A REVIEW OF THE SUCCESSES AND CHALLENGES OF COORDINATION AND COLLABORATION IN THE IMPLEMENTATION OF E-GOVERNMENT PROGRAMMES: A CASE OF ZAMBIA

By

Zondi Chilembo

A dissertation submitted to the University of Zambia in partial fulfilment of the requirements of the degree of Master of Engineering in Information and Communication Technology (ICT) - Regulation, Policy and Management

University of Zambia

Lusaka

2021

COPYRIGHT DECLARATION

DECLARATION

I, Zondi Chilembo do hereby declare that the content of this document is my own and all other works of other people have been duly referenced and acknowledged. This work has never been previously presented to any University or Institution of learning in and outside Zambia for the same purpose.

Name of Student: Zondi Chilembo

Signature …….…….

Date: …….…….

This document has been submitted for examination with my approval as the Supervisor for the said Student.

Name of Supervisor: Dr. Simon Tembo

Institution: Department of Electrical and Electronic Engineering
University of Zambia

Signature: …….…….

Date: …….…….

CERTIFICATE OF APPROVAL

This dissertation by **Zondi Chilembo** has been approved as fulfilling the requirements for the award of Master of Engineering in Information Communication Technology – Regulation, Policy and Management (MEng ICT - RPM) by the University of Zambia.

Examiner 1	Signature ……	Date..... .
Examiner 2.....	Signature ……	Date..... .
Examiner 3.....	Signature …….	Date.....
Chairperson Board of Examiners	Signature ……	Date..... .

ABSTRACT

Information and Communication Technologies (ICTs) have significantly changed the way citizens interact across society and how governments operate and deliver services to its citizenry. The concept of e-Government has brought about efficiency and transparency in service delivery by working towards ensuring inter-government coordination and collaboration are attained in the context of New Public Administration. Developing countries, Zambia inclusive, have undergone widespread deployment of e-Government initiatives, but experienced high failure rates because some projects never got implemented. In some cases, projects were abandoned immediately after implementation or never achieved the intended outcomes requirements. One of the major challenges encountered in implementation of e-Government is coordination and collaboration among government agencies due to barriers associated with sharing information and integration across their traditional organisational boundaries, with preference to working in silos resulting in duplication and over investment in implementation. The objective of this study *was to review the successes and challenges of coordination and collaboration in the implementation of e-Government programmes – A case of Zambia*.

The summary of the research findings shows that Zambia has adopted an administrative model for institutional coordination. However, the structure of this model has drawbacks and the study proposes a structural design for e-Government institutional coordination to better coordinate and collaborate e-Government programmes. 75% of the respondent indicated that Zambia does not have an interoperability framework in place while 25% indicated its availability thereby making it difficult for systems to integrate in the absence of standards. Secondary data reviewed in this study shows that Zambia scored 0.2588 in 2020 compared to 0.4792 in 2018 on the Online Service Index, which was far below the global average of 0.5620 and a regional (Africa) average of 0.3704. The study looked at e-Government coordination models, inter-agency collaboration among government agencies in the context of e-services and how other countries have successfully implemented e-Government programmes in a coordinated manner using institutional coordination models

In Zambia, several researchers and scholars have reviewed e-Government implementation. However, there has been no study that has sought to review the role of coordination and inter-agency collaboration in implementing e-Government programmes in Zambia. This study therefore was intended to fill that knowledge gap. The results of this study will inform policy makers, ICT heads, and academia to come up with policies, strategies and legislative interventions as well as provoke research that will make e-Government coordination and collaboration of government agencies more effective, efficient, and transparent.

Keywords: e-Government, Coordination, Collaboration, Government to Government (G2G)

ACKNOWLEDGEMENT

I would like to take this opportunity to pass my heartfelt gratitude to all the people who played an important role in assisting me complete my study. Firstly, I am grateful to the Almighty God for giving me good health, patience, strength, and ability to successfully complete this research work. His grace has indeed been sufficient.

To my supervisor, Dr. Simon Tembo, thank you for your resounding thought-provoking insights, understanding and patience that helped me refine the research process to the end under your unwavering guidance and direction. My lecturers Mr. Schuller Habeenzu and Mr. Sanga Sangayakula, thank you for encouraging me to focus my research on e-Government coordination and collaboration and Dr Dani Banda for always bringing new dimensions of doing things.

I am beholden to all research participants for giving their time and proficiency to respond to my questionnaires and interviews. Without your input, this research would not have been possible. To my colleagues, Victoria Musonda, Spriano Banda, Milner Makuni, Kennedy Chibwe, Eddie Liywalii, Georgina Mumba and Chibemba Sikaneta, thank you for your valuable advice, prayers, and assistance you accorded me to enrich the contents of this study. I am indebted to Management at the Ministry of Tourism and Arts for sponsoring me to undertake this study. To all those who participated in one way or the other in contributing to the successful completion of this research work and have not mentioned by name, I say thank you.

Finally, I wish to extend my gratitude to my wife Jane for her support and walking alongside with me throughout this journey; and my sons Zanga and Takondwa for their patience and being my inspiration in everything that I do.

DEDICATION

This document is dedicated to my late parents Mr. Stewart Peter Chilembo and Angela Goma Chilembo both educationalists, who always taught me the value of education.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

CAZ	Communication Authority of Zambia
CCDS	Centralised Computer Services Department
CEEGICT	Centre of Excellency for e-Government and Information and Communication Technology
CCIO	Council of Chief Information Officers
CCK	Communications Commission of Kenya
CIO	Chief Information Officer
ECT	Electronic Communications and Transactions
EGDI	Electronic Government Development Index
EIF	European Interoperability Framework
EU	European Union
GDC	Government Data Center
GEA	Government Wide Enterprise Architecture
GITOC	Government IT Officer's Council
GITS	Government Information Technology Services
GRZ	Government of Republic of Zambia
G2B	Government to Business
G2C	Government to Customer
G2E	Government to Employee
G2G	Government to Government
HCI	Human Capital Index
InfoDev	Information for Development Programme
ICT	Information and Communication Technology
ICTA	Information and Communication Technology Authority
IDA	Infocomm. Development Authority
IT	Information Technology

ITU	International Telecommunication Union
IFMIS	Integrated Financial Management Information System
MoF	Ministry of Finance
MPSAs	Ministries Provinces and Spending Agencies
MoICT	Ministry of Information and Communication Technology
MTC	Ministry of Transport and Communication
OECD	Organisation for Economic Co-operation and Development
OSI	Online Service Index
PACRA	Patent and Company Registration Agency
PMEC	Payroll Management and Establishment Control
PPP	Public Private Partnership
PSTN	Public Switched Telephone Network
7NDP	Seventh National Development Plan
SARS	South Africa Revenue Services
SZI	Smart Zambia Institute
TII	Telecommunications Infrastructure Index
UN	United Nations
UNDESA	United Nations Department for Economic and Social Affairs
UNESCO	United Nations Educational, Scientific and Cultural Organization
ZNDC	Zambia National Data Centre
ZAMPOST	Zambia Postal Services Corporation
ZAMTEL	Zambia Telecommunications Company
ZIAMIS	Zambia Integrated Agricultural Management Information System
ZILMIS	Zambia Integrated Land Management Information System
ZICTA	Zambia Information and Communication Technology Authority
ZRA	Zambia Revenue Authority

CHAPTER 1 - INTRODUCTION

1.0 Background of Study

The advent of the Internet and advancement in disruptive innovative platforms in Information and Communication Technologies (ICTs) have significantly changed the landscape on how citizens interact across society and how governments operate and deliver services to its citizenry. The concept of electronic government has provided opportunities to transform public administration into an instrument of sustainable development (United Nations, 2014).

On the other hand, policy coordination across government is perceived as a key factor in determining effective governance at the national level (Saner et al. 2008; de Vries and Nemec 2013). However, e-Government coordination and collaboration have not been paid much attention in research and a few studies have been undertaken focusing on coordination and inter-agency collaboration (Löfgren 2007).

Several researchers and scholars have reviewed e-Government implementation in developing countries. Nurdin et al (2014) study focused on local government e-Government systems implementation analysed from the perspectives of coordination and cooperation between internal and external actors and agencies. Odat (2012) undertook a study on the Impact of Collaboration and Coordination among e-Government: a case study of Jordan. Sta (2018) focused on organisational structure for the e-Government coordination and interoperability framework: a case study of Tunisia looking at why the establishment of a clearly defined institutional framework and coordination mechanisms are of utmost importance. Further that sustainable and interoperable e-service development and data exchange are based on a clear organisational setup for developing and running the systems.

Matavire et al., (2010) in their study also noted that e-Government implementation in developing countries are generally more problematic in comparison to those in the developed nations. These developing countries face many challenges for e-Government development and implementation such as: Policy issues, ICT infrastructure (limited infrastructure to carry e-services and access by

customers), human capital development (limited skills by ICT personnel and ICT literacy by customers), change management, strategy, leadership role, and partnership and collaboration (Ndou 2004). Most e-Government research has focused more on the external relationships and studies looking at the internal changes are rare (Heeks and Bailur, 2007; Yildiz, 2007; Schuppan, 2009).

In Zambia, some of the studies undertaken on e-Government have addressed different aspects of the study area. Banda (2012) looked at the Success and Failure of e-Government Projects in Developing Countries: the case of Zambia. Some of the findings showed that 66% of the respondents in his study were of the view that government agencies should take a leading role in promoting the e-Government initiatives followed by 26% who chose Public-Private Partnerships (PPP). Chipeta (2017) focused on Review of e-Government Development in Africa - a case of Zambia. The research findings revealed that 14% of telecommunication infrastructures was adequate to support the distribution of electronic services while 86% indicated that it was inadequate. In terms of human capital, 19% indicated that local skills were available to drive the implementation of e-government while 81% indicated there was a lack of specialized skills. Bwalya (2007) observed in his research entitled Factors Affecting Adoption of e-Government in Zambia that usability, trust, and ICT infrastructure were the main impediments to e-Government adoption.

From the above studies undertaken in Zambia and literature reviewed, there seems to be no study that looked at institutional coordination and inter-agency collaboration in implementing e-Government programmes in Zambia. This study, therefore, seeks to fill this knowledge gap by reviewing the successes and challenges of coordinating the implementation of e-Government programmes in a developing country (Zambia) and how inter-agency collaboration can help improve e-Administration. e-Administration in the study context referred to improving the internal working of the public sector by cutting process costs, managing process performance, creating strategic connections within government bodies and creating empowerment. It will contribute to extending research into how coordination and collaboration are practised by internal government ministries/agencies.

1.1 e-Government

e-Government is described as an interaction of government with citizens, public and private sectors by means of communication technology to provide services effectively and efficiently and to communicate with all parties interactively (Rorissa et al, 2011) or can be viewed as the administration, rules, regulations, and frameworks organised by a government for service delivery as well as to communicate, coordinate and integrate processes within itself (Almarabeh and AbuAli, 2010). Additionally, e-Government helps in achieving greater efficiency in government performance by raising service performance, and service delivery by eliminating inefficient processes and reducing bottlenecks and red tape in the service delivery process as much as possible (Mutula, 2008). According to Nkwe (2012), a visit to the government departments was viewed to be a nightmare characterised by a lot of paperwork, long queues, bureaucracy, cramped spaces, and a lot of frustrations. It is a process of reform in the way governments work, share information and deliver services to external and internal clients (Kettani and Moulin, 2014). Internal clients are employees, government departments and agencies while external clients are business entities and citizen.

Studies by Heeks (2016, p3) suggest that the failure rate of e-Government projects in developing countries range between sixty (60) to eighty (80) percent resulting in wastage of financial, human, and political resources and inability to deliver the potential benefits to its beneficiaries. This is attributable to e-Government projects especially systems that require data from other systems developed in isolation or in silos. Heeks (2003) had also reported that the implementation of e-Government initiatives in Sub-Saharan African countries had in most cases recorded failures, broken down as follows: 35% of e-Government projects in developing countries were a total failure, 50% were partial failures, while the remaining 15% were successful. The total failure projects referred to projects that never got implemented or were abandoned immediately after implementation while the partial failure projects were those that did not achieve the intended outcomes as per initial requirements. The other successful projects are those projects that had attained the major goals and suffered from less unintended outcomes. These figures showed the need for research to be done into the challenges to the successful implementation of e-Government initiatives (Kaaya, 2004; Dada, 2006).

1.1.1 Coordination and Collaboration

According to Estevez et al (2007), having a central coordination institution was key for promoting e-Government development within the public administration as it facilitated inter-agency collaboration. It promoted and gained acceptance across government agencies of the frameworks and standards to facilitate interoperability and efficiency. The central coordinating institution also helps to deal with setting technical standards, avoid duplication of efforts by individual agencies, increase information sharing, promote the use of government standards and policies, and facilitate the centralised acquisition of ICT.

Collaboration is a major requirement for efficient delivery of seamless online services and infrastructure products as well as effective successful ICT project implementation. Traditionally, areas of shared responsibility for several government agencies have been resistant to real progress. However, leaders need to create in parallel the institutional and organisational processes that allow cross-agency actions to be sustained over time, such as formal agreements, defined roles and responsibilities, pooled resources, and shared performance goals. Collaboration has the potential to save money, simplify government for citizens and business and make public service more productive (Fountain, 2013).

In 2015, the Zambian government established an e-Government Division to coordinate e-Government implementation to deal with issues related to lack of coordination and collaboration in project implementation across traditional departments – silos (e-Government Division, 2019).

