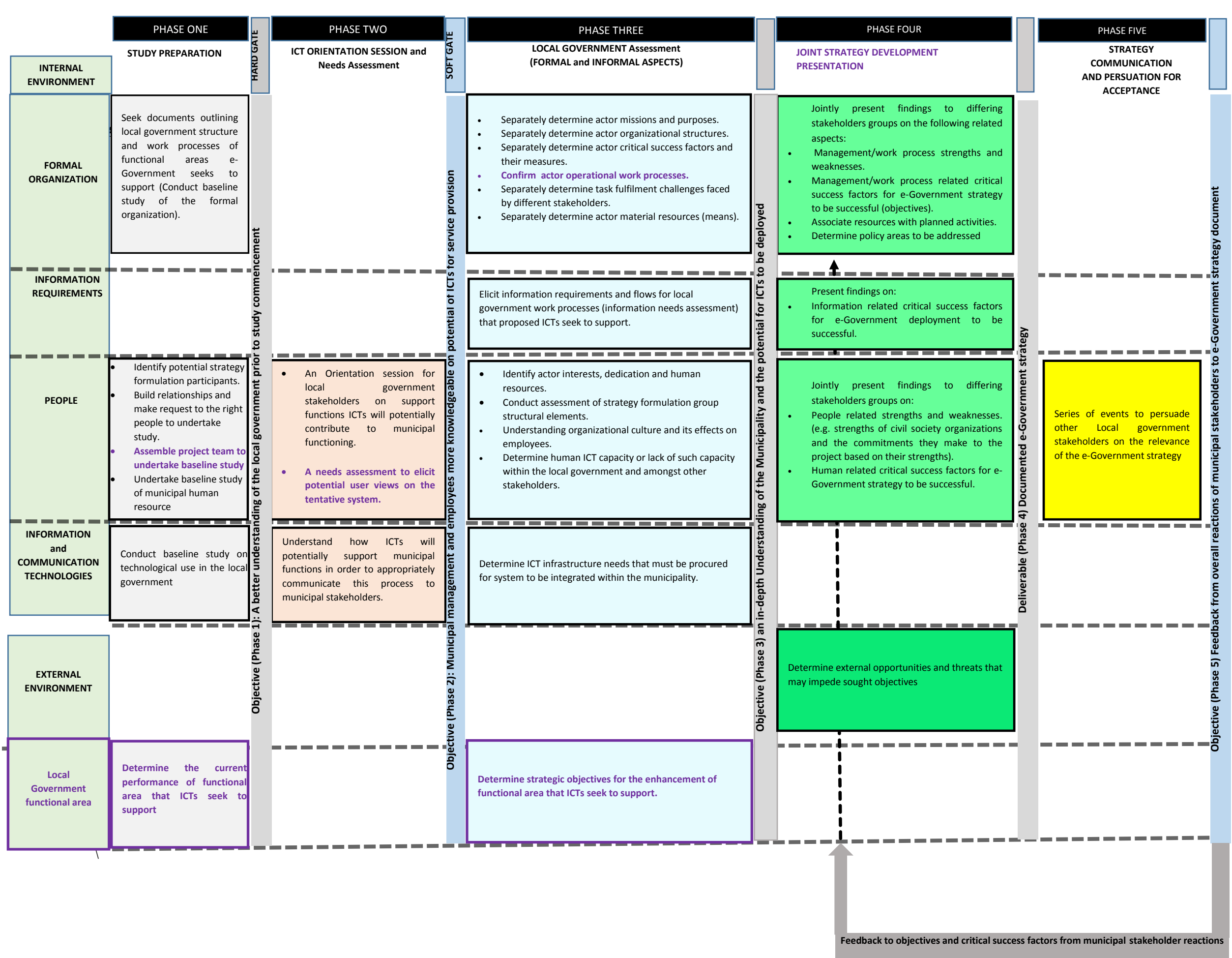


Figure 10.1: An Enhanced Framework to guide e-Government strategy formulation in South African Local Municipalities

10. 3 General Review of the Application of the e-Government Strategy Formulation Framework

MobiSAM's strategy development using the e-Government strategy formulation framework advanced significantly well. Besides Phase 5 of the framework, the application of all other phases were observed. The observation of the application of the frameworks phases provide lessons that aided in further constructing and enhancing the framework for local government e-Government strategy development. Even though enhancements considered are based on a single case context, it is anticipated that the framework in its current form can be employed to guide the strategy development of other tentative e-Government projects within other South African local government contexts. In fact the MobiSAM project found the process to be useful, and will be implementing it in another municipality in 2017. The frameworks application process particularly portrays the extent to which municipal protocols influence methods of data collection during the strategy formulation process – an indication that certain aspects of the frameworks application in other municipalities will vary based on protocols particular to them. Nonetheless, it is gratifying to learn that the derived strategy (refer to Appendix Case E) is created with representative input from all relevant stakeholder groups, which is one of the desired goals of the strategy formulation framework.

It is concluded that the framework's application was quite satisfactory, due to the expressed interest by a considerable number of municipal staff to the strategy formulation process. Satisfaction is also attributable to the outcome of identifying existing challenging and devising solutions in collaboration. It is hoped that for future applications or further reiterations of the framework's application, there can be better enthusiasm or expressed interest by municipal staff and political appointees to an e-Government strategy development process – a gesture, which will automatically aid in revealing more valuable lessons. On a more positive note, the participation and interest exhibited by civil society and citizen groups was impressive. This at least indicates that, depending on the initial interests of stakeholders, there are those who are willing to engage in the process. The interventionist and project team would have to continuously implement mechanisms to gather interest in the initiative.

Overall, given the constraints faced, the application process of the framework could be judged as modest. Nonetheless, considering that this is the first of this kind of research within South African local government contexts, there is solace in the fact that some empirical evidence has been elicited about e-Government strategy formulation processes for such

contexts (local government). Furthering the enhancement of the framework will require that it is applied, or customized to other local government contexts, with the intent of reflecting on its suitability and shortcomings within those contexts. With its continuous application, and refinement, it is expected that there will be steady incremental improvement of the structure and processes proposed by the framework.

10.4 Conclusion

Collaborative e-Government strategy development ensures that all relevant stakeholder views are taken into consideration where planning for ICT integration within the public sector. Critical components that underlie strategy formulation make up the structure of the e-Government strategy formulation framework, constructed through a comparative analysis of strategy approaches from: *e-Government strategy approaches*, *business related strategy approaches*, and *NGO strategy approaches*. The framework, when explored in a real-life case study of a tentative e-Government project produces lessons through its application. Lessons learned demonstrate the suitability and shortcomings of applying the framework to the strategy development process of a budding e-Government project. The revealed lessons provide suggestions for modifications to the initially proposed framework. These modifications relate to proposed additions to particular content focus areas initially proposed by the framework. Furthermore, lessons suggest additions and changes to activities, which phases of the framework are comprised of.

An overall assessment of the application of the framework suggests that the strategy formulation process was relevant, though with challenging stakeholder management, specifically in relation to municipal staff and political appointees required in the process. Civil society and citizens on the other hand were more willing to engage in the process, probably related to their desire to receive better service delivery in their contexts. Application of the revised framework for strategy formulation processes of other e-Government projects potentially creates a platform for enhancing the framework. It is envisioned that with its continuous application and refinement there will be steady incremental improvement of the structure and processes proposed by the framework.

Chapter 11

Conclusion and Future Research

This chapter provides a conclusion to the research. It highlights the contribution made, and points out areas for future research.

11.1 Introduction

ICTs that are implemented to support water service delivery provide benefits for government, and citizens alike. This makes their deployment and use mutually desirable for all parties involved. While ICTs are considered to be beneficial to water and other public sectors, a number of challenges within the South African local government context inhibit the potential value that such technological deployments may provide. One amongst several challenges is the lack of strategies to guide public sector ICT project implementation and sustained use of deployed systems. Essentially, such strategies should be informed by all representing stakeholder views, to guide implementation and deployment of e-Government systems. More than the representative views of stakeholders, the strategy's value is derived from the rigorous assessments that support decision-making processes, when developing the strategy. Over and above the derived strategy, is the need to emphasise the importance of understanding the process that results in the created strategy. This is based on the fact that understanding the process helps to account for the formed relationships between the various stakeholders that need to buy into the strategy. Furthermore, it is anticipated that knowledge of this process over time will lead to a better understanding of how strategies should be correctly developed. In light of this background, this research sought to propose a framework intent on supporting the formulation of strategies for e-Government deployments in South African local municipalities. The framework subscribes to a systems thinking approach due to its emphasis on the strategy being informed by a holistic assessment. Furthermore, the Design Science approach guides the development of the framework. Employing this approach required that the derived framework be applied in a real life project context. As such, the framework was applied to a tentative e-Government project called MobiSAM, to support the development of the project's strategy. The application of the framework, provided insight on its suitability for supporting strategy development in the e-Government project. Reflecting on its suitability provided lessons, which resulted in revisions to the framework aimed at enhancing it. Expectation is that the framework will be incrementally improved with its application in other e-Government environments.

This chapter concludes the research. It commences by presenting an outline of the thesis, as well as research questions addressed in the study. Following this, the research contribution and its implications are discussed. Subsequently, the limitations of the study are outlined. Lastly, recommendations for future research are proposed, with emphasis on the continued enhancement of the framework.

11.2 Responding to Research Questions

The study is conducted to answer the following research questions:

Question 1: *What are the uses and challenges of e-Government for water service delivery at local government level in South Africa?*

This question is addressed by chapters 3 and 4. It is revealed that in South Africa responsibility for water service delivery has been devolved to the local government level. The value chain of water service delivery requires communication between a number of stakeholders – including WSP's, WSA's, and citizens, at the local level. ICTs can support this required communication function. A number of factors inhibit the successful integration of ICT's to support water service delivery at the local government level. One important amongst several factors (Matavire *et al.*, 2010), is the lack of strategies collaboratively developed by relevant local government stakeholders.

Question 2: *How can a systems view be integrated into the design and development of an e-Government strategy formulation for service delivery at municipal level in South Africa?*

This research question is particularly addressed by Chapter 5. The chapter provides an elaborate discussion of how a systems view to e-Government strategy formulation can be approached. More than deriving an e-Government strategy, it is thought important to understand the strategy formulation process. Understanding this process helps to account for the formed relationships and various assessments that will be required to take place in developing the strategy. It is determined that strategy formulation is an unstructured problem, due to the deliberative element between a number of stakeholders seeking to come to consensus on how ICTs should support public service delivery. Viewed as a challenge, strategy formulation may be conceptualized through a systems lens, as systems have proved to be rather successful in interpreting aspects of the world. Furthermore, a systems view places emphasis on a holistic assessment in developing the strategy. Lastly, SSM is well suited for problems such as strategy formulation. With SSM emphasis is placed on the system of inquiry.

Question 3: *What are the components essential in the formulation process of developing a strategy for e-Government deployment at municipal level in South Africa?*

This research question is addressed by chapters 6 and 7. Weick's (1989) theorizing approach informs a theorizing process for theory construction. The approach consists of three processes that help with the identification of e-Government strategy formulation components. The three

processes include; 1) problem formulation, 2) variety in application of thought trials, and 3) selection criteria. Application of this theorizing process aids in the revealing of five phases that should constitute an e-Government strategy formulation exercise for water service delivery in South African local municipalities. Respectively, these phases include: study preparation, ICT orientation, local government assessment (formal and informal aspects), collaborative e-Government mission and objectives setting, strategy communication and persuasion for acceptance. These phases form the core focus of a framework to support e-Government strategy formulation within South African local governments. It is concluded that a real life application of the framework will support a better understanding of the framework, and as such lead to possible enhancements to the framework through lessons learned.

Question 4: *How can a proposed e-Government strategy formulation framework be applied to develop the strategy for a tentative or existing e-Government project at local government level in South Africa?*

This question is addressed by chapter 8 and 9. The theoretical e-Government strategy formulation framework is applied to the MobiSAM project. A case study supports the exploration of the frameworks application. A number of lessons are learned from the application of the framework. Lessons learned result in suggestions for modifications to particular activities that are initially proposed by phases of the framework. Nonetheless, the overall structure of the framework remains the same. Even though the application of the framework was quite successful, its application also exposed some of the realities of implementing an e-Government project, and to a lesser extent formulating an e-Government strategy in a resource constrained local government.

11.3 Research Contribution

The contributions made are specific to Design Science contributions. The research contributes to e-Government strategy development, and more broadly ICT4D research in the following ways:

11. 3.1 The Design Artefact

The primary contribution of this study is the e-Government strategy formulation framework (*artefact*). Suggestions indicate that the process that an organization undertakes to produce its strategic plan and its transformative effect is more important than the (*deliverable*) strategic plan document (Lawrie, 1994 and David, 2003 in Malunga (2007); Liukkunen, Pohjonen, Sariola, 2005). The value of a strategy formulation process lies in the fact that it helps to

account for the formed relationships between the various stakeholders that need to coherently buy into the strategy formulation process. Hence, paying attention to this process is imperative. Asplund (1975) asserts that such attention is necessary, because where there is some knowledge about the process by which the strategy is formulated; ideas may be derived over time on the types of processes that may produce an efficient strategy. Bryson, Crosby and Bryson (2009) imply that a major reason for poor results attained from bad strategies may be attributed to the lack of an understanding of the process (*strategy formulation*) that resulted in the strategy document. As this particularly relates to South Africa, even though several e-related strategies exist, there seems to be little documentation, if any, on how they came to be. As such, it should come as no surprise that as Naidoo (2007) indicates, there is very little learning on how strategies should be appropriately formulated, in order to achieve the best possible results during integration or implementation of ICT projects aimed at supporting public service delivery in developing countries.

In this study, an e-Government strategy formulation framework is proposed to guide the development of e-Government strategies in South African local municipalities. The framework is applied in an existing e-Government project to support the development of its strategy. Its suitability and shortcomings are observed, thus providing lessons for enhancing its proposed activities and processes for underpinning e-government strategy development.

The artefact also may be viewed as a contribution to ICT4D knowledge. Essentially, e-Government research targeted at developing contexts – such as South Africa, may be categorized as ICT4D research, as public institutions of such developing countries seek to employ ICTs to support enhanced service provision to its citizens. The e-Government strategy formulation framework proposed, aids in the collaborative derivation of development objectives, which e-Government seeks to support. Furthermore, the research provides insight into a prerequisite for implementing ICT4D projects – by detailing how strategies should be formulated, prior to the project's implementation. As a consequence of formulating e-government project strategies correctly, such projects are better implemented to support the development goals for which ICT systems are sought in the public sphere.

11.3.2 Design Construction Knowledge

The Design Science paradigm was used in an e-Government project context to develop an e-Government strategy formulation framework that is applicable to an existing e-Government

project. The application of the paradigm ascribes to Weick's theorizing approach to develop the e-Government strategy formulation framework. Literature, as well as the researcher's experience primarily inform the theorizing process. Through Design Science, empirical investigation of the framework was achieved – by applying the framework to a tentative e-Government project (MobiSAM) to be implemented in a South African local government. This process was also iterative in contributing to the emerging development of the process within the empirical space.

11.3.3 Knowledge on the Evaluation of the Design Artefact

The study illustrates through a reflective narrative how a design artefact may be evaluated qualitatively. Pries-Heje, Baskerville and Venable (2008) substantiate the use of participant observation to evaluate the designed artefact. Participant observation of the application of the framework allows for a reflective evaluation, which supports the provision of a narrative of how and why the framework is applied the way it is (Pries-Heje, Baskerville and Venable, 2008). This is clearly evident in chapter 9, where lessons learned from the application of the framework provide indications of its suitability for collaborative e-Government strategy development within South African local governments. Furthermore, as may be observed derived lessons, occasion particular revisions to the initially proposed framework. Here an informed argument is constructed, based on relevant research (proposals from the framework) (Hevner *et al.*, 2004), however with an observation of the extent of systematic desirability, and cultural feasibility of the framework (Checkland and Scholes, 1991), to the context that it is applied in.

11.4 Implications of the Research

A systems approach to e-Government strategy formulation is an advancement in holistically understanding how e-Government strategies should be collaboratively developed – in order to derive e-Government plans that support the deployment and sustained use of e-Government systems. Such an approach ensures that all stakeholder views are taken into consideration in deriving the strategy, as well as ensuring that appropriate assessments are conducted, to inform future plans and actions on the project. The potential value of the created framework can be noticed – as where important stakeholder views are left out they are less inclined to adopt to the strategy. Furthermore, a strategy created without a holistic understanding of the current state of the environment where the project is expected to be implemented will contain proposals based on assumptions, as opposed to evidence-based proposals. For instance, an e-

government strategy cannot be derived without an understanding of the current business processes for which ICTs are sought.

Involving representative stakeholder groups, encourages commitment, as where such groups are consulted there is a sense of ownership with the project going forward. Additionally, guided by an understanding of the current state of affairs there is more confidence in the relevance of deployed e-Government systems, with a sense of purpose envisioned about what goals implemented systems are intended to support. Moreover, the derived strategy will act as a guide in navigating through project decisions.

The research also helps in understanding the relationship dynamics that come into play in bringing stakeholders together; the utility of local government leadership support; and bureaucratic protocols that must be observed in collaborating with South African local government institutions – thus providing incentive for more research around these factors.

11.5 Limitations of Research

The research is subject to a number of limitations, which future research on this topic may take into consideration. The following are the limitations reflected on:

An analysis of more strategy related approaches to enhance the theoretical structure of the framework

More strategy related approaches can be analysed in order to enhance the theoretical structure of the proposed e-Government strategy formulation framework. The study is limited to an analysis of ten strategy related approaches, nonetheless this does not constitute an exhaustive list of possible approaches that may inform the elicitation of fundamental components for a localized e-Government strategy formulation process. It cannot be completely ruled out that relevant work was not considered.

The Framework is applied in one e-Government Project environment

The proposed framework was applied in one e-Government project case. Although, single case applications are generalizable to theoretical propositions (Yin, 2009), it is important that the framework is observed across varying empirical contexts, to support comparisons of the extent to which situated contextual factors affect similarities and differences in results obtained by the frameworks application (Janowski, 2015). Essentially, the framework may be viewed as a lens to customize the framework for particular settings. Application of the

framework in other e-Government project cases, in addition to confirming findings can support further evolving of the framework.

11.6 Future Research

11.6.1 Investigating the proposed framework in other local government environments

Essentially, the framework should be applied in tentative ICT projects to be implemented in other local government environments – which will aid in investigating its prospects for enhancement. Further application, allowing for observed suitability and shortcomings, will provide more lessons, aimed at enhancing the framework. Comparative learning may consequently be realized as a result of the framework's application in varying e-Government project environments.

11.6.2 Further Investigating a Systems Thinking in the framework

While systems thinking concepts from the Soft Systems Methodology are applied in conducting the research, application of systems concepts are limited. For instance, while, there is input from varying stakeholder groups in identifying objectives, as well as possible means of achieving objectives, formal methods such as mathematical models are not considered to explore the possible achievement of objectives. Such a component can be explored as part of future research, and incorporated into the e-Government strategy formulation framework. Some methods proposed by Enserink *et al.*, (2010) for carrying out such explorations include: *trend extrapolation and regression analysis, analogies, causal modelling, and trend impact assessment*.

11.6.3 Investigating additional methods for engagement

The typical models of engagement for business well educated audiences, may not be appropriate for a resource constrained context. Therefore, it is imperative for future research to investigate possible engagement methods that will be well suited for resource constrained contexts where e-Government strategies need to be developed.

11.7 In Closing

Where ICTs are strategically integrated they can contribute to long-term value in local government service delivery operations such as water services. However, this can only occur when such projects are informed by holistically articulated strategies to support sustainability. With such significance attributable to ICT strategies, it is concerning that there is little attention paid to how strategies should ideally be holistically developed for South African e-

Government projects. Devoting attention to fundamentally developing the strategy with input from relevant stakeholders – while underpinned by the required assessments, will create learning opportunities for project implementers and other stakeholders to bridge the gap between the future and the present. More so, studying the strategy creation process may over time produce a knowledge base on how e-Government strategies should appropriately be formulated in order for project implementations and sustained system deployments to be achieved. With the awareness of the value of understanding an e-Government strategy development process, the framework proposed and applied in this study, should be further investigated, by activating its application in other e-Government project environments. Expectantly, this will enable the further enhancement of a frame for understanding how e-Government strategies suited for South African e-Government projects should be developed.

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Table A: depicts a summary of e-Government strategy formulation Approaches (Approaches 1-3)

	Approach 1	Approach 2	Approach 3
1. Author/ Organization/ Title	<p>Lowery (2001)</p> <p>Developing a successful e-Government strategy</p>	<p>Alghamdi, Goodwin, and Rampersad (2011)</p> <p>E-Government Readiness assessment for governments in developing countries.</p>	<p>Dr. Ali M. Al-Khouri (2012)</p> <p>e-Government Strategies: The Case of the United Arab Emirates (UAE</p>
2. Summary/Aim of Approach	<p>This approach suggests that a strategy is fundamental to the selection of potential ICTs which may underpin government's functions. Furthermore, it is felt that there is a need to have a strategy in place to support re-engineering processes and procedures which e-government integration necessitates. Finally, it is stressed that without strategy e-government initiatives cannot be properly implemented. The approach outlines a seven phase process for successfully developing an e-Government strategy.</p>	<p>This approach outlines and discusses organizational requirements deemed necessary for the adoption of e-Government. It seeks to create awareness of ICT readiness factors for public sector organizations in developing countries. As such, the approach contributes an integrated e-Government framework for assessing the ICT readiness of government departments. Contrary to other existing e-Government literature which dwell predominantly on technical issues and rely on generic e-readiness tools, the approach contributes a comprehensive understanding of the main factors in the assessment of e-Government organizational readiness.</p>	<p>The underlying purpose of this approach is to examine some of the challenges pertaining to the successful development and deployment of e-Government initiatives, as seen from the UAE's point of view. As part of the process, the role of an e-Government strategy is highlighted. While the strategy formulation process is not elaborated on broadly, the approach uses a case example of the UAEs e-Governments strategic framework (2012-2014), to explain what the strategy document should comprise of.</p>
3. Components of Strategy Formulation and Definition/Role of Each	<p><u>Definition of e-Government by stakeholders involved:</u></p> <p>This stage involves arriving at a common understanding of what an</p>	<p><u>Assessing e-Government readiness from an organizational perspective</u></p>	<p><u>Determine the objectives of the Government</u></p> <p>Interpretation suggests that this stage consists of a review of the</p>

	Approach 1	Approach 2	Approach 3
Component in e-Government Strategy Formulation	<p>organization, local government, or community in question considers e-Government to be. This stage is important, for distinguishing and understanding purposes, as there are varying types of e-Government. For instance, there is Government to public (G2P), government to business (G2B), government to government (G2G), and government to employee (G2E). Properly defining what e-Government refers to will provide a shared understanding of what the organization seeks to accomplish with the intended strategy. Also addressed here is a process of highlighting key areas to be addressed, as well as an indication of who the e-Government strategy seeks to serve.</p> <p><u>A vision for the proposed e-Government:</u></p> <p>This stage consists of attempts in few words, or in a single statement to express succinctly the concept of and desired future accomplishment of e-Government.</p>	<p>This is considered to be a single component, composed of seven dimensions. The approach details an assessment framework, which highlights generic ICT considerations from an organizational perspective during e-Government strategy formulation and implementation. Checking for the presence and appropriateness of these seven dimensions during the ICT study phase of strategy development, as the authors suggest will substantially enhance the prospect of effectiveness of the e-Government solution in the long run. The seven dimensions are as follows:</p> <p><i>An ICT/e-Government Strategy:</i></p> <p>As has been emphasised throughout this research, a strategy is considered essential to the overall success of the e-Government implementation. The strategic plan provides a road map for the government organization to move from its present state to its desired future state. However, this is the focus of this study, and hence</p>	<p>government's strategic vision for the country as a reference point to ensure that the tentative plan for e-Government is aligned with and contributes to the realization of this vision. Upon this review, objectives may then be formally determined.</p> <p><u>Analysis of current situation</u></p> <p>As interpreted this stage consists of an analysis of the existing state of affairs in terms of e-Government use.</p> <p><u>Benchmarking</u></p> <p>This stage consists of systematic comparisons of e-Government best practices employed by countries considered to possess thriving e-Government programmes, in order to enable the formulation of the new e-Government strategy and define its primary objectives and initiatives.</p> <p><u>Extract the e-Government strategy</u></p>

	Approach 1	Approach 2	Approach 3
	<p><u>Precise Goals and Objectives that can be monitored and measured</u></p> <p>The authors do not expound much on this phase. However, it is quite obvious that identified objectives and goals and their measurements serve as benchmarks towards the long-term aim of e-Government implementations.</p> <p><u>An assessment of Organizational Readiness:</u></p> <p>This stage is essential to gain an understanding of an entities current position, and readiness to undertake potential e-Government projects. It is commonly said, that in order to know where you want to go, it is fundamentally important to know where you are. It is suggested in this approach, that an assessment of organizational readiness is focused around three key drivers: the organizations operational processes, its human resource and its technology.</p>	<p>will not be considered as one of the dimensions of ICT readiness.</p> <p><i>User access mediums</i></p> <p>This dimension recognises the need for an assessment to ensure that there are access channels or tools with which users of e-Government services can make use of such services. Access channel deliberations should take into consideration user demands. For instance, factors such as the extent of time saving, increased convenience and the extent of accessibility for the user, should be given some thought.</p> <p><i>E-government Program</i></p> <p>Experts describe this dimension as “<i>service transformation programme</i>”, because it is meant to serve as an umbrella term for all government departments, authorities and administrations. The assessment need here is to determine whether or not there is interoperability and integration of services among all government organizations. Here three levels of complication determine aspects where assessment is warranted.</p>	<p>An identified 3 dimensional framework guides this stages focus. The three dimensions included in the framework are: e-services, e-readiness and ICT environment. E-services ensures that during brainstorming sessions, there is focus on the potential transformation of government agencies which may be achieved through provision of high quality e-government services. E-readiness ensures that there is a focus on strengthening the capacities of government agencies in terms of ICT infrastructure, organizational structures, human resources capacities and competencies. Lastly, the ICT environmental dimension covers legal aspects such as: policies and legislation essential to support the implementation of e-Government initiatives.</p> <p><u>Formulate the vision and Objectives of e-Government.</u></p> <p>As interpreted, this stage seeks to formally state the greater vision that e-Government seeks to contribute to. Furthermore, the</p>

	Approach 1	Approach 2	Approach 3
	<p><u>Identification of policies necessary to support e-government</u></p> <p>It is suggested that policies which need to be created revolve around processes. This is based on the fact that the integration of ICTs will necessitate process re-engineering to support new ways of doing things. It is also suggested that policies be created to potentially deal with the inherent risks which come with ICTs and the internet. Such policies essentially should cover privacy and security.</p> <p><u>A process for identifying and prioritizing specific e-Government initiatives</u></p> <p>At this stage, a process for prioritizing e-Government solutions to be considered is developed. The sheer number of possible e-Government initiatives requires that government creates a process for determining priorities. Additionally, resource constrains impedes an organization from implementing all desired solutions. Criteria can include: availability of funding, potential for success, return on investment,</p>	<p>Firstly, there is a need for information distribution and linking of existing silo websites. Secondly, there is a need for single organization transactions, and lastly there should be an opportunity to conduct integration of transactions involving multiple organizations. The assessment therefore should investigate that there is: I) a Single Sign on (SSO) interface, which provides a single point of access to multi-portals and applications, II) there is a Government Service Bus (GSB) which is a middle platform to enable service and data integration for government, and III) a Government Secure Network (GSN) established at the highest technical specification to provide a communications network for secure government transactions.</p> <p><i>ICT Architecture</i></p> <p>The architectural dimension seeks to assess the technological architecture of an e-Government portal. It is imperative to assess that the architecture is stable and scalable. To assess this dimension, three factors are taken into</p>	<p>targeted objectives are explicitly spelt out.</p> <p><u>Identify Initiatives</u></p> <p>As interpreted, this stage seeks to identify specific initiatives and projects to achieve stated e-Government objectives.</p> <p><u>Discuss the proposed strategy with government agencies</u></p> <p>As interpreted, this stage involves the proposing of the strategy to government agencies by the consultant responsible for the study.</p> <p><u>Draft a comprehensive e-Government strategy.</u></p> <p>This stage involves the actual documentation of the strategy.</p>

	Approach 1	Approach 2	Approach 3
	<p>user demands, and readiness level for the implementation of a potential solution.</p> <p><u>A business model to enable the sustainability of e-Government.</u> According to Marais (2010), funding constraints and resource droughts are a major reason why ICT projects may be abandoned. It is therefore important for a business model to be articulated for sustainable funding of the e-Government project.</p>	<p>consideration. These factors include:</p> <p>I) availability of portal, (II) layered structure, and (III) Service Oriented Architecture. Availability of portal seeks to determine whether existing portals are capable of supporting the types, levels and number of potential services to be provided. Some types of services which may be provided through portals include, emerging, enhanced, interactive, transactional and integrative services. The concept of layered structures is used to assess the performance of the portal by dividing the portal into classes in a vertical hierarchy. For instance, Presentation, Control, Mediator, Entity and Foundation, (PCMEF) is a layered architectural framework, made up of four layers: presentation, control, domain and foundation. These layers depict the portal design, and can assess performance readiness, through the: operating system, employed communication standards and infrastructure accessibility. Finally, assessing to ensure that a service oriented</p>	

	Approach 1	Approach 2	Approach 3
		<p>architecture (SOA) is employed is important. The SOA diminishes the dependency on back-end applications and reduces the requirement to write code every time there is a change in policy, due to the fact that it can deal with different platforms.</p> <p><i>Business Process and Information Systems</i> This dimension focuses on four factors which must be discussed between functional management areas and ICT management, to understand what the possible modification of business will be when ICTs are incorporated to support the business. These factors include: Business process re-engineering, knowledge management, change management and ICT applications.</p> <p><i>ICT infrastructure</i> This dimension seeks to assess the availability and appropriateness of ICT infrastructure in the organization which will potentially support future business applications. ICT infrastructure</p>	

	Approach 1	Approach 2	Approach 3
		<p>resources consist of: Hardware and software, connectivity tools (LANs and WANs), high level of security solutions, and operational resources which ensure the day to day work needed to monitor and maintain the functioning of the ICT infrastructure.</p> <p><i>Human Resources</i> Assesses the availability of human resources needed to undertake ICT roles and responsibilities required to support the achievement of the governments goals.</p>	
4. Approaches contribution to adopted Systems thinking	<p>The approach describes a logical purposeful activity or human activity system (e-Government Strategy Development).</p> <p>The approach also provides some critical success factors, against which e-Government success may be measured in the long-run. This is consistent with criteria requested by the Soft Systems Methodology (SSM) for measuring effectiveness. SSM emphasises the importance of “purposeful activity systems”, possessing yardsticks to measure the long term success of the purpose for which such systems</p>	<p>The approach does not propose any logical/purposeful system to strategy formulation, however congruent with findings from other approaches listed, on the need for an assessment of ICT aspects as part of the e-Government strategy formulation process, the approach indicates specific areas which must be addressed while conducting an assessment of ICTs. Other analysed approaches while indicating the need for such an assessment do not specifically discuss what such an assessment should be composed of.</p>	<p>The approach describes a logical purposeful activity of e-Government strategy formulation at the national level of the UAE. This contributes, as it may be used as a base for comparison with other approaches being analysed.</p>

	Approach 1	Approach 2	Approach 3
	are developed (Checkland and Poulter, 2006).		
5. Limitation of Approach	<p>I) Approach does not elaborate or provide sufficient details on how these components may be applied in practice to formulate an e-Government strategy.</p> <p>II) There is no narration or inclusion of stakeholders who should be included in the process.</p>	Approach does not indicate how identified dimensions should be assessed.	<p>I) While the different strategy formulation stages are listed, they are not explained or elaborated on.</p> <p>II) There is no narration or inclusion of stakeholders which may be included in the process.</p> <p>III) Though a logical purposeful activity is proposed, it suggests that the strategy formulation process will be primarily undertaken by the consultants and only presented to the government just before implementation. This contradicts problem solving conventions as proposed by the SSM approach.</p>

Table B: depicts a summary of business/private sector related strategy formulation Approaches (Approaches 4-7)

	Approach 4	Approach 5	Approach 6	Approach 7
1. Author/ Organization/ Title	Duffy and Assad (1989)	Liukkunen, Pohjonen and Sariola (2005)	Chen, Ruikar, and Carrillo (2013)	Goran Asplund (1975)
				Strategy Formulation

	Approach 4	Approach 5	Approach 6	Approach 7
	Information Management (Strategy formulation and implementation).	A Management tool for ICT Strategy Processes in Universities	Strategic E-business Framework: A Holistic Approach for Organizations in the Construction Industry.	
2. Summary/Aim of Approach	The authors suggest that the increasing role which Information Systems play in strategic management, including strategic marketing and competitive strategy, make them an integral part of an organizations functioning. This approach therefore seeks to present and describe the most important information related issues confronting management; Provide approaches that will underpin more meaningful thinking about organizational information aspects, and provide strategies to make technology work for managers.	In response to weak executions of ICT strategies in Finnish universities, this approach sought to outline a framework for evaluating universities ICT strategies to ensure that they are viable or practicable.	This paper presents a Strategic e-Business Framework for organisations in the construction industry. The Framework provides a holistic approach for e-business strategy formulation and implementation. It is suggested that organisations in the industry can work out a comprehensive business solution for their e-business implementation using the Framework.	The primary aim of this approach is to enlarge the empirical applicability of intervention methods, and to give insight into the nature of strategy formulation. These broad aims are achieved by: investigating the nature of corporate strategy and strategy formulation, deriving conceptual models of the strategy formulation group and its environment, and employing the theoretical knowledge gained to engage in a real life formulation (intervention) of a marketing strategy for a newly formed company.
3. Components of Strategy Formulation and Definition/Role of Each Component in e-Government	<u>Study preparation:</u> This stage involves a formal request by the investigator to conduct the study. The CEO or organizational head must approve the study; otherwise the study will be	<u>Determining the Mission and Vision:</u> The mission and vision aids in determining what gets included in the strategy.	Components consist of four major groups, with each containing sub components: The four groups are as follows:	Components consist of three major groups: The three groups are as follows: <i>Phases, Assessment of structural elements which affect a strategy</i>