1.1.2 e-Government Services

According to Zeithaml and Bitner (2017), e-Service is simply defined as web services delivered through the internet (2003). Other scholars indicate that e-services usually means that the external user (Citizen) interacts with a public agency through an ICT-based interface, most often based on web technology (Jansen & Ølnes, 2014). Estonia is among the group of countries in the highest rankings of the UN's e-Government Development Index (EDGI), with its citizens and public servants able to access a wide range of services online using secure digital IDs, including making payments, accessing full health records, and internet voting (Heath, 2019). Today, 99%

of the public services are available online 24/7, 30% of Estonians use i-Voting, and the country estimates the reduced bureaucracy has saved 800 years of working time.

In Kenya, the government has in place iTax which is a fully integrated automated solution for the administration of domestic taxes. The web supported platform provides internet-based taxpayer registration, filing and status enquiries with real-time monitoring of accounts (Kuria, 2015), e-Procurement system meant to strengthen relationships with suppliers by providing easy access to documentation and simplifying of the bidding process. The iTax system has also been integrated with Integrated Financial Management Information System and Central Bank of Kenya (Ndung'u, 2017). Huduma centres also provide services and information from one-stop shops through integrated technology platforms. The public can obtain birth certificates, national identity cards, passports, registration of business names, and applications for marriage certificates, drivers' licences, and other services (MyGov, 2015).

In South Africa, some company-related e-service are accessible through the CIPC website and provide the following e-services: registering of a company, reserving a name for company registration, and filing of annual returns (CIPC, 2020). South Africa Revenue Services provides online services that include among others for Pay-As-You-Earn, Value Added Tax, Personal Income, Request for Tax Clearance Certificate, Tax Calculators among others (SARS,2020).

In Zambia, the government has deployed online platforms for selected public services to simplify and quicken service delivery. The Zambia Immigration Management System (ZIMS) provides for the issuance of electronic visas to tourists; e-Government Procurement System providing electronic registration as supplier, tendering and bidding; Tax Online Administration facilitating for processing of tax payment, electronic returns; Patents and Company's Registration that provides for online registration of businesses and electronic return. These systems work independently as they are not interconnected to share data. Further, the Ministry of Health issues birth records and death records while the Ministry of Home Affairs issues birth and death certificates. The two institutions have a Memorandum of Understanding to share information (Mulenga, 2019) though they still operate in silos. This, therefore, implies that customers will

have to move from one institution to the other and provide the same information to these institutions and is an impediment to efficient and effective e-services provisions.

According to SZI (2018), Zambia is in between the web presence and Interaction stage of the Gartner's four-stage of e-Government model as shown in figure 1. The four stages of the Gartner's stage development model include: the *web presence* – which provides information to the public; *interaction* – with the ability to carry out simple self-service such as downloading documents; *transaction* - able to complete entire transactions such as license application online; and *transformation* – providing more efficient, integrated, unified, and perso nalised service – seamless (Baum and Di Maio, 2000). The transformation stage requires that government ministries/agencies collaborate with each other to provide the service, share information, and integrate processes. Subsequently, e-Government success depends on collaboration between the different government agencies that must coordinate their activities to serve citizens better (Hamza et al, 2011). This coordination and collaboration is referred to as Government-to-Government (G2G).

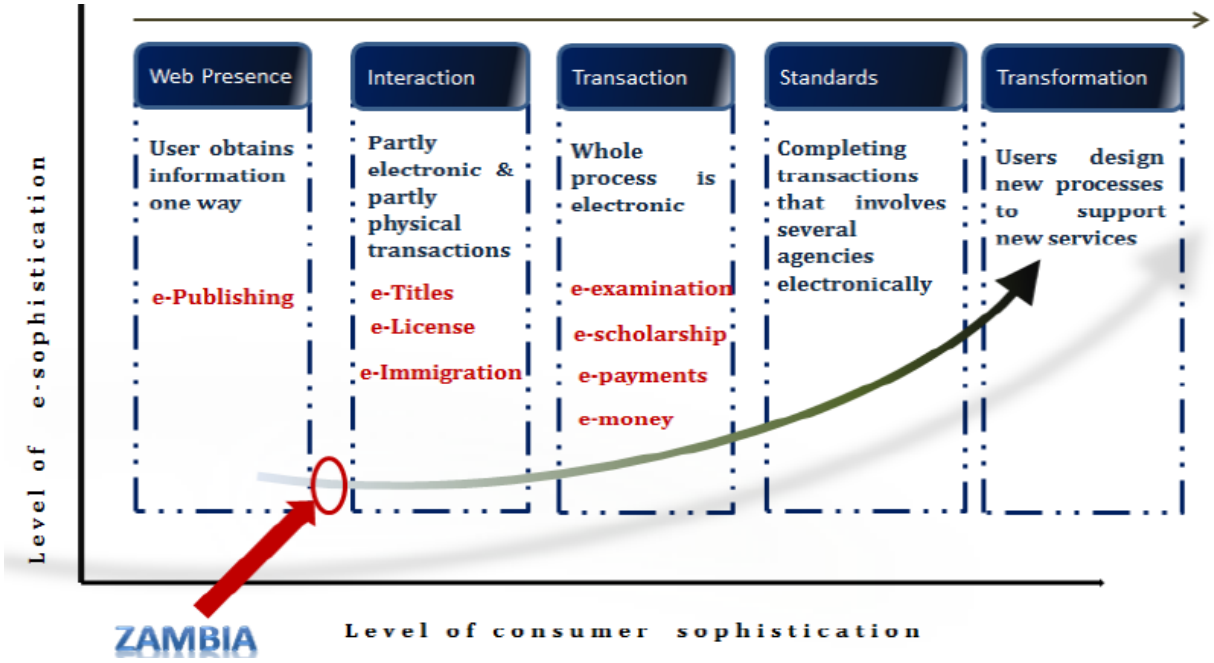


Figure 1: Zambia e-Government Maturity Model (**Source:** SZI, 2018**)**

As much as progress has been made by Zambia, Kenya, and South Africa towards implementing e-Government programmes and providing e-services to the public in particular, there are several

challenges that were identified. In South Africa for instance some challenges included lack of a synchronised approach by government departments to digital transformation, fragmentation of e-Government, duplication of processes and databases which are incompatible (DTPS, 2017). In Kenya on the other hand, public data and information are stored in silos and disparate non-standard formats that are difficult to access and silo provision of government services by government agencies that are not citizen-centric (ICTA, 2020).

In Zambia, some of the weaknesses identified in the e-Government masterplan include lack of integration and data sharing mechanisms; uncoordinated ICT project among public institutions, weak institutional arrangement, and legal frameworks; inadequate funding for ICTs; Inadequate ICT infrastructure in government; and lack of standards and procedures (e-Government Division, 2019).

For purposes of this study, e-services will be looked at within the context of Inter-agency e-Government services collaboration with a focus on Government-to-Government (G2G). G2G is a relationship between two government agencies and improves and builds up coordination and collaboration between government agencies i.e., how they share and exchange data (Hamza et al, 2011).

1.2 Statement of the Problem

e-Government initiatives have encountered different problems in their implementation and consequently have not been fully implemented as a result of conflicting roles and responsibilities between the coordinating institution and implementing agencies (DTPS, 2017). According to Mzyece (2012), e-Government initiatives had failed to benefit citizens due to a highly fragmented and uncoordinated approach of implementation. This is because of ministries/agencies wanting to work in silos for fear of losing power if they collaborated with other agencies through a coordinating institution (UNDESA, 2012). Figure 2 below illustrates the problem when there is an absence of coordination and collaboration.

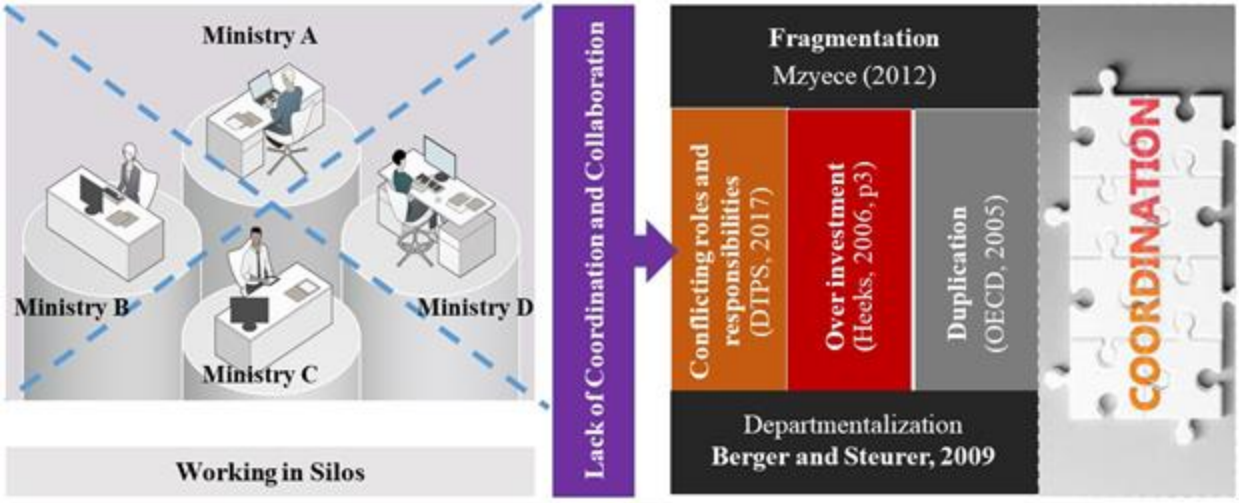


Figure 2: Fragmented and uncoordinated approach of implementation (**Source**: Author, 2020)

Many countries struggle to deliver integrated, interconnected and cross-sectoral services due to sectoral specialization or "departmentalization". This often results in partial solutions that are inadequate from a broader sustainable development point of view (Berger and Steurer, 2009). According to DTPS (2017), some of the challenges faced by South Africa in implementing e-Government programmes were attributable to lack of a synchronised approach by government departments to digital transformation, fragmentation of e-Government initiative due to not being directed and managed in a collaborative manner resulting in lack of accountability and responsibility due to overlapping roles between departments, duplication of processes, incompatible databases, among others. Studies by Banda (2012), Chipeta (2017) Bwalya (2007), Mzyece (2012) suggested that e-Government implementation had challenges with ICT infrastructure in implementing e-services; usability, and trust issues when it comes to ICT adoption, coupled with fragmentation in implementation thus leading to duplication and wastage of resources. Notwithstanding that there are a few success stories in e-service delivery of public services that include business registration (PACRA), immigration services (Department of Immigration), tax collection (ZRA), and IFMIS for the execution of expenditures (MoF) among others. Despite these few successes, most government systems remain isolated in silos due to inadequate coordination and interagency collaboration.

Therefore, strengthening of coordination and collaboration among various public agencies is key to the successful implementation of e-Government initiatives especially e-services as this will

ensure interoperability, avoidance of duplication, coherent action in a range of crucial areas such as security and privacy protection, and to provide the framework and capacity for seamless services.

In Zambia, there appears to be little research undertaken to address coordination and collaboration in the implementation of e-Government programmes as it relates to e-services. This study, therefore, seeks to fill this knowledge gap by review the successes and challenges of coordinating the implementation of e-Government programmes in a developing country (Zambia) and how effective inter-agency collaboration is in implementing e-Government programmes in the context of e-services.

1.3 Aim of the study

The aim of this study is to review the successes and challenges of coordination and collaboration in the implementation of e-Government programmes - a case of Zambia.

1.4 Study Objectives

The study will be guided by the following specific research objectives.

i To review the institutional coordination models in implementing e-Government programmes in Zambia in comparison with other jurisdictions;
ii To examine how much awareness has been done on e-Government implementation in the context of e-services;
iii To assess the inter-agencies collaboration in implementing e-Government programmes in relation to e-services; and
iv To evaluate successes and challenges in the coordination and collaboration of e-Government programmes in Zambia,

1.5 Research Questions

This study will be guided by four research questions:

i. What institutional coordination model is used in implementing e-Government programmes in Zambia in comparison with other jurisdictions?
ii. How much awareness has been done on e-Government implementation in the context of e-services being rolled out?
iii. How effective is the inter-agencies collaboration in implementing e-Government programmes in relation to e-services?
iv. What are the successes and challenges in the coordination and collaboration of e-Government programmes in a developing country like Zambia?

1.6 Significance of the study

There is very little research done on how ministries and agencies coordinate and collaborate in the implementation of e-Government programme in a developing country like Zambia with a focus of G2G. The literature available is general and does not address coordination and collaboration specifically, making this study unique and significant. Further, the study seeks to review the role that institutional coordination and collaboration plays in ensuring successful implementation of e-Government programmes, challenges experienced and will be used as a reference point for policy makers, regulators, planners and managers of ICT in government ministries and agencies in making decision to improve implementation of e-Government programmes in a coordinated manner in the provision of e-services to the citizenry. As observed by Fountain (2013), collaboration has the potential to save money, simplify government for citizens and business and make public service more productive. A coordinated implementation will ensure that all ministries and agencies who have a stake in the implementation of e-services work in harmony by ensuring by their systems interoperate and share data thus reducing duplication and wastage of resources.

1.7 Scope of the study

The study will focus on how e-Government coordination is done in Zambia in relation to other jurisdictions, assess the inter-agency collaboration in implementing e-Government programmes and look at successes and challenges encountered in implementation. This study will also look at e-Government coordination and collaboration in the implementation of e-government (specifically G2G interactions) in a developing country like Zambia. The study will touch on e-services in the context of internal interactions of government agencies (G2G) necessary to ease Government service delivery to customers (G2C) and businesses (G2B) through breaking administrative barriers (silos).

1.8 Limitations of the Study

The study focused only on Ministries and selected agency with an emphasis on central government coordination and collaboration looking inwards or internal within Lusaka due to limitation in time to conduct research and financial resources. In short, the focus was more on central government with emphasis on Government to Government whose thrust is online communication amongst government organisations, departments, and agencies. The study further targeted only ICT technical personnel and those responsible for planning and research in identified ministries and selected agencies. Subsequently, the study aims to understand the challenges facing G2G specifically, thus G2C and G2B are not considered in this study.

1.9 Organisation of the Dissertation

This dissertation is organised into five (5) chapters. Chapter 1 presents the background information to the study, statement of the problem, study objectives and research questions, justification and significance of the study, and study limitations. Chapter 2 covers the review of related literature and research related to the problem being investigated. The methodology and procedures used to gather data for the study are outlined in Chapter 3. Chapter 4 highlights data presentation and analysis and finally, Chapter 5 presents the study conclusions, recommendations, and suggestions for further studies.

CHAPTER 2 – LITERATURE REVIEW

2.1 Introduction

E-Government is often connected with government web portals as most governments, national or local, have built websites and support portals, operating as gateways and guidance to information and services. A UN Survey that was undertaken in 2016 highlighted that public institutions were moving away from just setting up websites to providing basic information to the development and deployment of sophisticated systems for the management of government's internal and external interactions in ensuring inclusion, effectiveness, accountability, and transparency. Additionally, the introduction of e-Government and the integration of services usually require governments to streamline their administrative processes to improve efficiency, reduce costs and generate savings by lowering the cost of government services. In some cases, generate revenues to reduce or abolish service fees or reinvested into more sophisticated e-Government applications and services (ITU, 2009 p2).

E-Government also offers the public sector new ways to organise itself through enhancement and updating of internal systems, procedures and changing how officials think, act, and view their job. It involves a re-engineering of government business processes (Islam & Okudu). Additionally, according to the infoDev/World Bank (2009), e-Government is more about government than technology and needs considerable change in many elements of government such as roles, authority, processes and ultimately structures. Consequently, it encounters challenges and resistance from vested interests. Thus, with the short of continued leadership and drive, careful planning, effective implementation, and performance reporting, programmes and projects can easily fail, and many have.

In developing countries in Africa for instance, the rate of adopting the necessary technologies to provide e-Government services has been slow due to several factors such as limitation in infrastructure, literacy, economic development, and culture (Rorissa & Demissie, 2010). According to Nkwe (2012), a visit to the government departments is a nightmare as it is characterised by a lot of paperwork, long queues, bureaucracy, cramped spaces, and a lot of

frustrations. With the growing demands of services by citizens and changing global rules and regulations, governments are under pressure to deliver at the right time and quality hence re-engineering their processes to overcome development obstacles, address social problems, and strengthen democratic institutions.

Therefore, it can be deduced that the development of e-Government is a process, not a product or a blueprint. It is a continuous process of policy development, investment planning, innovation, learning, and change management (Fountain 2001; Ramsey 2004). This process must fit with and respond to a dynamic development strategy that supports evolving national goals and creates sustained institutional reforms and public service improvements. The challenge is to build effective governance and institutional frameworks for ICT-enabled public sector modernisation and make new competencies part of the country's human and institutional resources (Hanna et al, 2017)

Additionally, e-Government implementation in developing countries was seen to be generally more problematic in comparison to those in the developed nations. This is exemplified through a study by Ndou (2004) focusing on empirical web-based research of 15 case studies in developing countries (Argentina, Brazil, Chile, China, Colombia, Guatemala, India, Jamaica, Philippines) which had explored and implemented e-Government initiatives. The study found that e-Government offers opportunities for governments. However, the ability of developing countries to reap the full benefits of e-Government was limited and largely hampered by the existence of a myriad of political, social, and economic hindrances.

2.2 e-Government Definition

Although there is no universally accepted definition of e-Government (Schedler and Scharf, 2001; Halchin, 2004; Yildiz, 2007), one view of e-Government is the provision and enhancement of government services, internal processes, and service delivery using technology (Maumbe et al, 2008). There are several constructs defining what e-Government is authored by different scholars and researchers and include the following:

i. e-Government is referred to the implementation of Information and Communication Technology (ICT) initiatives that alter the structure and processes of government organisations to improve performance (Moflesh et al., 2009, Nurdin et al., 2014).

ii. e-Government is the government-owned or operated systems of information and communication technologies that transform relations with citizens, the private sector and/or other government agencies to promote citizens' empowerment, improve service delivery, strengthen accountability, increase transparency, or improve government efficiency (World Bank, 2001).

iii. e-Government refers to the use of information and communication technology (ICT) to enhance the range and quality of public services to citizens and businesses while making government more efficient, accountable, and transparent (Schware 2005)

iv. Heeks (2003) defined e-Government as the use of ICTs that promises greater efficiency and effectiveness to improve service delivery in public sector operations.

v. Evans and Yen (2006) points out that e-Government indicates a system of effective provision of public services via information and communication technologies.

vi. Otubu (2009) defines e-Government as the process whereby the use of information and communication technology and services is deployed and employed by the government in the delivery of services to members of the public and the use of same in the internal running and linkages among different governmental agencies.

What is common in all definitions is the use of words like improving efficiency, use of ICTs in improving service delivery. e-Government definitions are so many, and the list above is not exhaustive. However, for the purposes of this research, the definition that will be used is "e-Government is viewed as the administration, rules, regulations, and frameworks organised by a government for service delivery as well as to communicate, coordinate and integrate processes within itself (Almarabeh and AbuAli, 2010)."

2.3 Categorisation of e-Government

e-Government can be broadly categorised into the following: Government to Business (G2B), Government to Citizen (G2C), Government to Employee (G2E) and Government to Government (G2G). G2B focuses on the relationship that exists between the government and its agencies on the one hand and the business community on the other. G2C deals with the establishment of an electronic interface to enable a two-way communication channel between the government and citizens. G2E focuses on relationships within government among employees to coordinate internal operations and improve the internal efficiency of business processes. G2G refers to online communication amongst government organizations, departments, and agencies. These interactions are highlighted in Figure 3 below.

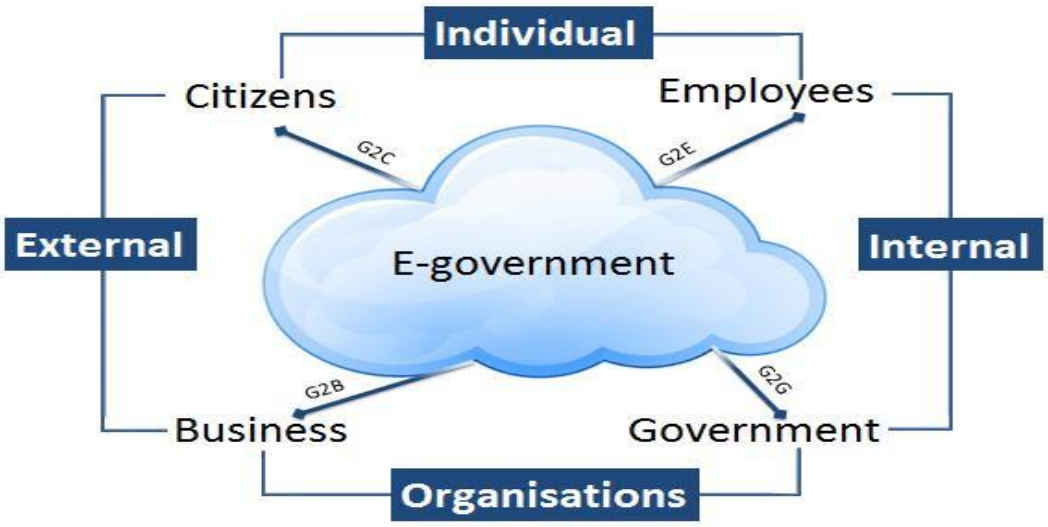


Figure 3: e-Government Categorisation and Interaction **(Source:** Siau and Long, 2018**)**

Among these four groups, G2C and G2E involve interaction and cooperation between government and individuals, while G2B and G2G address the interaction between government and organisations. Siau & Long (2018), emphasised that G2C and G2B represent the external interaction and collaboration between government and outside institutions, while G2E and G2G involve the internal interaction and collaboration between government and government employees, as well as between government at different levels and at different locations.

This study focused more on the G2G interaction, which looks at internal interaction between different government agencies with the aim of improving the back-office through coordination and collaboration to improve e-services provided to the customers (G2C) or businesses (G2B) who are on the external side of the interaction.

Government to Customer (G2C) - deals with the establishment of an electronic interface to enable a two-way communication channel between the government and its representatives and citizens. G2C contributes towards the improvement of public service delivery through a transparent, effective, and efficient system of disseminating information and receiving feedback with minimal hindrance. Citizens are empowered through such virtual platforms to access information and complete transactions with public agencies remotely (Bose, 2004).

Government to Business (G2B) – is concerned with the relationship that exists between the government and its agencies on the one hand and the business community on the other. It bridges the gap between the two entities by creating an internet-enabled platform for the exchange of information between government and businesses; thus, businesses can access, download, complete, and submit forms and documents online (McClure, 2001). e-Procurement, bid submission, e-Payments, e-Transfers, and virtual meetings are but a few G2B services currently on offer.

Government to Employee (G2E) - Interactions here seek to leverage the power of ICT and the internet to improve employee efficiency and effectiveness by streamlining processes and providing opportunities for employee development through collaboration and knowledge sharing. Employees are given access to pertinent information that aid them to perform their duties well. Information like employee compensation, skills development initiatives, labour rules and regulations, policies and developing trends are made available to bring employees up-to-speed with developments in their field of operation (Carbo & Williams, 2004). G2E provides internal and external support systems needed to empower employees to implement the agenda of government successfully.

Government to Government (G2G) - G2G refers to online communications between government organisations, departments and agencies based on a super-government database (Gregory, 2007) or can be viewed as systems interaction and transaction between government agencies. The efficiency and efficacy of processes are enhanced using online communication and collaboration which allows for the sharing of databases and resources and the fusion of skills and capabilities. The key factor for G2G development is to enhance and improve inter-government organisational processes by streamlining collaboration and coordination (Yildiz, 2007). Additionally, G2G involves sharing data and conducting electronic transactions between government actors. This includes both intra and inter-agency interactions between employees, departments, agencies, and ministries.

Seifert (2008) states that there are many forces that enhance G2G initiatives, including the management of government information, legislation, and concern for improving the competence of government agencies. For example, in a single-point access service, cooperation and collaboration among different government agencies and departments are critical (Ndou, 2004) because the government must have up-to-date information across all departments, be able to respond accurately to queries and issues and to increase job satisfaction among its workforces. G2G applications also allow the government to communicate more effectively by reducing duplication and redundancy of information and communication (Evans & Yen, 2006). Government-to-Government (G2G) interaction is the backbone of e-Government and identifies the internal processes and data sharing among government sector organizations (Yong & Koon, 2003).

The experience of different countries shows that the implementation of back-office software in the public sector often triggers reforms in internal processes, hence this study will focus on Government to Government (G2G), with emphasis on internal interaction and processes amongst government agents to enhance service delivery to the citizenry.

2.4 E-Government stage models

There are several e-Government stage models that have been proposed and were either developed by individual researchers (e.g., Hiller and Belanger, 2001; Layne and Lee, 2001;

Moon, 2002) or proposed by institutions (e.g., United Nations and American Society for Public Administration, 2001; Baum and Di Maio, 2000; Gartner Group, Deloitte and Touche, 2001). These models can be summarised in table 1 below:

Table 1: Comparison of e-Government Stage Models

Model	Stages	Strengths and Weaknesses
The UN and ASPA (2001) and Hiller & Belanger's (2001) 5-Stage Model	• Emerging web presence • Enhanced web presence • Interactive web presence • Transactional web presence; and • Seamless or fully integrated web presence	i. Both front-end and back-end office development are important to e-Government development ii. Regard web presence as an indicator of e-Government
Deloitte's 6 - Stage model (2000)	• Information publishing/dissemination • "Official" two-way transaction • Multi-purpose portals • Portal personalisation • Clustering of common services; and • Full Integration and enterprise transaction	i. Essentially a customer centric model ii. Ignore the re-engineering of government internal operation. iii. Ignore the potential benefit of political changes. iv. Some of the stages can be combined
Layne & Lee's 4 - Stage model (2001)	• Cataloguing • Transaction • Vertical Integration; and • Horizontal Integration	i. Ignores the potential benefits of political changes
Moon's 5 - Stage model (2002)	• Simple Information dissemination • Two-way communication • Service and financial transaction • Vertical and Horizontal Integration; and • Political participation	i. Good but not concise enough ii. Political participation used in the model does not seem to adequately capture the 'true' meaning of that stage
Gartner's 4 – Stage Model (2000)	• Web presence • Interaction • Transaction • Transformation	i. Concise and easy to follow. ii. Ignores the benefits of political changes

Source: Siau & Long (2009)

From the e-Government stage models highlighted in table 1, only two models were looked at in details to deepen understanding of how they relate to e-services provision from a standpoint of the inter-agency coordination and collaboration from a back-office perspective.