	Approach 4	Approach 5	Approach 6	Approach 7
Strategy Formulation	<p>conducted in vain. This component also provides an opportunity for the investigator/(s) to conduct some preliminary research about the organization in question. This helps the researcher/(s) to eliminate redundant questions from their research instruments. For instance, questions to which sought answers may be obtainable in organizational publications available to the public.</p> <p><u>Management orientation Sessions on ICTs:</u> Introduce and Update senior leaders of the organization on suitable and contemporary ICTs that may underpin business processes and information needs in their line of business or organizational service. This is especially useful where top level leaders are not technology savvy. This helps to: arrive at a common understanding of ICT support vocabulary and concepts, enlightening on recent developments, explaining the strategy formulation process to be undertaken and starting a relationship with senior management.</p>	<p><u>Evaluation of a Formulated ICT Strategy:</u> An ICT strategy when created must be evaluated. A major purpose of evaluation of an ICT strategy as this approach suggests is the promotion of the formation of a common view on the ICT strategic objectives and possible means for achieving them. Though focused on the use of ICTs for teaching purposes it is proposed by the authors that the evaluation framework described here can be revised to suit any organization which intends to make use of it. The framework is composed of four themes to evaluate. These themes must be centred on the mission and vision of the ICT strategy. These four themes include; Services/Functions, Resources, competence, and management. Critical success factors must be identified for sub factors under each of the four themes. Selected critical</p>	<p>Phases, Factors, Gates and Roles</p> <p><u>1) Phases</u> Are the top level components of the strategy formulation process. Essentially, they represent the main stages that an organization must work through, when developing their strategies. Six phases are identified here which include:</p> <p><u>Analyse situation:</u> This stage is concerned with the review of information related to an organization, internal processes, resources and external environment. This stage should also include garnering information on the current ICTs used to support business processes. The output of this stage should be a document revealing the desired level of electronic</p>	<p><i>formulation process, and skills of the interventionist.</i></p> <p><u>1) Phases</u> Four phases of strategy formulation are identified in this text. These phases include: <i>A study preparation phase, The Orientation Phase, The evaluation phase and the control phase.</i> All phases beside the study preparation phase consist of two sub activities which are information seeking and information integration.</p> <p><u>Study Preparation Phase</u> This phase consists of activities that are conducted in preparation for the strategy formulation process. It encompasses garnering of information about the strategy formulation group, prior to meeting them, as well as acquiring information about the organization which the strategy will</p>

	Approach 4	Approach 5	Approach 6	Approach 7
	<p><u>Understanding of the informal and formal organization:</u> ICTs or Information systems hosted in a particular organization can only function where they conform to the requirements of their host organization. This makes it imperative to understand the culture, power, political structure and change potential of the organization. Findings from this analysis will not appear in any study reports. They are for the investigators personal use.</p> <p>Understanding the formal organization is carried out to gain insight into what the organizations business or service is. The mission and organizational purpose is determined here through workshops or individual interviews with the CEO, senior management and the Information systems/ICT manager. Then the organizational structure must be understood. Additionally, the critical success factors, measures of critical success factor performance, and the business operational processes are</p>	<p>success factors must be those which have the greatest consequences on the realization of the vision.</p>	<p>implementation in the organization and also indicating whether the current processes and resources are standardised across the organization.</p> <p><i>Establish Vision</i> The e-business vision is a concise statement of the scope and broad aims of the organizations future e-business activities. At this stage, there should be participation from a broad cross section of the organization. The inclusion of this stage aids the organization in ensuring that plans for e-Business are aligned with the overall corporate strategy. The deliverable from this stage is an e-business vision statement summarising the scope and broad aim of electronic implementation within the organization.</p>	<p>potentially be formulated for.</p> <p><u>Orientation Phase</u> Information seeking: The goal here is to get valid information about the group that will be involved in strategy formulation and the organization which the strategy is being developed for.</p> <p>Information Integration: The goal here is to elicit open expression of beliefs and feelings by the group members, Create trust and group identification. This essentially seeks to derive a common understanding of all elicited information during the information seeking process.</p> <p><u>Evaluation Phase</u> Information seeking: Here, agreed upon information about the organization and the group in the previous phase, should inform models</p>

	Approach 4	Approach 5	Approach 6	Approach 7
	<p>determined. This component is particularly important as it gives direct focus to the information requirements of the organization in question.</p> <p>Also at this stage if there is an existing organizational strategy, it must be elicited and studied, so as to ensure that ICT strategy formulated will not contradict the organizations intended direction.</p> <p><u>Determine Information Systems Objectives, which are measurable:</u> <u>and Prioritising potential systems (ICTs) to be addressed.</u></p> <p>Here based on results of the previous phase, Information Systems objectives are determined. Identified objectives must be measurable. Additionally, a timetable, resource breakdown and responsibility delegation must be determined. Considering that, due to resource constraints all desired systems cannot be implemented at once, it becomes essential to prioritize systematically. This may be achieved by attaching tangible (quantifiable) and intangible</p>		<p><i>Define Critical success factors (CSFs)</i></p> <p>At this stage, factors which are pertinent to the success of the intended strategic use of ICTs within the organization are identified. This stage can help with the translation of the vision into practical actions. Furthermore, it can aid in the investigation and applicability of strategic objectives and also at a later stage, review the effectiveness of the e-strategy. The output of this stage will include the e-business strategic objectives and critical success factors needed to attain identified objectives.</p> <p><i>Action Plan</i></p> <p>At this stage the required actions, time horizons and assigned resources to implement the intended plan are identified and documented. The action</p>	<p>relevant to the choice of potential strategy that the organization may design. Such models may be suggested by any of the members belonging to the strategy formulation group. Also experts in specific areas, though not part of the strategy formulation group, may be consulted, to determine the feasibility of tentative ideas.</p> <p>Information Integration: This process of the evaluation phase involves clarifying differences amongst group members about their preferences as regards the potential strategy, and coming to a group consensus on alternatives to be selected. It also involves the actual drawing up of the strategy document.</p> <p><u>Control Phase</u></p>

	Approach 4	Approach 5	Approach 6	Approach 7
	<p>bottom-line benefits to each of the ICTS which may potentially be selected, and then ranking them in order of importance to the organization. Alternatively, the investigator may rank the list of systems, using ranking criteria involving yardsticks such as: ease of implementation, payback, precedence and urgency and then assigning scores. The ICTs with the highest scores are selected for implementation.</p> <p><u>Identify existing and potential systems (ICTs) relevant for supporting the organizations processes and information needs.</u></p> <p>This phase seeks to determine whether there are existing ICTs to support identified business processes and information needs. This will include identifying existing (hardware, software, current applications, existing staff profiles, expenses on ICTs, facilities being used and status of ongoing ICT projects) Subsequently the appropriateness of existing systems for identified processes are judged. Furthermore,</p>		<p>plan should be deemed workable. Thus it should evoke confidence amongst concerned stakeholders that the strategic objectives are achievable in spite of time and cost constraints. The output of this stage is an action plan.</p> <p><i>Implement Action Plan</i></p> <p>This stage refers to the actual implementation of the plan. It will not be elaborated on, as it is not within the scope of this research, which is mainly focused on strategy formulation.</p> <p><i>Review Strategy</i></p> <p>This stage refers to the process for evaluating the adopted strategies after they have been implemented. This will also not be addressed, as it is not within the scope of this research, which is mainly focused on strategy formulation.</p>	<p>Information seeking: The information seeking process of this phase, is geared towards the dissemination of the formed strategy to the rest of the organization, in order to get feedback from them on the strategy and the extent to which they agree with it. This is a necessary step, as it allows the strategy formulation team to observe and determine whether or not their intentions are clear and well-articulated.</p> <p>Information Integration: This process of the control phase consists of a set of activities intended to facilitate the integration of the newly formed strategy into the organizations value system. Activities here may include: presentations of the strategy by the strategy formulation group members to the leaders of the organization, industry visits to similar</p>

	Approach 4	Approach 5	Approach 6	Approach 7
	<p>potential considerations for ICT selection at this stage is directed to systems which may potentially support identified business processes. This can be achieved by an ICT environmental analysis, including technological forecasts. Such forecasts can be carried out by Delphi studies with experts in the technological field being considered. E.g. ICTs which may potentially support water service delivery.</p> <p><u>Drafting of policy statements regarding aspects which will be affected by or affect ICT implementation.</u></p> <p>ICT integration into an organization results in transformation. Such transformation may resonate through areas such as, reporting procedures, staff responsibilities, and systemic operational routines. Change anticipation necessitates mobilizing people around what is not yet known. This is a difficult process. Recipients of a change culture often perceive it as negative and threatening. Therefore, it is</p>		<p><u>2. Factors</u></p> <p>The factors component, highlights areas, themes or categories which will be addressed across all discussed phases when attempting to formulate the strategy. The factors include: <i>Management, people, processes, technology and the external environment.</i> They are elaborated on below:</p> <p><i>Management</i></p> <p>This factor refers to a set of activities (including planning and decision making, organising, leading and controlling), directed at the organizations resources (human, financial, physical and information) with the aim of defining, implementing and reviewing the e-business strategy. Management</p>	<p>organizations involved in similar work, seminars which may be facilitated by the interventionist and the project champion to enable healthy debates about ideas included in the strategy. It is imperative that the interventionist takes a minimal role in this process. This will enable observation of the extent to which the organization is taking ownership of the strategy. Once determined that the organization has taken ownership of the process, the interventionist may then terminate his/her engagement with the organization.</p> <p><u>2) Assessment of structural elements which affect a strategy formulation process</u></p> <p>Structural elements at three levels bear on the strategy formulation process and could determine the outcomes of the strategy formulation process. These</p>

	Approach 4	Approach 5	Approach 6	Approach 7
	<p>essential to draft policy statements, which address aspects which are important to an organizational context seeking to integrate ICTs to its working environment. Potential areas to be covered under this draft include: the appropriate organizational structure for the planned change, change management guidelines, human resource considerations, Information systems evaluation during the project implementation, considerations for ICT flexibility, and, security and control aspects of the potential ICTs.</p> <p><u>Expected qualities of the Researcher or investigator seeking ICT integration.</u></p> <p>There are certain qualities expected of an investigator/ system analyst/ or change agent seeking to undertake an information systems study, intent on incorporating ICTs for organizational use. It is advisable that such an individual: possess interpersonal skills and understand group oriented social systems, know how to detect or diagnose problem situations, have appropriate remedies to detected</p>		<p>aspects must be considered through all phases of the strategy formulation process.</p> <p><i>People</i> This factor considers the social and cultural aspects related to people within the organization. It takes into consideration the awareness, understanding and skill requirements of staff in the organization which the intended e-business strategy will necessitate. This is also a category addressed in each phase.</p> <p><i>Process</i> The process factor refers to the key business working rules and procedures used by the organization. Organizational processes must be considered at each phase of the e-business strategic development process.</p>	<p>elements are at the: <i>strategy formulation group level, the organizational level and at the external environmental level.</i></p> <p><u>Group level structural elements:</u> which potentially influence a strategy formulation process include:</p> <p><u>Degree of differentiation:</u> This refers to the difference amongst the strategy formulation group members in terms of their: goal orientation, time orientation, interpersonal orientation and cognitive orientation. A low degree of differentiation in these aspects will make the information seeking process of all phases of less quantity and quality; however, this will reduce the complexity of the information integration processes.</p>

	Approach 4	Approach 5	Approach 6	Approach 7
	<p>problems, understand intervention processes, and understand change issues. Additionally, the following power sources will be a great asset to the process: political contacts, influential sponsors, an impressive professional reputation, and resource management competence</p> <p><u>Information systems planning.</u> This involves the process of deriving the written down or scripted plan to be implemented based on the results of the previous stages. This component consists of the following contents: a summary of the corporate plan and relevant operating plans, ICT planning prerequisites, current ICT capabilities, cost/benefit analysis, schedules, and summary of policies regarding special considerations. At this phase, an ICT/IS feasibility study is also conducted to determine the extent to which the desired plan can be achieved. Here particular products and vendors are selected, costs are attached to each ICT, responsibilities are allocated and timelines and work breakdown structures are determined.</p>		<p><i>Technology</i> This factor refers to technological considerations. This includes infrastructure, hardware, software availabilities, and usage within the organization. The technological tools which will potentially support e-business processes are an integral part of the strategy development process, and as such should be considered at all phases of the process.</p> <p><i>The external Environment</i> The external organization represents both opportunities and threats to the organization, and hence is a category which must be considered. These elements represent external factors which are likely to affect e-solutions.</p>	<p>Group Leader-Member relations: This refers to an assessment of the leader position power in the group, the power structure in the group and the subgroup structure of the group. For the strategy formulation group to behave creatively and openly as is expected, then the leader position power in the group should be low. Also, to ensure equal opportunity for contribution, the power structure of the group should be low. A low power structure gives every group member a chance to contribute without fear of reprisal. However, a group consisting of individuals with equal power status may also negatively affect group progress, as egos may come into play.</p> <p>Resources of the group: This refers to an assessment of the human and material resources within the group.</p>

	Approach 4	Approach 5	Approach 6	Approach 7
			<p><u>3. Gates</u> As the framework suggests these may also be referred to as phase gates. These gates may either be hard or soft. They are there to demarcate the six phases. Hard gates demand that all recommended activities in a phase be completed prior to advancing to another phase. Soft gates allow the advancement to another phase even when a previous phase is not completed. The first four phases are separated by hard gates, while the last two phases are separated by soft gates. Also proposed by the process protocol framework is the concept of process reviews. The review process illustrates or depicts how results should be fed back to previous decisions or phase activities.</p>	<p>Human resources consists of the knowledge possessed by group members to address the task at hand. Material resources are interpreted to be time, money and material resources at the disposal of the group. Low resources within the group will have a negative effect on the information seeking and integration processes of all phases.</p> <p><u>Organizational structural elements</u> which affect the strategy formulation process include:</p> <p>The degree of formalization: This refers to an assessment of the budgeting and control mechanisms present in the organization being studied, the types of information systems that prevail in the organization and , the integration processes used in the organization. Where there is a high degree of</p>

	Approach 4	Approach 5	Approach 6	Approach 7
			<p><u>4. Roles</u> This refers to the enlisting of possible candidates to be involved in particular activities of the strategy formulation phases. Identified roles as listed in the framework include; senior management board, IT managers and their teams, middle level management, lower level management/end users and external study participants</p>	<p>formalization in terms of these aspects, it is highly likely that the quality of information sought in the information seeking processes of all phases will be of similar standard. This will make it easier for facts to be communicated.</p> <p>The degree of differentiation: This refers to an assessment of the difference in the functional aspects of the organization, in terms of their, goal orientation, time orientation, interpersonal orientation and cognitive orientation. The higher the degree of differentiation, the more extensive the information seeking process is. Also the higher the degree of differentiation, the more complex the information integration processes will be.</p>

	Approach 4	Approach 5	Approach 6	Approach 7
				<p>Resources of the organization and previous success</p> <p>This element relates to the resources available to the organization seeking the strategy. The more resources available to the organization, the more extensive the information seeking process will be. Also the more resources available to the organization, the less complex the information integration process will be. In connection with these dimensions, it is also suggested that the greater the level of previous success the organization has attained, the greater the resources that will be devoted to strategy formulation.</p> <p><u>Environmental Factors</u></p> <p>This element involves an assessment of environmental factors which affect the strategy formulation process. The</p>

	Approach 4	Approach 5	Approach 6	Approach 7
				<p>factors assessed under this structural element as depicted in this approach relate to the organizations competitors. Considering that the intended framework this research seeks to develop is government related, aspects to do with competition are not relevant.</p> <p><u>3) Competence and expected characteristics of the interventionist</u></p> <ul style="list-style-type: none"> • Good working relationship with the client organization • The ability to investigate and conduct thorough research • Track record/reputation and credibility of the interventionist.

	Approach 4	Approach 5	Approach 6	Approach 7
				<ul style="list-style-type: none"> Relationship to people possessing power within the organization. An understanding of human psychology.
4. Approaches contribution to adopted Systems thinking	<ul style="list-style-type: none"> The approach describes a logical purposeful activity (Information Systems Strategy Formulation). Approach discusses, the need to understand the cultural and informal aspects of an organization while seeking to propose a solution to the identified problem. 	Soft Systems Methodology mandates that any purposeful activity system developed must contain mechanisms for monitoring and control of the activity system. This is done by accounting for 3E's (efficacy, efficiency and Effectiveness) of the system. These three 3E's have been described in the previous chapter. The framework presented in this approach aids in the monitoring and control process of an ICT strategy formulation process by describing how with the use of four themes, the formulated strategy can be	While the framework is developed for e-Business strategy formulation and implementation, it provides a comprehensive structural guide detailing how an e-strategy should be formulated. This guide may be adapted and adopted to an e-Government context. This comprehensive framework, addresses phases which an e-strategy formulation process should include, factors which should be considered in the phases of strategy formulation	<ul style="list-style-type: none"> The approach describes a logical purposeful activity (the marketing strategy formulation process of an organization). The approach provides criteria to aid in determining or judging the extent to which the strategy formulation process displays efficacy. As stated in the section describing the Soft Systems Methodology, a

	Approach 4	Approach 5	Approach 6	Approach 7
		evaluated for efficacy, effectiveness.	and activities which should be carried out in each phase. This approach also serves to confirm generic similarities in formulating e-strategies, regardless of the type. For instance, comparing findings from this approach with previously analysed approaches (1, 2, 3) show similarities in identified components.	logical purposeful activity must include a way of assessing the efficacy of the artefact.
5. Limitation of Approach	<ul style="list-style-type: none"> Approach does not acknowledge customers/citizens as stakeholders who should contribute to the strategy formulation process. While the Approach does elaborately discuss, phases and activities which an ICT strategy formulation process should consist of, it fails to adequately address issues of stakeholder engagement, which are paramount to the strategy formulation process. 	<ul style="list-style-type: none"> The approach does not elaborate on the logical process of the ICT strategy formulation process. Approach does not acknowledge customers/citizens as stakeholders who should contribute to the strategy formulation process. 	Approach does not acknowledge customers/citizens as stakeholders who should contribute to the strategy formulation process.	<ul style="list-style-type: none"> Approach does not acknowledge customers/citizens as stakeholders who should contribute to the strategy formulation process. Unlike Approaches 4, and 6, the Approach focuses less on the activities which should be involved in the strategy formulation affair, and more on group elements and organization dynamics which influence the

	Approach 4	Approach 5	Approach 6	Approach 7
				strategy formulation affair.

Table C: depicts a summary of NGO related strategy formulation Approaches (Approaches 8-10)

	Approach 8	Approach 9	Approach 10
1. Author/ Organization/ Title	Malunga (2007) Improving the Effectiveness of Strategic Planning in Local NGOs in Malawi.	UNAIDS 1998 Guide to the Strategic Planning Process for a National Response to HIV/AIDS	Bryson (1988) A Strategic Planning Process for Public and Non-Profit Organizations.
2. Summary/Aim of Approach	<p>This approach primarily sought to investigate factors influencing the strategic planning processes among local NGOs in Malawi. The approach employs two models: “levels of complexity” and “stages of organization development” to analyse factors influencing the strategic planning process, and the roles and responsibilities played by stakeholders of the process. In seeking to fulfil this goal, they identify components which a</p>	<p>Influenced by the need to answer three important questions (the existing state of HIV in a country; measures which have been taken to deal with the epidemic; and potential courses of action to be taken), this approach sought to outline a guide to underpin strategic planning processes for national responses to HIV/AIDS. The guide outlines a step-by-step process for formulating such related strategies.</p>	<p>Here a practical approach to strategic planning for public and non-profit organizations is presented. The approach consists of eight steps thought to be useful to strategy formulation and implementation as they relate to public and non-profit organizations. Two case examples of the application of the process are then presented. It is emphasised here that more than having a strategic plan, it is more important for the stakeholders involved to always engage in strategic thinking.</p>

	Approach 8	Approach 9	Approach 10
	strategy formulation process should be inclusive of.		
3. Components of Strategy Formulation and Definition/Role of Each Component in e-Government Strategy Formulation	<p><u>Formulation of a strategic planning team:</u></p> <p>This stage involves the selection of a team from senior management within the organization, who will primarily be responsible for seeing the process through from inception to implementation. This is important, as a consultants, or researcher's involvement is temporary. When organizational members own the process, they take responsibility of its success or failure (Hammer and Champy, 2001 in Malunga, 2007).</p> <p><u>Consultant/Researcher Orientation</u></p> <p>This stage involves an orientation exercise of the organization in question by the researcher. To achieve this, the researcher talks</p>	<p><u>Re-Examine the national guiding principles</u></p> <p>Considering that this approach seeks to address strategy formulation from a national health interventions point of view, the first suggested step is a process of review of national guiding principles. Undertaking this task will ensure that the strategy being formulated is aligned with the national guiding principles.</p> <p><u>Conduct a situation analysis</u></p> <p>The purpose of this analysis is to identify constraints to the set objectives or reason of existence of the organization in question.</p> <p><u>Response Analysis</u></p> <p>This analysis in retrospect of results derived from the previous stage, will highlight, priority areas to be addressed in a strategic plan.</p>	<p><u>Preliminary agreement concerning strategy formulation</u></p> <p>This stage must include discussions with stakeholders on the purpose of the study. Discussions should include: preferred steps in the process; preferred forms and timing of reports; expected roles and responsibilities of the group; commitment of necessary resources to conduct the study.</p> <p><u>Elicitation and clarification of mandates</u></p> <p>This stage serves to determine the mandates the organization being studied seeks to fulfil. Such mandates especially as they relate to public service institutions and Non-Governmental Organizations may be found in articles of incorporation, legislation, regulation, and charters etc.</p>

	Approach 8	Approach 9	Approach 10
	<p>to as many people in the organization as possible. The process will involve employees at various levels of the organizations Hierarchical structure (From top management to junior level employees). This is important for the researcher to understand the expectations of the organization in question. To add on, the researcher should seek publications on the organization and study them prior to interviewing staff. This helps to reduce potential redundancy with data collection. The process also serves as an opportunity for the researcher to make his requests known to the organization about what a successful study will demand. Preparation also involves the researcher thinking through the level of commitment needed from organizational staff, and possible ways of getting that commitment to expected levels. It therefore becomes necessary to develop a communications plan to</p>	<p><u>Determine objectives in priority areas</u> Due to the fact that strategic plans concentrate on finding pathways to a desired future state or goals, it is essential to ensure that objectives which may lead to the desired state are explicated. This process should include a specification of how priority areas will be addressed by some stipulated timeframe.</p> <p><u>Develop strategies to reach objectives in priority areas</u> This stage involves the formulation of strategies to meet set objectives. Strategies should take advantage of organizational strengths, as well as identified opportunities in the external environment.</p> <p><u>Develop a Strategic framework for the national Response</u> This stage constitutes documentation of all the previous steps, in the form of a strategic framework, for the intended action to be taken. This document should be distributed to anyone the organization anticipates will</p>	<p><u>Elicitation and clarification of mission and values</u> This stage consists of a two-step process. Firstly, a stakeholder analysis needs to be conducted to identify the stakeholder groups that matter to the purpose or reason for which the organization exists. While undertaking this process, it is essential to determine what their differing stakes are. Once this information has been elicited a mission and value statement can be derived which takes key stakeholder interests into consideration.</p> <p><u>External Environmental assessment</u> At this stage, an assessment of the environment outside the organization should be conducted. This entails gaining knowledge of opportunities and threats the organization is prone to. This may relate to political, social, economic and technological trends. Such an assessment</p>

	Approach 8	Approach 9	Approach 10
	<p>deal with sustained interest.</p> <p><u>Vision, Mission and Values Crafting</u></p> <p>Organizations have greater chances of succeeding when they are clear about their vision, mission and values and how best to fulfil them in their contexts. The vision reveals the long term societal impact; an organization seeks to contribute to. The mission depicts the organizations desired or ideal position in seeking to fulfil its long term mandates. Both the Mission and Vision give direction to organizational members, on where they want to be. Values are accepted behaviours that guide staff conduct within the organization. The values remind organizational staff how they must habitually conduct themselves in the quest to attain the organizations mission.</p>	<p>contribute to the realization of the strategic plan.</p> <p><u>Review the Strengths and Weaknesses of the proposed strategy.</u></p> <p>This stage consists of an appraisal of the formed strategic plan, to ensure that previously unforeseen obstacles which may impede the realization of the strategy are identified. Conversely, this stage tries to identify missed opportunities which were not capitalized on. Three criteria may be used to examine the strengths and weaknesses: i) acceptability, ii) technical soundness and , iii) feasibility and affordability.</p> <p>Acceptability attempts to access the extent to which the strategy is supported by stakeholders that possess significant influence on the extent to which the strategy may be implemented.</p> <p>Technical Soundness, attempts to access the extent to which tested initiatives are incorporated into the strategy. Tested initiatives are</p>	<p>may also include the nature and status of various stakeholder groups.</p> <p><u>Internal environmental assessment</u></p> <p>Similar to the preceding stage, here an assessment of the organizations internal environment is conducted. This involves identifying the organizations strengths and weaknesses. According to this approach, this can be achieved by an assessment of three aspects within the organization-Its inputs or resources; its processes: and its outputs or performance. The organization must build on its strengths, take advantage of its opportunities in order to minimize or overcome its weaknesses and threats.</p> <p><u>Strategic issue elicitation</u></p> <p>At this stage the study will seek to address vital policy questions affecting the organizations mandates, mission and value statement, service level mix, management or organizational design</p>

	Approach 8	Approach 9	Approach 10
	<p>Mission, vision, and value statements must be comprehensive but at the same time succinct.</p> <p><u>Environmental Scanning</u></p> <p>This stage consists of an investigation and identification of the organizations internal strengths and weaknesses, as well as external opportunities and threats. This provides the organization with a sense of clarity, on issues it will need to address in the external environment, and how the organizations resources will be applied to address these issues. An issue here is defined as a challenge or difficulty that has a significant effect on the organizations functioning or its ability to achieve a desired future. Various tools such as; PEST, 5-FORCES, and critical success factor identification may be</p>	<p>thought to be more technically sound than non-tested initiatives. Feasibility and affordability assesses the availability of needed resources to implement a strategy. This assessment should include; institutional capacity, knowledge and skills, service and goods, people and funds.</p> <p><u>Revise objectives and strategies where necessary</u></p> <p>Here, revisions are made to the previous documentation, based on findings of the previous stage.</p> <p><u>Plan Flexible Management and Support for emerging strategies</u></p> <p>This stage which consists of three sub-activities attempts to ensure that unanticipated changes in the organization which occur as a result of the strategies implementation or as a result of unexpected changing environmental factors are monitored. Based on findings, where necessary, changes are made to the strategy. This stage however is beyond the scope of this research, and as such will not be addressed.</p>	<p>amongst other elements. The process of identifying strategic issues is conflicting by nature. Conflicts may arise due to issues of differing opinions on objectives, the means of achieving objectives, the philosophy of objectives (why), location disputes, disagreement about timing and conflicts of interest. Three characteristics determine the quality of a statement of strategic issues. These include: its conciseness, its ability to highlight the factors that make the issues vital policy questions and its clarity on consequences where the organization continuously fails to address the issues.</p> <p><u>Strategy Development</u></p> <p>In this stage, strategies are designed to deal with issues identified in the previous stage. Strategy development commences with the elicitation of practical alternatives, dreams and visions for resolving strategic issues. Subsequently, the strategy formulation team should identify or highlight the potential obstacles which may impede the</p>

	Approach 8	Approach 9	Approach 10
	<p>synthesised to carry out this analysis.</p> <p><u>Developing Goals, strategic choices, and Strategies</u></p> <p>At this stage, goals, strategic choices and strategies are determined in alignment with the organizations, vision, mission and values, as well as considerations from the environmental analysis. Tentative considerations for strategies must be assessed, prior to their selection. The deliverable from this stage will be a strategic plan document, with an action and financial plan incorporated into it.</p> <p><u>Skills and Required Competencies</u></p> <p>In order to address all of the activities listed above, it is advised that the researcher or consultant along with the people</p>		<p>realization of identified alternatives, rather than focus directly on the achievement of alternatives. Carrying out this activity (identifying obstacles) is one way of assuring that tentative strategies deal with implementation difficulties directly rather than randomly. The next process of this stage will seek to create or request proposals for attaining the alternatives, dreams, or visions. Eliminating the barriers may be a way of achieving visions or stipulated alternatives. Upon receiving proposals, actions as well as a work structure is articulated in order to implement the proposals. An effective strategy must meet certain criteria: It must be technically viable, politically satisfactory, should be ethical and should be aligned with an organizations core values.</p> <p><u>Description of the organization in the future.</u></p> <p>As suggested in this approach, this final stage is not mandatory. Often times it is not carried out by organizations. It</p>

	Approach 8	Approach 9	Approach 10
	<p>within the organization who will be formulating the strategy possess the ability to compare and synthesise information, plan, build relationships, communicate effectively, maintain relationships, manage conflicts, and balance professional and personal interests.</p> <p><u>Policies, Procedures and Systems Reflection and Reforms</u></p> <p>The likelihood of strategies working is contingent on having the right policies in place. Existing policies in areas such as, finance, administration, human resources, monitoring and evaluation, and organizational learning may not support the intended strategy. This may call for reflections as well as possible reforms to existing policies. This review process should cover aspects of the organizations</p>		<p>however seeks to provide a picture of the organization as it successfully implements its strategy.</p>

	Approach 8	Approach 9	Approach 10
	structure and culture, as they also affect the strategic plan.		
4. Approaches contribution to adopted Systems thinking	<ul style="list-style-type: none"> The approach describes a logical purposeful activity (Ngo strategy formulation and implementation at the local level). This approach contributes to the process by identifying notable differences from other logical purposeful activities, and why these differences may be. On the contrary, it confirms that logical processes described in other purposeful activities are indeed how a strategy should be formulated, regardless of sector. Approach acknowledges the iterative nature of Soft Systems Methodology, by laying emphasis on organizational learning during the strategy formulation process. 	The approach proposes a logical purposeful activity of strategy formulation for a national intervention. While not adding any new component. It aids in the comparative analysis process, hence confirming or rejecting generalized assumptions about strategy formulation logic.	<ul style="list-style-type: none"> The approach describes a logical purposeful activity (A strategic planning process for public and non-profit organizations). The approach suggests a possible way of determining the efficacy of the strategic planning process. It may serve as a basis for comparison with the other approaches being analysed.
5. Limitation of Approach	Does not address factors to be looked at where ICTs are to be	The approach does not address factors to be looked at where ICTs	The approach does not elaborately discuss the process, but rather

	Approach 8	Approach 9	Approach 10
	integrated as part of the strategy.	are to be integrated as part of the strategy.	summarises it.

Information Debriefing sheet MobiSAM implementation in Makana Municipality

MobiSAM which stands for (Mobile Social Accountability Monitoring) is a mobile communication tool, intended to enhance communication on service delivery issues. It is expected that with its implementation, citizens will be able report service delivery concerns, and in a reciprocal manner, the municipality will be able to respond to service requests. To add on, the application will allow the municipality to create polls on service delivery related issues, which service recipients are expected to fill out. Aggregated results of polls, will act as feedback, to help the municipality with planning and prioritizing of future projects.

The survey to be conducted seeks to understand the current mode of municipal operation, information flows, communication tools, and co-worker dependency, in order to determine how best to integrate MobiSAM, to support Makana Municipalities service delivery functions. The questionnaire is quite detailed, and will take approximately 30 minutes to complete. Your time spent on completing the form is highly appreciated.

The questionnaire is broken into the following sections: Section 1 seeks to elicit data on basic demographics; Section 2 deals with position as well as job role within Makana Municipality; Section 3 seeks to understand communication channels used, as well as mediums by which information on service delivery is accessed; Section 4 is specifically targeted at Mobile devices used by participants; Section 5 will seek to determine the extent of computer proficiency and use by participants; Section 6 though not targeted at all participants will seek to find out whether or not participants have been trained to use MobiSAM in the past; Finally, Section 7, will request for your voluntary acceptance for a possible follow.

The research is being undertaken by Prof. Caroline Khene and Prof. Hannah Thinyane. If you have any questions, please feel free to contact us by email (c.khene@ru.ac.za, h.thinyane@ru.ac.za) or phone by (046 603 8092, 046 603 8640). Ethics approval has been sought and granted by Rhodes University Ethics Standards Committee (RU-HSD-16-03-0007)

PARTICIPANTS CONSENT FORM

Project Title: A Systems-Thinking Approach to E-Government Strategy Development for Water Service Delivery in South African Local Municipalities: Makana Municipality

Project Description: In this project, the researcher hopes to understand how an Information and Communication Technologies (ICTs) strategy should be ideally developed within a South African local municipality, in order for the implementation of such technological applications to appropriately support local government service delivery. Therefore, through qualitative means (semi structured interviews, as well as observation), the researcher hopes to gain information on local government ICT strategy formulation processes. Understanding this process will necessitate elicitation of related information, such as: local government critical objectives, key stakeholders that should be part of a local government strategy formulation affair, information flows of particular local government functional areas, as well as opinions on how the strategy formulation process is enacted. It is hoped that as a result of the research (outcome), an ICT strategy will be developed for integrating particular ICT applications within the municipality. Furthermore, lessons learned from the research will provide valuable knowledge on joint local government stakeholder strategy formulation processes.