2.4.1 The UN's and ASPA Five-State Model

UN's five-stage model (2001) argues that the purpose of e-Government is to provide efficient web-based public service, the United Nations and American Society for Public Administration (2001) suggested an e-Government model which consists of five stages: emerging web presence, enhanced web presence, interactive web presence, transactional web presence, and seamless web presence. These five stages are defined as follows: (1) *Emerging presence* – a single or a few independent government websites provide formal but limited and static information; (2) *Enhanced presence* – government websites provide dynamic, specialised, and regularly updated information; (3) *Interactive presence* – government websites act as a portal to connect users and service providers, and the interaction takes place at a more sophisticated level; (4) *Transactional presence* – users have the capability to conduct complete and secure transactions, such as renewing visas, obtaining passports, and updating birth and death records through a single government website; and (5*) Seamless or fully integrated presence* – governments utilise a single and universal website to provide a one-stop portal in which users can immediately and conveniently access all kinds of available services.

2.4.2 Gartner's four-stage model (2000)

Gartner four-stage group that includes: (i) Web Presence – Government/agencies provide a website to post basic information to the public; (ii) *Interaction* – Users are able to carry out simple self-service such as downloading documents from Ministries/agencies websites. (iii) *Transaction* - users (including customers and businesses) are able to complete entire transactions (e.g. license application and procurement) online; and (iv) *Transformational* - Governments transform the current operational processes to provide more efficient, integrated, unified, and personalised service – seamless (Baum and Di Maio, 2000).

2.5 The Four Dimensions of the e-Government Environment

According to the International Telecommunication Union (2009), the e-Government environment can be structured in several ways, based on different aspects. There are four basic dimensions of the e-Government environment namely: Infrastructure, Policy, Governance and

Outreach. This framework uses these four dimensions to describe and understand the realities that influence a country's level of e-Government readiness.

2.5.1 Dimension one: Infrastructure

Infrastructure is a key dimension of e-Government since it is needed to carry information and services. e-Government provision is not linked to any specific technology but rather to any electronic means that citizens and businesses use to send and receive voice, data, and images via the Internet. The effectiveness of e-Government services in reaching citizens and businesses depends greatly on the availability of ICT infrastructure and hence prudent for decision-makers to evaluate the status and development of ICT infrastructure in their countries by assessing the level of access to ICT infrastructure through data collected from telecommunication incumbents and Internet providers via individual, business, and household surveys. It looks at both backbone and mobile infrastructure.

2.5.2 Dimension two: Policy

A policy is a deliberate plan of action that guides decisions and achieves rational outcomes. e-Government policies depend strongly on the vision of decision-makers, success requires for such visions to be formulated, expressed, shared, and discussed with all relevant stakeholders to improve ownership and ease implementation. When policies fail to be implemented, the gap between plans, actions and expected outcomes grow, resulting in citizen dissatisfaction. It looks at e-Government Institutional models with consideration that multiple government agencies are involved in the implementation of policies and standards relevant to e-Government, such as those referring to cyber security, the transferability of data and interoperability standards. Inter-agency coordination is thus necessary to ensure that policies protecting citizens' rights and standards that support the functionality of the system in its totality is appropriately enforced. For example, the responsibility for general ICT policy in Singapore rests with the "Infocomm Development Authority of Singapore" (IDA) which functions as Chief Information Officer (CIO) and is responsible for the security of crucial ICT infrastructure, master-planning as well as project implementation of government-wide ICT plans.

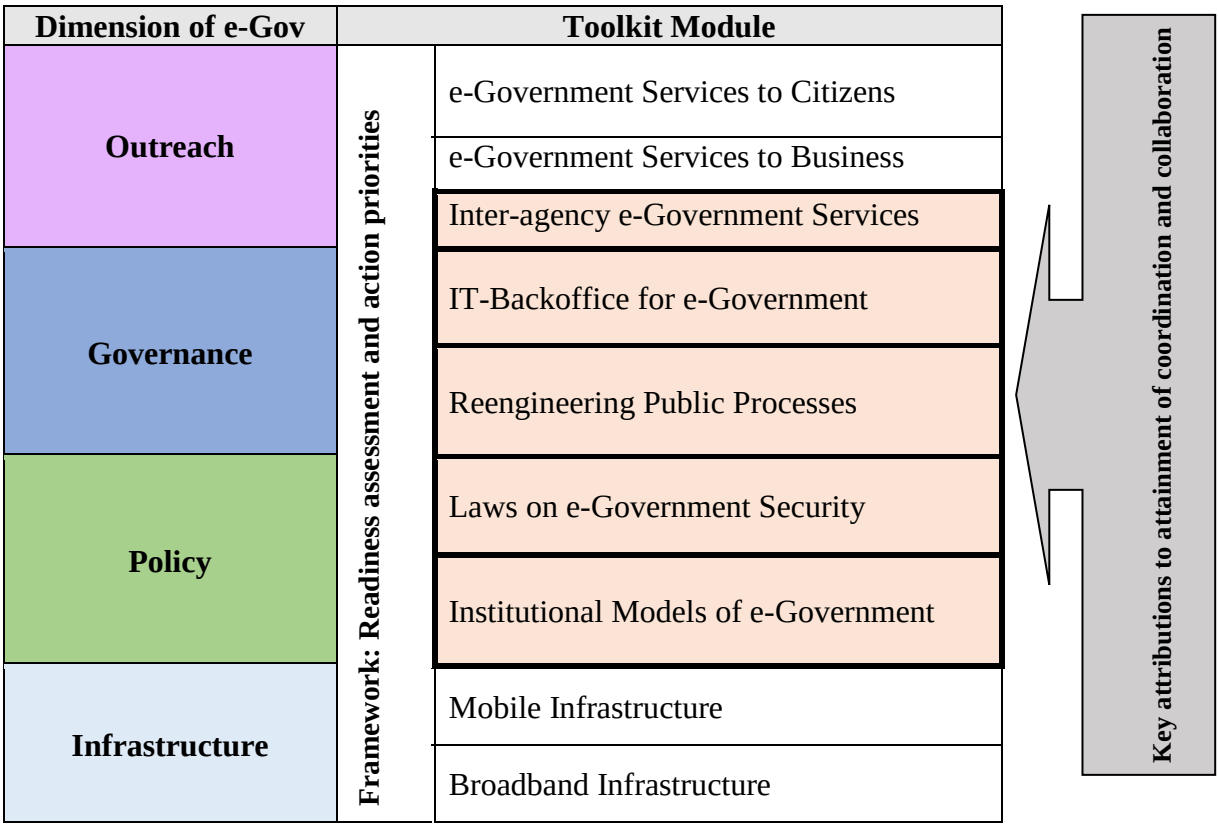
2.5.3 Dimension three: Governance

Governance looks at the performance of public administration and is a key factor for the success of e-Government initiatives. The success of e-Government initiatives depends on defining back-office workflows within the administration and on digitalising and re-engineering such workflows. Since citizens do not usually know the processes taking place within an administration, they judge its performance based on their personal experiences, drawing conclusions about the quality of governance according to the time it takes to complete standard procedures, like registering a car, and the reliability and consistency of such processes. The experience of different countries shows that the implementation of back-office software in the public sector often triggers reforms in internal processes, also known as "process re-engineering". Typically, new workflows must be designed; new responsibilities need to be assigned, and internal resistances must be managed and overcome.

2.5.4 Dimension four: Outreach

This dimension of e-Government is most prominently perceived and experienced by end-users, namely companies and citizens. Often referred to as the "horizontal integration" of public services, this dimension brings together various service offerings to the end-users. One aspect of outreach is the supply of information and services by governments that should be presented in a more intuitive "look-and-feel" way for the front end, better search engines including different types of media, such as video clips. Many e-Government applications consist of texts and are Internet-based, thus requiring users to have at least basic computer literacy so that they do not rely on agencies in telecentres or other service providers and must have the ability to read and write. Therefore, it is crucial for the success of an e-Government project to understand the capability of the citizens the initiative is targeting. Table 2 clearly highlights these dimensions. Outreach (Inter-agency e-Government services), Governance (IT-Backoffice for e-Government and Reengineering public processes) and Policy (Laws and Institutional Models for e-Government) are key attributions to the attainment of coordination and collaboration for e-Government.

Table 2: Dimensions of e-Government and toolkit modules



Source: ITU (2009**)**

The dimensions of e-Government play an important role in as far as coordination and collaboration are concerned. Coordination requires that there be an institutional arrangement in place for easy coordination, for instance through the policy dimension (institutional model of e-Government). Collaboration through the outreach dimension provides for inter-agency e-Government services attainable by making service delivery easier for the customers. The governance dimension on the other hand ensures that IT Backoffice and business processes take place for public processes to make different agencies provides services seamlessly.

2.6 e-Government Journey in Zambia

The journey for Zambia can be traced back to 1968 when the government established the Centralised Computer Services Department (CCSD) to provide data processing services to public institutions. With time, technology and usage of ICT significantly changed but CCSD, did not evolve and was unable to effectively coordinate and regulate the adoption and application of

ICTs in Ministries Province and Spending Agencies (MPSAs), partly due to its inappropriate institutional arrangement and inadequate organisational structure (Cabinet Office, 2015). CCSD was a department under the Ministry of Finance.

Following the approval and adoption of the National ICT Policy in 2006, the Department of Communication commenced spearheading the implementation of e-Government programme in line with the National ICT policy side by side with CCSD. In 2014, the Government found it necessary to transform CCSD into a Centre of Excellence for e-Government and ICT (CEEGICT) to facilitate implementation of e-Government as well as coordinate and support ICT in the Public Service, which was lacking. This was done in line with the 2006 policy provisions under the e-Government pillar. One of the issues highlighted under this pillar was the establishment of an e-Government Centre of Excellence. This was meant to address challenges that had persisted as several ministries had continued to operate ICT systems within their headquarters and in outlying areas. On the other hand, CCSD which was supposed to provide support to systems in the ministries was not appropriately structured. In short, it lacked the necessary control and oversight over the systems developed in public service. Ministries established independent ICT infrastructure and systems and necessitated duplication of public ICT resources across the country targeting the same citizens (Cabinet Office, 2015). For example, the Integrated Financial Management Information System (IFMIS) project was developing network infrastructure and Payroll Management and Establishment Control (PMEC) system also had a parallel network infrastructure being developed.

On 22nd October 2015, the President of the Republic of Zambia, Dr Edgar Chagwa Lungu established the e-Government Division, CEEGICT and placed it under the Office of the President. One of the directives given was the development of e-Cabinet as one of the e-services to be prioritized. The President further re-emphasised his commitment to e-Government during his address to Parliament in September 2016 on the need for Zambia to embrace a transformative culture by embracing innovation and entrepreneurship; embracing technology to simplify and quicken provision of services; re-aligning institutions, where necessary, to make them more responsive to the needs of the nation; promoting cost-effective operations in government to eliminate waste and abuse of public resources; transitioning towards a green economy; creating

SMART institutions and SMART budgeting that promote a whole-of-government approach to public service delivery; and promoting punctuality and efficiency to enhance productivity (Parliament, 2015)

In 2016, CEEGICT changed its name through Government Gazette notice No 836 of 2016 to SMART Zambia Institute (SZI). Its overall mandate is the coordination and implementation of Information and Communication Technology (ICT) and e-Government in the Public Sector. Its core mandate is to integrate the ICT infrastructure platform for G2C, G2G and G2B services, coordinate and standardise the deployment of ICT and e-Government services (GRZ, 2016). The President of the Republic of Zambia further elevated the Position of e-Government National Coordinator (Permanent Secretary) to Deputy Secretary to the Cabinet. Figure 4 shows the timeline of the ICT and e-Government reforms that have taken place from 1968 to 2017.