Researcher: Mr Umeoniso Joshua Osah

- I have received information about this research project.
- I understand the purpose of the research project and my involvement in it.
- I understand that I may withdraw from participating in the research at any stage.
- I understand that my participation in this study is done on a voluntary basis.
- I understand that while information gained during this study may be published, I will not be identified and my personal details will remain confidential.

Name of participant _____

Signed _____ **Date** _____

I have provided information about the research to the proposed participant and believe that he/she understands what is involved.

Researcher's signature and date _____



RHODES UNIVERSITY
Where leaders learn

Rhodes University Ethical Standards Committee, Rhodes University, P O Box 94, Grahamstown, 6140

Tel: +27 46 603 7366 • Fax: +27 46 603 8934 • Email: ethics-committee@ru.ac.za

06-Jun-2016

Dear Umeoniso Osah

Ethics Clearance: A Systems-Thinking Approach to E-Government Strategy for Water Service Delivery in South African local Municipalities: Makana Municipality

Principal Investigator: Umeoniso Osah

This letter confirms that a research proposal with tracking number: RU-HSD-16-03-0007 and title: **A Systems-Thinking Approach to E-Government Strategy for Water Service Delivery in South African local Municipalities: Makana Municipality** was given ethics clearance by the Rhodes University Ethical Standards Committee.

Please ensure that the ethical standards committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on completion of the research. The purpose of this report is to indicate whether or not the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the ethical standards committee should be aware of. If a thesis or dissertation arising from this research is submitted to the library's electronic theses and dissertations (ETD) repository, please notify the committee of the date of submission and/or any reference or cataloguing number allocated.

Yours Sincerely,

Dr J. Marx: Chairperson RUEsc.

Note:

1. This clearance is valid from the date on this letter to the time of completion of data collection.
2. The ethics committee cannot grant retrospective ethics clearance.
3. Progress reports should be submitted annually unless otherwise specified.

20 June 2016

Dear Makana Municipality Staff Member,

Re: Invitation to participate in research study

MobiSAM is a citizen participation tool, aimed at increasing communication between local government (Makana Municipality) and citizens. For the system to be tailored to Makana Municipality, we need to understand how Makana Municipal Staff currently use technology and how they currently communicate within municipality and with citizens. This questionnaire aims to collect that information. The questionnaire is very detailed and will take approximately 30 minutes to complete. We would appreciate it, if you could set aside time during this week (20th June-24th June) to provide the above information. Thank you for setting aside this time to help us understand your current use of technology, communication, and operations within the municipality.

This research is being undertaken by Prof. Caroline Khene, Prof. Hannah Thinyane, and Joshua Osah. If you have any questions, please feel free to contact us by email (c.khene@ru.ac.za, h.thinyane@ru.ac.za) or by phone (046 603 8092, 046 603 8640). Ethics approval has been sought and granted by Rhodes University Ethical Standards Committee (RU-HSD-16-03-0007). Furthermore, the Municipal Manager, MS M.J. Meiring, has granted permission to conduct this study in collaboration with Makana Municipal staff members.

If you agree to participate in this study, your answers will be stored confidentially and anonymously. This means that your responses will not be shared with any other parties, and used for the sole purpose stated above. By storing anonymously, this means that we do not store your responses with any information that can be used to personally identify you. At the end of this questionnaire, you will be given the opportunity to provide us with your contact details, should you wish to be involved in any further studies for MobiSAM. This information will not be stored or correlated with your responses to the questionnaire.

Participation in this research is completely voluntary and this letter of invitation does not obligate you to take part in this research study. To participate, you will be required to provide written consent that will include your signature, date and initials to verify that you understand and agree to the conditions. Please note that you have the right to withdraw at any given time during the study without penalty.

Thank you for your time and I hope that you will find our request favourable.

Yours sincerely,



Prof. Caroline Khene



Prof. Hannah Thinyane



Joshua Osah

MobiSAM Makana Staff Baseline Questionnaire 2016

Communication Ecologies in the Municipality

Please answer all the questions in the space provided or tick where appropriate.

Please note: no personally identifiable information will be linked to your answers.

SECTION 1 – PERSONAL DETAILS

1. What is your gender?

☐ Male ☐ Female

2. In which age group do you belong?

☐ 18 – 30 years ☐ 31 – 45 years ☐ 46 – 60 years ☐ Over 60 years

3. What is your highest level of education?

Some secondary schooling	
Completed Matric/Grade 12/Standard 10	
Some technical college certificate (trade qualification)	
Completed technical college certificate	
Some university certificate, diploma or degree (professional qualification)	
Completed university certificate, diploma or degree	
Completed a postgraduate university certificate, diploma or degree	

SECTION 2 – POSITION IN THE MUNICIPALITY

4. Which Department do you currently work in, and what is your current job title/position in the Municipality?

Department:

Branch(Area):

Job Title.....

5. What is your Skill Level of the current Job you hold?

☐ Semi-skilled ☐ Skilled ☐ Not Applicable

6. Describe your main job responsibilities.

.....

.....

.....

.....

7. Have you held any other job roles within the Makana Municipality?

☐

Yes

☐

No

8. If YES to Question 7, please indicate the job role, and duration you held that job role.

Job Role	Duration

SECTION 3 – COMMUNICATION CHANNELS & ACCESS TO INFORMATION ON SERVICE DELIVERY

Assume that you have a service delivery request or problem that you need to talk to other department members about:

9. Whom do you communicate with in the Makana Municipality to address a service delivery request, and why (i.e. the job role of the person or functional area/department)

Department	Reason

10. How do you usually communicate or share information about a service delivery request or problem, **WITHIN** your department (You may tick more than one option)

Communication Approach	Service Delivery Request	Request Resolved	Request Unresolved	Service Delivery Announcement
Face-to-Face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paper/Ticketing system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paper/notices/posters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile SMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile WhatsApp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Telephone Voice Call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile Voice Call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. How do you usually communicate or share information about a service delivery request or problem, **BETWEEN** departments in the municipality? (You may tick more than one option)

Communication Approach	Service Delivery Request	Request Resolved	Request Unresolved	Service Delivery Announcement
Face-to-Face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paper/ Ticketing system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paper/notices/posters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile SMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile WhatsApp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Telephone Voice Call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile Voice Call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Describe the form of communication that is the most reliable within the municipality.

.....

.....

13. How do you usually communicate or share information about a service delivery request or problem, with the **public**? (You may tick more than one option)

☐ Not Applicable. (Move onto Question 14)

Communication Approach	Service Delivery Request	Request Resolved	Request Unresolved	Service Delivery Announcement
Face-to-Face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paper/ Ticketing system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paper/notices/posters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile SMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile WhatsApp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Telephone Voice Call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile Voice Call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13b. Please rate the **RELIABILITY** each of the communication approaches you have used when communicating with the **general public**? (You may tick more than one option):

☐ Not Applicable. (Move onto Question 14)

Communication Approach	Excellent	Good	Fair	Poor
Face-to-Face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paper/Ticketing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paper/notices/posters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile SMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile WhatsApp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Telephone Voice Call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile Voice Call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other (Please Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
------------------------	--------------------------	--------------------------	--------------------------	--------------------------

14. Select the communication channels that are currently provided or paid for by the municipality to support your job responsibilities.

- | | |
|--|---|
| <input type="checkbox"/> Face-to-face (travelling to communicate with colleague) | <input type="checkbox"/> Telephone Voice Call |
| <input type="checkbox"/> Mobile SMS | <input type="checkbox"/> Mobile Voice Call |
| <input type="checkbox"/> Mobile WhatsApp | <input type="checkbox"/> Facebook |
| <input type="checkbox"/> Paper (e.g. ticket) | <input type="checkbox"/> Mobile Data |
| <input type="checkbox"/> Email | <input type="checkbox"/> Mobile Phone/Tablet |
| <input type="checkbox"/> Other (please specify) | |

.....

15. Select the communication channels that are currently provided at your own personal expense, that you use for work communication.

- | | |
|--|---|
| <input type="checkbox"/> Face-to-face (travelling to communicate with colleague) | <input type="checkbox"/> Telephone Voice Call |
| <input type="checkbox"/> Mobile SMS | <input type="checkbox"/> Mobile Voice Call |
| <input type="checkbox"/> Mobile WhatsApp | <input type="checkbox"/> Facebook |
| <input type="checkbox"/> Paper (e.g. ticket) | <input type="checkbox"/> Mobile Data |
| <input type="checkbox"/> Email | |
| <input type="checkbox"/> Other (please specify) | |

.....

16. How do you access the Internet within the Municipality?

- | | |
|--|---|
| <input type="checkbox"/> Wifi provided by the municipality | <input type="checkbox"/> Personal Mobile Data |
| <input type="checkbox"/> Wired Internet connection in the municipality | <input type="checkbox"/> 3G Modem |
| <input type="checkbox"/> Other (please specify) | |

.....

17. If you could choose any way of sending/receiving messages to/from other people *in your department*, what would you prefer to use?

.....
.....

18. If you could choose any way of sending/receiving messages to/from *other people in the municipality* (in a different department), what would you prefer to use?

.....
.....

19. If you could choose any way of sending/receiving messages to/from *the general public*, what would you prefer to use and why?

.....
.....

20. Do you experience any form of restriction or challenge when trying to access information needed to perform your work related tasks?

.....
.....

21. What specific communication challenges do you experience where you need to communicate for work purposes?

.....
.....
.....
.....

22. How would you prefer to communicate with the public on service delivery matters?

☐ Directly with the public

☐ Liaise with Communications Department

☐ Both

Please Elaborate:

.....

.....

.....

.....

SECTION 4 – MOBILE DEVICES

23. Do you own a cellphone?

☐ Yes

☐ No

24. What brand is your current cellphone?

☐ Nokia

☐ Samsung

☐ Motorola

☐ Sony Ericsson

☐ LG

☐ BlackBerry

☐ Other

Model:
(Please ask for help if you don't know)

25. On your phone what do you use the following languages for?

	English	Afrikaans	isiXhosa	Other (specify)
Phone calls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Instant messaging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social networking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Listening/watching audio and video	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Creating audio and video	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accessing webpages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Publishing online content (e.g. blogs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26. Is your cellphone on pre-paid (e.g. Pay-As-You-Go) or contract?

- ☐ Pre-paid ☐ Contract
☐ Both

27. If **pre-paid**, please specify how much airtime you spend per week, on average.

- ☐ Less than R5 ☐ R5 – R15 ☐ R16 – R30 ☐ More than R30
☐ I don't know

28. If **contract**, please specify how much you spend per month.

R

- ☐ I don't know

29. When did you last use your cellphone for work purposes for....?

	At least once a day	A few times a week	A few times a month	A few times a year	Never
Phone call					
SMS					
Recording audio					
Recording video					
Instant messaging e.g. MXit, WhatsApp, FB Messenger					
Sharing pictures					
Email					
Search for information					
Listening to the radio					
Navigating (e.g. GPS navigation)					
Other (please specify)					

30. If you do not use your cellphone to connect to the Internet, why not? (you may select more than one option)

My phone cannot connect (no internet connection)	
I am not able (literate) to use the Internet	
I am not interested	
It is too expensive	
It is too slow/time consuming	
I use the Internet on another device	
Other (specify)	

31. How often do you use the following media sharing sites to share, download or upload audio, video or photos, for work purposes?

	At least once a day	A few times a week	A few times a month	A few times a year	Never
Twitter, TwitPic or other Twitter photo sites					
Dropbox					
Google Drive					
Facebook					
Other (please specify):					

32. When did you last use the following for work purposes?

	At least once a day	A few times a week	A few times a month	A few times a year	Never
Google+					
Skype					
Google Maps (or Google Earth, or equivalent)					
Regional/national/international blogs					

SECTION 5 – COMPUTER PROFICIENCY AND USE

33. Do you have a desktop computer that you use for work?

☐

Yes

☐

No

34. How well (proficient) can you use the following computer programmes.

	Good	Average	No experience
Microsoft Word			
Microsoft Excel			
Microsoft Publisher			
Programming (please specify).....			
Other (please specify).....			

SECTION 6 – MobiSAM Training

35. Have you received training in the past, to use MobiSAM?

☐

Yes

☐

No

If NO, skip question 36 – 37

36. Was the training sufficient to support your understanding of *how to use the system*?

☐

Yes

☐

No

If NO, why?

.....

.....

.....

.....

37. Was the training sufficient to support your understanding of how to integrate MobiSAM in your existing job responsibilities?

☐

Yes

☐

No

If NO, why?

.....

.....

.....

38. Do you feel that the introduction and use of MobiSAM in the municipality will be challenging? Please provide reasons for your answer.

.....

.....

.....

.....

.....

~ The questionnaire is now completed. Thank you for your time~

Tear off slip

SECTION 7 – FOLLOW-UP

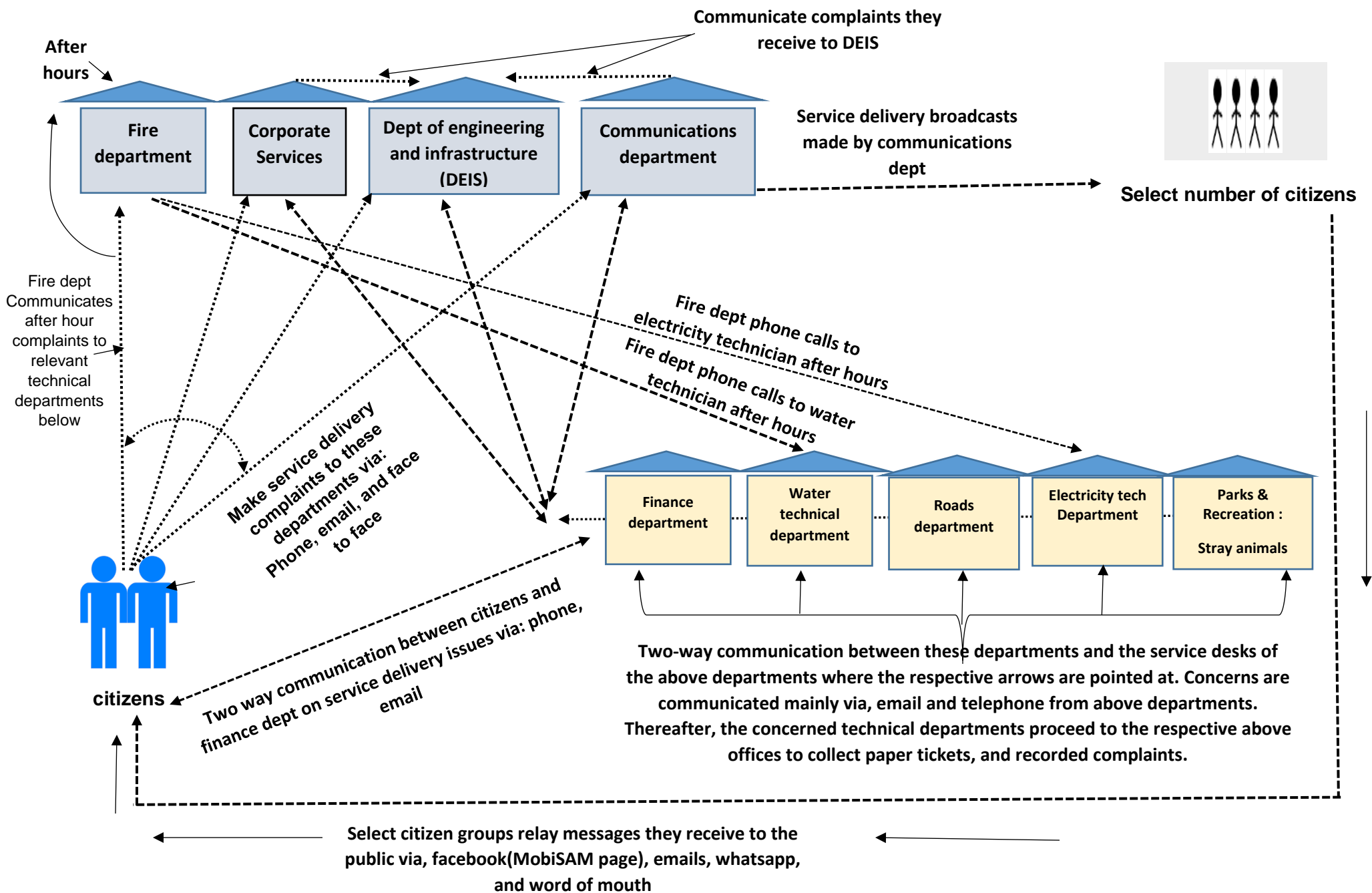
39. Are you willing to participate in further interviews regarding the implementation and use of MobiSAM within the municipality? If so, please insert you name and phone number.

Name:

Mobile Number:

40. Thank-you for your time, do you have anything to add or do you have any questions for us?

.....
.....
.....
.....



PART 1 - INVENTORIES

HARDWARE INVENTORY

(approx how many computers, who has access, who doesn't)

NETWORK INVENTORY

Who has access, who doesn't, what is off limits (e.g. facebook etc)

SYSTEM SOFTWARE INVENTORY

Operating systems, DBMS, ...

Who decides what software? Where to they get budget from (annual request?)

PART 2 - CURRENT APPLICATIONS

FOR EACH MAJOR SOFTWARE SYSTEM

NAME Name of software
PURPOSE, SCOPE, STATUS What was it bought for? how popular is it / do people use the software?
HISTORY When was it first requested (by who? Motivation for use), what is the coverage,
STABILITY / RELIABILITY Any problems encountered since it was installed?
MAINTAINABILITY / ENHANCEMENTS Modular design? Documentation?
USER ASSESSMENT AND RANKING: Usable as is, usable with modification, needing replacement, usable temporarily
INFORMATION NEEDS' ASSESSMENT Where are the information needs not met with this application
SECURITY PROBLEMS Any problems encountered with security? How do they secure data? Privileges? Physical security of servers etc? Offsite backup?

TRAINING AND SUPPORT

IS TRAINING AVAILABLE FOR THE APP Only when it was introduced? Continual? On site? Via email?
TECHNICAL SUPPORT Availability of someone to maintain or provide technical assistance

USER SUPPORT

DATA INVENTORY OVERVIEW

General
Type of data collection
Applications creating, updating and reading data
Interactions with other systems (import /export)
Retention (backup)

PART 3 - HUMAN RESOURCES

Within IT section, are there sufficient human resources (Tech support, programmers, etc) to support the municipality? What gaps do you see?

PART 3 - INTERPLAY BETWEEN SYSTEMS

Draw a picture

PART 4 - ORGANOGRAM

Who reports to Siya. who does Siya report to

These are the kinds of questions. Who should i ask the questions to, and do you think anything is missing? (Department specific?) would you ask in a different way?

Cultural Assessment of municipality

- What is most commonly considered by municipal staff to be important, as related to your job? E.g. personal growth, a desire to learn, a promotion, integrity, effectiveness on completion of assigned task, a salary raise, relationship with colleagues (comradery), privacy.
- What type of action by staff will result in a promotion?
- What specific actions do you undertake that impresses your supervisor/subordinates?
- What specific actions do employees undertake, that are likely to offend your supervisor/subordinates?
- What are the consequences for disregarding instruction by your superior, even if you know that they are wrong?

Group member relations Municipality

- When undertaking a group activity or meeting within the municipality, must hierarchy be respected?
- Is positional power relied on and used constantly within the municipality?
- Does the presence of a particular participant make some other participants fearful of airing their views in group meetings you have been a part of? How would you suggest that this is handled?
- Are you confident in your ability to perform on your work related tasks? (professional experience)

Differentiation (Interpersonal orientation)

- When you intend to undertake a project, are you only concerned about getting the job done, even if your colleagues will be ~~hurt~~ challenged or disagree in the process?
- In a group task, would you ask other members their thoughts on what needs to be done, or are you insistent on doing things the way you think is right?
- How do you handle conflict in a group situation; are you aggressive at getting your point across, or do you prefer to come to a compromise for the sake of peace?
- When things are not going your way in a group task, how do you handle it?
- Would you subscribe to the use of humour to improve engagement or do you prefer a rigid approach where the focus is primarily on the task at hand?



Makana Municipality Integration Strategy Document 2016/2017

Table of Contents

1. Introduction.....	1
2. Strategy Formulation Approach.....	3
3. Problem Demarcation	5
4. Objectives to Address the Problem.....	5
4.1 MobiSAM Vision and Mission	5
4.2 Objectives	5
5. SWOT Analysis	8
5.1 Strengths:	8
5.2 Weaknesses:	9
5.3 Opportunities:	10
5.4 Threats:	11
6. Implementation Plan.	12
7. Measuring the achievements of objectives	22
7.1 Costs/Benefits of integrating MobiSAM	22
7.2 Key performance indicators for measuring objectives.....	23
8. Commitments made by Citizens and Civil Society.....	24

1. Introduction

In South Africa, protests and campaigns appear to be on the rise about a lack of service delivery (Nnadozie, 2013). While South Africa possesses a progressive legislative framework for service delivery, when it comes to implementation at the local level the reality is different (Tissington, Dettmann, Langford, Dugard and Conteh, 2008). Especially disconcerting is the lack of services in poor rural and informal settlements of the country (Algotsson et al., 2009). Service distribution inequalities emanated from the past apartheid legacy, which have left high levels of imbalance in access to resources, infrastructure, and social services (Nnadozie, 2013; Tissington et al., 2008). As such, while some progress has been made, a need still exists to address service delivery challenges being experienced in predominantly poor communities, rural areas, and informal settlements of South Africa. The South African government, being aware of this challenge, has taken a pro-poor stance, since the abolishment of the apartheid era, to ensure equitable service distribution (Bhorat, Naidoo and Van der Westhuizen, 2006) in (Nnadozie, 2013). Therefore, to achieve their goals and objectives, it is incumbent on government to engage with citizens in seeking optimal ways of addressing the problem.

Particularly pertinent to service delivery in South African local municipalities, is the need to institute effective and efficient channels of information and communication flows between multi-stakeholder groups involved and affected by service provision processes. Stakeholders include municipal employees, citizens, service providers (private and public), *etc.* For example, in water service delivery, data flows between these stakeholders consist of supply chain logistics, transparency exhibition, feedback from water users on service quality, billing transactions, subsidy considerations, and water demand management aspects, amongst others (Molobela and Sinha, 2011; Tissington et al., 2008). Presently, as is the case, the cohesive flow, communication, and management of these data aspects are subpar (Bhagwan, 2012), especially in local municipalities. Consequently, this negatively impacts on the entire service sector. It is essential that local government engage in a two-way interaction with citizens and the private sector, hence giving citizens a stake in decision-making with the objective of improving service delivery outcomes. Engagement is vital in policymaking as it informs people of public issues, drives citizens towards a common ground that can break legislative deadlocks, and increases the accountability of elected officials. The implementation of citizen engagement initiatives, such as MobiSAM, are instrumental in lobbying for intrinsic motivation and capacity to hold government accountable for its services. Furthermore, government responsiveness and awareness can become driven given, the right channels of information and communication are available to both citizens and government. The tactical incorporation of information and communication technologies (ICTs) represents one of such channels of information and communication. ICTs, in addition to improving the information and communication flows (engagement) between multi-stakeholders, may also provide several other benefits to the local municipality. These include, savings on transacting, enhanced management practices, and better support and empowerment of citizens and marginalized groups (Al-khouri, 2012; Nkohkwo and Islam, 2013; Seng-Wong, Hideki and George, 2011; Vaisla and Pant, 2012 and Venkatesh, Sykes and Venkatraman, 2012). This is not

to imply that ICTs are a solution to all challenges being faced in the service delivery sector, but rather the suggestion that an ICT enabled environment could be one of many significant *means* to support service delivery. For instance, deriving accurate data from citizen requests (Tissington et al., 2008), through Decision Support Systems (DSS) could influence decision around policy and budgeting (Arnott and Pervan, 2008). These gains, which ICTs provide for the government, businesses, as well as, citizens, makes their deployment and use mutually desirable for all parties involved.

MobiSAM (Mobile Social Accountability Monitoring) represents one of such ICT initiatives – It is a research project investigating the use of mobile phones for increasing citizen participation in local government. The project, which commenced in 2011, intended that citizens would be able to report service delivery problems to their municipality, through ICT enabled tools. A portal was developed for the municipal employees that collated all reports and provided a means to visualize and respond to reported cases. The capacities of municipal employees were built through training – focused on understanding the functioning and use of the MobiSAM platform. This was followed by a planned one-year pilot study in Makana Municipality, aimed at observing the feasibility of permanently integrating the MobiSAM application to support municipal service delivery related communication. However, the pilot study was halted as a result of political instability within the municipality – that resulted in the municipality being placed under administration. The project was then re-established in 2016, with the title MobiSAM 2.0. The project hopes to incorporate lessons learned from the first phase, as well as emphasize government responsiveness, which in addition to the political instability, is deemed to be a key factor that hindered integration of the tool in the municipality.

A lack of appropriate processes and approaches for examining the context, can lead to a mobile technology initiative just appearing as a ‘beautiful’ solution, without understanding the broader dynamics of the problem (or symptoms of the problem) it is trying to address, and the positioning of such an initiative in addressing complex problems linked to service delivery (Enserink, Hermans, Bots, Kwakkel, Koppenjan and Thissen, 2010). Key to the success of such an initiative is appropriate problem identification and demarcation – especially to build capacity and buy-in for government responsiveness and citizen engagement. Furthermore, examining contexts also requires identifying ways to increase participation, such as: showing results from engagement, designing multiple channels of participation, providing multi-tiered levels of engagement, reinforcing a sense of civic duty and collectiveness, and getting pre-commitment from citizens (Spada, Mellon, Peixoto, Sjoberg, 2015). The above activities are quite holistic, requiring collaboration with existing networks, such as, municipal officials, media, NGOs, civil society, and citizen networks.

The importance of a strategy to support MobiSAM’s deployment within Makana Municipality cannot be overemphasized. Principally, the strategy is fundamental to decision-making during implementation, reengineering processes, and support processes of MobiSAM’s integration (Lowery, 2001). The strategy is essentially a plan for the realization of MobiSAM’s successful deployment – along with its supporting infrastructure, which will maximise the ability of the

government and other Makana municipality stakeholders to achieve service delivery related objectives (Heeks, 2006) in (Rabaiah & Vandijck, 2009). It should be noted that the document presented here is a flexible and is therefore subject to iterative and incremental evaluation, based on the project's progress. This is due to the uncertain context that the project is being implemented in. Emerging requirements and possible changes in the project will result in the document being revised.

Contained in this document is an elaboration of MobiSAM's strategy. The document begins by providing a brief discussion of the approach that aids in arriving at the strategy. This is followed by the problem demarcation, which highlights service delivery challenges within the municipality that MobiSAM possesses capability to address. In the ensuing section, specific objectives targeted at addressing the highlighted problems are listed. Following this, a SWOT (Strengths, Weaknesses, Opportunities, and Threats) Analysis in relation to MobiSAMs planned deployment is narrated. Subsequently, the implementation plan for MobiSAM within Makana Municipality is described. Motivation is then provided for the intended restructuring of the mode by which reporting of service requests is currently handled. Next, the resources at the disposal of stakeholders to arrive at the listed MobiSAM objectives are highlighted. Similarly, the needed resources not currently possessed by the stakeholders are considered. The document then brings to attention some foreseeable challenges that will need to be addressed in order to integrate MobiSAM, as well as, possible costs and benefits to be considered. Indicators are then articulated to help with determining progress that is being made in terms of achieving objectives. Finally, commitments made by various citizen groups, civil society, and NGOs towards the projects intended end are highlighted.

2. Strategy Formulation Approach

A number of activities inform the strategy formulation process. More precisely, it is comprised of a Baseline study, engagement at forums organized by the Makana municipality, discussions and meetings with the municipality, and strategy workshops. Data from these activities are triangulated to formulate this document. These activities are elaborated on below:

Baseline Study: Quantitative and qualitative means were used to assess the existing socio-economic status and readiness of the municipal organization, as well as, a representative sample of residents of Makana municipality – to uptake innovative communication tools, and actively become involved in civic engagement. The baseline study helps in gaining a broad view of the current state of affairs for which a strategy (plan), is to be developed.

Engagement at Public Forums: Various public forums were organized by Makana municipality, as part of the citizen engagement activities – these were attended by MobiSAM representatives. These included the local Communication forum, Water and Sanitation Community forum, Kowie Catchment Forum, *etc.* The forums referred to acted as invited spaces for all concerned stakeholders to engage on local government related issues, such as service delivery, and local government decision making related aspects. This platform also provided an opportunity to better understand the Makana municipal context, through listening to stakeholder concerns. Furthermore,

it provided an enabling environment to network with attending stakeholders (e.g. civil society actors, citizen groups, municipal staff) thought to be key to the strategy development process.

Discussions and meetings with the municipality: Extensive support was provided by the Communications Department of Makana municipality. Their support has been, and continues to be displayed through, their openness to meetings and consulting with them. At such meetings, MobiSAM representatives were informed of protocols to observe in dealing with the municipality, possible staff that had not been considered, but thought to be potentially important participants of the strategy development process, and undertaking review processes of Baseline Study questions in order to determine the appropriateness of these questions for municipal staff. To also get the municipality on board, a formal presentation was made by MobiSAM representatives to the senior management team (SMT) of Makana municipality.

Strategy Workshops: Separate strategy formulation workshops were held by the MobiSAM team for Makana municipality (local government), and Makana residents/civil society, respectively. The workshops were intended to separately elicit the views on service delivery related challenges within Makana municipality. Keeping in mind that the end goal is the integration of MobiSAM within the municipality, the MobiSAM team selects identified service related problems/challenges that are within the scope of MobiSAM's purpose. It is clarified with workshop participants that these selected problems are important enough to warrant solutions. Upon clarification, MobiSAM's possible remedy or contribution to solving these problem areas are explained to workshop participants. This significantly helps with illustrating the usefulness of MobiSAM to the municipality and the Makana community.

At both workshops, the focus then shifts to brainstorming on feasible and realizable objectives for integrating MobiSAM within the municipality. This brainstorming session produces a number of objectives that MobiSAM will focus on. Following the identification of objectives, there were a number of variations in the remaining activities of both workshops (Municipal and citizen workshops). The municipal workshop at this stage engaged participants in articulating an internal service delivery reporting structure that will be used by municipal staff when service delivery requests are communicated through MobiSAM. In contrast, the focus of the citizen/civil society workshop at this stage is getting commitment from possible intermediaries, to help in achieving objectives that are articulated in tandem. Both workshops then go on to take inventories of the resources available to achieve specified objectives, as well as, list needed resources not currently at the disposal of the project team or any other stakeholders.

The strategy formulation is further informed by a meeting between the MobiSAM team and municipal staff, intended to confirm the proposed internal service delivery reporting structure to be adopted with MobiSAM's integration. It was also determined at this meeting that a number of functional areas should be added to MobiSAM's initial scope of service delivery concerns that should be reported on. To add on, a civic engagement training workshop with civil society and citizen champions conducted by MobiSAM revealed other opportunities and concerns citizens foresaw with the prospect of MobiSAM's deployment to support service delivery reporting.

3. Problem Demarcation

Makana Municipality is faced with a number of service delivery related challenges. With a wide range of problems identified, the MobiSAM team scoped elicited problems, to focus on aspects that MobiSAM can potentially address – given that service delivery challenges are complex and multifaceted. Scoping the problems reveal that MobiSAM can primarily address challenges related to communication, and providing strategic summaries of service delivery data, that can be used for evidence based engagement. *Table 1* categorises the scoped problems from both workshops, as related to MobiSAM's intended focus.

4. Objectives to Address the Problem

4.1 MobiSAM Vision and Mission

MobiSAM Vision: Striving for greater citizen engagement and participation in local government decision making aimed at realizing an effective and responsive local government representation that is accountable.

MobiSAM Mission: Consistent transparent service delivery related evidence based dialogue between Makana municipality and citizens, as well as, effective and efficient internal communication between constituents of the municipality's service delivery value chain.

4.2 Objectives

Based on the scoped problems, which MobiSAM can potentially contribute to addressing, a number of objectives are articulated. Objectives identified are presented below:

- Improve two-way communication between the municipality and citizens.
- Increased government responsiveness (direct feedback and improved service delivery), also aimed at improving the Makana Municipality brand (thought to be reliable, effective, and efficient).
- Improve the internal communication flow of reported service concerns to the municipality.
- Training and capacity building of municipal staff and citizens to effectively make use of MobiSAM.
- Increased local government transparency and accountability, and social accountability monitoring by citizens.
- Increased citizen participation in local government decision making.
- Accumulation of evidence-based data to enable local government to present evidence when dialoguing with national government and local residents.
- Learning and knowledge management to support replication, as well as, scaling of the project to other local governments.