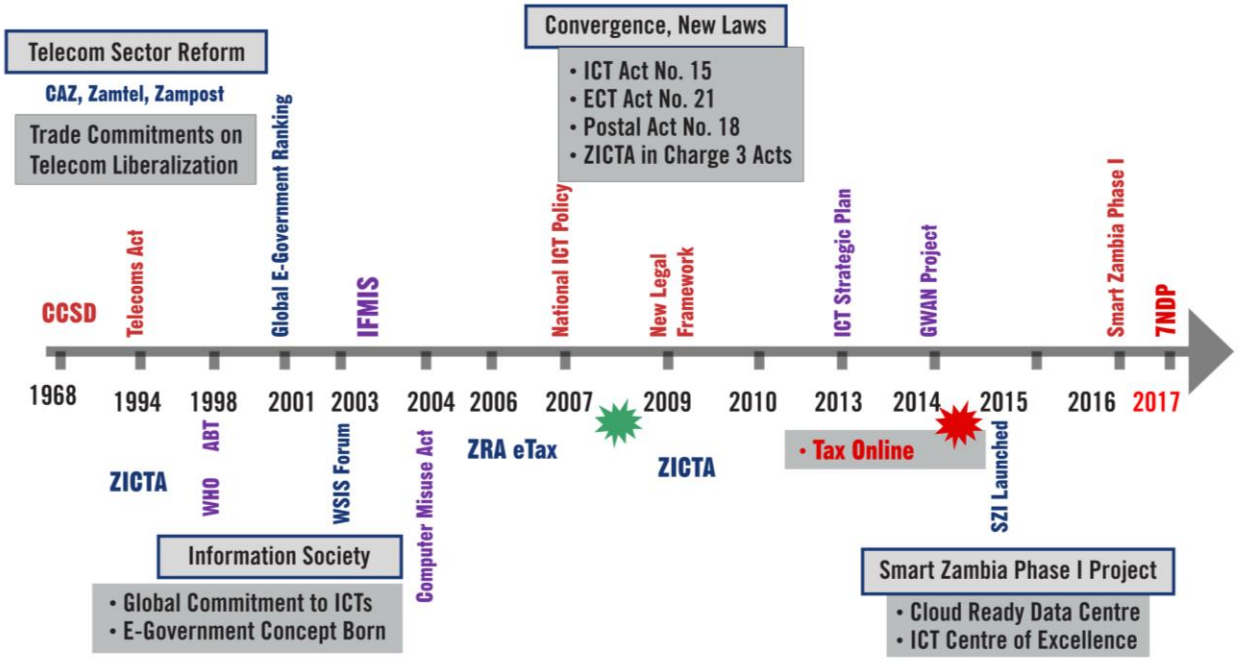


Figure 4: ICT and e-Government Timelines in Zambia **(Source:** SZI, 2019**)**

To improve the network infrastructure, the Government established a Government-Wide Area Network (GWAN) stopping ministries from establishing their own networks. The GWAN connects more than 101 MPSAs and carries 19 e-services. The Government through CEEGICT, unified internet service provisions for all MPSAs to connect to the Internet using one

central point and significantly reduced Internet bills. The Ministry of Transport and Communication through Zambia Information and Communication Authority (ZICTA) established the Zambia National Data Centre (ZNDC) which was later placed under the newly created INFRATEL under the Industrial Development Corporation (IDC). Additionally, the government entered into a Microsoft Enterprise Agreement with Microsoft to enable it to operate in a standardised environment with duly licensed software products

2.6.1 Policy and Legislation

Zambia's National Information and Communication Policy of 2006 places strong emphasis on the creation of an innovative, market-responsive, highly competitive, coordinated, and well-regulated ICT industry. Its goal on ICT Infrastructure is to increase access and promote widespread deployment of ICT services through the expansion of the nation's telecommunications backbone infrastructure covering the whole country (MTC, 2018). The policy was designed on thirteen pillars namely: Human Resource Development; Agriculture; Tourism, Environment & Natural Resources; Education; Health, e-Commerce, e-Government, Youth and Women, Legal & Regulatory Framework, Security in Information Society, Access, Media, Content and Culture; and ICT Services.

The vision of the National ICT Policy being "***A Zambia transformed into information and knowledge-based society supported by increased access to ICTs by all citizens by 2030***". The policy highlighted that achieving this vision required effective and efficient high-level coordination of ICT interventions across the Public Service and establishment of an ICT Centre of Excellence as key in the realization of its vision (MTC, 2006).

However, implementation of the policy has significantly lagged behind market expectations and developments due to the lack of skilled human resources to spearhead the implementation process; lack of coordination in the planning and budgeting process and hence lack of funding to implement programmes (Habeenzu, 2010).

Currently, the following pieces of legislation govern the ICT sector in Zambia:

i. *The Information and Communication Technologies (ICT) Act No. 15 of 2009* provides for the economic and technical regulation of Information and Communication Technology. Specifically, it provides for the facilitation of access to ICTs, the protection of rights and interests of service providers and consumers and the management of radio spectrum and establishment of the ZICTA renamed after CAZ. The Act also repealed the Radio Communication Act of 1994 which provided regulation of the provision of radio communication services (GRZ, 2009).

ii. *The Electronic Communications and Transactions (ECT) Act No. 21 of 2009* provides for the development of a safe, secure, and effective environment for the consumer, business sector and the Government to conduct and use electronic communications (GRZ,2009a)

iii. *Universal Access and Service Fund Regulation No.38, 2012* promotes the widespread availability and usage of electronic communication services throughout Zambia, and bridge the digital divide between urban, peri-urban, and rural areas. ICT Act of 2009 provides for the establishment of a Universal Access and Service Fund to address the provision of electronic communications services in un-served or under-served areas and communities (GRZ, 2012).

iv. *The Information and Communications Technology Association of Zambia* Act No. 7 of 2018 was enacted to provide for the registration of information and communications technology professionals and regulate their professional conduct in the interest of the information and communications technology sector (GRZ,2018).

In April 2018, the Minister of Transport and Communications announced that Government would introduce three bills in Parliament upon approval by Cabinet in principle. Three bills are Cybercrime and Security, Data Protection, and e-Commerce bills. These bills are yet to be presented to parliament for enactment (MTC, 2018)

2.6.2 Strategy and Development Plans

On 18th February 2019, Cabinet approved the Smart Zambia e-Government Master Plan 2018 to 2030 whose vision is "A Zambia transformed into an information and knowledge-based society and economy supported by consistent development of, and pervasive access to ICTs by all citizens by 2030". The plan focuses on four outcomes namely: improved country competitiveness; improved ICT infrastructure; strengthened legal, regulatory and policy framework of information and communication technology; and better public services for improved quality of life. The Master Plan was also re-aligned with the National Vision 2030 and the Seventh National Development Plan (e-Government Division, 2019) as highlighted in Figure 5.

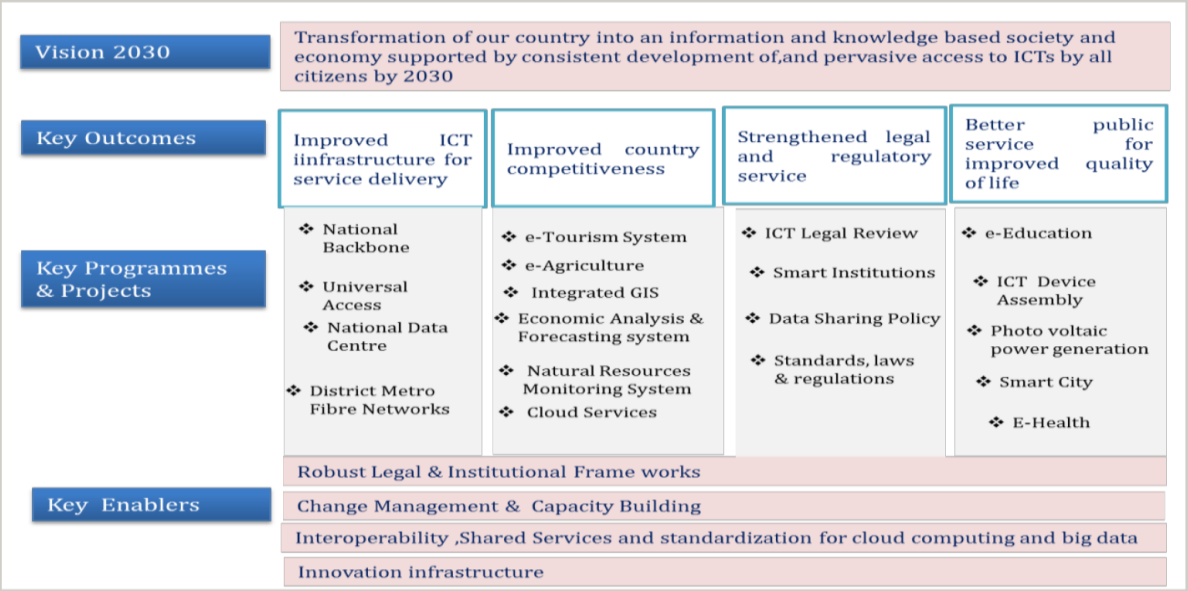


Figure 5: SMART Zambia Electronic Government Masterplan 2018 -2030 **(Source:** e-Government Division, 2019**)**

The plan is further expected to facilitate a coordinated approach to implementation of ICT projects in the Public Service as opposed to the stand-alone silo investment approach that had overtime been costly and in some cases duplication of effort. The plan will build on the huge investment that has been made to deploy a Government-Wide Area Network (GWAN) and shared services to improve internal collaboration and efficiency.

2.6.3 e- Service Provision

As part of the e-Government transformational agenda, the government has deployed online platforms for selected public services to simplify and quicken service delivery. Among those deployed are the Integrated Financial Management Information System (IFMIS), to enhance transparency, reduce financial leakages and enhance accountability by MPSAs. Electronic Cabinet (e-Cabinet) which facilitates processing of cabinet business paperless; Zambia Integrated Agriculture Management Information System (ZIAMIS), provides for farmer registration, tendering, deposit collection and payments; Zambia Integrated Land Management Information System (ZILMIS) provides for land acquisition, titling, survey data and payments, Electronic Payslip System that provides government workers payslips electronically; Treasury Single Account facilitates electronic payments to suppliers of products and services to government and government employees cutting off issuance of cheques and reduction in human contact; Zambia Immigration Management System (ZIMS) which provides for issuance of electronic visas to tourists; Electronic Government Procurement System provision of electronic tendering and bidding, Tax Online Administration facilitates processing of tax payment, electronic returns, Patents and Company's Registration that provides for online registration of businesses and electronic returns among others.

However, these are being implemented in the public sector with very little coordination and integration with existing systems. The ministries and agencies only work together through cluster advisory groups. however, this platform has been weak as planning and budgeting of ICT projects is still done in silos.

Eight (8) Ministries/agencies were selected to ascertain e-services currently being provided, modes of payment, whether self-service (end to end) or operator-assisted (requiring agent to carry out processes) stage in the Gartner's four-stage model and institutional collaboration required. Details are highlighted in Table 3.

Table 3: e-Services from Government Ministries/Agencies

No	Ministry/ Agency	e-Services	Modes of Payment	Self Service/Operator Assisted	Stage in Garner's Stage Development	Collaboration
1.	Road Transport and Safety Agency (RTSA) www.rtsa.org.zm www.zamportal.gov.zm	Driver's licence (Renewal & Duplicate)	Debt/Credit Card Mobile Money (Zamtel) On counter/cash	Operator assisted	Interaction	NRC
		Road tax	Debit/Credit Card Mobile Money (Zamtel) On counter/cash	Self-Services (log in using NRC No for locals or Passport No. for foreigners	Transactional	With insurance companies to ensure that the insurance policy is up to date
		Road Fitness Test	Debit/Credit Card Mobile Money (Zamtel) On counter/cash	Operator assisted. Payment process instant but vehicle has to be taken for physical inspection.	Interaction	
2	Zambia Public Procurement Authority https://eprocure.zppa.org.zm/epps/home.do	Registration as Supplier	Debit/Credit Card Bank Deposit	Operator assisted	Interaction/ Transactional	PACRA (Business Registration details) and ZRA (Tax certificate)
3	Ministry of Tourism and Arts www.mota.gov.zm www.zta-portal.com	Hotel Manager's Registration	Bank deposit	Operator assisted with processing time	Web presence	Certificate of Incorporation from PACRA, NRC, General Tax Clearance Certificate from ZRA, Identity Documents (/Passport) of all Shareholders and Directors
		Casino Licensing	Bank deposit	Self Service	Web presence	

No	Ministry/ Agency	e-Services	Modes of Payment	Self Service/Operator Assisted	Stage in Garner's Stage Development	Collaboration
4	Department of Immigration www.zamportal.gov.zm www.zambiaimmigration.gov.zm	e-Visa	Debit/Credit Card Mobile Money (Zamtel)	Operator assisted with processing time of up to three (3) hours	Transactional	Passport
		Immigration Temporary Employment Permit	Debit/Credit Card Mobile Money (Zamtel)	Operator assisted	Transactional	Passport
		Immigration Visiting Permit	Debit/Credit Card Mobile Money (Zamtel)	Operator assisted	Transactional	Passport
5	Zambia Tourism Agency www.zambia.travel www.zta-portal.com	Licensing of enterprises (accommodation establishments, tour operators, restaurants, travel agents and night clubs)	Bank deposit	Operator assisted	Web presence/	Requires information from PACRA (Business information), ZRA (Tax registration), ZEMA (Environmental Impact Assessment) Hotel Manager Registration Investment Certificate No.:
		Grading of Accommodation establishments	Bank deposit	Operator assisted	Web presence/ interaction	Tourism license
		Quarterly returns	nil	Self service	Web presence	

No	Ministry/ Agency	e-Services	Modes of Payment	Self Service/Operator Assisted	Stage in Garner's Stage Development	Collaboration
6	Ministry of Lands and Natural Resources www.mlnr.gov.zm	Ground rent	Debit/Credit Card Mobile Money (Zamtel) Bank deposit	Self service	Transactional	
		Survey Fees	Debit/Credit Card Mobile Money (Zamtel) Bank deposit	Self service	Transactional	
7	Zambia Development Agency www.zda.org.zm http://zedf.org.zm/apply-for-a-loan/	Investment license	Bank deposit	Operator assisted with processing time of up to three (3) hours	Web presence	Certificate of Incorporation from PACRA, Tax Clearance Certificate from ZRA, Identity Documents (/Passport) of all Shareholders and Directors
		Application process for financing	n/a	Self Service	Interaction	NRC, Certificate of Incorporation from PACRA, Tax Clearance Certificate from ZRA,
8	Zambia Revenue Authority www.zra.org.zm	Tax Registration	Debit/Credit Card Mobile Money	Self service	Transactional	Requires Business Registration details from PACRA for companies and NRC details for individuals
		Annual Returns	NIL	Self service	Transactional	

2.6.4 e-Government Coordinating Institution

e-Government coordination before 2015 was fragmented. Ministry of Finance was spearheading the IFMIS project and provision of support services in hardware and software development. On one hand, the Ministry of Transport and Communication was spearheading the role out of the Government-Wide Area Network while MPSAs were also implementing projects independently. Arising from this fragmented coordination of e-Government, it was recognised that for e-Government to be successful, ICT systems in Government needed to be strengthened, well-coordinated and integrated into a common platform. Inter-agency collaboration was also weak as there was no lead institution to guide. This led to the creation of the Smart Zambia Institute.