Table 1: Problem demarcation by the municipality and citizens

BOTH MAKANA MUNICIPALITY + CITIZENS & CIVIL SOCIETY	
<p>Recurring service delivery protests: Both the municipality and citizens indicated that frequent service delivery protests are a concern. Protests stem from pent up frustration among citizens, who are often not provided with information from the municipality about abrupt service cuts, or not provided with any feedback on reported service delivery concerns. For instance, unexpected water cuts without prior information on possible cuts or provision of any reason for such cuts will provoke citizens. Service delivery protests often result in the destruction of public infrastructure/vandalism and possible violence by protesters.</p>	
MAKANA MUNICIPALITY	CITIZENS & CIVIL SOCIETY
<ol style="list-style-type: none"> 1. Service delivery requests are not communicated promptly to concerned divisions: Due to broken links in internal communication within Makana municipality, communicated service delivery requests/problems, do not get to the concerned department, or do not get there promptly. Inefficient internal communication of reported service delivery concerns can be mainly attributed to a lack of structured reporting protocol, and responsibility delegation with reporting. Service concerns are reported to various functional areas within the municipality, some of which may not be responsible for either dealing with the concern, or ensuring that it gets communicated to the concerned division. This is consistent with the concept of the diffusion of responsibility, where nobody takes responsibility, because each person expects the next person to shoulder the responsibility (Plous, 1993). 2. Lack of awareness by service recipients on the mechanics of consumption and overconsumption of water reservoir reserves: Municipal staff expressed concern about over-capacitated plants due to over consumption of water reservoir resources by certain sections of society. It is assumed that a majority of service recipients are unaware of the extent of their water resource use, and how over consumption depletes water plant levels. Service recipients who over consume water resources may be ignorant to the consequences of the extent of their use on other service recipients. This highlights the need for providing better mechanisms for informing, alerting or providing warning indications to citizens on the effects of their resource consumption or use habits. 3. Public infrastructure being vandalized but not reported: Complaints were raised about the theft and vandalism of public utility infrastructure/municipal infrastructure. It is further suggested that cases of theft and vandalism are not reported. Citizens may be of the opinion that 	<ol style="list-style-type: none"> 1. Lack of planning by the municipality: Concerns were raised about the municipality's reactive approach to service delivery challenges. It is advised that the municipality needs to have a proactive approach – that relies on long term plans as opposed to constantly attending to issues that arise spontaneously. Lack of planning may partly be attributed to failure to store and accumulate service delivery concerns communicated by citizens over a period of time. Service delivery reporting is done through numerous channels in Makana municipality. Channels include walk-ins to municipal offices, telephone calls, Facebook posts, and communications through ward councilors and Community Development Workers. Due to the array of reporting channels, it becomes difficult to organize all of the data that is produced from service reporting – keeping in mind that this data, where organized, can serve as indications of critical service related areas that require attention – thus playing a support role for municipal planning. 2. Lack of appropriate technology: It is believed by some citizens that the municipality does not possess the appropriate technology to enable effective communication with citizens. It should be stated here that appropriate does not necessarily mean newer or more modern as some may believe. Rather appropriate technology means that the technology is well suited for the context where it is intended that it will be deployed to provide value. Although Makana Municipality possesses communication infrastructure (Internet connection and computer equipment) that enables it to communicate with citizens, it should be noted that not all citizens are privileged to access such communication channels to support their purposed engagement with local government. As such, there is a request by citizens for the incorporation of technological infrastructure that takes the cost limitations of marginalized groups into consideration. For instance, consideration for citizens that cannot afford smart phones, do not have

public infrastructure is not their personal property, and as such, may have a nonchalant attitude to their preservation or safety. Nonetheless, in exhibiting this behavior, they fail to realize that provision of services to them will be affected as a result of such vandalism or theft.

4. **Lack of evidence to support engagement aimed at soliciting increased funding to support local government functioning:** At times, allocated funds provided by National Government to support local government functioning and development is not sufficient. Deficits often leave local government challenged, and frustrated as they cannot meet increasing demands from service recipients. It is important that local government is able to explain to citizens why bills and rates have to be increased – in order to quell possible frustrations that may result from such increments.

access to an Internet connected computer, or cannot afford to buy data/airtime to communicate their concerns to the local government.

3. **Lack of government transparency:** It was pointed out by the citizens that local government is not transparent in dealing with citizens. In accordance with the sixth rule of the Batho Pele principles, which are expected to guide service delivery in South Africa, it is expected that local government will be transparent. Transparency means that citizens have a right to know departmental staff numbers, particulars of senior officials, and expenditure and performance against standards. Also it is expected that reports to citizens will be widely published and submitted to legislatures. Although some of this information is provided by the municipality (e.g. profiles of departmental staff are accessible on the Makana municipality website), all of this information is not provided in its entirety. Without some of this critical information, it becomes difficult for citizens to engage in social accountability monitoring, which is one of their civic rights.
4. **Lack of evidence to support meaningful engagement with local government:** It is suggested that up to this point, engagement between local government and civil society has not been backed by evidence. Unfounded claims usually are not capable of supporting constructive dialogue. Producing service delivery data on the extent of local government effectiveness, and comparing this data to local government plans and stipulated standards, can help citizens to better constructively engage with Makana municipality.
5. **Cynicism towards government on their ability to listen to the ordinary citizen:** It is indicated that there is significant pessimism towards government's willingness to listen to the average citizen. Citizens believe that their opinions and views do not matter, and as such, see it as a waste of time to even bother airing their views. The problem with this resolve is that the local government can become complacent with underperforming, where citizens are not exercising their rights to hold the local government accountable. Closely related to this is the fact that concern is expressed that the majority of citizens in marginalized communities, are not aware of their rights to receive basic services.

5. SWOT Analysis

This section consists of an analysis of strengths, weaknesses, opportunities, and threats (SWOT) that need to be taken into consideration while deliberating on the sustainable use of MobiSAM within Makana Municipality. It is intended that MobiSAM will take advantage of available strengths, and opportunities in order to counter its weaknesses and threats. Table 2 presents a SWOT analysis for MobiSAM.

Table 2: MobiSAM SWOT analysis.

Strengths +	Weaknesses –
<ul style="list-style-type: none"> Competent MobiSAM project team possessing a range of expertise. Funding provided for first year and a half of project initiation and application deployment. Supportive Communications Officer from Makana Municipality who continues to champion the project. The Municipality has appointed a Chief Financial Officer (CFO), and Makana Municipality is constantly improving its financial stability. Municipality offices are connected to the Internet. Growing civic mobilization and citizen interest in addressing the challenges of local government. 	<ul style="list-style-type: none"> Makana municipality is resource constrained. There is a high employee turnover, and slow recruitments of critical employments. Low employee morale. The MobiSAM team can only advice, however, cannot enforce or determine how the municipality responds to service requests. There is a sense of despondency among citizens from marginalized contexts, hence less of a desire for citizen participation.
Opportunities +	Threats –
<ul style="list-style-type: none"> A large proportion of Makana residents have access to mobile phones. There are active citizen groups and civil societies in Makana that can champion the projects in jurisdictions where they have a presence. National government has of late expressed commitment to the establishment of a local Communications forum, and Catchment Management forum. Local government has committed to implement an integrated Service Delivery Model (<i>Masiphathisane</i>), which can integrate MobiSAM data. 	<ul style="list-style-type: none"> National security laws that limit the public's access to sensitive information. Mal-administration and corruption, backed by tyranny. Political change and influence. Municipality removed from Section 139(1) (b) – Municipality is no longer under administration.

As can be seen in Table 2, there are a number of strengths and opportunities, which MobiSAM can take advantage of, in order to reduce the possible effects of its weaknesses and threats, as they relate to this project. These are expanded upon below:

5.1 Strengths:

Competent MobiSAM project team possessing a range of expertise: Diverse expertise and proficiency is possessed by the MobiSAM team, to ensure that the project is carried out properly, from project initiation to post implementation evaluation. Nonetheless, the potential success of the project will depend on cooperation of Makana Municipality – both local government and citizens. Expertise ranges from proficiency in application development and understanding of technology deployment in organizational settings, to communication and community engagement.

Funding provision for first year and a half of project initiation and application deployment: The Making all Voices Count organization has provided funding to ensure that the project is initiated, and that the application is deployed. As such, the municipality is not obligated to incur any financial costs, at this point of the project. Furthermore, the project has gained a strategic position in research and practice to lobby for more funding, which is needed to build local government and citizen capacity over time to sustain the use and value of the MobiSAM initiative.

Supportive Communications Officer from Makana Municipality, who continues to champion the MobiSAM project: The current Communications Officer in Makana has been very supportive of the MobiSAM project, and continues to champion it within the municipality. Support provided by the communications officer includes, but is not limited to, informing the project team of protocols to observe when dealing with municipal leadership, ensuring that municipal staff that are important to the implementation of the MobiSAM project attend meetings organized by the project team for which they are expected to be present, and lobbying for MobiSAM to be included in the municipality's communication strategy and policies.

The Municipality has appointed a Chief Financial Officer (CFO), and Makana municipality is constantly attempting to improve its financial stability: Makana municipality recently appointed a chief financial officer (CFO). A CFO is critical to the continuous operation and management of any organization, as operation is dependent on the effective management of finances. As this relates to MobiSAM, it should be noted that the sustainability of the project is contingent on the financial management of the municipality.

Municipality offices are connected to the Internet: In order for MobiSAM to effectively work within the municipality, it is a fundamental requirement that the municipality is connected to the Internet. All Makana municipal offices are connected to the Internet with the exception of Alicedale and Riebeeck East, which the municipality indicates will be connected in the near future.

Growing Civic Mobilization: There are an increasing number of invented spaces (like civil society platforms), within Makana municipality where citizens mobilize to discuss important service delivery concerns, and how to build critical mass to demand collaboration with local government to address these concerns. These initiatives align with MobiSAMs intent of realizing greater citizen engagement.

5.2 Weaknesses:

Makana Municipality is resource constrained: Despite the fact that the municipality is improving its financial stability, Makana municipality is still a resource constrained municipality. MobiSAM's deployment may result in increased rates of communicated service concerns to the municipality. This may consequently result in a situation where the current staff capacity becomes overwhelmed with the amount of requests that they have to deal with. In anticipation of this challenge, the municipality may consider the employment of more staff or technicians to deal with reported concerns. Considering that they are resource constrained, this may be a challenge.

There is a high employee turnover, and slow recruitment of critical employment: Due to the municipality's resource constrained nature (resulting in lower remuneration compared to other municipalities), and its small size, there is high employee turnover. These limitations also bear on employee recruitments to fill critical roles. Hence, roles that should not be left vacant for long periods of time due to their importance, are often left vacant for significant amounts of time. These challenges may have a negative effect on the MobiSAM project. For instance, where due to frequent staff changes, new staff have to be repeatedly trained on how to use the application, as well as, adopt the critical values that the MobiSAM team hopes to instill in currently serving employees. Taking this into consideration for the future if the MobiSAM team is no longer hands-on (to promote local ownership of the initiative), the project may be affected by the constant changes in employees.

Low employee morale: It is believed that generally, there is low employee morale within the municipality, due to the municipalities' resource constrained nature. Low morale affects the attitude, as well as the manner in which employees carry out their job tasks. With this perceived trait, the MobiSAM project may be affected where complaints communicated are not dealt with, as a result of employee's lack of motivation or incentive to work.

The MobiSAM team can only advice, however, cannot enforce or determine how the municipality responds to service requests: It is hoped that the urgency with which reported concerns will be dealt with will show the municipality to be service oriented, effective and efficient. However, ensuring this level of urgency can only be enacted by the leadership within the municipality. The MobiSAM team does not possess the power to ensure this, but can only advise the municipality.

There is a sense of despondency among citizens: This is especially evident among citizens from marginalized contexts. As a results, citizens are reluctant to engage in citizen participation, and are unaware of their rights to engage.

5.3 Opportunities:

A large proportion of Makana residents have access to mobile phones: It is anticipated that the mobile phone will be a primary medium of access to the MobiSAM platform, especially for those who do not have access to a computer with Internet connection. The recently conducted Baseline Study by MobiSAM reveals that a large section of Makana residents, have access to mobile phones. Therefore, the MobiSAM project hopes to leverage off this. Furthermore, where residents do not have access to a mobile phone, MobiSAM will identify and work with and local ward liaisons to report service issues on behalf of ward residents.

There are active citizen groups and civil societies in Makana that can champion the project in jurisdictions where they have a presence: Mobilizing all communities within Makana municipality to believe in the greater vision that MobiSAM hopes to contribute to is a huge task,

and one that cannot be single handedly achieved by the MobiSAM team. Hence, it is important that partnerships are formed with the existing active civil society and citizen groups, who are familiar with local residents in their jurisdictions, and able to advise them to buy into the process. A number of such groups have been identified by the MobiSAM team. Furthermore, the MobiSAM team provides training in civic rights engagement to a number of key civil society organizations, and active citizens particularly from the disadvantaged communities of Makana. The purpose of the training is to provide these groups with an understanding of how to strengthen and improve the quality of engagement with Makana municipality around issues related to service delivery and local government affairs. In a summarized manner, they will be informed on why it is important for citizens to participate in local government processes, engage with local authorities, and hold them accountable for the quality of service delivery using the rights discourse, the constitution of South Africa, and other legislative frameworks as a basis. To add on, the training touched on when it is appropriate to participate in local government affairs by informing training participants about the local government public participation calendar. Training participants are then informed about key resources that can help them in gaining necessary information to hold government accountable, and how such information can in collaboration with MobiSAM be applied to engage in social accountability monitoring (SAM). The opportunity foreseen here, is that this knowledge can be passed down by these groups and active citizens to other individuals in their respective communities. Several media outlets have also expressed interest in supporting the project by creating awareness, and also providing an opportunity for a MobiSAM representative to feature on a weekly radio show to answer questions from callers pertaining to MobiSAM and its integration.

National government has of late expressed commitment to the establishment of a local Communications Forum, and Catchment Management Forum: The national government has instituted invited spaces, at the local government level, where stakeholders can gather and deliberate on service delivery issues. Two of such, are the local Communicators Forum, and Catchment Management Forum. With the consistent gathering of these groups, citizens can present evidence based data from MobiSAM, to the local government, which will better facilitate meaningful engagement.

Local government has committed to implement an integrated Service Delivery Model (Masiphathisane): The Eastern Cape's decision to adopt an Integrated Service Delivery Model (ISDM) to ensure better coordination, collocation, and collaboration between service delivery stakeholders – has as one of its main objectives, the collation of household data to inform local government planning. Considering that this is one of MobiSAM's intents, it is anticipated that MobiSAM's value will be better appreciated by the municipality, as it can be used as a tool to enable one of the ISDMs specified mandates.

5.4 Threats:

National security laws that limit the public's access to sensitive information: There has been in recent times a resurgence of national security laws that limit the public's access to sensitive information – this is a situation that requires close monitoring (Vuuren, 2014). Some examples of

these laws are, the Protection of State Information Bill, the General Intelligence Law Amendment Bill, and the National Key Points Act (Vuuren, 2014). In particular the National Key Points Act has been the center of controversy in the past, where it was allegedly used by the executive as a reason to avoid answering questions regarding the expenditure of public funds to upgrade security at the president's private residence in Nkandla (Vuuren, 2014). MobiSAM on the contrary seeks to promote an open society

Mal-administration and corruption, backed by tyranny: There is often a tendency for leaders found guilty of corruption and mal-administration to resort to intimidation tactics and force in order to avoid accountability.

Political change and influence:

The lack of continuity of current leadership in Makana municipality may negatively influence the project. The current leadership in Makana municipality is onboard with, and supportive of the project, therefore, negative consequences may arise, where there is sudden change in leadership and political influence.

Municipality removed from Section 139(1) (b) – the Municipality is no longer under administration: Makana Municipality had for some time been under administration (2014-2016)—an indication of their inability to independently manage their affairs. However, recently, they have been declared as capable of autonomously dispensing their duties and taking full responsibility for the operation of the municipality. Whereas, this may serve as an indication of increasing stability which is key for the projects continued progress, there are heightened concerns about the municipalities financial state. It is believed that the municipality is becoming more indebted with each passing month. To make matters worse, the possibility of the municipality borrowing substantial money is in doubt, due to the fact that it is not credit worthy. In its defense, the municipality indicates that it is owed money by debtors, it is however, not clear how much collectable debt is owed to Makana. A second suggestion that the municipality sell some assets to pay off some of its debts may work in the interim, nonetheless, selling assets to cover operational expenditure is not sustainable. If this financial struggle continues, the MobiSAM project may be affected where the municipality cannot address reported concerns due to its resource constraints, or where they are unable to continue with expected operational costs of the MobiSAM project when it has been handed to them.

6. Implementation Plan.

- a. Processes Affected:** In relation to the scope of MobiSAM, *currently*, within Makana municipality, service delivery requests are received by all departments (water, sanitation, electricity, and roads, finance, and parks and recreation). Concern was raised about this reporting structure of lodging service delivery requests. It is indicated that due to the fact that everybody is responsible for receiving reported service concerns, there is no

ownership, or assigned responsibility. Figure 1 illustrates this chaotic approach to service delivery reporting.

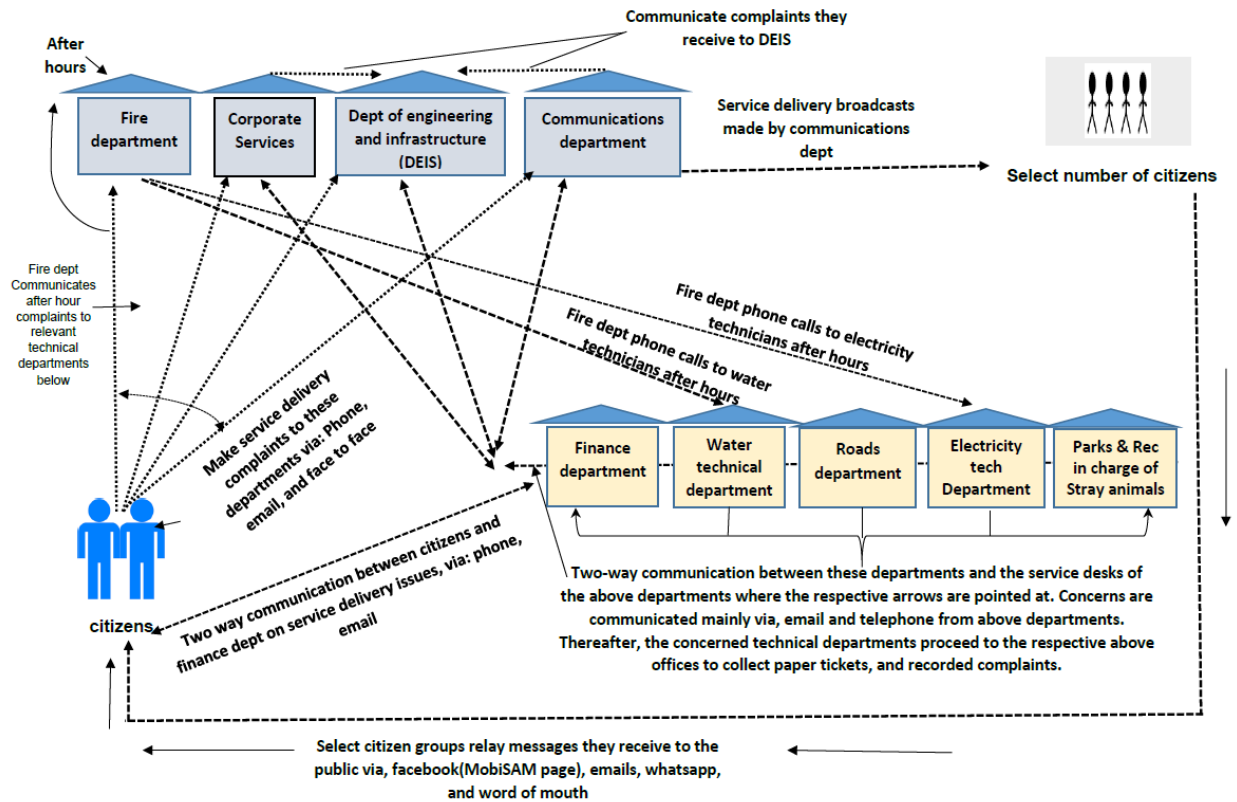


Figure 1: Current service delivery reporting structure in Makana municipality

As depicted in Figure 1, the current reporting process permits citizens to communicate their concerns to a number of departments within the municipality, which may or may not be responsible for addressing the concern. The problem with this existing reporting structure is that it does not enable indication of ownership by municipal staff on reported concerns, hence accountability cannot be sought. Congruent to the concept of diffusion of responsibility, obligation is less likely to be accepted, where many people are expected to be responsible for a particular task. Therefore, it is decided that there must be a central point of entry for lodged requests.

An added concern with the existing reporting structure is that there is no feedback communicated to service recipients on reported concerns, thus in situations where the communicated request is lodged with an intermediary and not the handling department, the complainant is left clueless as to whether his/her concern has been relayed to the handling department. Lastly, service announcements are broadcast only to a select number of citizens and not the entire populace. In the event that the select few fail to rebroadcast received broadcasts to regular citizens whom they have communication links with, these messages remain confined to the select few.

b. Targeted processes to restructure:

Restructuring is conceptualized such that complete reporting, request handling, and feedback provision within the municipality will involve three layers. The first layer is referred to as the centralized point of entry (*Layer 1*). The second layer (*Layer 2*) will consist of the various front desks of service functional departments within MobiSAM's scope (departmental communication). These include water, sanitation, roads, electricity, finance, and, parks and recreation (stray animals). Lastly, *Layer 3* will involve communication with the technicians/personnel who will be responsible for addressing service concerns in the field. Figure 2, depicts the proposed business process narrative for service delivery request handling in Makana municipality.

Layer 1:

Centralized data entry point for service requests will be instituted in Makana municipality when MobiSAM is deployed:

To lodge service delivery requests to MobiSAMs platform, citizens are expected to either have access to a mobile phone with SMS capability, a feature phone where the MobiSAM application is installed, the MobiSAM website page using an Internet enabled smart phone or Internet connected desktop computer. Once a request is relayed, it will be received by a centralized unit within the municipality. The potential personnel and protocol that will be involved in administering the centralized layer of MobiSAMs operation is expanded upon below:

Personnel responsible:

It is decided that a team consisting of the Switch Board Operator, Communications Personnel, Customer Service Personnel, and Fire Department Dispatcher (after hours), will be responsible for receiving lodged service requests. They will be referred to as a centralized unit/team. This team will be responsible for the following functions:

- ***Handling of received service delivery requests:***

Once a service request is lodged by a citizen, a ticket will be opened, and the centralized team will decide what functional area (department) the service request is intended for. This demands that the centralized team be aware of what department each communicated concern should be forwarded to. Though a part of the centralized team, the Fire Department Dispatcher will be primarily responsible for receiving requests after work hours (4.30pm-8.00am), as well as on weekends. The communication pattern will differ somewhat after hours, as departmental personnel who tickets are supposed to be communicated to will not be in the office after 4.30pm. Hence, once a service request is received after hours, the Fire Department Dispatcher will communicate directly by phone with technicians or personnel expected to address concerns.

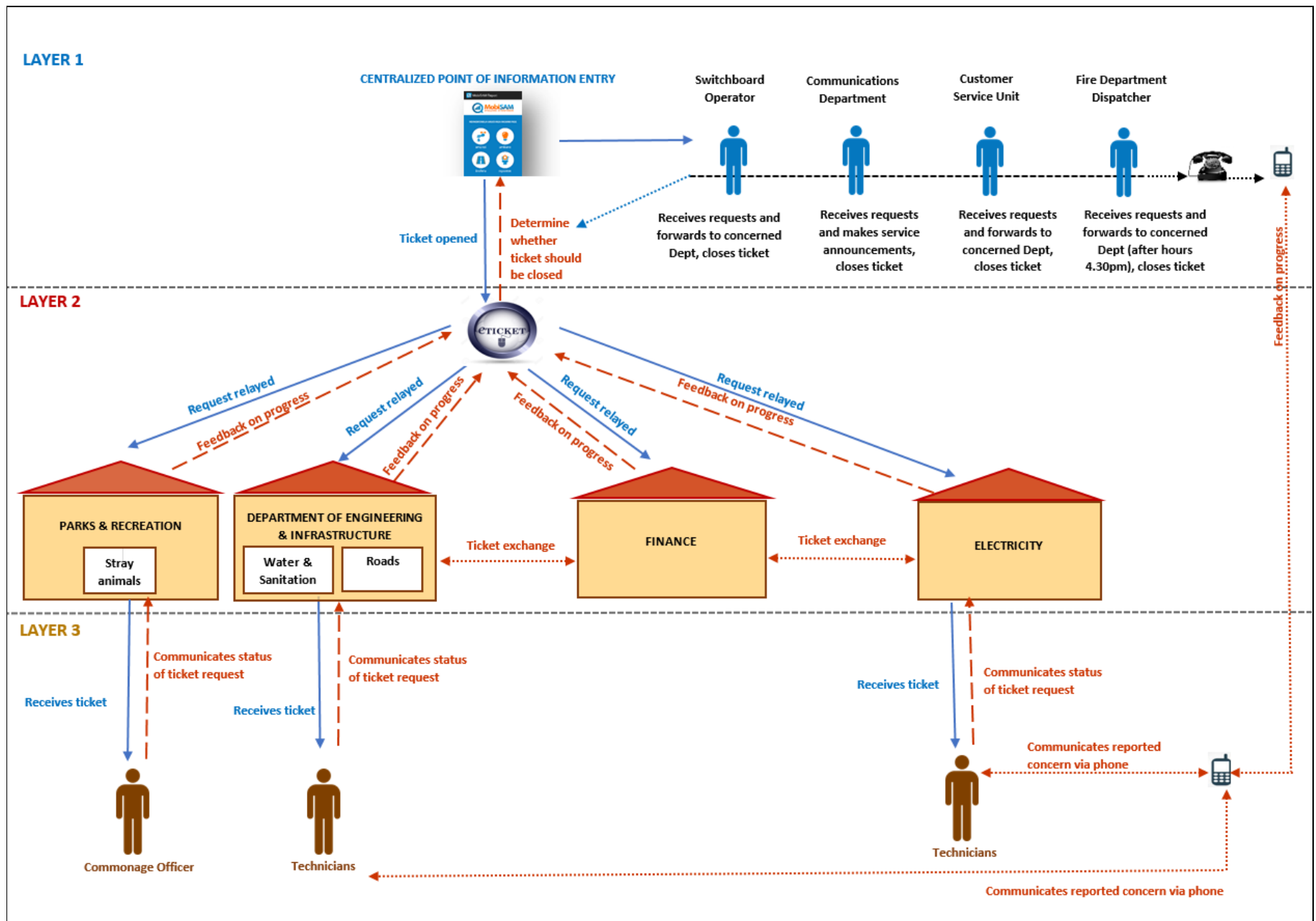


Figure 2: Service delivery reporting and feedback with MobiSAM in Makana municipality

- *Making service announcements:*

Although all members of the centralized team will be responsible for receiving complaints and forwarding them to the various functional areas, service delivery broadcasts (announcements), will primarily be the responsibility of the Communications Department – after approval from the municipal manager.

- *Closing of tickets/rerouting of tickets/:*

The centralized unit will be responsible for closing tickets after they have received communication from the departmental level (*layer 2*) that a service delivery issue has been addressed. Once a ticket is closed, the service recipient that lodged the request will be notified, along with a request to indicate the degree of satisfaction with how the service concern was addressed. Where there is an indication that the request has indeed been addressed, the ticket is closed. On the contrary, if the service recipient is not satisfied with how the reported concern was handled, the ticket will be reopened, and the explained process for handling a reported request is repeated.

A ticket may have to be routed, where it is communicated to a department, and the department comes to the realization that they are not the concerned department responsible for addressing the request. In the event that this happens, the department that received the ticket, communicates back to the centralized unit, informing them that they are not responsible for addressing the request. Once received, the centralized unit proceeds to reroute the ticket to the right department.

To add on, the centralized team will every so often communicate polls to citizens registered on MobiSAM, to rate the municipalities performance on a variety of issues, such as water quality, or electricity consistency. A poll in this case will represent short questions, to which measuring yardsticks are attached. Responses to polls will be stored, and aggregated over time in a database. It is intended that with MobiSAMs design, data accumulated from poll results will be able to be visualized in various formats – for instance heat maps, and graphs.

Layer 2

Service functional departments within MobiSAMs scope (departmental communication):

Personnel responsible:

This layer will consist of departments dealing with service issues that MobiSAM is scoped around. Departments involved will include: Parks and Recreation dealing with stray animals; Department of Engineering and Infrastructure front desk dealing with water, sanitation, and roads; the Finance Division; and the Electricity front desk. Personnel stationed at these units will be responsible for receiving open tickets, which represent reported concerns from citizens, communicated from the centralized team. Personnel operating in this layer will be responsible for:

- *Handling of opened tickets:*

Opened tickets determined by the centralized team as service reports related to the various departments are communicated to the concerned department. Tickets are viewed by the concerned department, and confirmed as relating to functions they address or not. If agreed that opened ticket is an issue department is responsible for addressing, the ticket is printed out/communicated to technician responsible for addressing issue. If it is determined that the ticket is not the responsibility of the department, the opened ticket is relayed back to the centralized team to reroute to the concerned department.

- *Feedback on ticket status:*

In the event that a ticket is communicated to technicians to go and address a service delivery concern, feedback should be provided by technicians to their departmental level, once they are done addressing the request. Once feedback has been received by departmental personnel, they are expected to also communicate feedback from technicians to the centralized division, who are responsible for closing the ticket.

- *Intradepartmental communication:*

This function is particularly integrated because of the Finance division – whose ability to address an opened ticket may require confirmation of certain information from other departments (e.g. confirmation of meter readings from water or electricity department), before they are able to address a request contained in opened ticket.

Layer 3

Communication with Technicians:

This layer consists of personnel (technician, commonage officers) responsible for literally addressing the reported service concerns. These individuals do not deal with the MobiSAM system directly, however, they are responsible for:

- *Collecting tickets from the departmental level:*

Collected ticket informs personnel in this role on service requests, which they have to go out and address.

- *Reporting on job completion/need for a job reroute:*

It is expected that once personnel in this role have completed addressing a concern, they will report back to the departmental level to inform personnel of job completion. Also in the event that it is realized that the requested job is not one they should be concerned with, they are expected to communicate this to the departmental level, who will communicate to the centralized team to reroute the service concern.

c. Reason for restructuring:

The proposal of a centralized team seeks to ensure that there is responsibility and ownership for communicated requests/concerns by citizens. A centralized team helps to avoid a chaotic situation where everybody assumes responsibility, but nobody takes ownership for received concerns.

There is agreement that requests lodged through MobiSAM will be transparent for all to see, however as has been indicated, technicians will not deal with issues, for which they have not been assigned tickets. This is to avoid a situation where more than one team of technicians coincidentally proceed to address the same service delivery issue, due to the lack of coordination among each other. For instance, each team may assume that they are the only ones who are aware of a reported concern.

The need to report addressed concerns back to the departmental level, is to ensure that the department gives feedback to the centralized team, who in turn will give feedback to the complainant by closing the ticket. This is important, as one of the concerns of citizens is the lack of feedback by the municipality on reported concerns.

It is determined that service announcements will be the sole responsibility of the communications department after the approval of announcements by the municipal manager, to avoid distortions in broadcasts that the municipality wants to communicate to the public. With only one department responsible, it is more likely that there will be consistency in messages that the municipality hopes to disseminate to the public.

How restructuring will be realized:

The leadership within Makana municipality (mayor, municipal manager, and council) will ensure that the centralized team is instituted. Subsequently, the MobiSAM team will undertake training and capacity building for the various roles that will be involved in using the MobiSAM system, based on the agreed restructuring.

Resources

Available:

Human Resource:

- i) Currently, there is a *switchboard operator, customer service personnel, two personnel in the communications department, and a dispatcher at the fire department* (after hours (4.30pm)), who will make up the centralized team that will potentially receive service requests from citizens.
- ii) Each functional area, (water, sanitation, electricity, roads, parks and recreation (stray animals), and finance) have personnel who will potentially be responsible for receiving created tickets, to be distributed to technicians.

- iii) The municipality has an Information Technology manager who is responsible for maintenance of municipal systems and networks.

Equipment:

- i) All municipal staff who work at desks have work stations (computers) provided by the municipality. Furthermore, besides the Alice dale and Riebeeck East branches, all of Makana Municipality offices are connected to the Internet (wired connection). The Municipality also has wifi access for offices within Grahamstown – however, access by staff is limited and controlled.
- ii) All municipal employees as the Baseline Study reveals own mobile phones.
- iii) A high percentage of mobile phone ownership by Makana residents.

Needed Resources:

Human Resource:

- i) With the deployment of MobiSAM, more technicians may be needed to deal with possible increased workloads, as a result of heightened reporting by service recipients.
- ii) Citizen volunteers are needed to act as champions or liaisons in their communities, helping people to register with MobiSAM and lodging complaints.

Equipment:

- i) Provision of an SMS gateway by the municipality to enable citizens who intend sending in SMS based service requests to do so free of charge.
- ii) Mediums (smart-phones/computers with internet access) to enable citizens who do not own smart mobile phones, or have access to the internet to register with MobiSAM. Equipment such as Internet connected computers may also be accessed at the local public library.

Supporting Policies, Plans and Strategies to refer to in integrating MobiSAM

- i) *Makana Municipality Communications Policy:* Intended to set a guiding framework for Makana municipality in discharging its responsibilities, as well as, to distinctly outline the institutional arrangements and existing channels of communication within Makana Municipality – and the accessibility of information to the community members, internal staff, and government sectors. It is anticipated that its enactment will ensure effective coordinated and coherent systems of communication within Makana municipality.
- ii) *Makana Municipality Communications Strategy:* This strategic plan on communication is a guideline intended to support the communication of the Municipality's values, programmes and activities to municipal residents so that they are knowledgeable about what is happening in Makana Municipality.

Furthermore, it seeks to highlight communication platforms, which can enable feedback from, and participation of municipal resident in local government processes.

- iii) *Makana Municipality Information Technology (IT) Master Systems Plan*: This is a clear 5 year road map that provides an indication and direction of what IT projects are anticipated in the projected 5 year period.

Challenges/Risks of integrating MobiSAM

- i) *Potential resistance to change by municipal employees who are accustomed to a particular way of doing things/technophobia*: It should be anticipated that Makana municipality employees may feel uncomfortable with changes to how they are routinely accustomed to handling service delivery requests. Changing the mindsets of employees to accept new forms of operation will require persistence, therefore patience is required. Resistance may also be attributed to possible technophobia (fear of technology use), or possible worry about the amount of cognitive learning that will be required to make use of the MobiSAM system. Technophobia concerns do not only relate to municipal employees, but citizens as well. Therefore, it is imperative to ensure that the reason for the proposed change in routine is clearly communicated to employees by departmental heads. Also, continuous training and capacity building for both employees, and citizens in the use of the system is important.
- ii) *Hands off approach by municipal management and leadership*: MobiSAM hopes to avoid a scenario where leaders within Makana municipality are not hands-on in ensuring that the new mode of operation, which MobiSAM will support, is adopted, as well as, ensuring that it becomes the norm over time. Leadership monitoring and drive is key to propelling and stabilizing the change needed for MobiSAM to successfully support the operational functions for which it is being deployed.
- iii) *Reputation/image deterioration for both MobiSAM/Makana municipality*: The municipality's reputation/image may be further damaged where reports are communicated through the MobiSAM system, but not addressed by the municipality. Furthermore, this flawed reputation will also affect the MobiSAM brand, as it has been repeatedly indicated by the MobiSAM team that the local government will respond or provide feedback on lodged/communicated requests. Hence, local government must be aware that while they hope to realize an enhanced image – ignoring or not responding to reported requests will result in a deteriorated image.
- iv) *Unstable Internet connection*: MobiSAMs effective functioning within the municipality office is contingent on a stable Internet connection. Plans need to be put in place to ensure that Makana municipality's sometimes sporadic Internet connection becomes more stable.

- v) *Purpose of MobiSAM misconstrued:* It is important to note that the purpose of MobiSAM is not to undermine local government, or constantly accuse the government, as some ICT tools are used for by civil society in other countries. Such an agenda does not further anyone's goals. It should continuously be stressed that the hope is that the system will be used for communication, and constructive and meaningful engagement with and by the local government.
- vi) *Identified groups not convinced about MobiSAMs relevance due to scope limit:* Interaction with representatives of some marginalized groups within Makana municipality believe that MobiSAM does not address service concerns deemed most relevant to them. For instance, it is indicated that crime should have been considered as part of the scope of service delivery concerns MobiSAM hopes to help reporting with. The argument made here is further elaborated, with statements suggesting that electricity is handled by ESKOM and not the municipality, and as such, lodging electricity reports with the municipality is pointless. Having certain sectors of the society thinking this way may demotivate such groups from engaging in active reporting using the MobiSAM system. Awareness and capacity building campaigns by MobiSAM should continuously stress that the municipality serves as an intermediary in receiving electricity related concerns on behalf of ESKOM, thus making MobiSAMs inclusion of electricity relevant. Furthermore, community members should be made to realize that most projects, commence with pilots, which aid in monitoring the extent of the long-term feasibility of the project. When it is determined that the project is indeed feasible for the long term, then it can be scaled to include other service delivery concerns (e.g. crime). Lastly, the project may want to consider engagement with certain private sector stakeholders that have not been considered (for instance, ESKOM, and Amathola Water).
- vii) *Internet access concerns and cost issues for marginalized groups:* Although Makana municipality possesses communication infrastructure (internet connection and computer equipment) that enables it to communicate with citizens, it should be noted that not all citizens are privileged to access such communication channels to support their purposed engagement with local government. The current socio-economic state of the municipality leaves about 24.2% of its residents below the poverty line (Thinyane, 2013). Hence, there are disenfranchised sections of Makana where people are not able to afford ICT tools, or airtime/data to make use of MobiSAM. Equity demands that the voices of such groups be included in civic engagement. Therefore, to ensure the inclusion of such groups, MobiSAM hopes to collaborate with a number of intermediaries, and active community members to help marginalized groups in registering, as well as, reporting their service concerns.
- viii) *Privacy concerns:* Adoption of MobiSAM by some citizens could be affected by privacy related concerns. Some citizen groups expressed concerns about the prospect of having their addresses displayed on the internet in the event that

they lodged service requests through the MobiSAM platform. It must continuously be expressed to citizens that the view of service delivery that will be available for all to see will not include sensitive information like addresses of service recipients lodging requests. Only municipal employees will have administrative privileges to view addresses.

- ix) *Possible challenges with interpreting aggregated data:* Interaction with civil society and active citizens reveal concern about the ability of certain demographics to interpret potential aggregated data that will be produced by mass reporting and poll participation. MobiSAM hopes to counter this by featuring a representative to discuss results, and answer questions about aggregated data accumulated over a period of time – and illustrated through various visual forms (charts, heat maps, graphs, etc.).

7. Measuring the achievements of objectives

7.1 Costs/Benefits of integrating MobiSAM

In this section, the possible costs and benefits of integrating MobiSAM are articulated for both Makana municipal organization, as well as for the citizens. Tables 4 and 5 present the costs and benefits for the municipality and for citizens respectively.

Table 4: Costs/benefits of the municipality in integrating MobiSAM

Costs	Benefits
1. Time dedication: Time will have to be dedicated to learn to use the MobiSAM application. Becoming familiar with the application will require employees to spend time in training, as well as in practice.	1. Improved internal communication: With the anticipated restructuring of service delivery reporting and handling, and the integration of MobiSAM, it is believed that there will be more efficient receipt of service delivery requests, by the handling department/personnel. Furthermore, it is believed that there will be adequate feedback provision on reported service concerns.
2. Possible need of more technicians: More technicians may need to be employed to deal with the expected increase in service related complaints from citizens. Hiring more technicians may present a financial burden to the municipality.	2. Responsibility and accountability can be relegated: With the proposed service delivery reporting and handling process, particular personnel are deemed responsible for receiving, and distributing service concerns. As such, accountability and responsibility can be better checked.
3. Provision of an SMS gateway by the municipality: This may be needed – to enable citizens who intend sending in SMS based service requests to do so free of charge.	3. More understanding citizens: It is believed that with feedback and enhanced communication on the status of reported service concerns citizens will be more understanding of constraints local government may have to deal with in addressing service concerns. Also increased service broadcasts helps the municipality to communicate concerns that they hope to relay to the general public. This will significantly enhance awareness.
4. Possible cost to productivity in the interim: It is planned that in the interim, before the MobiSAM website goes live that Facebook will be unblocked for personnel in the communications department. This may possibly cost the municipality in productivity – where staff decide to spend more time on Facebook communicating with friends as opposed to carrying out their occupational obligations.	4. Possible image enhancement of the municipality: Where communication and response to service concerns are efficient, the municipality's image will be enhanced as perceived by citizens. For instance, the municipality will be viewed as fulfilling their mandate, and trust for them will increasingly be built.
5. Possible cost to Municipal image: The municipal image may be negatively affected, where the municipality does not respond to, or adequately address reported service requests – as a result creating the perception that they are not responsive.	5. Evidence based data aggregation: With service concerns and views collected from service recipients, and aggregated over time, there will be increased evidence based data to negotiate with the national government for increased funding.
6. System in place: The municipality must be willing to accept that change is inevitable, and that some old modes of operation and addressing tasks may need to be changed. For instance, it has been proposed that the current mode of reporting service requests be modified.	

Table 5: Costs/benefits to civil society and citizens in integrating MobiSAM

Costs	Benefits
<ol style="list-style-type: none"> Time dedication: Time will have to be dedicated by civil society and citizens to attend training workshops, to attend meetings, to organize awareness workshops related to social accountability monitoring and the use of the MobiSAM application. Financial costs: MobiSAM's reliance on airtime or Internet connection will require that citizens and civil society purchase airtime/data, in order to make use of the application (where the municipality does not consent to the project teams request to purchase an SMS gateway to support SMS communications). Possible reprisal for speaking out: Citizens must be mentally prepared to deal with possible reprisals that will take place as a consequence of demanding for their rights. Change in mindset: Municipal residents must be willing to give up some traditions/beliefs (culture)/practices in order to become actively engaged in social accountability monitoring. For instance, the idea amongst citizens that only traditional leaders can challenge or hold local government accountable should be changed. 	<ol style="list-style-type: none"> Possibly improved feedback and more effective handling of reported concerns: With the anticipated restructuring of service delivery reporting and handling, and the integration of the MobiSAM system, it is believed that there will be more efficient receipt of service delivery requests, by the handling department/personnel. It is hoped that this expected improvement will result in improved feedback to citizens, as well as enhanced government responsiveness in addressing reported concerns. Possibly increased participation in local government decision making: It is hoped that with aggregated data that will form the base for evidence based engagement with the local government, citizen's views, and ideas will be taken more into consideration to inform planning, budgeting and local government project implementations. This will hopefully result in more satisfied citizens. Increased awareness of human rights: With the civic education awareness campaigns being planned alongside the MobiSAM project, it is anticipated that citizens will become more aware of their rights, and as such become empowered to make demands more boldly, while being more informed. Better positioned to hold the government accountable: With accumulated data that will potentially be provided through MobiSAM, civil societies engagement with local government is better supported (with evidence), thus increasing the prospect of holding the government accountable.

7.2 Key performance indicators for measuring objectives

A number of key performance indicators (KPI) are brainstormed on by MobiSAM strategy workshop participants. This brainstorming process resulted in a number of KPI suggestions, to support monitoring of objectives, MobiSAM hopes to achieve. Tables 5 present KPI's for identified objectives. It should be noted that it is agreed that these KPI's are preliminary, and will be subject to refinement.

Table 5: Key performance indicators to monitor objectives achievement.

Objective	Key performance indicator
1. Improving two way communication between the municipality and citizens:	<ol style="list-style-type: none"> Extent of perceived satisfaction with local government response to lodged complaints. This can be achieved by conducting a post evaluation after ticket has been closed. Number of tickets closed as a percentage of number of tickets opened within a particular time frame.
2. Increased government responsiveness (More direct feedback and improved service delivery)	<ol style="list-style-type: none"> Extent of perceived satisfaction with local government response to lodged complaint. (Post evaluation after ticket has been closed).

Objective	Key performance indicator
3. <i>Improving the internal communication of reported service delivery requests – through streamlining communication within the municipality.</i>	<p>i) <i>Reduction in time between when a service concern is received by the centralized unit, and when it is received by the concerned functional area.</i></p> <p><i>Perceived extent of improved internal communication through qualitative accounts of employees.</i></p>
4. <i>Training of municipal staff and citizens to use the MobiSAM application:</i>	<i>Perceived usefulness and perceived ease of use of MobiSAM platform by municipal staff and citizens.</i>
5. <i>Promotion of a more transparent local government, as well as, accountability by the local government, and Social Accountability Monitoring (SAM) by citizens</i>	<p>i) <i>Qualitative assessment with civil society and citizens on the extent of ease with which local government budgets, plans, and expenditure documents are accessible (ease of accessibility).</i></p> <p>ii) <i>Published communications policy by the municipality, indicating minimum standards that the municipality will adhere to, (For instance, revealing in the published policy what municipal documents will be accessible to the public).</i></p> <p>iii) <i>Local government publishing of citizen satisfaction surveys, as well as publishing of details of actions resorted to address citizen's highlighted concerns.</i></p>
6. <i>Increased citizen participation in local government decision making</i>	i) <i>Local government publishing of number of participatory meetings held in a particular year, number of civil society/citizens in attendance (including ward level), demographics of attendees, agendas deliberated on, and decisions reached.</i>
7. <i>Evidence based engagement with the national government:</i>	<p>i) <i>Number of recorded meetings with national government to dialogue about increased funding.</i></p> <p>ii) <i>Success rate of dialogue with national government. For instance, funding provided by national government as a result of presented evidence based data.</i></p>
8. <i>Learning and knowledge management to support replication, as well as, scaling of the project to other local governments</i>	<p>i. <i>Geographic expansion of the project</i></p> <p>ii. <i>Strategies developed for the implementation of digital citizen engagement in local government.</i></p> <p>iii. <i>An Operational Model for scaling the project</i></p>

8. Commitments made by Citizens and Civil Society

At the strategy formulation workshop conducted for citizens and civil society, a number of commitments were made by several attending organizations. MobiSAM hopes to partner with these organizations and active citizen groups to ensure a wide reach, as well as, to support

effectiveness of the mandate for which MobiSAM exists. Table 6, lists commitments made by these groups.

Table 6: Commitments made by civil society and active citizen groups

ORGANIZATION/ENTITY	COMMITMENT/S MADE
<i>Radio Grahamstown</i>	<ul style="list-style-type: none"> Commits to providing radio airtime to inform and educate people about civic rights, and MobiSAM. Makhaya hosts a show on Wednesday that addresses local government issues.
<i>Umthathi Training Project</i>	<ul style="list-style-type: none"> Commits to encourage people in the community to report service related concerns using MobiSAM. Commits to deploy Umthathi champions to help register more marginalized community members on MobiSAM, as well as, help to report service concerns using MobiSAM. Commits to provide a training centre for MobiSAM related advocacy training workshops with community members and high school students.
<i>Legal Resources Centre</i>	<ul style="list-style-type: none"> Commits to aid in litigation (an action brought in court to enforce a particular right of a person or group) issues, whereby rights of citizens are being infringed upon.
<i>FAMSA</i>	<ul style="list-style-type: none"> Commits to organize workshops in the communities to create awareness about MobiSAM.
<i>Unemployed Peoples Movement (UPM)</i>	<ul style="list-style-type: none"> Commits to introduce and encourage community members to report service concerns using MobiSAM. Commits to aligning MobiSAM with Ushahidi – where members of the young womens forum employ technology to identify community concerns. Commit to publishing MobiSAM related news in their newsletter.
<i>Joza youth hub</i>	<ul style="list-style-type: none"> Commits to organizing workshops to introduce/create awareness of MobiSAM
<i>Grahamstown Residents Association (GRA)</i>	<ul style="list-style-type: none"> Commits to publicizing MobiSAM on their social media platform, and column in Grocotts Mail. Also, commit to advertising MobiSAM in their forums, and newsletter.
<i>Public Service Accountability Monitor (PSAM)</i>	<ul style="list-style-type: none"> Commits to providing training in SAM, and helping people to register on MobiSAM.
<i>Rhodes University Community Engagement (RUCE)</i>	<ul style="list-style-type: none"> Volunteering their community based organization partners to get trained on how to use MobiSAM – in order for these partners to help train community members.

Actors	Important resource	Replaceable	Dependency: Limited/Medium/High	Critical actor: Yes/No
MAVC	<i>Funding</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
Municipal manager	<i>Power and influence</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
Director (DEIS)	<i>Power and influence</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
Ward councillors	<i>Power and influence</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
Operations Manager (DEIS)	<i>Knowledge on service delivery processes and influence.</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
Electricity department manager	<i>Knowledge on service delivery processes and influence.</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
Technical services, water and sanitation manager	<i>Knowledge on service delivery processes and influence.</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
Roads manager	<i>Knowledge on service delivery processes and influence.</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
Communications officer	<i>MobiSAM champion</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
Centralized team (receive service concerns)	<i>Responsible for proposed business process for MobiSAM to function</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
Front desk of various departments (water, sanitation, electricity, roads, finance, and parks and recreation)	<i>Responsible for proposed business process for MobiSAM to function (receives tickets from central unit).</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
<i>Citizens and Civil society actor analysis</i>				
Actors	Important resource	Replaceable	Dependency: Limited/Medium/High	Critical actor: Yes/No
Grocotts mail	<i>Credibility with citizens as an information source</i>	<i>Yes</i>	<i>Medium</i>	<i>No</i>
PSAM	<i>Knowledge on Social Accountability Monitoring.</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
LRC (Legal Resource Centre)	<i>An understanding of filing litigation process where local government defaults</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
Grahamstown Residents Association (GRA)	<i>Civil society</i>	<i>Yes</i>	<i>Medium</i>	<i>No</i>
Makana Library	<i>Information hub and internet access medium for marginalized groups</i>	<i>Difficult to replace</i>	<i>High</i>	<i>Yes</i>
UPM	<i>Civil society possessing public trust.</i>	<i>Yes</i>	<i>Medium</i>	<i>No</i>
FAMSA	<i>N.G.O possessing public trust.</i>	<i>Yes</i>	<i>Medium</i>	<i>No</i>

Umthathi	<i>N.G.O possessing public trust.</i>	<i>Yes</i>	<i>Medium</i>	<i>No</i>
Active citizen	<i>Voice when used collectively with other citizens (critical mass)</i>	<i>Not replaceable when used collectively</i>	<i>High (when used collectively)</i>	<i>Yes</i>
Kowie Catchment Campaign	<i>Promote networking of stakeholders interested in preservation and health of water resources</i>	<i>Yes</i>	<i>Medium</i>	<i>No</i>
Eastern Cape Communicators Forum	<i>Promote networking of media stakeholders interested in dissemination of information to the masses</i>	<i>Yes</i>	<i>Medium</i>	<i>No</i>
Radio Grahamstown	<i>Credibility with citizens as an information source</i>	<i>Yes</i>	<i>Medium</i>	<i>No</i>
RMR	<i>Credibility with citizens as an information source</i>	<i>Yes</i>	<i>Medium</i>	<i>No</i>
St Mary's Day Care and Development Centre	<i>N.G.O possessing public trust.</i>	<i>Yes</i>	<i>Medium</i>	<i>No</i>
Joza Youth Hub	<i>N.G.O possessing public trust.</i>	<i>Yes</i>	<i>Medium</i>	<i>No</i>

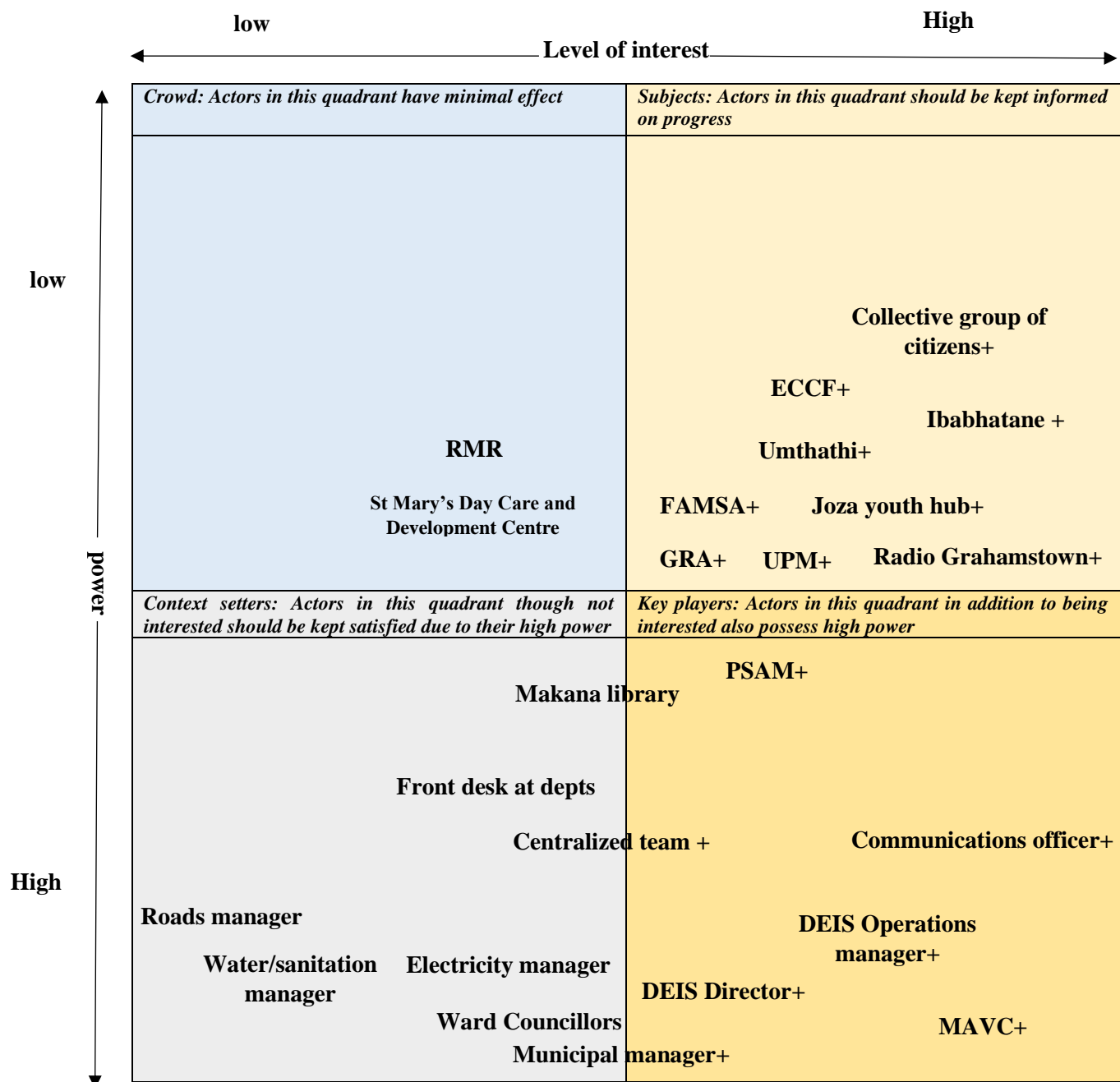


Figure 1: Power/Interest Matrix depicting interdependencies MobisAM seeks to rely on, adapted from Enserink et al., (2010).

In the matrix depicted in Figure 1, power is used to represent the extent to which resources possessed by an actor is deemed crucial to solving the problem. Interest as represented on the matrix, refers to the extent to which an actor anticipates that they will be negatively or positively affected by the problem's possible solutions, and as such are keen (dedicated) to support, or adamant about hindering progress. As can be observed, along the vertical line, the power spectrum runs from low to high. Similarly along the top horizontal line, the interest matrix runs from low to high. Actors in the upper left quadrant are thought to have minimal

interest as reflection on the project to this point suggests. Stakeholders in this quadrant consisting of a Media outlet and an N.G.O, were invited to participate in MobiSAM related workshops, however they declined. These stakeholders are also thought to have lower power status, due to the fact that they can be replaced, considering that there are other NGOs and media outlets in Grahamstown that can be consulted. Stakeholders in the upper right quadrant in terms of power are thought to also have less power, nonetheless they are thought to be interested in the project. These group of stakeholders consisting of civil society, the media, and NGOs attended workshops organized by MobiSAM, and have infact made commitments, to support the project. Actors in the lower left quadrant are primarily employees of the local government, and while thought to be important to the project have not displayed the utmost enthusiasm towards the project. These stakeholders have not availed themselves for interviews, neither have they made the effort to attend workshops organized by MobiSAM aimed at understanding and strategizing on how the platform will function within the municipality. The lower right quadrant consists of actors that are considered to be powerful and have been supportive of or continuously displayed interest in the project. They are mainly comprised of; civil society (PSAM), which is the only social accountability focused organization in Grahamstown, the Legal Resource Centre the only litigation outfit that MobiSAM can work with in Makana, MAVC (funders), and some senior personnel from within the municipal organization.

Commitment made by citizens/civil society

Organization/entity	Commitment made
Radio Grahamstown	<i>Commits to providing radio airtime to inform and educate people about civic rights, and MobiSAM. (Makhaya (hosts a show on Wednesday that addresses local government issues).</i>
Umthati	<i>Commits to encourage people in the community to report service related concerns using MobiSAM.</i>
FAMSA	<i>Commits to organize workshops in the communities to create awareness about MobiSAM.</i>
Unemployed Peoples Movement (UPM)	<ul style="list-style-type: none"> <i>Commits to introduce and encourage community members to report service concerns using MobiSAM.</i> <i>Commits to aligning MobiSAM with Usahandi – where members of the young womens forum employ technology to identify community concerns.</i> <i>Commit to publishing MobiSAM related news in their newsletter.</i>
Joza youth hub	<i>Commit to organizing workshops to introduce/create awareness of MobiSAM</i>
Grahamstown Residents Association (GRA)	<i>Commits to publicizing about MobiSAM on their social media platform, and column in Grocotts Mail. Also, commit to advertising MobiSAM in their forums, and newsletter.</i>

Public Social Accountability Monitor (PSAM)	<i>Commits to providing training in SAM, and helping people to register on MobiSAM.</i>
LRC (Legal Resource Centre)	<i>Commits to aid in litigation (an action brought in court to enforce a particular right of a person or group) issues, whereby rights of citizens are being infringed upon.</i>

List of Municipal Employees to be targeted for MobiSAM baseline survey exercise

Name of Participant	Affiliated Department	Description of duties
Ms Yoliswa Ramokolo	Communications department	Deal with a lot of complaints, forum organization responsibilities, writing of articles and newsletters, facilitating communication between departments as well as with external stakeholders.
Mr Lwando Helesi	Communications department	Deal with a lot of complaints, forum organization responsibilities, writing of articles and newsletters, facilitating communication between departments as well as with external stakeholders.
Whoever is on duty	Fire department	Receive complaints
Babalwa, Lorrane, and Bongani	Technical services (front desk)	Receive complaints related to (Water and sanitation, electricity, roads and housing)
Ms Ntombi Tshicilele	Technical services (Water and Sanitation Manager)	Receive complaints related to (Water and sanitation, electricity, roads and housing)
Mr Dali Mlenzana	Technical services (Director)	Receive complaints related to (Water and sanitation, electricity, roads and housing)
Mr Gustav Goliath	Technical services (Operations manager)	Receive complaints related to (Water and sanitation, electricity, roads and housing)
Names not indicated yet (6)	Technical services (6 plumbers)	Attending to water service complaints
Names not indicated yet (12)	Technical services (12 semi-skilled plumbers)	Attending to water service complaints
Mr Mthuthuzeli Mhlaba Mr Sithembele Tutuse	Technical services (2 road technician)	Attending to road related issues
Mr Xhanti Bokwe	Technical services (numbers of electricity technician unknown)	Attending to electricity related issues
Ms Noluthando Santi	Manager office of the speaker	Communication with the councilors, ward community members based in wards, and community development workers (CDWs)
Mr Vumile Nxamleko, Mr Luyolo Nogxabela	Housing department	Deal with housing related issues
Mr Zukisani Kewuti	Customer Care Unit	Deal with complaints related to the technical division.

MobiSAM Baseline Questionnaire 2016

Please answer all the questions in the space provided or tick where appropriate.

Section 1 deals with basic demographic information; **section 2** deals with your cellphone usage habits; **section 3** deals with your access to social media; **section 4** relates to your interest in news items and current affairs; **section 5** deals with your access to local media; and **section 6** relates to your service delivery satisfaction and current participation within local government matters.

Please note: no personally identifiable information will be linked to your answers.

Section 1 – Demographic Information

1. What is your gender?

☐

Male

☐

Female

2. In which age group do you belong?

☐

18 – 30 years

☐

31 – 45 years

☐

46 – 60 years

☐

Over 60 years

3. Which of the following are you able to do in your preferred language? (tick all that apply to you)

☐

Read

☐

Write

☐

Speak

4. Which area within the Makana municipality do you reside?

☐

Riebeek East

☐

Grahamstown

☐

Salem

☐

Alicedale

☐

Seven
Fountain

☐

Sidbury

☐

Fort Brown

5. How long have you lived within the Makana (Grahamstown) municipality?

☐

Less than 1
year

☐

1 – 5 years

☐

6 – 10 years

☐

Over 10 years

6. What best describes your current employment status?

☐

Working full-time

☐

Working part-time

☐

Student

☐

Temporarily employed

☐

Homemaker full-time

☐

Other (please specify)

☐

Retired

☐

Self employed

Other:

Section 2 – Cellphone Usage Information

7. Do you own a cellphone?

☐

Yes

☐

No

8. If no, do you have access to a cellphone that you can use regularly?

☐

Yes

☐

No

If **No** to **Question 11**, please skip to **Section 3**.

9. What brand is your current cellphone?

☐

Nokia

☐

Samsung

☐

Motorola

☐

Sony Ericsson

☐

LG

☐

BlackBerry

☐

Other:

Model: (Please ask for help if you don't know)

To be filled out by interviewer ONLY:

Picture
taken:

Yes

No

Date & time photo was taken:

10. Who is your cellphone network operator?

☐

Vodacom

☐

MTN

☐

Cell C

☐

Virgin Mobile

☐

Telkom Mobile

☐

Other (please
specify)

Other:

11. Is your cellphone on pre-paid (e.g. Pay-As-You-Go) or contract?

☐

Pre-paid

☐

Contract

12. If **pre-paid**, please specify how much airtime you spend per week, on average.

☐

Less than R5

☐

R5 – R15

☐

R16 – R30

☐

More than R30

☐

I don't know

13. If **contract**, please specify how much you spend per month.

R

☐ I don't know

14. On your phone what do you use the following languages for? (You may tick more than one option)

	Phone calls	SMS	Instant messaging e.g. WhatsApp	Social networkin g e.g. Facebook	Listening/ watching audio and video	Creating audio and video	Accessing webpages	Publishing online content (e.g. blogs)	Other (specify)
English									
Afrikaans									
isiXhosa									
Other (specify)									

15. Do you access any of the following services from your cellphone? (You may tick more than one option)

☐ Facebook

☐ Twitter

☐ News

☐ E-mail

☐ Wikipedia

☐ Other (please specify)

Other:

16. How often do you access these services from your cellphone?

☐ At least once a day

☐ A few times a week

☐ A few times a month

☐ Never

17. Have you ever installed an application on your cellphone using its application store? (e.g. Google Play, Nokia Store, BlackBerry World, AppStore)

☐ Yes

☐ No

☐ I don't know

Section 3 – Media Access

18. Where do you engage with the following? (You may tick more than one option.)

	My home	My work/ school	Public places (e.g. library, bar, internet café)	Car/taxi	Friends' and families' homes (e.g. In a friend's room, at a relative's or neighbour's house)
Newspapers					
Magazines					
Radio					
TV					
Web browsing on a computer					
Mobile device (phone, tablet, etc.)					

19. When did you last access the following online sites?

	At least once a day	A few times a week	A few times a month	A few times a year	Never
Grocott's Mail Online					
Mobisam					
Makana Municipality online					
Grahamstown.co.za					
Grahamstown Parents Network					
Daily Dispatch					
The Herald					
Die Burger					
South African online news sites/blogs (e.g. IOL.com, news24.com)					
International online news sites (e.g. <i>Guardian</i> , BBC World, CNN)					
Facebook: i.e. pages about Grahamstown					
Blogs about Grahamstown: (Embizweni; Ukufunda; Tonic; Artbeat046)					
National/regional/international blogs					
Online sites about Grahamstown					
Grahamstown Outoilet					
Whatsapp					
WeChat					
MXit					
Google+					
Skype					
Instagram					
Youtube					
LinkedIn					
Wikipedia					
Snapchat					
MobiSAM					
Other (Please specify)					

20. Which local Facebook group(s)/ page(s) are you a member of (or are you following)?

.....

.....

.....

21. What devices do you use? (You may tick more than one option)

	My own	Someone else's	Do not Own
Tablet (iPad, Samsung Galaxy Tab etc.)			
PC			
Laptop			
Mobile modem			
Flash Stick/ Flash drive e.g. 16Gig			
Large hard drive 100Gig+			
DVD player with USB slot			

Section 4 – Media Content

22. Please rate your interest in the following types of news.

	Not interested	Interested	Very interested
Neighbourhood/ Residential news and current affairs			
Makana news and current affairs			
Provincial/regional news and current affairs			
National news and current affairs			
International news and current affairs			

Section 5 – Local Media Access

Grocott's Mail:

23. Have you read the *Grocott's Mail* in the last six months?

☐ Yes

☐ No

24. If you have NOT read *Grocott's Mail* newspaper, why not?

- ☐ I can't afford it ☐ Its coverage is of no interest to me ☐ I don't read newspapers
- ☐ It's not sold in my area ☐ It's not relevant for people of my age
- ☐ Other (specify)
-
-

Radio Grahamstown:

25. Have you listened to Radio Grahamstown in the last six months?

- ☐ Yes ☐ No

26. If you DO NOT listen to Radio Grahamstown regularly, why not? You may tick more than one option.

I don't have access to a radio receiver	
I can't access the frequency where I live	
Its coverage is of no interest to me	
It is not relevant for people of my age	
It is not relevant to people of my gender	
It is not relevant to people who speak my language	
It is not relevant because I don't live in Grahamstown	
It is not relevant to people who share my background	
I don't listen to radio	
I am not aware of it	
Other (specify)	

RMR

27. Have you listened to Rhodes Music Radio in the last six months?

- ☐ Yes ☐ No

28. If you Do Not listen to RMR, why not?

I don't have access to a radio receiver	
I can't access the frequency where I live	
Its programming is of no interest to me	
It is not relevant for people of my age	
It is not relevant to people of my gender	
It is not relevant to people who speak my language	
It is not relevant to people who share my background	
I don't listen to radio	
I am not aware of it	
Other (specify)	

Section 6 – Service Delivery Satisfaction & Current Participation

29. Are you a member of a Civil Society Group/ Esebenzayo?

☐ Yes

☐ No

30. Which organised group(s) are you a member of? Please list

☐ Grahamstown Residents Association (GRA)

☐ Makana Coalition

☐ FAMSA

☐ Other (please specify)

☐ Black Sash

☐ Black Student Movement

☐ Unemployed Peoples Movement (UPM)

☐ Right 2 Know – Grahamstown

☐ Young Women's Forum

.....

.....

31. How satisfied are you with the delivery of the following services in your area?

Service	Very Satisfied	Fairly Satisfied	Not satisfied	Not at all satisfied	I don't know
Electricity					
Water					
Sanitation					
Refuse Removal					
Parks and Recreation facilities					
Roads and Sidewalks					
Housing					

32. Did you vote in any of the following **local government** (municipal) elections?

☐ 1995

☐ 2000

☐ 2006

☐ 2011

33. If you DID NOT vote in one or more of the above elections, please indicate why below:

☐

I was not registered to vote

☐

I did not want to vote

☐

I was unable to vote

☐

I don't know

☐

Other

Please specify:

.....

34. Do you know the Ward Councillor for your area?

☐

Yes

☐

No

35. Do you know how to contact your Ward Councillor?

☐

Yes

☐

No

36. How do you contact your Ward Councillor?

☐

Telephone/Mobile

☐

Email

☐

Face-to-face

☐

Other (please specify)

.....