In terms of human capital, there was consideration made that all ICT staff in government ministries be transferred to the newly created coordinating institution (SZI) and assigned back to the various Ministries. It was also observed that the public service lacked institutions to manage the ICT cadre regarding professional ICT code of conduct. The decentralisation of management of Information Technology in the Public Service had also increased the challenge of monitoring and coordinating the ICT function. This was compounded by the lack of standardized ICT systems across the Public Service.

2.7 Coordination and Collaboration in e-Government Implementation

Coordination and collaboration are a key ingredient in the facilitation of effective implementation of e-Government. According to the business dictionary, coordination is defined as the synchronisation and integration of activities, responsibilities, and command and control structures to ensure that the resources of an organisation are used most efficiently in pursuit of the specified objectives. Along with organising, monitoring, and controlling, coordinating is one of the key functions of management. It helps clarify the actors' responsibilities across government organisations and departments (Mofleh et al., 2009) and can result in harmonious task completion. In short, it helps government ministries/agencies achieve jointly determined goals. e-Government development also requires coordination to bring improvements and enable the delivery of services through integrated one-stop shops, whether virtual or physical (Kunstelj and Vintar 2009). Coordination has both positive and negative connotations. Positively, bringing

about cooperation and teamwork among the persons and units of an organisation. Negatively, removing conflicts, inconsistencies, friction, overlapping, and working at cross purposes among persons or units of an organisation (Hanna et al, 2009). The coordination department however needs to be able to rely on a formal authority in case collaboration fails (Wojtarowicz and Herold, 2014).

According to UNESCO (2019), coordination can either be horizontal or vertical. Horizontal coordination targets primarily central government ministries and bodies. Additionally, many service delivery processes transcend departmental and organisational boundaries and a client's question often does not follow organisational boundaries (Klievink & Janssen, 2010). Horizontal coordination can also be described as coordination between organisations on the same level (e.g. different ministries on the federal level), known as "joined-up government", a concept firstly introduced by the Blair's government in 1997 as *whole-of-government* (Iredale, 2001; Pollitt, 2003, Wojtarowicz and Herold 2014). Vertical coordination is concerned with linking national and sub-national levels to guarantee joined-up and sustainable implementation and management of inclusive policies (UNESCO, 2019). Vertical coordination has improved due to reforms associated with New Public Management, which generally focus on performance management, structural devolution and "single-purpose" organisations (Christensen and Laegreid, 2008; Peters, 2006, Wojtarowicz and Herold 2014). This for example is reinforced by a study by Nurdin et al (2014) which modelled coordination and collaboration around the case study at Jembrane Regency (local government level) showing how it linked central government and lower layers to coordinate and collaborate in supporting e-Government implementation.

Christensen and Laegreid (2008) and Wojtarowicz and Herold (2014) states that vertical and horizontal coordination is further looked at from the internal and external dimensions. Internal dimension refers to coordination within the central government, while external coordination takes place between central government (e.g., ministries) and organisations outside the government (e.g., NGOs, private sector) as shown in table 4 below.

Table 4: Taxonomy of Coordination Form

	Horizontal Coordination	**Vertical Coordination**
Internal Coordination	Intra-level Coordination between different ministries or policy sectors	Inter-level Coordination between parent ministry and subordinate agencies and bodies in the same sector
External Coordination	Coordination with civil society organisations/private sector interest organisations	Coordination a) upwards to international organisations or b) downwards to local government

Source: Christensen and Laegreid (2008)

According to the five stages of e-Government evolution defined by UNASPA, coordination is not urgent during the initial "emerging" stage because the online presence of single governments or ministries is just being established. But as soon as information archives are developed, during the "enhanced" stage, collaboration and coordination among the different agencies become essential. Otherwise, the transaction costs and disturbances involved in ensuring technical interoperability and institutional stability would be higher at a later stage. The involvement of the Head of Government, as the champion of change, and other senior government leaders, is important at all stages of e-Government, but critical at the beginning. Several countries leaders have driven the e-Government agenda as a key government priority, e.g., Rwanda, Estonia (infoDev/World Bank (2009).

On the other hand, Collaboration denotes communicating and working together across organizational boundaries (Baker, 1992). Collaboration ensures that ministries and agencies work together to achieve a common function or goal without the creation of duplicity and wastage of resources. This is also referred to as a joint effort of multiple workgroups to accomplish a task or project. In short, it cooperates with an agency or Ministry with an agency or instrumentality with which one is not immediately connected (www.merriam-webster.com). According to Ebrahim and Irani (2005) when the system shares common databases across government agencies, customers and business entities are served better as they will only enter common information usually required by several agencies once and then replicated across government agencies removing data duplication. This helps to cut down on the cost of doing business, reduce processing time and increases service delivery.

Collaboration can be in three parts namely managerial, IT and employees as elaborated by Odat (2012) in a study undertaken on the Impact of Collaboration and Coordination among e-Government: a case study of Jordan. This is illustrated in Figure 6.

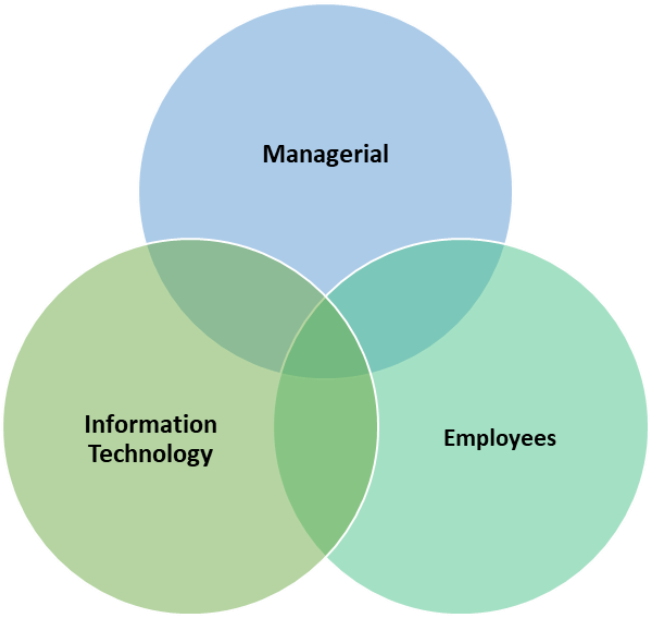


Figure 6: Collaboration Model **(Source** Odat, 2009**)**

i. *Managerial Collaboration* is where there is the formation of a higher body with broad powers, responsible for developing the necessary plans and programmes, supervising the progress of an e-Government programme, facilitate procedures, overcome obstacles, and solve problems.

ii. *Information Technology collaboration* has experts from all disciplines of IT with the responsibility to develop the necessary specifications for the development of systems and ensure interoperability, integration, shareability, and standards are developed.

iii. *Employees Collaboration* is where employees are best placed to translate the aspirations of e-Government into reality and promoting a culture of collaboration between government employees, regardless of their organisations - taking a *whole-of-government approach*.

According to Estevez et al (2007), a central coordination institution is key for promoting e-Government development within the public administration as it facilitates inter-agency collaboration, facilitates interoperability and setting technical standards and ensures avoidance of duplication of efforts by individual agencies through increased information sharing. For example, the X-Road has been the backbone of e-Estonia since 2001 as it allows the nation's e-services databases, both in the public and private sector, to link up and operate in harmony interconnecting over 1000 public and private organisations databases (Platera, 2019).

Historically, areas of shared responsibility for multiple government agencies have been resistant to real progress. However, leaders must create in parallel the institutional and organisational processes that allow cross-agency actions to be sustained over time, such as formal agreements, defined roles and responsibilities, pooled resources, and shared performance goals. Collaboration has the potential to save money, simplify government for citizens and business and make public service more productive (Fountain, 2013).

The OECD (2003) indicated that central coordination is the basic feature of the strategies for e-Government to be promoted as it involves a formal organisational unit located within public administration or linked to a broader Information Society. Various approaches to central coordination are applied. These comprise creating a government agency dedicated to e-Government coordination (Estevez et al, 2007).

It is imperative to have interoperability frameworks in place as they are an integral part of the Whole-of-Government approach enabling the integration of different technological platforms and solutions into common solutions and services leading to the collaboration ability of cross-ministerial and cross-border services for citizens, businesses, and public administrations (Viik et al (2019).

Despite a growing understanding of the need for coordination and collaboration in e-Government implementation, these are to some extent ignored in public sector reform projects (Aichholzer & Schmutzer, 2000). It must be accentuated that coordination and collaboration have become important issues when it comes to harmonisation the many actors that support the

implementation of e-Government. A study by Nurdin et al (2014) found that dynamic coordination and cooperation influenced the success of e-Government systems implementation. e-Government development also requires coordination to bring improvements and enable the delivery of services through integrated one-stop shops, whether virtual or physical (Kunstelj and Vintar 2009). This causes complex relationships among many stakeholders (Traumüller & Wimmer, 2009) and requires effective coordination and collaboration among the actors to harmonise project implementation. This has been exemplified by studies by Fang (2002), Ho (2002). Grant & Chau (2006), further deduced that effective coordination and collaboration among actors leads to a clear understanding of the goals of e-Government projects and harmonisation of the actors towards implementation. Online communication and collaboration and coordination allow government agencies and departments to share databases, resources, pool skills and capabilities, enhancing the efficiency and effectiveness of processes. Collaboration and coordination mean sharing knowledge, resources, and IT infrastructure, it also means saving money, time, and efforts (Odat, 2012, Emad Abu-Shanab & Issa Shehabat (2018) as in figure 7.

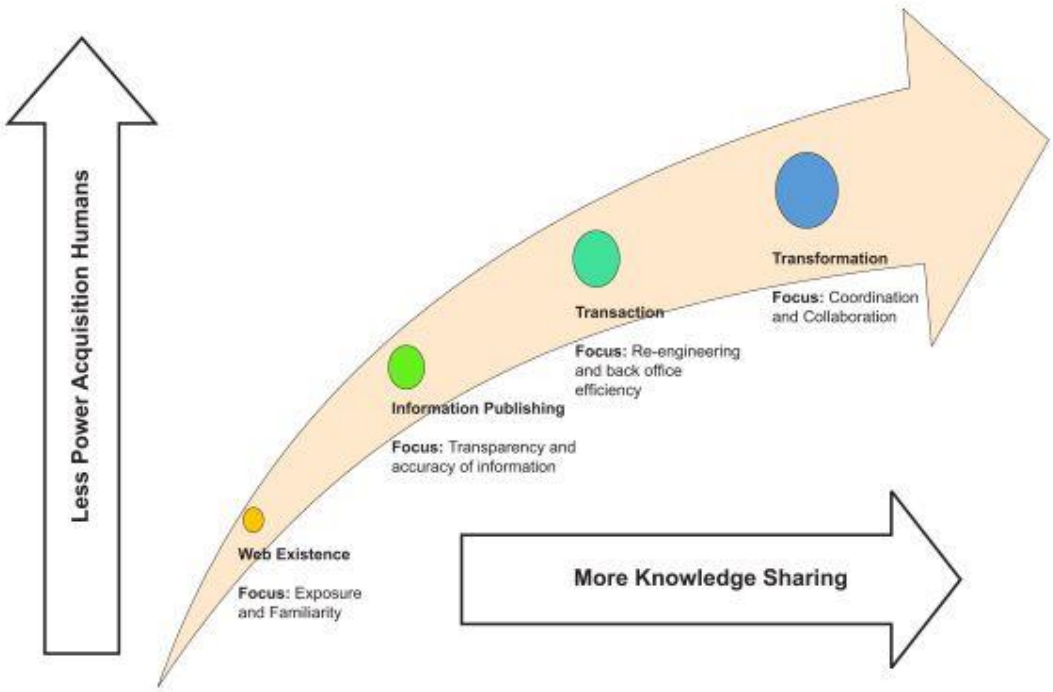


Figure 7: e-Government focus evolutionary model **(Source:** Emad Abu-Shanab & Issa Shehabat, 2018**)**

To realise the benefits of G2G process coordination, workflow systems by themselves are not enough. The application of integrative technologies that facilitate transparent information and knowledge exchange and representation is necessary. The idea is attaining collaboration among all constituents throughout a virtually shared information environment characterised by the seamless and transparent exchange of meaningful information and knowledge (Iyers et al, 2006). Figure 7 above clearly demonstrates that the more there is the acquisition of knowledge from just have a web presence to transformation through the attainment of coordination and collaboration - achieving seamless services, the less human interaction will occur thereby providing efficient service delivery and reducing corruption. Central coordination must ensure innovation and efficiency and should not be a bureaucratic obstacle for development. Suffice to say that when coordination and collaboration are attained through transformation, then system integration will occur fully. Full system integration in this instance meaning that systems within government can share common government data sources such as databases (Ebrahim & Iran, 2005)

2.8 Development of the National Institutional Structure for e-Government Coordination

According to Viik et al (2019), e-Government activities between various units of government inclusive of other agencies requires high-level coordination. This calls for identifying capacity to introduce e-Government elements into the functioning mechanisms of government institutions (Echebarria K, 2001). The concept of coordination is not to centralise decision making and technical capacities, but to support the innovation and service delivery modernisation in every government institution in a harmonised manner by avoiding duplication and over-investment (Viik et al, 2019).