37. Do you know the Community Development Worker for your area?

☐

Yes

☐

No

38. Do you know how to contact your Community Development Worker?

☐

Yes

☐

No

39. How do you contact your Community Development Worker?

☐

Telephone/Mobile

☐

Email

☐

Face-to-face

☐

Other (please specify)

.....

40. How are public forums advertised in your ward?

☐

Phone call

☐

Email

☐

Paper Notices

☐

Loud Hailers

☐

Facebook

☐

WhatsApp

☐

Other (please specify)

.....

41. Are public forums in your ward advertised well?

☐

Yes

☐

No

☐

I don't know

42. Have you ever attended a meeting organised by your ward committee/municipality?

☐

No, never

☐

Yes, once or
twice

☐

Yes, often

☐

I don't know

43. If YES, which public forums/meetings have you attended

Type of meeting	Yes	No	Sometimes	I don't know
Ward committee				
Council meetings				
Integrated Development Planning (IDP)				
Community Police Forum				
Neighbourhood Organisations				
Municipal budgets & finance				
Water & Sanitation Forum,				
Communications Forum				
Other (Specify)				

44. What is the reason for such attending meetings?

.....

.....

.....

.....

45. What is the reason for not attending meetings?

- | | |
|---|--|
| <input type="checkbox"/> I don't have transport | <input type="checkbox"/> I don't have any information about the meetings that are held |
| <input type="checkbox"/> I don't have the time | <input type="checkbox"/> It will make no difference, nothing will change |
| <input type="checkbox"/> They will not listen to my opinion | <input type="checkbox"/> There are no meetings/they are not active in this area |
| <input type="checkbox"/> I am not interested | <input type="checkbox"/> I don't know |
| <input type="checkbox"/> I don't trust the meetings | <input type="checkbox"/> I am not aware of these meetings |
| <input type="checkbox"/> They are not visible to us | |
| <input type="checkbox"/> I have not thought about it | |
| <input type="checkbox"/> Other (Please Specify) | |

.....

46. Have you ever read a copy of the following documents produced by Makana municipality?

	Yes	No
Integrated Development Plan (IDP)		
Budget		
Service Delivery Budget Implementation Plan (SDBIP)		
Annual Report		
Auditor-General's Report		
Makana Newsletter		

47. If you have never read a copy of these documents, why? (Tick the main reason)

- | | | |
|---|---|--|
| <input type="checkbox"/> I don't know what they are | <input type="checkbox"/> I have never heard of them | <input type="checkbox"/> I could never get a copy |
| <input type="checkbox"/> I'm not interested in reading them | <input type="checkbox"/> I cannot understand them | <input type="checkbox"/> There is no point in reading them |
| <input type="checkbox"/> Don't know where to find them | | |
| <input type="checkbox"/> Other | | |
- Please specify:

.....

48. When there are problems in how local government is run in your area, how much do you think an ordinary person can do to improve the situation?

- | | | |
|---------------------------------------|---|-------------------------------|
| <input type="checkbox"/> Nothing | <input type="checkbox"/> A small amount | <input type="checkbox"/> Some |
| <input type="checkbox"/> A great deal | <input type="checkbox"/> I don't know | |

49. How do you contribute your views on public matters?

- | | |
|---|---|
| <input type="checkbox"/> Speak to a relative or friend | <input type="checkbox"/> Attend policy forums |
| <input type="checkbox"/> Write a letter/email/feedback forms/visit the concerned office to complain | <input type="checkbox"/> Use social media |
| <input type="checkbox"/> Other (please specify) | |

.....

.....

50. What constrains participation with local government on your part?

- | | |
|--|--|
| <input type="checkbox"/> Don't have time | <input type="checkbox"/> Don't know how |
| <input type="checkbox"/> Don't think it will make a difference | <input type="checkbox"/> Don't understand issues or language frequently used |
| <input type="checkbox"/> Other (please specify) | |

.....

51. Please tell me whether you agree or disagree with the following

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
People like me do not have any influence over what the government does					
Politicians do not care much about what people like me think					

52. Have you ever made a complaint (direct/indirectly) to your local municipality? (tick as many as are applicable)

No, I have never made a complaint	
I phoned someone at the municipality	
I made the complaint via legal clinic/organised group	
I made the complaint via MobiSAM	
I signed a petition	
I raised the issue with my Ward Councillor	
I made the complaint via local newspaper	
Grahamstown Municipal Services Outage Reporting Facebook page	
I spoke with somebody in the municipality	
I wrote a letter	
I emailed someone at the municipality	

53. Have you ever reported poor service delivery to anyone outside the municipality?

☐ Yes

☐ No

If YES, please select the ones you have reported poor service delivery to:

☐ The media

☐ The police

☐ Presidential Hotline

☐ Public Service Commission Hotline

☐ Public Protector

☐ Auditor-General

☐ South African Human Rights Commission

☐ Advice Offices, NGOs

☐ LegalAidSA

☐ Other

Please specify:

.....

54. Is there a mechanism for feedback on complaints in your ward or municipality in general? If yes, please specify.

☐ Yes

☐ No

☐ I am not aware of any feedback and complaints mechanisms in my county

If yes, please specify:

.....

55. Are complaints and/or feedback dealt with promptly in your Ward?

☐ Yes

☐ No

☐ I have not provided any feedback or complained on any service delivery issue

56. Have you taken part in a protest or demonstration in the last 12 months?

☐ Yes

☐ No

~ The questionnaire is now completed. Thank you for your time~

MobiSAM project

Rhodes University is starting a project to begin monitoring service delivery projects in Makana municipality. Would you like to be a part of this project?

☐ Yes

☐ No

If yes, please provide your contact details below. Your questionnaire responses will not be linked back to you.

First Name:

Cellphone

number/Email:

Ward/Area:

.....

.....

Please note there is no payment for participation but an offer in the form of a once off R10 airtime voucher. Would you like to take up this offer?

☐ Yes

☐ No

If yes, please provide the cellphone number which you would like your airtime voucher to be sent to.

Cellphone number:

Tear off slip

I (interviewer's name) confirm that the person in possession of this slip participated in the MobiSAM 2016 Baseline Study and is entitled to a once-off R10 airtime voucher courtesy of MobiSAM.

Signature of interviewer.

Date signed:

Depicted in this document is a full narrative of the application of the e-Government strategy formulation framework.

Phase 1: E-Governments strategy formulation preparation Phase

As suggested by the framework, the study preparation (*strategy formulation preparatory phase*), serves a number of functions aimed at initiating the e-Government strategy formulation exercise. Functions considered to be relevant here include: *initiating relationship building efforts with local government employees and other stakeholders, making a formal request to the local government on the intent to conduct the strategy formulation exercise, gaining knowledge of potential participants from both the local government organization and external stakeholder groups (e.g. civil society, citizens, and the media), and, gaining insight into the baseline status of stakeholder groups and organizations for whom the strategy is being developed*. All of these activities are observed, however, furthermore, as reflection from the frameworks application reveals, the study preparation phase served to undertake *planning activities* by the MobiSAM team – aimed at contributing to the development of the strategy. Narratives are provided below on how these functions are realised:

Initiating relationship building efforts with local government employees and other stakeholders is achieved by:

- *Attendance at local government organized forums, by the interventionist and other MobiSAM project team members:* Municipal organized meetings included: communications forums, water and sanitation forums, and catchment forums.
- *Attendance at community engagement initiatives aimed at enhancing development within the municipality:* MobiSAM representatives were present at certain community engagement initiatives organized by the prominent higher learning institution present in Grahamstown (*Rhodes University*), where municipal, employees were expected to be in attendance.

Attendance at these meetings was instrumental in creating the perception that the MobiSAM team is concerned about the state and welfare of the local government. More specifically, attendance at such meetings served as an introductory platform for meeting key stakeholders through whom the interventionist and more broadly the team gained access into the municipality. For example, these meetings provided an opportunity to meet with Makana municipalities' communications officers, who later on became the champions for MobiSAM within the municipal institution. Becoming acquainted with the communications officers provided an opportunity to request a meeting aimed at formally proposing that the municipality work with MobiSAM in seeking to formulate a strategy.

Making a formal request to the local government on the intent of conducting the strategy formulation exercise

- *A meeting was arranged with the municipalities administrative manager:* The municipalities communications officers aid in arranging a meeting – where the MobiSAM team were given the opportunity to introduce the idea of the project and to a lesser degree the strategy formulation plans to the administrative manager of the municipality. The meeting was attended by the interventionist, MobiSAMs co-directors, and MobiSAMs community coordinator. From the municipalities side, the meeting was attended by the communications officer who was instrumental in arranging the meeting, and the administration manager. At the meeting, the MobiSAM team, introduce themselves to the administration manager, briefly describe MobiSAM, and what the potential benefits of integrating MobiSAM within the municipality will be, and the intention to work with the municipality in creating a strategy for the deployment and sustained use of MobiSAM. Like the senior communications officer had been, when the idea was pitched to her earlier, the administration manager seems interested, but advises that the concept is presented to the municipal *Senior Management Team* (SMT) at the upcoming SMT meeting. The project team agrees to this.

This meeting was instrumental in gaining insight into how propositions to formally collaborate with the municipality should be approached. An administrative manager is most probably the appropriate personnel to provide protocol information on administrative processes of the municipality, and as the proceedings of this meeting suggest, this was the case.

Note: As it seems, the municipal administrative manager was receptive to the idea, based on the fact that it was revealed at the meeting that it will not cost the municipality anything. The one question he asked, after the brief introduction by the project team, was how much the system will cost the municipality. He expanded, by indicating that at the moment the municipality is financially constrained and will not be able to buy any systems. One of the project co-directors responds by indicating that the project was externally funded, and as such will not cost the municipality anything.

- *An introductory meeting with the acting municipal manager:* At a technologically focused, community engagement meeting, the interventionist and the project co-directors were

introduced to the municipalities information technology (IT) manager. Here the idea of the project was introduced to him, and he seemed interested. Like the administration manager had done, he advises that the idea is presented at the upcoming municipal SMT meeting. Prior to the scheduled date of the municipal SMT meeting, the municipal IT manager arranged for the interventionist, and one of the project co-directors to succinctly (*in 2 minutes*), present the idea to the acting municipal manager, at a municipal planning meeting. The acting municipal manager is the overall head of the administrative arm of the municipality. The arranged two-minute presentation takes place as planned, and the municipal manager suggests that a 30-minute visual presentation is made by the MobiSAM team to be presented at the upcoming SMT meeting.

- *Presentation of MobiSAM project and strategy formulation plans to the Senior Management Team (SMT) of the municipality:* The SMT team met with the MobiSAM team on the 19th of May 2016. The team comprised of the municipal manager and heads of the directorates within the municipality. The presentation was well received. It was facilitated by both project co-directors of MobiSAM. Content focused on the potential value of MobiSAM to the municipality, the potential role the municipality is expected to play in the project, a brief demonstration of how the system will potentially work, an emphasis on collaborative strategy formulation for the systems integration and sustained use, and an indication on the intent to conduct continuous evaluation throughout the projects duration. Upon completion of the presentation, a number of questions are raised. Again the issue of cost to the municipality is raised. As answered when initially raised by the administrative manager, it is pointed out that the project is externally funded, and will not cost the municipality anything. However, it is also indicated that at some point the system will be handed over to the municipality to manage. Once questions have been addressed, the municipal manager and other directorates in attendance granted permission to the MobiSAM team to go ahead with the study. This served as official consent to commence the strategy formulation exercise, and more broadly MobiSAM's plans to integrate the system within the municipality.
- *Planning for the strategy formulation exercise by the project team:* The interventionist was primarily responsible for the strategy formulation exercise, as well as drafting of the strategy document – nonetheless, as part of the larger endeavour of implementing the project, planning activities are carried out by the entire project team. Besides, conducting

a baseline study, which is recommended by the framework, at this phase – is such a huge task, that it requires more than one individual to accomplish.

Planning activities by the project team included: *logistic planning on how various project and strategy related assessments will be conducted, discussing a plan for how project team members will collaboratively work together, and data collection instrument design activities.*

In order to undertake project team planning activities, a meeting is called by the projects co-directors. All team members are in attendance. The meeting commences by pointing out the upcoming activities of the project and assigned dates for these activities. However, the meeting particularly focused on the baseline study, as this is the first activity scheduled. The baseline study though essential to the entire project, is specifically important to the strategy formulation process, as it helps the interventionist to learn about the local government, its key stakeholders, current operational performance of service functions MobiSAM seeks to support, and ICT infrastructure capacity.

Due to the expected immense nature of the baseline study, project team members are split into four groups. Each group focusing on one of four facets of the baseline study. Some team members are assigned to more than one of the four facets. The four facets, which the baseline study is divided into include:

- ✓ **communication ecologies in the municipality** – primarily handled by the interventionist, but with some help from one of the strategist and evaluators.
- ✓ **The technical status of the municipality** – (detailing ICT infrastructure, hardware, software, and human resource capacity), handled by the interventionist and the technical manager (co-director).
- ✓ **The communication ecologies in the community** – aimed at determining the socio-economic status of municipal residents, as well as their readiness to uptake innovative communication approaches, to support enhanced interaction with the local government (Pade-Khene and Sewry, 2011). This baseline facet is handled by the communications and citizen engagement officers, in tandem with the community coordinator.

- ✓ **The extent of citizen engagement in the municipality** – Also handled by one of the communications and citizen engagement officers.

The latter two facets of the baseline, are outside the scope of the study, and as such narratives will not be provided on their proceedings. Nonetheless, data elicited from them are useful in informing certain aspects of the strategy formulation process. This will be discussed later.

The decision made by the strategy and evaluation manager (co-director), to split the baseline study into four facets is taken in order to increase the efficiency of the study completion. In line with the principles of “division of labour”, dividing a huge task or production process into smaller tasks enables assigned personnel to focus on specific tasks (specialization) (Smith, 1776). Consequently, workers concentrating on particular aspects of the huge task, are afforded the leverage of better understanding their focused task due to routine execution. This enables each personnel to complete their tasks more efficiently, and as a consequence completion of the whole in less time (Smith, 1776).

Furthermore, it is taken into consideration that project team members have other commitments outside the project, as most of them are academics. Hence, with tasks divided, and roles and schedules defined, team personnel are able to concentrate on what they are assigned to, while still having time for their unrelated project commitments.

Based on the collaborative nature of the project, it is agreed by the project team, that a number of successive meetings will be undertaken to accomplish project activities (*including the strategy formulation process*). Hence, a shared google drive folder is created by strategy and evaluation manager (co-director). The cloud storage was created to support sharing of all project related documents by the MobiSAM project team. The folder was indexed in an orderly manner with sub-folders appropriately labelled, to allow easy navigation to documents to be accessed. Furthermore, employing Google app services, meeting dates were marked on the calendar (*Google calendar*), to support diarising of the numerous meetings that the projects progression would require. To further support communication an email list was created with all project team members included. Also various chat groups (whatsapp message groups), were created to allow real time instant messaging by group members on their Mobile devices.

Baseline Instrument Design

Baseline instrument design narratives are limited to the baseline facets that the interventionist is assigned to. These include the (I) “*communication ecologies in the municipality*” and (II) “*the technical status of the municipality*”.

I) Communication ecologies in the municipality instrument design

Questionnaires are developed to elicit baseline data from the municipality. Primarily, the questions are quantitative in nature to provide a general overview of the municipal organization. Some qualitative type questions are also included to gain a richer description of the current status of the municipality. The questionnaire specifically covers topics such as: *employee demographics, educational background, position in the municipality, functional areas upon which employees are communication reliant – to perform job tasks, tools employed to communicate within and between departments/as well as with citizens, preferred and most reliable communication tools, mobile phone ownership, internet access, applications used on mobile phones and computers, preferred language when using ICTs to communicate, information and communication related challenges while performing job tasks, and exposure to MobiSAM in its first phase.*

The baseline aspects, which the questionnaire seeks to gain knowledge on at the municipal organization are informed by a number of factors. These include: a previous baseline study conducted in phase 1 of the MobiSAM project; meetings with the communications department representatives of the municipal organization; preliminary empirical observations of communication patterns in the municipal organization; accounts of communication breakdowns and inefficiencies within the municipal organization by the communications officers; a paper by Thinyane, Sieborger and Reynell (2015), which discusses how communication ecologies may be understood; and, propositions from phase 1 of the framework presented in chapter 7.

Questionnaire design for this facet of the baseline study is carried out by the strategy and evaluation manager (co-director), nonetheless with input from project team members. A Meeting is organized to discuss the questions contained in the instrument (questionnaire).

This baseline planning meeting is scheduled for project team members assigned to this facet of the baseline study. At the baseline planning meeting, project team members in attendance probe questions contained in the instrument seeking clarification on issues such as (intent of particular questions asked, wording of questions, anticipation of the extent to which questions may be misinterpreted, and length of questionnaire). A meeting such as this is useful in enhancing the rigour of the instrument design.

Concerns raised at the meeting are noted by the strategy and evaluation manager (co-director), who prepared the questionnaire instrument. This resulted in changes to the **questionnaire**, which was subsequently shared on the Google drive, to enable further reviewing by team members assigned to this baseline facet.

An email is sent to group members to refer to the Google drive in order to review the questionnaire to which changes had been made – proposing that comments be made on any further concerns. While the finalization of the questionnaire is taking place, a meeting is scheduled with municipal staff who due to their enthusiasm toward the project had become MobiSAM champions (*municipal communications employees*). The meeting is scheduled to discuss the questionnaire with them, as well as get their feedback on the clarity of the questionnaire for eliciting the sought information. Furthermore, it is hoped that these municipal employees can provide insight on the service delivery reporting structure and information flow within the municipality, in order to better tailor the instruments to elicit information from personnel responsible for particular defined roles.

At the meeting, with the municipal champions, the questions contained in the baseline questionnaire are explained to the champions step by step. In the course of the meeting, champions provide information on the service reporting structure within the municipality, more commonly employed communication tools, and suggestions for the improvement of the questionnaire instrument (e.g. *request that the instrument include probes about the extent to which there is feedback on reported service requests*). Upon completion of the baseline questionnaire presentation to the municipal champions, they are informed about a planned pilot of the questionnaire, to be scheduled after their additions and suggested changes had been incorporated. The pilot is planned to assess the extent to which the questionnaire instrument could be answered by municipal employees without influence from any project team member (*thus seeking to determine the extent to which the instrument is understood, and deemed to be well articulated for its purposes*). The strategy and

evaluation manager (co-director) requests that the champions please avail themselves for the planned pilot scheduled for the upcoming week. The champions consent to this request. Suggested changes are made by the project team, and a new version of the questionnaire is uploaded to the Google drive. This meeting aids in further ensuring rigour of the instrument.

As promised, the two champions showed up for the baseline pilot exercise. It was conducted at the project team office. On arrival, they are lead to separate rooms to fill out the test questionnaire (pilot). This separation is decided on to reduce the possible influence of either on the other, as well as to find out the expected average time from two potential participants point of view for completing the questionnaire. Each champion is guided through the questionnaire with a project team member, however team members engage the champions (provide help) only when asked. The pilot provided information on possible time estimates for completion the questionnaire, and questions that needed to be adjusted (*e.g. removing of questions deemed irrelevant or redundant by champions*). Primarily, the pilot revealed that the baseline questionnaire was too long (it took one champion an 1h15minutes), and the other champion (1h30 minutes) to complete the baseline questionnaire. As such, there is speculation amongst the champions that municipal staff may not spare the time or be patient enough to complete the questionnaire due to its length. It is decided at the pilot session that the questionnaire should be compacted to enable answering of questions within an average of 15-20 minutes. Suggestions are made to reduce the length of the questionnaire, by proposing that perceived redundant questions be removed from the instrument. Feedback from the pilot aids in making final revisions to the municipal baseline questionnaire, presented in Appendix (Case A).

Before commencing baseline data collection within municipal offices, the interventionist compiles a list of potential respondents from within the municipality expected to fill out baseline questionnaires. The list is informed by descriptions of municipal roles in service delivery, as indicated by champions at the first meeting called by the strategy and evaluation manager (co-director). Furthermore, the list is informed by employee role descriptions provided on the municipalities website. Roles sought are limited to MobiSAMs scope of service delivery aspects the system is designed to support. Once the list is compiled, the champions are contacted by the interventionist, who requests their advice on how the names contained in the list may be approached to fill out questionnaires.

Upon this request, the champions inform the interventionist that the acting municipal manager needed to be informed through a formal letter indicating the intent to conduct a baseline survey in the municipality. The interventionist responds by indicating that the acting municipal manager had granted permission to go ahead with the project including any assessments that needed to be carried out within the municipality at the SMT meeting. Nonetheless, the champions insist that at every juncture, the acting municipal manager needed to be formally notified on any activities that MobiSAM representatives needed to carry out within the municipality. In line with this advice, the interventionist drafts a letter to the municipal manager, informing her – on the intent to conduct the baseline study within the municipality, the purpose of the baseline, possible dates and time duration, and the potential employees that were targeted. This letter is communicated via email, by the interventionist. The municipal manager responds within 24 hours – granting permission to go ahead with the study. She also copies the champions (communications department personnel) in the email (instructing them to ensure that all targeted employees make themselves available for the study). With this mandate communicated to the champions, all targeted employees are informed with the instruction quotes of the acting municipal manager also relayed to them. Once this communication takes place all targets avail themselves. The questionnaires are administered at municipal offices by two MobiSAM project team members (the interventionist and another strategist and evaluator). The project co-directors had initially planned for data collectors to be hired to administer the questionnaires, however it is revealed sometime before the data collection exercise that the municipality is very sensitive about who is allowed to come into the institution to collect data, and as such, will only allow representatives of organizations they have agreed to work with to carry out such tasks. Due to this factor, MobiSAM team members are tasked with collecting data from the municipality.

Municipal Communication Ecologies Baseline Study Data collection

Baseline data collection within the municipality was carried out over a span of three days, with majority of targeted employees responding promptly. It is revealed that this prompt response is as a result of the instructions communicated by the acting municipal manager directing employees to cooperate with the MobiSAM representatives. Hence, staff are accommodating, and civil with the MobiSAM team during the data collection process. There are 11 respondents from within the municipality that fill out baseline questionnaires. Respondents are specifically from functional areas that MobiSAM is expected to support.

Whereas there was a high cooperative rate from employees, reluctance was perceived from one of the employees, who only returned the questionnaire after several weeks of being reminded. Nonetheless, for most of the employees, questionnaires were completed in 20 minutes. This proved an effective form of administering baseline questionnaires, in comparison to prior suggestions by the technical manager (project co-director) that municipal staff should be sent links to fill out the questionnaires electronically. This suggestion as the technical manager explained – was proposed to avoid the cumbersome task of having to digitally enter information provided on paper questionnaires into databases by the MobiSAM team. The interventionist and other team members in response to this suggestion anticipated that employees may possibly forget to respond where they were given the option to fill out online forms at their convenience. In contrast, as it seemed the presence of the MobiSAM team propelled employees to complete the baseline questionnaires in their presence. As will be seen later on, when municipal employees were asked to electronically submit a subsequent set of interview questions at a later stage of the project, there was a zero percent response rate. This helped with exhibiting confirmation that the better decision was the option to distribute paper questionnaires and collect them upon completion. Even though this would require cumbersome data entry (to databases) process by the interventionist. Additionally, in hind sight, it was a wise decision to have the MobiSAM team there to clarify any issues respondents had with understanding questions.

Baseline Data from ward councillors

As part of the municipal baseline assessment, the MobiSAM project team sought to determine how elected and appointed municipal ward councillors routinely communicate with citizens in their ward constituents. Furthermore, they sought to identify challenges councillors face in their attempts to communicate with their ward constituents. It was anticipated that ward councillors would be interviewed.

With some inquiry on how ward councillors could be approached to participate in interviews, it was revealed that in order for any interviews to be conducted with ward councillors, the speaker of the council needed to be informed, as well as consent to the request to interview councillor's. Several attempts are then made by the project team to meet with the speaker, to seek her consent to interview ward councillors. All attempts are unsuccessful. At this point it would have been ideal to enlist the support of the acting

municipal manager to help with providing an audience with the councillors, this was however not a viable idea, as the councillors are politically elected, and as such not answerable to the municipal manager.

After several attempts of trying to schedule a meeting with the speaker of the council to no avail, the strategy and evaluation manager (co-director) decides that perhaps, an interview can be scheduled with one of the municipal communications officers (a MobiSAM champion), to provide some insight on how ward councillors communicate with their ward constituents.

This idea is proposed as a contingency, due to the projects time schedule. The project had indicated a marked date for completion of the baseline study, which would have been exceeded if the project team continuously persisted with attempts to interview ward councillors.

The municipal communications assistant (champion) is approached about answering some interview questions about ward councillors and Community Development Workers (CDW) communication patterns with their wards. The champion is open to this idea. A meeting is scheduled to discuss these factors with him. The meeting is attended by MobiSAM's strategy and evaluation manager (co-director), the interventionist, and another strategist and evaluator from MobiSAMs team. The meeting takes place at the municipal communications office.

The interview questions are asked by the interventionist. The questions revolve around: number of ward councillors and CDWs within the municipality, their specific liaisons within the municipality, specific and more preferred communication tools used by ward councillors and CDWs to communicate with citizens in their constituents, ICTs provided by the municipality for them to undertake their jobs, and possible challenges that they face in dispensing their duties. This process was helpful, as even though the ward councillors and CDWs could not be reached to answer questions, insights on their work duties, communication patterns with their wards, tools that support their communication duties, and common challenges they face, could be provided by the communications assistant.

Analysis of municipal baseline data

Parts of the municipal baseline data are analysed by the interventionist, and other parts by a statistician contracted by MobiSAMs co-directors. For instance, aspects to do with

frequency counts, and qualitative inferences are analysed by the interventionist, while aspects related to drawing statistical inferences, and hypothesis testing is conducted by the statistician. Aspects analysed by the statistician are concluded only after about 11 weeks. However, as has been indicated, the interventionist was able to qualitatively analyse certain aspects, and undertake frequency counts for a number of questions: such as employee computer access, mobile phone ownership, preferred language use with ICT tools, and weekly spending on airtime, amongst other categories. More importantly, from the answers provided the interventionist was able to map out the information flow pattern for service delivery reporting within the municipality, and with service recipients, which is a very crucial aspect meant to duly inform MobiSAMs integration. *(Appendix Case B) depicts the mapped out service delivery reporting structure and communication tools used as revealed by the baseline study.*

II) Technical Status of the Municipality

This is the second facet of the baseline study that the interventionist is assigned to. This category was created to generate data on the municipalities' ICT network infrastructure, hardware, software, and ICT maintenance human resource capacity. Considering that MobiSAMs' prospective functioning is contingent on a satisfactory ICT infrastructure (*the internet and appropriate hardware and software*) within the municipality, it was important to understand the **technical status of the municipality**.

The interventionist conducts this assessment in tandem with the technical manager (co-director). However, at a later stage of the project, a technically focused addition (*personnel*) to the MobiSAM team does a follow up to confirm some conflicting information provided on the technical status (e.g. *whether or not the municipality has wifi networks*).

The assessment is carried out by employing an interview protocol – to ask a number of questions related to the **technical status of the municipality**. The questions are informed by propositions from the e-Government strategy formulation framework, for assessing ICT readiness of a local government. Furthermore, the questions are informed by time spent brainstorming by the technical manager (co-director) on possible aspects that such an assessment should include. Prior to the assessment, both the interventionist and the technical manager met to finalize on questions they intended to ask the ICT manager of the municipality who solely oversees ICT related aspects of the local government. At this

planning meeting, the technical manager (co-director) proposes questions to ask the municipal ICT manager, and the interventionist makes suggestions to incorporate to the proposed questions. Topics covered include: *network inventory, hardware inventory, system software inventory, user access issues, use attitudes towards ICT applications and perceived usefulness, reliability of currently deployed ICT tools, extent to which information needs are met, security issues, training and technical support, and interplay between used systems*. A copy of the interview protocol can be accessed in Appendix (Case C).

Brainstorming prior to the planning meeting, aided in observing the extent to which the questions both assessors (*the technical manager and the interventionist*) came up with were similar. Sure enough there was a high proportion of similar questions articulated by both the interventionist and the technical manager (co-director).

Arranging a meeting with the municipal ICT manager was less onerous than it was planning for the **Communication ecologies within the municipality** baseline assessment. The reason being, it was an assessment planned for only one employee (*the municipal ICT manager*). To add on, the several encounters between the MobiSAM team and the ICT manager at forums organized by the municipality, and other related meetings, provided a level of familiarity with him. As such, when the assessors requested a meeting date to discuss the municipalities technical status, he was willing to spare sometime at the earliest convenience.

Shortly after the planning meeting between the interventionist and the technical manager (co-director), a meeting date is scheduled with the municipal ICT manger to discuss the **technical status of the municipality**. The meeting transpires as scheduled – it takes about 45 minutes. Due to the municipalities resource constrained nature, which affects its ability to hire sufficient staff, the ICT manager is solely responsible for overseeing all ICT related issues. Hence, he indicates to the assessors upon inquiry that there is no need to talk to any other employee about ICT related issues, as he is well versed on all ICT related concerns within the municipality.

Essentially, this interview session is useful in revealing the municipalities ICT readiness for the integration and deployment of the MobiSAM application – in terms of the

availability of internet connections, availability of hardware (*computers*), software (*operating systems and applications they support*), current attitudes to ICT by employees, possible reasons for perceived attitudes, support and human resource capacity. With this knowledge, the project team becomes aware of what the municipality currently has, and as such, what needs to be acquired before MobiSAM's deployment.

Considering the possible bias of generated data at this interview – due to the fact that the information gathered was from a single individual, the interventionist thought it wise to occasionally confirm some of the information provided by the municipal ICT manager with other municipal staff, whenever there was an opportunity to do so. Most of the information was accurate as confirmation revealed. However, with respect to whether or not the municipality possessed Wi-Fi connection, it seemed like there was conflicting information. The ICT manager had indicated that the municipality had Wi-Fi connection. On the flip side, the champions from the communications department indicated otherwise (*that there was no Wi-Fi connection in the municipality*). Therefore, this needed further probing, to confirm whether or not there was actually Wi-Fi connection. Further probing is carried out by a newly recruited technical officer to the MobiSAM team, who met with the ICT manager again to confirm the Wi-Fi status. It is found out that there is Wi-Fi connection, however, due to limitations on access rights to subordinate staff within the municipality, they are unaware that Wi-Fi exists.

Note:

Even though the interventionist did was not part of the team that conducted the baseline study of the communication ecologies in the community, interviews with the team members who did provide a brief summary of the events that took place for this assessment. To conduct this assessment, Questionnaires were developed to elicit baseline data from citizens within the municipality. A list of wards within the municipality was determined including population numbers within each ward. Sample sizes of potential respondents are agreed upon based on the population sizes of each ward. Data collectors were hired and trained to administer questionnaires within municipal wards. The citizen baseline questionnaire is presented in Appendix (Case H).

Phase 2: ICT Orientation Session

The framework proposes that this phase is intended to inform or enlighten key municipal employees and other stakeholders on the possible value ICTs (*MobiSAM in this case*) may contribute to service delivery improvement. An activity of this nature was carried out in phase 1, where the project team was invited to a municipal SMT (*Senior Management Team*) meeting to illustrate how MobiSAM would be potentially valuable to the municipalities service functions. This presentation had only senior management staff in attendance, who essentially are not the personnel expected to routinely use the system. Furthermore, there was no such presentation made to other stakeholder groups (*citizens, civil society, and the media*) in phase 1.

It is decided that an ICT orientation workshop will be carried out for municipal employees expected to use the system and subsequently for civil society and citizens. Separate workshops are proposed – as the value aspects that MobiSAM provides to the two groups (*municipal employees* and *civil society/citizens*) differ. However, more than an ICT orientation session, the strategy and evaluation manager (co-director), proposed that the planned workshops should incorporate a needs assessment. The strategy and evaluation manager's suggestion of incorporating a needs assessment is based on proposition by the Rural ICT Comprehensive Evaluation Framework (Pade-Khene and Sewry, 2011), that a needs assessment be conducted following a baseline study. A needs assessment specifically seeks to elaborate on, understand, and set the desired priorities of the target population, and propose appropriate solutions that can be supported by MobiSAM (Pade-Khene and Sewry, 2011). It gives room for an opening position between the MobiSAM project team and the potential users of MobiSAM, as such, revealing pre-existing assumptions and aspirations of the project (Harris, 2001).

Particularly, the project co-directors had intended that the needs assessment, will reveal from potential users point of view (*municipal employees, and citizens*) – possible additions or modifications they may desire in the MobiSAM system. More precisely, the needs assessment sought to determine whether the information and communication solutions provided by MobiSAM were considered as relevant to both the municipality and citizens. Importantly, the needs assessment informs the interventionist of the extent to which the strategy to be developed takes into consideration the needs the MobiSAM project expects to address (Pade-Khene and Sewry, 2011).

Municipal ICT Orientation and Needs Assessment Session

Job description roles revealed by the baseline study, as well as suggestions from the champions (*communications officers in the municipality*), provide knowledge on the potential functional areas and representing personnel that will be expected to use MobiSAM. A planned MobiSAM orientation and needs assessment workshop is scheduled for these municipal employees.

An email is drafted and communicated to the acting municipal manager – informing her of the intent of to: conduct an ICT orientation and needs assessment workshop, the purpose of the workshop, a proposed date, expected time duration, venue, and names of potential employees expected to attend. Again upon receipt of the email, the municipal manager responds, while also instructing the communications officers (champions) to ensure that everyone expected to be present at the needs assessment workshop is present.

Project Team Planning for the Needs Assessment Workshops

The interventionist at this stage was increasingly becoming more responsible for the planning of strategy formulation related activities (*one of which was the ICT orientation/needs assessment workshop*), as this formed part of the empirical application of the e-Government strategy formulation framework. Moreover, expected number of participants and activities planned for the needs assessment had been reduced to much more manageable scales than was required of the baseline study. The project co-directors however indicate intention to be part of the planning process.

In preparation for the needs assessment workshops, the interventionist drafts programmes for the planned needs assessment workshops (for *municipal employees and citizens*). The programmes are planned to include: *an ice breaker section intended to support acquaintance amongst attendees, as well as to prepare their minds (stimulate the brain) to focus on the tentative workshop task; an introductory section to give a brief summary about MobiSAM, its history, and what the system is intended for; a demonstration of the current system to municipal staff; and a section to elicit their views, and potential suggestions for additions to the system and its functionality.*

With these proposed activities planned for the workshop, the interventionist was expected to discuss them with the project co-directors. A meeting is scheduled for this discussion. At the meeting there is some discord amongst project team members on how the workshop should transpire. Firstly, while the interventionist had planned that an ice breaker section should be included in the municipal needs assessment workshop, the technical manager (co-director) was opposed to the idea. In her opinion, it was pointless to carry out an ice breaker as she perceived that municipal employees were familiar with each other, and as such, did not require an ice breaker to support acquaintanceship amongst themselves. The information systems oriented project co-director (*strategy and evaluation manager*) felt that the ice breaker would serve a useful function, as it would prepare participants minds to focus on the planned workshop purpose. The technical manager remained adamant about not having an ice breaker – indicating that it served no useful purpose. After some debate, it is decided that an ice breaker will not be carried out at the municipal needs assessment workshop, but only at the citizen/civil society needs assessment workshop where attendees representing different organizations will probably be meeting each other for the first time.

Another issue that created some debate, was whether or not a *use case* diagrammatic representation of the system should support demonstration of MobiSAMs functioning. It was intended that the *use case* will help with easy sequence communication of the functionalities staff and citizens were expected to perform using the MobiSAM system. The interventionist created use cases for each function users are expected to perform using MobiSAM, however, the technical manager (co-director) felt this was unnecessary and may confuse people. In agreement with the interventionist, the strategy and evaluation manager (co-director) thought the use cases will be really helpful in communicating the current system functionalities, but felt that the technical manager (co-director) should have the ultimate say considering that she (*the technical manager*) was responsible for developing the computerized MobiSAM system, and as such, may know how best it should be presented.

An amicable conclusion is reached on the topics of debate to avoid conflicts arising. The strategy and evaluation manager reveals later on that it is an expected trait for individuals from a computer science background to be rigid in their approach to dealing with potential system users, and that often times arguing with them may not produce any positive impact.

She further indicates that sometimes allowing them to observe potential consequences of being rigid, may produce a better outcome than engaging in debates to try to convince them.

This conflict highlighted the difference in approaches and perceptions amongst disciplines (*information systems* and *computer science*). Whereas information systems oriented personnel are concerned about the interaction between the user and the system, the computer science oriented personnel is more concerned about system functionality, and less about how potential users perceive the system. Furthermore, the debate, draws attention to the possible conflict that may arise where there are two project heads, with equal power bases (*two project co-directors*).

The technical manager (co-director) felt that instead of employing a *use case* to depict every function of the system, a video demonstration of the systems functionality will suffice for communicating the different uses of the system. Hence, an audio-less video is taped of the MobiSAMs system functionalities. It is decided that the interventionist and the technical manager (co-director) will facilitate the needs assessment workshop.

On the scheduled day of the workshop, both individuals meet to do a dry-run of the presentation, to ensure any potential mistakes are mitigated. The needs assessment workshop is planned to take place in the afternoon at 2pm, however municipal employees only arrive at the venue, at 2.45pm. Nonetheless, it is a relief to see that they made it. Most of the employees expected are in attendance (*8 of 11 invited employees*). Five members from the MobiSAM team are also in attendance. In accordance with the drafted programme, the workshop commences with an introductory activity, where everyone mentions their name to the group, and the municipal department that they work with. The MobiSAM team does the same. The interventionist then talks about MobiSAM, its intended purpose, its history, and the audiences (*municipality* and *citizens*) it seeks to serve. The technical manager (co-director) then demonstrates using the audio-less video the varying functions that municipal staff will be required to undertake using MobiSAM. Mid-way through the session, the strategy and evaluation manager (co-director) asks municipal attendees whether the illustration is being understood, they all nod in agreement. Upon completion of the demonstration session, the technical manager (co-director) requests that attendees ask questions they may have, or indicate possible functional additions, or suggestions of functionality that they find to be irrelevant.

Issues identified by municipal staff

- *Need to make clear to citizens the scope of service delivery issues that the municipality is responsible for addressing, in order to avoid communication of requests outside the municipalities duties.*
- *The need to have a centralized team in the municipality to receive service requests reported through the system, and subsequently forwarding them to concerned departments.*
- *Emphasis on the municipalities resource constrained nature, which potentially inhibits them from purchasing an SMS gateway, to support free communication of service delivery requests via SMS by citizens.*
- *The need to attach reference numbers to each reported request*
- *The need to include notification functions for newly reported requests.*

While it was not suggested that all of these points would be addressed or incorporated, they were all valid points that got the project team thinking about factors that had not been previously considered.

There was some concern though that the system demonstration was not interactive enough, as it was a one-way affair (*presentation by the technical manager*). As such, as may be observed from the issues identified above, there is little contribution on the functionality of the system. Besides one of the attendees who had briefly used MobiSAM in its first phase, all other attendees had never been exposed to the system. Hence, it may be that the presentation of all of the required functionality at once, may have been overwhelming. Also, questions asked by the technical manager (co-director) upon completion of the presentation were too broad – *requesting what attendee's general thoughts on the system were, as well as what they would like to see changed*. This point serves to illustrate that the *use cases* may have been helpful in guiding participants in a step-by-step process of understanding the systems functionality.

On a positive note, one of the objectives of this workshop is accomplished. As is proposed by the e-Government strategy formulation framework, the workshop was useful in presenting the value of the system to the users, as well as getting some feedback on some factors to consider (*issues identified*). Nonetheless, input on the functionality, and ways of possibly improving the system could not be properly elicited. As such, it is hoped that another workshop can be planned for functionality elicitation purposes.

Civil society/ Citizen ICT Orientation and Needs Assessment Session

To begin preparation for the civil society and citizen needs assessment, it was important to identify civil society groups, and active citizen groups in Makana municipality thought to be passionate about citizen engagement, as MobiSAMs purposed use is to support citizen engagement. A representative sample is sought as it is conceived that all members of such groups cannot possibly participate – considering that collaborative decision making works best when a group is small (Ostrom, 1990). Essentially, a smaller group is more manageable, and presents less of a challenge where attempting to handle logistical issues while organizing the workshop.

The baseline study is useful in providing knowledge on suitable participants. However, at the time of planning for the citizen needs assessment, the baseline data on citizens had not been analysed. As such, one of MobiSAMs communications and citizen engagement officers who prior to the project had been working with civil society and active citizens in the municipality was helpful in identifying a few active citizens and groups.

Upon identification of potential attendees, the interventionist drafts a letter in collaboration with one of MobiSAMs communications and citizen engagement officers – inviting these groups to attend an orientation/needs assessment workshop. In the letter, the purpose of the needs assessment is succinctly explained, reasons why potential attendees input is imperative, the proposed date, time and venue are also outlined. It is also indicated in the letter that invited individuals and groups, should RSVP a couple of days before the slated workshop date to confirm whether or not they will be attending.

The planning for the municipal and citizen needs assessments were carried out simultaneously, however the workshops were held separately (*two days apart*).

The turnout of citizen and civil society groups at the needs assessment workshop was not impressive. This may have been attributed to the fact that the project team was unaware of other numerous active groups in Makana municipality. Whereas, the baseline study of the **Communication ecologies in the community** was expected to upon analysis reveal a number of such active groups, at the time of planning the needs assessment this data had not been fully analysed. As such, knowledge of the existence of any active groups in

Makana municipality was limited to those proposed by MobiSAMs community and citizen engagement officer undertaking research with some of these groups.

The workshop is slated for an afternoon. It commences with an ice breaker session intended to get everyone comfortable with each other, as some of the attendees were meeting themselves for the first time, as well as meeting some project team members for the first time. The ice breaker selected though was not one related to the topic of concern, hence it did not serve the ultimate function of preparing the minds of participants for the workshops purpose. Nonetheless, the ice breaker seemed to get people somewhat comfortable, however it is not certain to what extent. Participants consisted of two representatives from the local community radio station in Grahamstown (*within Makana municipality*), two community members who may be viewed as marginalized, and one civil society member thought to be more opportune (*privileged*). Also in attendance are seven MobiSAM team members. Upon completion of the ice breaker, the interventionist provides a brief summary of MobiSAM, its intent, its history, and its benefits to citizens. This is followed by an audio-less video demonstration of MobiSAMs functionality from a citizen's point of view by the technical manager (co-director).

It is pointed out to citizens before the video demonstration that MobiSAM will be limited to reporting of problems to do with water, electricity, sanitation, and roads. An audio-less video demonstration is carried out as was done in the municipal needs assessment. Upon completion of the video demonstration, participants are asked what their views are on the system. Particularly, their perceptions on the usefulness of the MobiSAM system is sought. For a moment there is silence, suggesting that there was no interest or understanding of the just concluded demonstration of MobiSAMs use.

This gets the interventionist thinking – whether this silence may have been due to the fact that the demonstration was not engaging enough for participants to have any questions. After almost 30 seconds of silence, one of the participants from the local radio station indicates that the system will be useful, and is something that the municipality has been lacking for a while. His view is representative of a significant number of people, as on a daily basis, radio listeners call in to the radio station where he is a presenter to complain about how unresponsive the municipality is. This statement confirms one of the purposes of the needs assessment – substantiating the usefulness of the MobiSAM system.

There is one problem though, there is little to no contribution by the two attendees considered to be marginalized. They only spoke when asked questions, and seemingly their utterances were in agreement to whether or not they were understanding the train of discussion. One of them when asked her thought on the demonstration, or possible additions to functionality, responds by saying:

“all I want to say, I said, is I am happy for this”

The other participant when asked her perception on the ease of use of the system as portrayed by the demonstration responds by saying:

“Ah, i am understanding”

As the interventionist, I could not help but wonder whether or not they really understood. Could there have been a power play in place there? for instance, did they feel less than adequate to contribute being that they were only two in number?

As observed in the municipal needs assessment session, there was some concern that the system demonstration was not interactive enough as it was a one way affair (*presentation by the technical manager*). Having all of the functionality presented at once, without any engagement with citizens while presenting may have been a lot to take in at once. Therefore, a lack of understanding in addition to the marginalized attendees' feelings of inadequacy may have influenced their lack of contribution. Again, the follow up questions after the presentation were too broad (*seeking general views on the system*). Such a question cannot produce feedback on particular aspects of system functionality. More specific questions should have been asked in relation to particular functions. Hence, a use case, would have been helpful here.

There were few suggestions on the just concluded presentation, which are taken note of:

Issues identified by civil society/citizens

- *The extent to which data costs and SMS costs may impede potential use of the system, especially by marginalized groups.*
- *Suggestion is made that there should be an acknowledgement of receipt, when a service request is lodged, which will serve as confirmation to the complainant that their report has indeed been received by the municipality.*
- *A request is also made to integrate a notification function for when a request has been resolved.*

- *A debate on the pros and cons of generalized service broadcasts versus customized broadcasts takes place.*

In closing it is suggested by one of the attendees that including more functionality at this point is not as important as actually getting the system running, and ensuring that reported requests are responded to by the municipality. It is further indicated that once the system is operating efficiently, in its most basic form, then suggestions for additions may be considered.

Overall, there is not a lot of feedback on the functionality of the MobiSAM system, nonetheless the workshop helps in revealing the perceived usefulness of the system to citizens, as well as demonstrating the concept of the system to citizens.

Phase 3: Assessment of Local Government affiliated Organizations (Formal and Informal aspects)/Objective Setting (Problem demarcation/strategy formulation)

As proposed by the e-Government strategy formulation framework, this phase is aimed at systematically documenting the problem MobiSAM hopes to address (*refer to activity 1 of phase 3 of the e-Government strategy formulation framework*). Linking objectives, which the e-Government strategy hopes to target to related problems, enhances the validity of the objectives. Furthermore, this phase serves to get a common understanding of the conflicts of interest of differing stakeholder groups (*municipal representatives and citizens/civil society*) within the municipality, in order for differing stakeholders to arrive at accommodations in relation to coherently thought out e-Government related objectives. Moreover, considering that there was a first phase of MobiSAM – where a fully developed system was deployed, but barely used, it is thought important to find out what particular challenges (*from citizens and municipalities point of view*) may have impeded use of the system in the first phase.

The e-Government strategy formulation framework suggests that to undertake this task, the interventionist once possessing base understanding of the municipality – should attempt to simulate the major problem (*or conflicts of interest amongst stakeholders*), derive objectives from the outlined problem, and then propose means for achieving objectives. It is then proposed by the framework, that once this simulation has been carried out, the actual process should be carried out by the differing stakeholder groups (*municipality representatives and citizens/civil society*) at a joint strategy workshop.

The idea was shared with the projects strategy and evaluation manager (*co-director*). She however, did not feel like it will be a good idea to bring both groups (*municipal*

representatives and *citizens/civil society*) together, without having them air their views in separate strategy workshops. It is perceived that there is some friction between both groups, and that bringing them together without separately understanding what their individual grievances are, may result in emotions running high, and as such leading to uncivil verbal exchanges.

Based on this thinking, it is decided that in order to fulfil the problem demarcation/strategy formulation process, separate workshops will be organized for municipal staff, and then for the civil society/citizen group.

Planning for Municipal Problem Demarcation/strategy formulation

To commence planning for the municipal problem demarcation/strategy formulation workshop, municipal staff thought to be key to MobiSAMs functioning within the municipality are identified. This is not a huge task, as the baseline data, and the champions (*municipal communications department staff*) had provided this information earlier. Also majority of these sought staff are those who were present at the needs assessment conducted for the municipality.

Prior to the planned workshop, an assessment of group structural elements/cultural factors is conducted for municipal staff. This assessment sought to identify factors that may be capable of impeding collaborative problem identification/objective setting amongst municipal staff at the planned strategy formulation workshop. A section of the e-Government strategy formulation framework proposes that an assessment of group structural elements and cultural factors be undertaken – an assessment that may reveal factors capable of deterring contribution by municipal staff to the problem demarcation/strategy formulation process. It is decided that this assessment will take place weeks before the scheduled problem demarcation/strategy formulation workshop. This is decided to allow ample time for analysis of data gathered about municipal employee's groups structural elements, thus potentially allowing for planned actions against any revealed undesirable structural elements. Such structural elements may include, an employee possessing much higher powers, thus inhibiting possible contradicting contributions from subordinate employees, in their presence for fear of reprisal. Another example is a possible lack of intellectual resource possession (*know how*) by attending employees to enable useful contributions to the problem demarcation/strategy formulation

activity. To make the assessment as convenient as possible for municipal staff, it is decided that the interventionist will carry out the assessment at employee's offices.

Assessing group structural elements amongst municipal staff

An interview protocol is prepared based on questions proposed by the e-Government strategy formulation framework for assessing group structural elements and cultural factors. Questions revolve around *power relations between staff*, *staff interpersonal orientation*, and *intellectual resource / job competence of staff*. As has become the norm, a letter is drafted and communicated to the municipal manager, informing her of both the planned assessment of group structural elements, and the planned workshop for problem demarcation and strategy formulation. Upon drafting and communicating an email to the acting municipal manager, she responds – giving the interventionist a go ahead to undertake the assessment of group structural elements, as well as directives indicating that municipal employees avail themselves for the planned problem demarcation/strategy formulation workshop.

Prompted by instructions from the municipal manager, a number of employees begin to call the interventionist to schedule dates and times of convenience for the interventionist to meet with them to carry out the assessment of group structural elements.

Two personnel at the municipalities Department of Engineering and Infrastructure (DEIS) are interviewed first. They sit in on the interview together. These respectively include the *operations manager* and the *departmental clerk*. This interview is solely conducted by the interventionist at the department of these municipal staff. The interventionist commences the interview session by explaining to them what the interview questions seek to elicit, and the usefulness of conducting such an interview, after which he asks the questions. The interview is conducted for approximately 20 minutes, and does not reveal any potentially harmful structural elements to the tentative group activity that will be expected to take place in the upcoming problem demarcation/strategy formulation process. Whereas it is revealed that some power relational factors may impede contribution in certain scenarios, there was no worry for this, as municipal staff possessing such powers were not expected to attend the strategy formulation workshop. For instance, both participants acknowledge that in a meeting where the municipal manager, Chief Financial Officer (CFO), or other directors were present in (*all of who are not expected to attend the workshop*), they will rather keep

opposing views if they have any, for fear of reprisal. However, this power challenge did not seem like it will be a problem for the selected municipal staff scheduled to attend the workshop. Even as it related to the relationship dynamic between the *operations manager* and the *departmental clerk* who were being interviewed together. Firstly, at the interview, there is no sense of fear by the *departmental clerk* in airing her views, in the presence of the *operations manager*. Also they both explicitly admit that there is an open relationship in their department between the *operations manager* and his subordinates, where they are allowed to express themselves. Furthermore, they both explicitly agree that they only will refrain from airing opposing views they may have in the presence of more senior personnel *e.g.* the municipal manager, directors, and the CFO. In relation to intellectual resource group structural element, it is revealed that both interviewees are competent at their jobs, and as such will be able to duly provide needed insights on how particular municipal processes should work, as may be requested at the strategy workshop. Finally, it is revealed that in relation to their interpersonal orientations, the operations manager is people oriented, while the departmental clerk is task oriented.

Upon completion of the interview with this group, the interventionist proceeds to the office of the communications officers (*champions*), to also get their views on the possible group structural elements to be taken note of. One of the two communications officers is interviewed as the other had just recently resigned. The communications officer is present at her office when the interventionist arrives. The interview, transpires for about 12 minutes. The same set of questions asked to the DEIS staff are asked to the communications officer. Her answer is somewhat conflicting as relates to the power structure within the municipality. In her view, even in cases where the municipal manager is present at a meeting, she will not refrain from airing her views, even if such views oppose those of more superior employees. As has been indicated, these more powerful employees were not expected at the strategy formulation workshop, so there was no need to probe further. Also in relation to intellectual resource, she indicates that she is competent at her job, and as such, will be able to provide insights needed by her at the workshop in relations to communications within the municipality. She then indicates that she is more people oriented, and less task oriented, as this relates to her interpersonal orientation.

The last interview that is conducted on group structural elements is with the *customer service officer*. This takes place right after the interview with the communications officer. Once at the customer service office, the interventionist commences the interview after informing the *customer service officer* on the intent of the interview, and the usefulness of the results. Again the same set of questions are asked to the *customer service officer*. The customer service officer in relation to intellectual resource indicates that he is competent at his job. Nonetheless, he also suggests that placed in a position where he may need to oppose the views of more powerful personnel in the municipality, he will not hesitate to air his views. With regard to his interpersonal orientation, he suggests that he is task oriented.

The interventionist contemplates whether or not to probe further in relation to the conflicting views on power relations and how that may affect group contribution, however he decides not to, considering that none of the more powerful municipal employees are expected to be at the workshop. Besides all interviewed employees indicate that they are competent at their jobs. Additionally, amongst interviewed staff, there is an indication of a healthy balance of people oriented, and task oriented individuals as regards their interpersonal orientation.

Whereas the interventionist had planned to carry out interviews for all employees invited to the municipal problem demarcation/strategy formulation workshop, this was not possible due to unavailability of the rest of the municipal staff at the time interviews were conducted. The municipal communications officer (champion) suggests that the interventionist email the questions to all municipal staff that had been invited to the problem demarcation/strategy formulation workshop, who had not been as yet interviewed. In response to this suggestion, the interventionist emails an attachment of the interview protocol to the targeted employees. In the email the importance of the interview questions is explained to them, and it is indicated that the answers needed to be emailed within a particular time frame to enable analysis before the planned problem demarcation/strategy formulation workshop. It is surprising that there is not a single response from eight staff that interview questions are emailed to, even after several reminders by the municipal communications officer (*champion*).

The interventionist concludes at this point that he may have to make do with answers provided by the four interviewed employees.

Nonetheless, the lack of response from the rest of the municipal staff, confirms to the interventionist that it may not be a good idea to email questionnaire instruments or interview questions to municipal employees, as you may not receive any response.

This lesson is especially important to take note of, as the projects technical manager (co-director), had once suggested that baseline questionnaires to be administered to municipal staff be communicated via email, with a request for respondents to follow a link to fill out an online questionnaire, as opposed to a hard copy form. In contrast to this proposed data collection suggestion, it is observed that when data collectors were physically present, with a hardcopy instruments, there was some pressure on the municipal staff to fill out the questions immediately (*as was observed during the baseline study*). A copy of the interview protocol for assessing group structural elements can be accessed in Appendix (Case D).

Planning for Municipal Problem demarcation/strategy formulation workshop

The interventionist was primarily responsible for planning the problem demarcation/strategy formulation workshops as this is his research focus, however he receives help from a number of MobiSAM project team members. A first meeting is scheduled between the interventionist and the projects strategy and evaluation manager to discuss activities that the workshop should comprise of. Following this meeting, a programme is articulated and drafted by the interventionist for both planned strategy workshops. Activities planned are mainly informed by phase 3 of the e-Government strategy formulation framework, which proposes ways of understanding stakeholder problems, outlining objectives based on identified problems, and suggesting means of achieving objectives.

The derived programme for the municipal strategy workshop is shared with the strategy and evaluation manager (co-director), and other strategists and evaluators on the MobiSAM team. They make minor suggestions for the programmes refinement, after which the interventionist makes suggested changes thought to be relevant.

Essentially, six activities are planned for the municipal problem demarcation/strategy formulation workshop: *Problem identification, problem scoping, objectives setting and discussion of possible costs to achieve objectives, discussion of possible means of achieving objectives, presentation of findings on current flow of service delivery reporting within the*

municipality, and an activity aimed at articulating a proposed reporting structure for when MobiSAM is integrated.

Municipal Strategy workshop proceedings

The workshop is planned for an afternoon. Municipal employees arrive 45 minutes after the scheduled time. Interestingly, of the twelve 12 expected employees, only four (4) show up for the workshop. The MobiSAM team would only realize the reason for this later. It is found out 5 minutes to the end of the workshop that the municipal manager who was only employed in an acting capacity, and not on a permanent basis had just stepped down, due to her tenure end. Seemingly, for this reason staff had no incentive to listen to the directive she gave about compulsorily attending the workshop. It is recognized that as long as she was not occupying the municipal manager role anymore, there will be no reprisal for their absence at the workshop.

The four employees in attendance included – the municipal communications officer (*champion*), a newly appointed communications assistant to replace the assistant who had just resigned, the operations manager of the DEIS, and a newly appointed information and communications technology (ICT) manager of the municipality, as the previous one had also resigned. From the MobiSAM project team, there were seven personnel in attendance.

The workshop starts off with an ice breaker. In contrast to the controversy that arose amongst team members when this (*an ice breaker*) was proposed for the municipal needs assessment there was no debate. The technical manager (co-director), due to other academic commitments, was working on the project remotely (*from another location*), and as such was not physically present for the planning stages, and actual municipal strategy workshop. Considering that she was absent, there was no other person opposed to an ice breaker suggestion. The icebreaker is centred around service delivery and communication. It is carried out in order to get people relaxed, but more importantly to prepare their minds (stimulate the brain) for the planned workshop activities.

Upon completion of the ice breaker session, the strategy and evaluation manager (co-director), informs the municipal staff in attendance on the purpose of the workshop (*indicating that it is to get their views on how best MobiSAM should work in the*

municipality). She goes on to reiterate the value that MobiSAM will potentially contribute to service delivery reporting and handling in the municipality. Whereas this value proposition had been mentioned on several occasions (*e.g. at the needs assessment, and at the baseline study stage*) it is thought important to reiterate. This is done firstly, to remind attendees why the MobiSAM project should be taken seriously by municipal staff. Also it is done to introduce MobiSAM to employees who have recently been employed by the municipality, and as such have not heard about MobiSAM. For instance, the newly employed ICT manager, as well as the newly employed municipal communications assistant (*both of whom are in attendance*).

Once introductory aspects are completed, the first activity planned (*problem identification*) is introduced. Referring to the framework (*chapter 7*) it can be observed that a means-end diagram is proposed to support the problem identification activity. As opposed to employing a means-end analysis to identify the problem, a problem tree is employed at the workshop. This option for identifying the problem is employed, due to the fact that two weeks prior to the planned municipal problem demarcation/strategy formulation workshop, an IS specialist who routinely runs strategy workshops had visited the MobiSAM project team.

On her visit she introduced some activities to the project team, one of which was the use of a problem tree to undertake a problem demarcation process. The use of the problem tree, was interactive as observed by the interventionist. With this activity, members of the project team were split into two groups. Each group was expected to draw a tree diagram. At the trunk of the tree group members were expected to list problems they believe the municipality is currently facing. In-between the roots of the tree, group members were expected to list the causes of these problems. Then at the branches of the tree group members were expected to list visible symptoms of the problems that had been listed at the trunk. Finally, on the side of the tree drawing, group members were expected to list some positive things that the municipality was doing right. With this diagram completed, team members were then asked to focus the problem. Focusing the problem as the visiting IS specialist pointed out involved identifying a problem or some problems from the list of problems that something could actually be done about. For instance, lack of communication, could be a selected problem to be addressed (*focused on*). This focused problem or problems will then be expected to constitute the focal point of attention,

throughout the workshop. Considering that the activity looked quite straight forward, it was decided that this would be adopted for the MobiSAM problem demarcation stage of the strategy formulation workshop. The means end diagram had several rules, which may have required a bit of cognitive processing for the limited time (*as scheduled for the strategy formulation workshop*).

As practiced at the workshop run by the visiting IS consultant, the municipal attendees at the strategy formulation workshop are told to form a group. Only one group is formed as there are only four municipal staff in attendance. They are then asked to collaboratively draw a problem tree, and carry out the same activity explained in the previous paragraph with the problem tree. The four workshop attendees as a group are given 20 minutes to undertake this activity, including: *a list of the municipalities most prevalent problems as they relate to service delivery, listing the perceived causes of these problems, listing the symptoms that suggest that these issues are existent, and finally, some commendable things that the municipality is doing right.*

Upon completion of the problem tree activity, the group is asked to select one participant to present the listed factors in the drawn tree. The operations manager of the DEIS functional area is selected by the group to present – as such, he presents. Once he is done presenting municipal attendees are given a 15-minute tea break. In this time period (*tea break*) the interventionist and other MobiSAM strategists and evaluators gather around the drawn tree. They then attempt to group the identified problems into themes, while seeking to point out listed problems that MobiSAM is capable of addressing.

Collaboration amongst the facilitators and other project team strategists and evaluators at this point, helps for quick brainstorming and articulation of how some of the listed concerns that are pointed out can potentially be addressed by MobiSAM. As intended, this brainstorming session is concluded after 15 minutes, and municipal attendees are called back into the workshop venue.

Once the group has reconvened, the interventionist, and the strategy and evaluation manager (co-director), take turns in relating particular identified problems to MobiSAMs capabilities. Issues identified were primarily communication related. Firstly, one of their identified problems during the exercise was the recurring service delivery protests that were

happening in Makana municipality by frustrated citizens, who feel that the municipality does not care about service delivery challenges being faced by citizens. On this challenge, it is explained that MobiSAM as a communication tool, will enable the municipality to better communicate with citizens, with its ability to be used on a wide variety of communication tools, and its consideration for reach of all demographics of municipal residents. Also the attendees mention the need to send out warnings, and other types of broadcasts to municipal residents, who sometimes are not aware of how some of their (*municipal residents*) behavioural patterns are detrimental to the municipalities effort to provide services to other citizens. For instance, there is complain that sometimes citizens in certain areas over consume water hence leaving little to no reserves (*over capacitated plants*), for other areas that may also need water. As it is explained, it may be necessary for such citizens to get warnings when it is noticed that they are depleting water reserves to less than acceptable thresholds. Again, it is emphasised that MobiSAMs ability to broadcast mass messages, as well as broadcast messages to a particular section of the municipality can help with dealing with this challenge.

There is agreement by municipal staff that there is indeed a role that MobiSAM can play in addressing the scoped challenges. Figure 9.4 below is a copy of the problem tree generated by municipal attendees.



Figure 9. 1: Problem tree generated at municipal strategy workshop

Municipal Strategy formulation: Objective setting, costs identification and indicator elicitation

Once the problem has been scoped and agreed on, the next planned activity is the brainstorming of ideas (objectives) to deal with the scoped problems. Of course the main focus is MobiSAMs integration, however, MobiSAM is being integrated to enhance particular processes. Objectives this section seeks to elicit are processes MobiSAM is expected to enhance, as well as processes that demand modification in order for MobiSAM to effectively be used. The e-Government strategy formulation framework in discussing this activity – suggests that an objective tree should be employed, to better define the focal objectives. This is however not used, based on the number rules that the participants would have had to internalize when using the proposed objectives tree. The interventionist who has had time to reflect on the problem prior to the workshop had a number of questions articulated in relation to how communication could be improved between the municipality and citizens. In reflecting on the topic, it is realized by the interventionist that in order to improve communication between the municipality and citizens, firstly, internal communication between the municipal service delivery value chain will require improvement. As such, this is the first objective mentioned by the interventionist. The interventionist then requests that municipal staff propose other objectives. It is believed that by requesting input from municipal staff they will feel more involved in the process, and as such, it is expected that they will be more committed to the solutions that they propose.

The first response is provided by the DEIS operations manager. His response is in relation to a possible way for internal communication to be improved within the municipality. In relation to this, he proposes that communication has to be streamlined. He expands on this by indicating that specified personnel (*a selected team*) should be tasked with the responsibility of ensuring that service delivery reports get to the concerned departments for which they are intended. He continues by adding that at the moment, there are no specified personnel responsible for ensuring that reported service concerns are communicated to the concerned department. This flaw often times results in situations where a reported concern is either not communicated to the concerned department, or communicated late. He continues by adding that currently everybody is deemed responsible for communication, thus often creating a scenario where conflicting information is circulated.

There is objection to this suggestion by the municipal IT manager who feels that in every municipal institution it is imperative for all employees to be constantly informed about

what is happening – implying that this should not only be the responsibility of a particular team. He explains further by indicating that it will be embarrassing, where a scenario arises that a staff is asked about the status of a service delivery issue by a citizen and he is unable to provide an answer. The operations manager responds by pointing out that if too many people are responsible for delivering messages to citizens, messages may get distorted in the process.

The MobiSAM team agrees with the points raised by both parties. However, it is noted that while it is important for all employees to be informed, it is also essential to have particular people responsible for receiving and relaying service requests – in order to enable accountability. The municipal ICT manager agrees with this point.

Another objective pointed out by municipal staff is the need to enhance the municipalities brand (*Makana brand*). This however as is pointed out will only be realized where there is an observed improvement in the extent to which reported concerns are addressed promptly and effectively, as well as the extent to which there is immediate feedback on reported service requests. In relation to this it is then pointed out that two-way communication between the municipality and citizens needed to be improved.

It is then raised by the municipal communications officer (champion) that the municipality will like to exhibit more transparency in dealing with citizens, as often times when they share their challenges and constraints with citizens – citizens often do not believe them. Finally, it is proposed by the interventionist that it will serve the municipality well where they strive for more evidence based engagement with the national government. As it is anticipated, MobiSAM will enable varying visualizations of aggregated stored service requests and polls. Such data it is hoped could then support dialogue with the national government where the municipality needs backing with extra or increased funding from the national level.

Next the interventionist requests that possible costs of achieving mentioned objectives be discussed. This is important as well, as it gives participants an idea/preliminary projection of what it will cost the municipality and their selves to achieve the objectives they have listed. A number of costs are suggested by both municipal staff and MobiSAM team members. **Discussing costs was useful in helping municipal staff to envision the possible**

dedication, commitment, and resources that would be required to achieve objectives. The discussion of costs is then followed by an attempt to determine indicators to provide signals that objectives are being met or not met. With respect to indicators, whereas there are a few suggestions made by the interventionist and MobiSAMs newly appointed technical officer, the strategy and evaluation manager (co-director) proposes that this section be skipped, as it required more thinking. The interventionist however jots down the briefly mentioned suggestions by municipal staff at the workshop.

Presentation of current flow of service delivery reporting within the municipality

In order for MobiSAM to be used effectively within the municipality to support service delivery reporting, it is thought important that its design considerations support routine processes employed by the municipality for service delivery related reporting. Revealing's from the analysis of the municipal baseline data aided in mapping out the current service delivery reporting structure – illustrating how information flows when service delivery concerns are being reported. This section of the strategy formulation workshop was aimed at presenting a diagrammatic representation of the service reporting structure as observed from the baseline data analysed. It was hoped, that municipal staff will confirm whether or not the presented existing reporting structure is indeed how service concerns are currently reported. There is anticipation that MobiSAMs integration will either be based on this reporting structure, or that a new reporting structure will be proposed. Based on the objective to improve the municipalities internal communication it is decided that a new reporting structure will be proposed. However, it was important to illustrate to municipal

employees that the current reporting structure was understood, so that in proposing a new structure, an explanation can be provided as to why modifications are deemed necessary.

The diagrammatic representation is presented by the interventionist using PowerPoint slides while verbally explaining. This helped for easy communication to municipal staff.

Figure 9.5 below depicts this service delivery reporting flow.