2.8.1 Broad Organisational Approaches to e-Government.

Several studies have been undertaken to look at institutional modes of coordination (OEDC, 2005, Hanna et al., 2009, Estevez et al., 2007) and some of the conclusions made are that there is no ‘one size fits all” solution to the question of how best to coordinate e-Government. As much as governments share common challenges, they start from different places in terms of e-Government and administrative development. e-Government coordinating models can either lean more on administrative control or more on political control.

For instance, a study done by OECD countries looked at e-Government control that ranged from administrative control, where responsibility was placed under a single existing ministry without specific responsibility for e-Government to political control where control over e-Government was in or near the Office of the Head of Government (OEDC, 2005) as highlighted in table 5.

Table 5: Broad Organisational Approaches to e-Government

← More Administrative Control			More Political Control →	
1	2	3	4	5
Ministry with specific responsibility for IT	**Ministry of Finance**	**Ministry of Interior /Public Administration**	**Ministerial Board or shared Ministerial responsibility**	**Unit or group created by or in Executive Office**
• Belgium • Poland • Czech Republic	• Australia • Canada • Finland • Denmark • Sweden	• Germany • Greece • Luxembourg • Mexico • The Netherland • New Zealand • Norway • Spain	• Japan • Korea • Switzerland • Slovakia	• Austria • France • Hungary • Iceland • Ireland • Portugal • Turkey • United Kingdom • United States of America

Source: OECD Country Reports (2004)

Many countries have made e-Government a specific portfolio to ensure that national infrastructure is in place, to push lagging agencies and promote interoperability through common standards. In instances where the e-Government portfolio exits or resides in several ministries is a clear indication that e-Government does not have a natural home. Both administrative and political control can be wielded to ensure cross-agency coordination. Placement of e-Government responsibility in or near the centre does seem to have a symbolic value in terms of visibility and as a display of the political will. For example, the elevation of e-Government to "presidential priority" in the United States of America in 2002 accompanied by the creation of the position within the Executive Office of the President. However, where a ministry is in charge of e-Governance development, there is a danger that other ministries, normally horizontally placed hierarchically, may question the basis for this one ministry to determine issues for all ministries (Council of Europe, 2017).

2.8.2 Institutional Coordinating Models

2.8.2.1 Hanna and Qiang Institutional Coordinating Model

According to Hanna et al (2009), institutional coordinating model has four (4) types covered namely; policy and investment coordination, administrative coordination, technical coordination; and shared or no coordination. Table 6 sums up these e-Government Institutional models embraced by various countries bringing out the benefits and the drawbacks associated with each model.

Table 6: Models for e-Government Institutions in Various Countries

Models for e-Government Institutions	Countries	Benefits	Drawbacks
Policy and investment coordination (cross-cutting ministry such as finance, treasury, economy, budget, or planning)	Australia, Brazil, Canada, Chile, China, Finland, France, Ireland, Israel, Japan, Rwanda, Sri Lanka, United Kingdom, United States	Has direct control over funds required by other ministries to implement e-Government. Helps integrate e-Government with overall economic management.	May lack the focus and technical expertise needed to coordinate e-Government and facilitate implementation.
Administrative coordination (ministry of public administration, services, affairs, interior, state, or administrative reform)	Bulgaria, Arab Republic of Egypt, Germany, Republic of Korea, Mexico, Slovenia, South Africa	Facilitates integration of administrative simplification and reforms into e-Government	May lack the technical expertise required to coordinate e-Government or the financial and economic knowledge to set priorities.
Technical coordination (ministry of ICT, science and technology, or industry)	Ghana, India, Jordan, Kenya, Pakistan, Romania, Singapore, Thailand, Vietnam	Ensures that technical staff is available; eases access to non-governmental stakeholders (firms, NGOs, and academia).	May be too focused on technology or industry and disconnected from administrative reform.
Shared or no coordination	Russian Federation, Sweden, Tunisia	Least demanding and with little political sensitivity (does not challenge the existing institutional framework and responsibilities of ministries	May lead to rivalries amongst ministries. No cross-cutting perspective. Fails to exploit shared services and infrastructure and economies of scale.

Source: Hanna and Qiang 2009

Policy and Investment Coordination

This model gives the entity responsible for governing and coordinating e-Government activities direct access to the funding it needs by enabling easy control over funds required by other ministries in pursuing e-Government goals set for them. It further facilitates the integration of the e-Government agenda with the country's overall economic development agenda. Thus, enforcing policies and priorities through the budget process yet allow effective decentralisation of implementation. Most countries using this model started adopting e-Government initiatives early on and made sustained commitments. A drawback is the lack of focus and technical expertise of the coordinating body.

Administrative Coordination

This model of e-Government coordination facilitates the integration of e-Government efforts with administrative reform, simplification, and decentralisation. It raises the visibility of the e-Government agenda and encourages broad participation across agencies. Additionally, it increases government efficiency and transforming public services as the goal of the e-Government initiative, making this model outcome-oriented rather than technology-driven. Nonetheless, its potential weakness is that it may lack the technical expertise and budget mechanisms required to ensure technical coordination.

Technical Coordination

This model focuses on governing and coordinating by ensuring that specialised technical staff are available to address ICT issues. It is regarded as an approach that may be a natural evolution of the traditional role of the ministry of telecommunications, typically when the approach to e-Government is focused on infrastructure. It has the advantage of involving the private sector and other non-governmental stakeholders more effectively in the e-Government process and thus allowing for innovative public-private partnerships. However, if it has limited technical leadership competencies, the e-Government agenda remains outside broad public sector reform

efforts and the core development agenda. Accordingly, strong financial mechanisms with well-defined carrots and sticks must be in place to ensure compliance and cooperation.

Shared or no Coordination.

In this model, e-Government development and implementation functions are distributed among existing ministries. Each ministry is responsible for the part of the e-Government strategy that falls within its field of expertise. This model does not involve any new coordination mechanisms and is the least politically demanding, making it the easiest to adopt for the short term. Funding for e-Government activities comes from the ministries' budgets. However, agencies set up their own information systems—and in some cases, proprietary communications networks—leading to duplication and impairing information sharing. This approach is likely to result in uneven development across ministries and missed opportunities to leverage economies of scale in shared infrastructure, applications, and support services. The drawback with this model is that it may lead to rivalries amongst ministries due to lack of a cross-cutting perspective resulting in failure to exploit shared services and infrastructure and economies of scale.

2.8.2.2 Infodev/World Bank Model of organising e-Government Coordination.

According to the report by Infodev/World Bank (2009), on e-Government Primers, five (5) different models of organising leadership for any kind of e-Development (including e-Government) are evident and include the following:

a. *The shared responsibility model*, in which each ministry or department develops and implements its own strategy.

b. *The policy coordination model*, in which a policy coordination body situated in the office of the head of state provides policy guidance and coordination.

c. *The lead ministry model*, in which one ministry develops plans.

d. *The ICT (or e-Government) agency in civil service model*, in which a special purpose agency is created outside of any ministry.

e. *The ICT (or e-Government) agency as PPP* (Public Private Partnership) model.

There are in fact some resemblances between the Infodev/World Bank Model of organising e-Government Coordination when compared to Hanna and Qiang Institutional Coordinating Model.

2.8.2.3 Alternative Models

Hanna et al. (2008) highlight other alternative models adopted by other countries by creating of an ICT Agency or Council of Chief Information Officers.

i. *ICT agency* - Countries like Singapore, the Republic of Korea have adopted variations of such central ICT agencies and these are semi-autonomous operating like a business although ultimately answerable to a country's political leadership.

ii. *Council of Chief Information Officers* - Some countries are instituting or experimenting with national councils of CIOs, supported by CIOs in ministries and agencies. This approach combines centralised governance and coordination with decentralised implementation and ownership.

This study used the Hanna and Qing (2009) Institutional Coordination Model to appreciate which model has been adopted by Zambia. Currently, the coordination of e-Government is housed in the Office of the President under the e-Government Division (Also referred to as Smart Zambia Institute). Before the creation of the Smart Zambia Institute (e-Government Division) by the Government, there were overlaps in terms of coordination of e-Government programmes between the Ministry of Finance (which housed CCSD) and the Ministry of Transport and Communication. The placement of the e-Government coordinating institution in the Office of the President as illustrated in Figure 8, shows that Zambia has adopted an Administrative Model and how it fits in the e-Government Coordinating structure.

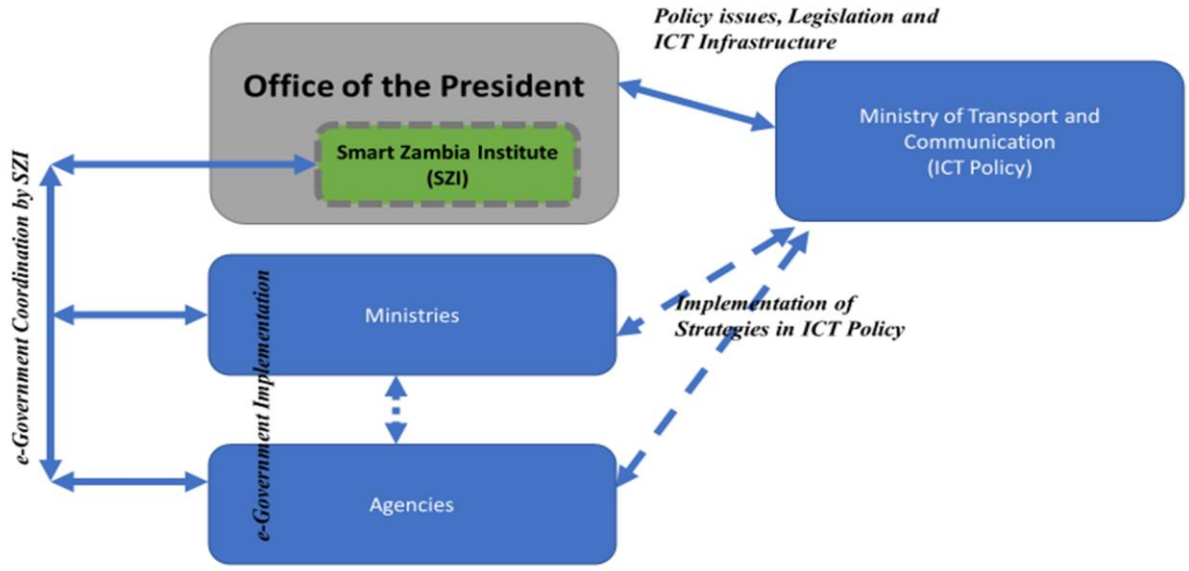


Figure 8: Current e-Government Coordinating Structure for Zambia

In a nutshell, the choice of institutional location for e-Government governance and coordination may reflect more general tendencies or legacies faced with a new challenge of where a government may have a preference about where it locates responsibility. While administrative control can be wielded to ensure cross-agency coordination, placement of e-Government responsibility under each model has clear advantages and disadvantages that should be borne in mind and perhaps complemented by capacity building and inter-agency policy and strategy mechanisms. Nevertheless, it is worth noting that the models basically focus on the strengths and weaknesses without necessarily prescribing the best practice.

2.8.3 e-Government Interoperability

A key component of e-government initiatives is the ability of multiple government and non-government organisations to share and integrate information across their traditional organisational boundaries. e-Government interoperability, therefore, represents a set of multidimensional, complementary, and dynamic capabilities needed among these networks of organisations to achieve successful information sharing (Pardo et al. 2011). Interoperability is a policy issue that requires "whole-of-government" attention, usually through the central coordinating e-Government body. It can yield substantial cost savings by pushing agencies to

rely on off-the-shelf products and open or commonly accepted standards (EU). At a technical level, it is the ability of two or more diverse government information systems or components to seamlessly exchange information and utilise it.

From the perspective of public services, it is argued that addressing interoperability challenges will improve the efficiency of service delivery, access to the services, coordination among existing services resulting in added efficiency gains (UNDP 2007, Novakouski & Lewis, 2011). Subsequently enabling e-Government systems to interoperate provides many benefits, including improved efficiency, transparency, accountability, and access, as well as coordination of services at lower costs (Novakouski & Lewis, 2011). An example of vastly connected countries providing public services with high levels of interoperability is Estonia with its notable X-Road project run by the government (Malotaux 2007 et al., p. 26). The X-Road is a primary gateway to services offered by all government agencies in Estonia. Another example is Kenya that has established interoperability standards for specific data-centric platforms, such as payment systems. The National Payment System Act prescribes that all service providers to use systems capable of interoperability with other payment systems in the country and internationally (UNDESA, 2020).

Interoperability deals with both technical (interoperability levels which include technical, semantic, and organisational) and non-technical (legal, politics and policy, and sociocultural issues) aspects of interoperability. For example, the independent nature of government agencies and conflicting leadership, policy, and financial priorities make it difficult to enable consolidation and cooperation in the pursuit of better citizen services (Biddick, 2009). In addition, a simple website that shares information with the public must consider legal issues such as what information is considered public, political issues such as consistency with current policies and objectives, and sociocultural issues.