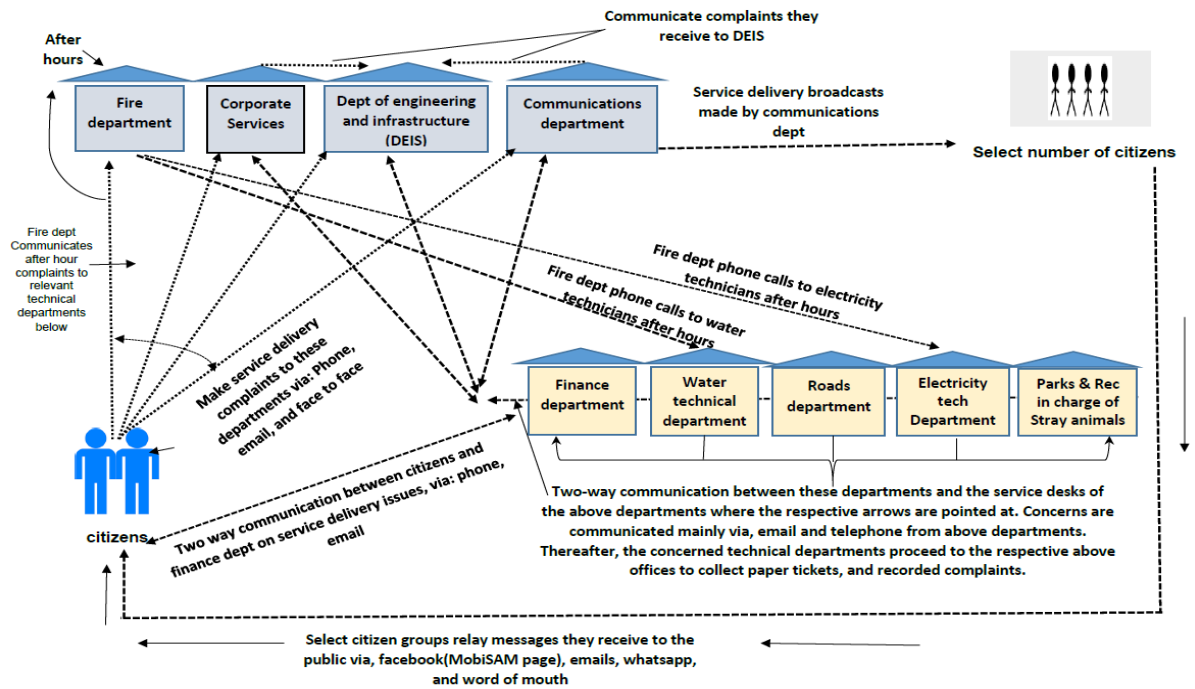


Figure 9. 2: Current municipal service delivery reporting structure

Municipal employees in attendance agree that the depiction is accurate. Upon completion of the presentation, the DEIS operations manager indicates that the diagram confirms and validates the earlier point he made about why communication reporting has to be streamlined. He points out that if there is going to be an effective reporting and feedback structure there must be a centralized unit responsible for relaying messages to concerned departments rather than everyone having to do this, but without responsibility directed at them. This illustration therefore served as a base, for the articulation of a proposed service delivery reporting structure to replace the current reporting mode.

Articulating a Proposed flow for Service Delivery Reporting

Led by the strategy and evaluation manager (co-director), all attending members (*municipal employees and the MobiSAM team*), together articulate a proposed flow for service delivery reporting – from the point of citizens lodging requests, to the reported message getting to the concerned department, and subsequently to where a case has been handled and it is closed, and feedback is provided to the reporting citizen. While full confirmation could not be garnered, due to the absence of a number of the expected municipal staff at the workshop – it is suggested that these absent employees will be visited in the near future to discuss the newly articulated service delivery reporting structure – as well as elicit any information requirements they may have for reporting of service delivery issues. It is anticipated that

this data will inform planned modifications to the MobiSAM system. Hence, this was also deemed one of the more important aspect of the municipal strategy formulation workshop.

Confirmation of equipment needed and policies

Whereas the assessment of the technical status of the municipality (*baseline study*) had provided information on available ICT equipment within the municipality, it was thought necessary to take two minutes to confirm with attending employees any ICT equipment they felt was lacking to ensure that MobiSAM functions successfully within the municipality. To this there are no responses. It is concluded that at the moment there is sufficient equipment, and that as the system is implemented, any needed equipment will be identified with its ongoing functioning.

Finally, important policies anticipated to guide MobiSAMs integration and use are listed, with the help of municipal staff. This is a useful exercise as every institution has policies that guide technology deployment. On this topic, the municipal IT manager informs the MobiSAM team about the IT master systems plan (IT strategy), which as he suggests is a document that maps out a five-year plan of how ICTs and ICT projects will be undertaken in the municipality. The MobiSAM team had not been aware of the existence of this document previously. The interventionist adds this to the already identified communications policy, and communications strategy of the municipality, as potential policy documents to guide MobiSAMs integration.

The workshop concludes by discussing the way forward, in order for municipal employees to be informed and expectant on what is to come following the workshop. In discussing the way forward, the strategy and evaluation manager (co-director) indicates that a workshop is planned for citizens, similar to the one held for municipal staff, to get their views as well on how MobiSAM can best be deployed. She then goes on to request that the municipal officials inform the project team on protocols that need to be observed in working with the municipality, as most of the project team members are not particularly specialists on local government. The municipal problem demarcation/strategy formulation workshop concludes on this note.

Information requirements Elicitation/Municipal confirmation of proposed service reporting

At the municipal strategy formulation workshop, it had been agreed that MobiSAMs technical officer will meet with personnel from the various departments of the municipality within MobiSAMs scope, in order to elicit their information requirements for service reports to be made. This meeting was scheduled with the help of the champions (*municipal communications officers*). The municipal communications officers believe the process would be more efficient if all of the required staff are assembled at a venue within one of the municipal offices. The meeting is arranged for a morning. There are 8 municipal staff in attendance, some of whom were not present at the municipal problem demarcation/strategy formulation workshop. Especially important to mention is the presence of representatives of the municipalities finance department, who were not initially included in MobiSAMs scope of service delivery issues to be addressed. Nonetheless, it is pointed out that financial queries are one of the more frequently communicated queries made by citizens, and as such, it is thought important that they are included in MobiSAMs scope. It is also pointed out by several municipal staff at the meeting that stray animals are a huge challenge, and therefore should also be included in MobiSAMs scope. For this reason, these two service areas (*finance*, and *stray animals*), are added to the initially planned four service delivery areas (*water*, *electricity*, *roads*, and *sanitation*) MobiSAM hoped to focus on.

The meeting begun with the strategy and evaluation manager (co-director) requesting that everyone in attendance introduce themselves. After the introduction, the strategy and evaluation manager (co-director) explains what MobiSAM is all about, keeping in mind that some of the municipal employees in attendance were not present at the municipal strategy formulation workshop (e.g. *the 3 municipal finance officers present at the meeting*). Also for the sake of these staff, she narrates the process of how a new service delivery reporting structure was decided upon at the municipal strategy formulation workshop. She indicates that the proposed reporting structure was suggested in order to support the effective reporting of services faults through MobiSAM. This includes mention of a centralized unit of information entry, and the incorporation of a ticketing system to provide a unique identity for each reported service concern to be communicated by the centralized unit to the various departmental levels. A diagrammatic depiction of the proposed reporting structure is distributed to all municipal staff in attendance.

The three finance personnel in attendance, are concerned that with the proposed reporting structure, all communication of opened tickets are expected to go through the centralized

unit, with no room for intra-departmental ticket communication. They expand by stating that often times, in order to provide feedback to citizens on a particular issue, they have to confirm certain details with other departments (e.g. electricity or water department). They therefore request that the conceptualized reporting structure should be modified to allow intradepartmental communication of tickets between the finance department, and the water and electricity department (*who they may need to make confirmations with*). This request is taken note of by MobiSAMs technical officer.

Next, the technical officer requests information from the representatives of each municipal department of service areas within MobiSAMs scope. In anticipation of the meeting, the technical officer had articulated possible information requirements that each department may deem necessary where a service recipient is lodging a service related request. Copies of the document containing the articulated information requirements, were shared with municipal attendees at the meeting. Municipal employees were then able to select information requirements they deemed necessary, eliminate those they didn't see as required, and suggest information requirements that the technical officer had not considered.

Essentially, two tasks were achieved at this meeting. Firstly, the proposed service delivery reporting structure articulated at the municipal strategy formulation workshop was confirmed with municipal staff (especially those who were not present at the municipal strategy workshop). Concerns with the proposed reporting structure were in fact pointed out. Secondly, information requirements thought necessary for lodging a service concern were elicited from staff of departments within MobiSAMs scope.

Citizen/Civil Society Problem Demarcation/strategy formulation Planning

Planning for the civil society/citizen strategy formulation workshop began by seeking to identify active civil society, and citizen groups within Makana municipality. This data is elicited from the baseline data on **communication ecologies in the community**. As has been indicated earlier, the interventionist was not part of the MobiSAM team assigned to this facet of assessment. As such, it was necessary to meet with the personnel from the MobiSAM team assigned to this assessment facet. These included both of MobiSAMs communications and citizen engagement officers, and the community coordinator. A meeting was scheduled with these personnel to make inquiry on who the appropriate civil

society and active citizens to potentially invite to the citizen problem demarcation/strategy formulation workshop (*based on the team's perception of the most active groups in civic engagement matters*) should be. This identification approach is parallel to the *imperative* and *social* approaches described in Table 7.1 of chapter 7. The list of potential attendees drafted included 20 civil society groups, and two active citizens (*individuals*).

Letters are drafted by the interventionist in collaboration with the team members assigned to the citizen facet of the project. The letters included the intent of the problem demarcation/strategy formulation workshop, the reason invitees are identified as important stakeholders to attend the workshop, the proposed date, the venue, and expected time duration. The letter also requests that stakeholders RSVP their intention to attend the workshop, two days before the scheduled date. Finally, the letter informs the potential participants of free transportation arrangements to be made for those who may potentially have a challenge with transportation. Transportation arrangements are included in the plan to ensure that distance would not be a potential factor that impedes any invited participants from attending the workshop (*especially for marginalized attendees who are not mobile*). The workshop is scheduled to take place two days after the municipal strategy formulation workshop.

The programme preparation had been done alongside that of the municipal workshop. The following activities are planned for the workshop – *an introduction of MobiSAM, problem identification, problem scoping, objective setting and indicator identification, discussion of means, discussion of costs, garnering commitment, and a presentation of the way forward*.

Civil society/citizen Strategy workshop proceedings

The workshop is scheduled for the afternoon. Stakeholders begin arriving about 5 minutes after the slated time. Arrivals keep on happening up to thirty minutes after the slated time. A significant number of the invited stakeholders are in attendance. These included 15 individuals representing 8 different civil society groups. The workshop commences with a request that attendees fill out an attendance sheet, where in addition to writing their names, they also provide the organizations that they are affiliated to (*with the exception of active citizens in attendance*).

The workshop is facilitated by the strategy and evaluation manager (co-director) and the interventionist. Once everyone is settled down, the strategy and evaluation manager (co-

director) introduces herself, and thanks everyone for attending, she then again reiterates the purpose of the strategy formulation workshop – indicating as well, that as much as it would have been nice to have more citizens involved, it would have been virtually impossible, due to the venue size, and other logistical issues.

All attendees are then asked to openly introduce themselves, to encourage more familiarity amongst different groups, and familiarity with the MobiSAM team. Once this is completed, one of MobiSAM's strategist and evaluator facilitates an ice breaker session to get everyone's mind prepared for the planned activities. By the end of the ice breaker session, people seem more free, and ready to contribute to the workshop. The strategy and evaluation manager (co-director) then proceeds to talk about MobiSAM quite elaborately, indicating the purpose of the system, the scope of service delivery issues it intends to address, its benefits, its functionality from the citizen's point of view, and a brief recap of what was discussed in the strategy formulation workshop conducted for municipal employees.

Once this background is elaborated on, the strategy and evaluation manager (co-director), introduces the next activity which is the problem identification exercise. As was carried out in the municipal strategy formulation workshop, the citizens are split into 4 groups. The problem tree concept is explained to attendees. Each of the 4 created groups is then asked to draw a problem tree as was carried out in the municipal workshop – indicating – *some perceived service delivery problems within Makana municipality, their root causes, some visible symptoms of the problem, and commendable things – which they notice that the municipality is doing right*. Attendees are given 20 minutes to undertake this activity. Members of the MobiSAM team walk around the 4 groups, to answer any questions attendees may have had about the proposed problem tree activity.

Upon completion of the activity, the strategy and evaluation manager (co-director), requests that a member of each of the 4 groups, comes to the front of the venue to present what is depicted on their problem tree to all workshop attendees. While this is going on, one of the attendees exits the workshop upset. She was a staff of the municipal library, and as such was the only individual in attendance employed by the municipality. She indicated that she felt that she was invited to be verbally attacked – as all that was being pointed out by other participants are the shortcomings of the municipality. She further accuses the team of

inviting her purposefully, to ensure that the municipality and its representatives are humiliated in front of citizens. This however was not the reason she was invited. In planning for the citizen workshop, the project team had thought it wise to invite a librarian from the municipal local library, as the library is a centre where community members go to access internet services. This essentially meant the library could potentially act as central access point for MobiSAM – especially for the underprivileged.

The librarian however interpreted the intention wrongly. This case though aided in confirming that it would have been a bad idea to bring municipal staff and citizens together for a joint workshop without having separate problem demarcation/strategy formulation workshops (*as the framework initially suggested*) – as emotions may have run high, and people may have become irate from finger pointing by opposing groups (*municipality versus citizens*). It therefore helps to have separate workshops for conflicting stakeholder groups. Where it is expected that conflicting groups must be brought together, problem presentations should be carried out by the interventionist in a diplomatic way to avoid offenses being taken.

As would be expected from more groups, than was formed at the municipal strategy workshop, a significant amount of problems, symptoms, and root causes are identified at the citizen workshop. Once the representative of each group was done presenting to all attendees, the strategy and evaluation manager (co-director) requests that attendees take a 15-minute tea break, thus providing the facilitators with time to thematically analyse findings to see what common problems identified amongst groups MobiSAM can possibly address. At this point there is a recess.

At the break, collaboration amongst the facilitators, helps for quick brainstorming and articulation of how some listed concerns (*problem areas*) that are pointed out by the four groups can potentially be addressed by MobiSAM. As intended, this brainstorming session is concluded after 15 minutes, and municipal attendees are called back into the workshop venue.

Once attendees reconvene, the strategy and evaluation manager indicates that the problems had been looked at, but considering the fact that service delivery problems are complex and multifaceted, all problems cannot be addressed. Nonetheless, she indicates that MobiSAM

can play some role in addressing some of the identified problems. MobiSAMs role is mainly focused around: *two-way communication enhancement between the municipality and citizens*, *the use of collated service delivery requests over a period of time for planning by the municipality*, and *evidence based engagement between the local government and civil society – as all reported concerns will be transparent for all parties to see (local government and citizens alike)*. Also, in response to a concern from one of the groups on the lack of appropriate technology to support communication between the local government and citizens, it is pointed out that MobiSAM is designed to leverage off existing technologies, such as cheap mobile phones, smart phones, and computers. The problem scoping helps attendees to realize that while there are a substantial number of problems (within the municipality), which when combined seem overwhelming, the projects intervention as a start seeks to take on some of the challenges, however acknowledging that it will not be able to address everything. Note with this problem identification exercise, the project team's role is limited to scoping the problem. Essentially, problem identification should be carried out by civil society/citizen attendees.

With the problem scoped, the strategy and evaluation manager hands over to the interventionist to undertake an objective setting activity. The interventionist requests that attendees suggest objectives that can be aimed at to address the scoped problems. The interventionist provides an example of an objective (*enhanced government responsiveness to service requests*). With an example provided, attendees begin to list other objectives. Attendees are impressively engaging here – pointing out objectives such as: *greater levels of citizens sensitized on their rights, increased government accountability on their mandates and expected responsibilities, and an increased level of evidence backed engagement with the local government*. Objectives are noted down on a whiteboard in the venue, to allow for further analysis by the facilitator after the workshop.

The interventionist then proceeds to discuss foreseeable costs of achieving proposed objectives. Again this is posed as a question – to ensure that the anticipated costs are being considered and suggested by the attendees and not the project team. It is conjectured that in discussing potential costs attendees will become more empathetic to the hurdles the project has to overcome, thus urging them to visualize what their roles as intermediaries may possibly entail. Again there is quite an impressive feedback on the question posed about possible costs. Costs identified included: *time allocation to attend MobiSAM related*

workshops and meetings, airtime and mobile data required to use MobiSAM for reporting, possible reprisal as a result of reporting public officials who do not effectively carry out their mandates, costs in some traditions and beliefs that certain factions of citizens may have grown accustomed to (habits).

Following this, the interventionist poses a question seeking to elicit responses on how it can be determined that the project is meeting the objectives that had been proposed earlier on (*indicators*). There is intention by the interventionist to think more about the indicators, at a later stage when analysing the data, however, it was thought to be useful to get their views as it is anticipated that some applicable indicators may be proposed. Some useful indicators are indeed proposed by attendees, such as – *the extent of citizen satisfaction with municipal responses to service requests made*, and, *the number of citizens that are thought to be increasingly aware of their civic rights*. Importantly, it is pointed out by the strategy and evaluation manager (co-director) that MobiSAMs evaluation team will further brainstorm and scrutinize the indicators to make sure that they are appropriate for measuring performance of the extent to which objectives are being achieved, nonetheless they are commended for their input.

An attendee at this point abruptly requests to ask a question. Once provided with the opportunity he asks the project team whether or not MobiSAM based on its transparency design will reveal addresses of people who lodge service concerns. He adds on, by indicating that some people are sensitive to such exposure and may not be comfortable with this. MobiSAMs newly recruited technical officer responds by indicating that only the municipality will be able to view addresses, and not citizens.

The final section of the workshop seeks to get some commitment from these active citizens, and civil society groups. This is considered to be an important activity, as it is anticipated that the MobiSAM team does not possess the capacity to reach all residents in Makana municipality. Therefore, it is hoped that active citizens and civil society, with the newly gained understanding of what the project is attempting to achieve, will offer to act in the capacity of intermediaries. As intermediaries they would be expected to champion the project in wards within the municipality where they have a presence. Furthermore, they would be expected to support underprivileged citizens, who are incapable of accessing mobile or computer devices and internet services to register, and make use of MobiSAM.

Attendees are asked to think about how their line of work and possessed resources can be employed to support MobiSAMs objective, more especially citizen engagement through the use of MobiSAM. Most of the civil society groups in attendance make commitments. To further ensure that their commitments are followed up on, the strategy and evaluation manager (co-director) suggests that each civil society group in attendance volunteer a liaison officer, who MobiSAM can constantly keep in touch with, to ensure that each organization is actually carrying out their commitments. It is then indicated that the project team will be in touch with the suggested liaisons to brief them on what their roles will entail, and possible remuneration arrangements.

Once this is completed, attendees are informed on the way forward with the project – particularly the joint strategy workshop, where municipal staff and citizens are expected to be in attendance. After three hours, the citizen workshop is finally concluded.

Analysing Data collected from the municipal and citizen problem demarcation/strategy formulation workshops

All of the data elicited at both strategy formulation workshops (*Municipal employees and citizens*), are collected by the interventionist. The idea at this point is to identify similarities and differences by both groups in terms of perceived problems of service delivery in Makana municipality. Also the analysis seeks to observe if objectives proposed at both workshops could be amalgamated, after getting a common view of the problem from the analysis of data. It is anticipated that the findings will be presented to both groups (*municipal employees and citizens*) at a joint strategy formulation workshop. Over a course of two weeks, this data is analysed by the interventionist.

One particular active citizen that intended to be at the citizen workshop but was unable to attend, requested that an agenda be communicated to him on the possible points of discussion expected to take place at the workshop, and that he will provide feedback to this. The interventionist drew up a number of questions based on the expected points of discussion at the citizen workshop, and emailed it to the citizen in question. After a number of days, the citizen provides feedback, which is analysed alongside data from the workshops.

The problems are thematically analysed in order to get: *a core set of problems, objectives, key performance indicators, (Strengths, Weaknesses, Opportunities, and Threats) SWOT factors for the project to consider, challenges and risks that the project will potentially face, costs and benefits, targeted municipal processes to restructure, the proposed flow of service delivery reporting with MobiSAMs integration, human and material resources required, policies the project is expected to adhere to, and commitments made by active citizens and civil society groups*. Once this analytical process is completed, the interventionist informs the strategy and evaluation manager (co-director). These topics also form the core categories of MobiSAMs drafted strategy document. Refer to Appendix (Case E) for a copy of the strategy document.

Actor Analysis

At the analysis stage, the interventionist also undertakes an actor analysis of all possible stakeholders (*municipal political representation, municipal staff, and civil society/citizens*) considered to be important to MobiSAM. This activity as proposed by the strategy formulation framework is intended to determine the potential influence that each of the actors analysed will have on the project, as well as determine the extent to which actors are perceived to be committed to or against the project.

Considering that the problem had been formulated at this juncture, and the main actors had been identified, an inventory of all possibly important actors could be delineated by the interventionist. In delineating the inventory of actors, the interventionist seeks to analyse the *interests and resources* of the actors in order to determine the actors with a great deal of influence, and those that are thought to be enthused about the project.

As proposed by the e-Government strategy formulation framework, four factors are considered, in order to derive an understanding of essential dependencies – these include: *The perceived importance of the resources possessed by actors to the project; the ease with which these resources can be substituted; the degree to which actor's interests and objectives are aligned with that of the project; and the urgency of the problem to the actors* (Enserink *et al.*, 2010).

To conduct the analysis, all actors are listed on a table, the importance of each of their resources is assessed in relation to the objectives that MobiSAM seeks to achieve.

Furthermore, the criticality of stakeholder resources is determined by the extent to which it is perceived that their resources can easily be replaced. This determines the degree to which it is anticipated that there will be dependency on them, and as such, whether or not they should be deemed critical actors. This tabular analysis is conducted in two separate tables. One table containing the analysis of municipal stakeholders (*political* and *administrative employees*), and the other table containing (*civil society* and *active citizens*). Once this activity is completed, the interventionist creates a power/interest matrix depicting MobiSAMs foreseeable dependency on all actors. With this analysis as the framework suggests, it is possible to view coalitions and alliances that need to be formed, encouraged or discouraged, particularly in relation to the dedicated and non-dedicated critical actors. Also importantly, the actor analysis was requested by MobiSAMs funders. They requested this information to be kept up to date with issues such as: knowing who the project beneficiaries are, as well as who the powerful stakeholders capable of changing the project are. Refer to Appendix (Case F) for a copy of the actor analysis.

Phase 4: The Joint Strategy Workshop

Planning for the Joint strategy workshop

Upon completion of the analysis of separate strategy workshop findings, planning commences for the joint strategy formulation workshop. Again a letter is sent to the municipal manager's office, informing the newly appointed acting municipal manager of the intent to undertake a joint strategy workshop, where the presence of the particular municipal staff will be appreciated. However, unlike with the former acting municipal manager, there is no response. This indicated to the project team that there was much more support from the previous acting municipal manager than the incumbent.

Once the scheduled date of the joint workshop is approaching, and there still has been no response from the newly appointed acting municipal manager, it becomes more concerning. Worried about the lack of response from the municipal manager, the interventionist approaches the strategy and evaluation manager (co-director) to inquire what could be done to ensure municipal staff attend the workshop, considering that the approval of the municipal manager was required prior to inviting staff. The strategy and evaluation manager (co-director) suggests that as a contingency, the municipal communications officers (MobiSAM champions) should be invited to attend the workshop, and serve as

representatives of the municipality. With this alternate decision, the municipal manager will not need to be notified as it had become customary for the project team to often invite the champions (*municipal communications officers*) for meetings. This decision would diminish the need to get the municipal managers consent for other staff to be in attendance at the workshop. As suggested by the strategy and evaluation manager (co-director), the interventionist contacts the communications officers requesting that they attend the joint strategy formulation workshop. They consent to this request.

As had become common practice letters are sent to civil society and citizen groups. Unlike with the planning of the last workshop with citizens, this time around there was a clear indication of active citizen groups, and civil society organizations that were expected to be in attendance at the joint strategy workshop. The list of potential attendees is informed by the list of attendees that were present at the previously conducted civil society and citizen problem demarcation/strategy formulation workshop. Also the actor analysis conducted by the interventionist at the data analysis stage provided information on the potential importance of each civil society/ active citizen group to the project. As usual, letters contain particular information about – purpose of workshop, venue, scheduled time, and logistic information about transportation arrangements.

The interventionist and the strategy and evaluation manager (co-director) meet to plan for the joint workshop. As proposed by the e-Government strategy formulation framework, the interventionist suggests that the workshop content focus on a presentation of identified problems from each groups perspective (*municipal employees and citizens*), joint objectives, and means for achieving objectives. The strategy and evaluation manager (co-director), however, feels like the problems must be presented diplomatically in order to avoid igniting disputes among the two groups (*municipal employees and citizens*). Also, in line with proposals by the e-Government strategy formulation framework, the interventionist attempts to articulate a mission and vision for MobiSAM, which is also to be presented at the joint workshop. The articulated mission and vision is informed by: *the municipalities vision which is stated on the home page of the municipal website, the objectives MobiSAM seeks to realize, and the objectives articulated with civil society and citizens*. Upon articulation, the interventionist shares the drafted mission and vision statement with the strategy and evaluation manager (co-director), who requests that he shares it with other team members of the project to garner some feedback. This is done,

and feedback is provided by a number of personnel from the project team. The interventionist goes on to revise the proposed topics of presentation for the joint workshop based on suggestions made by the strategy and evaluation manager (co-director). This is then again shared with the strategy and evaluation manager (co-director), who ok's it.

Joint Strategy Workshop Proceedings

The joint strategy workshop is scheduled for an afternoon. Civil society and citizens begin to arrive about 10 minutes after the scheduled time of the workshop. Most of the civil society groups that attended the previous strategy workshop had representation at the joint strategy workshop, however there are a few new groups represented at the workshop. The workshop does not commence until about 30 minutes after the scheduled time. This is due to the fact that the workshop facilitators (*the interventionist* and *the strategy and evaluation manager (co-director)*) were awaiting the arrival of the municipal communications officers (*champions*), who were expected to represent the local government. After waiting for some time, the strategy and evaluation manager (co-director) places a phone call to the communications officers to inquire why they had not arrived. Only then did they indicate that a traditional king from within the region (Eastern Cape) made an unexpected visit to the municipality, and as such, as the communications officers, they had to be present for the king's arrival. They extend their apologies. The workshop has to commence in their absence. An attendance register is passed around. The interventionist then introduces himself and requests that everyone also do so briefly. Once this is done, the interventionist commences the presentation. He apologises on behalf of the municipal staff, indicating that something really important arose last minute, thus inhibiting them from attending the workshop.

The presentation content included – *the MobiSAM mission and vision presentation, MobiSAMs scope (considering it is not expected that MobiSAM will address all service delivery areas), service delivery challenges identified by both groups in the separate strategy workshops, amalgamated objectives from municipal staff and citizen perspectives, foreseeable challenges and risks of integrating MobiSAM, revised service delivery reporting flow to be adopted by the municipality, commitments made by civil society/citizens, and a brief communication on the way forward.*

At the point where the interventionist presented the proposed service delivery reporting structure the municipality had agreed to, it was deemed regrettable that the municipal staff were not in attendance to confirm this, in the presence of the civil society/citizen groups. This would have been appropriate, as it would have illustrated to citizens that the municipality is also serious about the project.

Civil society groups/ citizens in attendance who had made commitments at the strategy workshop held for citizens, confirmed that they indeed made those commitments. Upon completion of the presentation, a number of attendees expressed that they were impressed with the project. Also there were a number of civil society groups in attendance, not present at the first citizen strategy workshop, who made commitments.

One civil society representative however expressed disappointment at the fact that there was no municipal employee in attendance to confirm what the interventionist indicates was discussed at the municipal strategy workshop. He went on to imply that like in this case, if the municipality does not honour their obligations to simply attend meetings and workshops, it is highly unlikely that they will effectively respond to service requests lodged through MobiSAM. The projects strategy and evaluation manager (co-director) responds by stating that optimism must be kept alive. She further indicates that it was municipal staff who proposed that the service reporting structure needed to be modified, which signifies that they would like to see things change. On that note, the way forward is communicated, and the workshop comes to an end.

Presentation of MobiSAM to ward councillors

At the municipal strategy formulation workshop it had been indicated, that it is important for the MobiSAM project to be presented to ward councillors. This is suggested, in order to circumvent displeasure by councillors who if not informed, may feel like the project is deliberately seeking to bypass them to work with citizen intermediaries within their ward constituents. This as is explained would be viewed as disrespectful by the ward councillors. As such, shortly after the joint strategy workshop, the MobiSAM team, sought occasion to present to the ward councillors. The MobiSAM team had constantly sought occasion to meet with ward councillors from the inception of the project, as revealed in the baseline study narrative section. However, all attempts had been futile.

Finally, after several attempts there is an opportunity to meet with them. Shortly after the joint strategy workshop, the municipal communications officer (*champion*) aided in arranging a meeting with ward councillors. She spoke to the Director of Infrastructure and Engineering (DEIS), on behalf of MobiSAM. This was a fitting employee to speak to, as he is one of several important municipal employees who routinely presents at council meetings (*presenting updates on the municipalities service delivery operation as related to his directorate*). He therefore creates a 5-minute slot in his assigned section of the council programme, creating room for the MobiSAM team to introduce the project to all ward councillors who were expected to be in attendance.

At the council meeting, MobiSAM is represented by the strategy and evaluation manager (co-director), the interventionist, the technical officer, and another strategy and evaluation officer. On arrival at the council meeting, the team is asked to wait at the reception even after the council meeting had commenced. The team is only asked to come into the chamber when they are slated to present. They are informed that they have 5 minutes to present. The presentation is carried out by the strategy and evaluation manager (co-director). She briefly tries to describe the value of MobiSAM, the important role ward councillors could play (*as intermediaries*) when the system is integrated, the proposed service delivery reporting structure articulated at the municipal strategy formulation workshop, and the projects progress to date. After the 5-minute presentation, it is indicated by a council representative that it is a noble initiative. However, there are a couple of questions related to ownership of the system, and an estimation of what it will cost the municipality to adopt the system. To answer these questions, the strategy and evaluation manager (co-director) indicates that the system is being implemented as research, aimed at improving citizen engagement, and is fully funded, and as such, will not cost the municipality anything in the interim and foreseeable future (*2 to 3 years from now*). It is further indicated that at some point it will be expected that the municipality take over the operation of the system, possibly after it is determined that they are capable of managing it without assistance. The councillors seem satisfied with this response. Once the presentation is over, the MobiSAM team exits the council chamber.

Evaluation of strategy document

Findings at the separate strategy workshops, as well as confirmations made during the information requirements elicitation and joint strategy workshop, informed the strategy

document that was drafted by the interventionist. The e-Government strategy formulation framework, proposes as a last activity in phase 4 that the strategy document needs to be evaluated for its feasibility. Feasibility aspects considered relevant to evaluate by the framework include: *technical feasibility*, *economic feasibility*, *schedule feasibility*, *operational feasibility*, and *political feasibility*. There is no schedule feasibility conducted in the empirical application, as the strategy document does not contain any time schedules.

To assess the technical feasibility of the created strategy document, all technical proposals (*e.g. the addition of a centralized layer to the system*, and *the addition of a ticketing function*), were discussed with the technical officers, and the programmer at meetings, once they had been proposed. As such, only after the technical personnel had consented to the technical feasibility of these proposals were they included in the strategy document.

Economic feasibility of proposals in the strategy document was assessed by both project co-directors, who are responsible for managing the financial resources required to implement the project. Considering that they were part of the strategy formulation process (*workshops*) they were automatically made aware of any proposals that would potentially have financial implications. Furthermore, the strategy and evaluation manager was responsible for approving the strategy document, before its planned communication to other stakeholders. Therefore, it is expected that she would identify any proposals that potentially exceed the financial capacity of the of the existing budget, and as a consequence request that the interventionist extract such a proposal.

Operational feasibility was assessed by municipal staff, who were responsible for proposing (*in collaboration with the project team*), the modified reporting structure for MobiSAMs planned integration. The proposed structure once depicted as a diagram, was shared with municipal staff at the information requirements elicitation meeting. They consent to this proposed structure, thus confirming the operational feasibility of MobiSAMs functioning within the municipality.

Assessing political feasibility revealed that there may be some resistance from ward councillors. This is revealed by observations of the attitudes of the political arm of the municipality (*the speaker's office* and *ward councillors*) towards the project. Every attempt to meet with this particular group was circumvented. The only opportunity to meet with

them, was at a council session, where the MobiSAM team was given 5 minutes to introduce the project. Though there is perceived resistance from this group, the team will continually attempt to persuade them to see the value of the project. It however helps that the project has the support of the acting municipal manager who was in office at the commencement of the baseline study. She was recently reinstated again. Hence, there is some optimism that the systems deployment and use within the municipality will not be inhibited.

Phase 5: Strategy Communication and persuasion for acceptance

This phase of the strategy formulation framework was not applied, due to the municipality's resource constrained nature, and limited expressed interest in taking ownership of the strategy process. At this phase, it is suggested by the strategy formulation framework that the municipality organize workshops to disseminate the strategy content to their subordinates. Reflection however reveals that left alone this may never be planned by the municipality, given that they have only been responsive to the strategy process, and project as a whole, when pushed by the MobiSAM team. Additionally, suggestions that visits be made to other local governments with thriving e-Government implementations may be unrealistic, due to the municipality's resource constrained nature. As a contingency, after notice of these factors, the project team intends to continue working with the local government for the foreseeable future (*even after the systems implementation*), until there is notice that they will be capable of assuming full responsibility of the systems sustained use. This again brings attention to the realities of working in resource constrained South African local municipality's.