2.8.3.1 Interoperability Levels

a. *Organizational* - focuses on the workflows and other organisational processes involved in delivering e-Government services and may involve creating agreements on how organisations will interact with each other. In other words, process

agreement cannot occur without both information exchange and meaning exchange supporting the communication to establish the process and the communication that contains the information for the recipient to act on.

b. *Semantic* - using meta-data terms and taxonomies to identify information and make it easier to access. It maps to the goal of meaning exchange and is placed above the technical interoperability level because to exchange meaning it is necessary to have already been successful at information exchange. This is consistent with many of the existing interoperability models (Gibbons et al, 2007 pp. 14–15; UNDP 2007, p. 9; Lewis et al. 2008; Stroetmann 2009)

c. *Technical*: ensuring interoperability among different IT systems and applications through commonly accepted standards for example "EIF – European Interoperability Framework for pan-European e-Government Services

7.8.3.2 Influencing Factors

The influencing factor also referred to as non-technical issues (legal, political, and sociocultural) are essential in ensuring that interoperability is effectively implemented. The independent nature of government agencies and conflicting leadership, policy, and financial priorities make it difficult to enable consolidation and cooperation in the pursuit of better citizen services (Biddick 2009). Therefore, these non-technical issues cannot be ignored as they play a key role as follows: (a) *legal* – deals with regulations with respect to for instance privacy and data protection issues (European Communities 2008, p. 34) that may arise as a result of data sharing by different government agents; (b) *political* – which critical for e-Government interoperability to success. Without this critical element, it can be difficult to realise the level of cooperation and coordination among the participating government departments; and (c) sociocultural - critical to user adoption.

2.9 Global e-Government Development Index (EGDI)

The EGDI is used to measure the readiness and capacity of 193 United Nations Member States as regards the use of ICTs to deliver public services and is assessed based on three indices namely: Telecommunications Infrastructure Index (TII) based on data provided by the International Telecommunications Union (ITU), Human Capital Index (HCI) based on data provided by the United Nations Educational, Scientific and Cultural Organization (UNESCO), and Online Service Index (OSI), which assesses the national online presence of all (UNDESA, 2020). The scoring of the EGDI is classified as Very high EGDI group (from 0.75 to 1.00) High EGDI group (between 0.50 to 0.75) Middle EGDI group (between 0.25 to 0.50), and Low EGDI group (below 0.25).

Africa continued to lag in e-Government development compared to the rest of the world. It was observed by UNDESA (2018) that many people in African countries are unable to benefit from ICTs because of poor connectivity, high cost of access and lack of necessary skills. The study looked at the performance of the three (3) countries namely Kenya, South Africa, and Zambia on the EGDI.

2.9.1 EGDI For Selected Countries

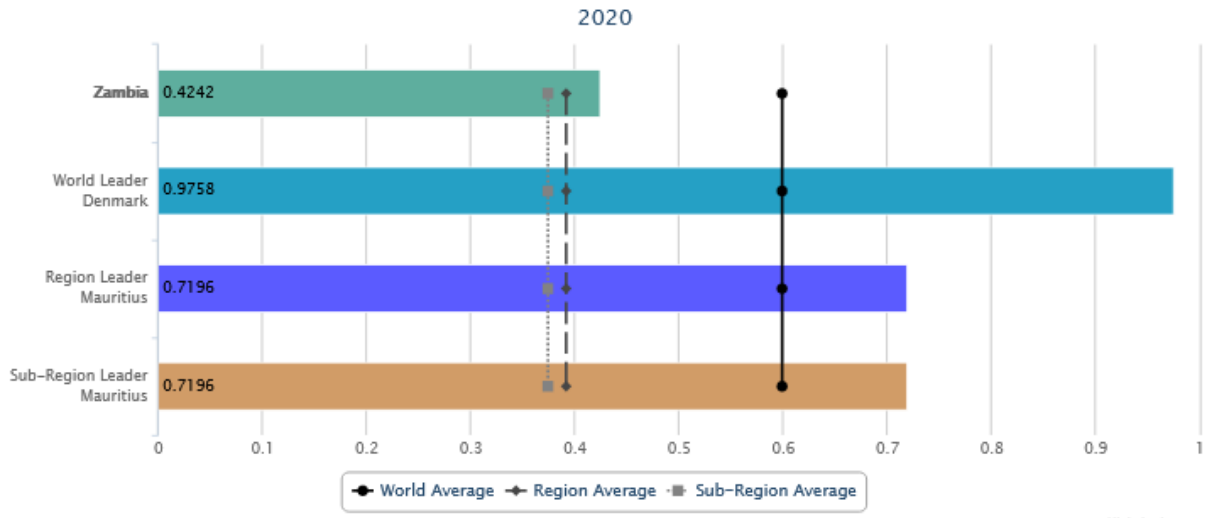
Zambia's performance on the EGDI has continued to lag compared to Kenya and South Africa ranking 148 out of the 193 countries that were assessed. Table 7 shows the performance of Kenya, South Africa and Zambia in 2020.

Table 7: EGDI – Africa Selected Countries (2020)

Global Ranking	Country	EGDI	Online Service Component	Telecomm. Infrastructure Component	Human Capital Component
122	Kenya	0.53260	0.67650	0.34020	0.58120
68	South Africa	0.68910	0.74710	0.58320	0.73710
133	Zambia	0.42420	0.25880	0.33940	0.67450

Source: United Nations e-Government Survey (2020)

Zambia scored an EGDI of 0.42420, which was below the world average index of 0.5988 but was above the regional average of 0.3914. This is shown in figure 9.

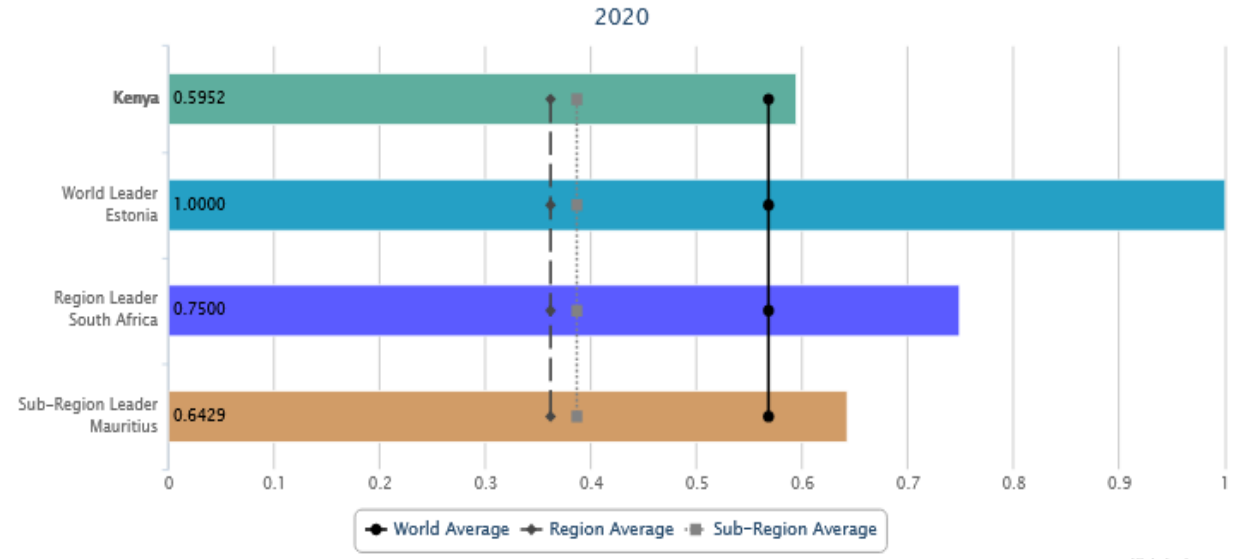


E-Government Development Index	2020	2018	2016	2014	2012	2010	2008	2005	2004	2003
Zambia (Rank)	148	133	132	163	154	143	158	180	179	127
Zambia (Value)	0.42420	0.41110	0.35069	0.23893	0.29102	0.28098	0.22660	0.00000	0.00000	0.27644

Figure 9: EGDI Zambia **(Source:** UN Government Knowledge base, 2020**)**

2.9.2 e-Participation Index for Selected Africa Countries

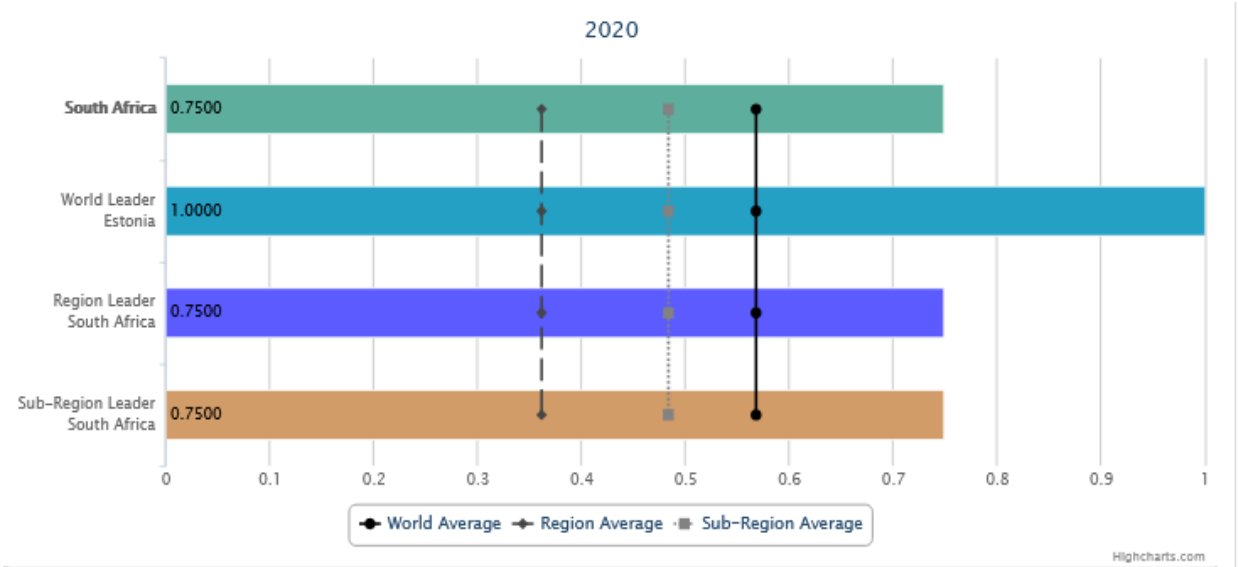
E-participation is defined "as the process of engaging citizens through ICTs in policy, decision making, and service design and delivery so as to make it participatory, inclusive, and deliberative" (United Nations, 2014). The measurement of e-Participation is based on: (i) e-Information – availability of online information; (ii) e-Consultation – online public consultations; and (iii) e-Decision-making – directly involving citizens in decision processes. Details are shown below in Figures 10, 11, and 12 for Kenya, South Africa, and Zambia, respectively:



E-Participation Index	2020	2018	2016	2014	2012	2010	2008	2005	2004	2003
Kenya (Rank)	90	110	84	33	124	53	135	105	75	151
Kenya (Value)	0.59520	0.53370	0.52542	0.64705	0.05260	0.22857	0.04545	0.03174	0.06557	0.00000

Figure 10: Kenya e-Participation Index **(Source:** UN Government Knowledge base, 2020)

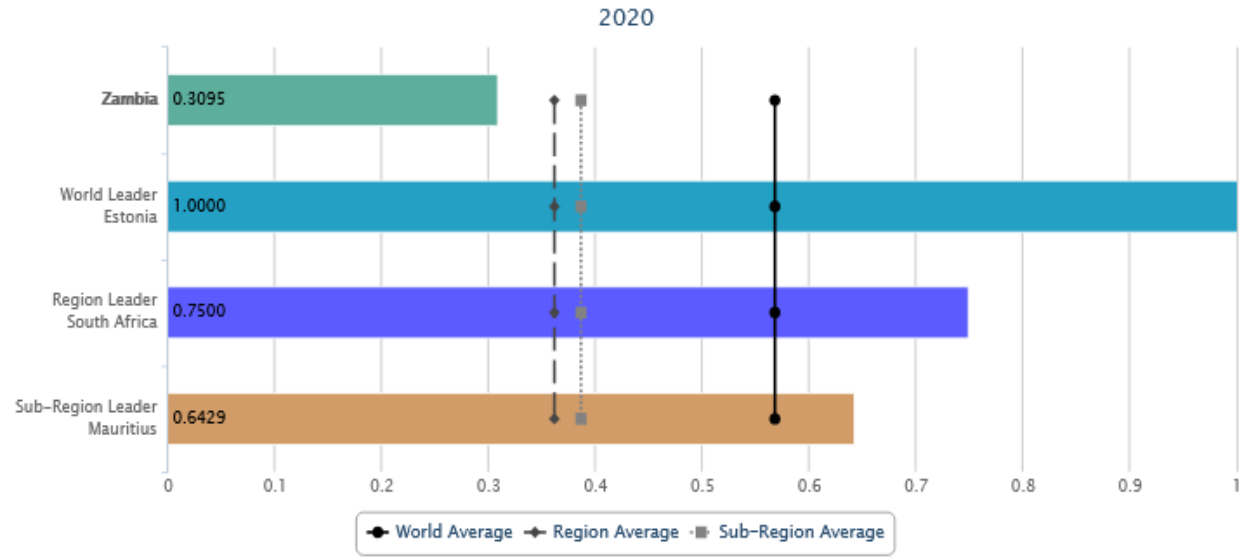
Kenya's was ranked 90 on the e-Participation index in 2020 compared to 110 in 2018 showing improvement with a score of 0.5953, which was above the world average.



E-Participation Index	2020	2018	2016	2014	2012	2010	2008	2005	2004	2003
South Africa (Rank)	57	39	76	97	83	64	49	33	66	41
South Africa (Value)	0.75000	0.84830	0.55932	0.33333	0.15790	0.18571	0.25000	0.30158	0.09836	0.25860

Figure 11: South Africa e-Participation Index **(Source:** UN Government Knowledge base, 2020)

South Africa was ranked 57 in 2020, experiencing a sharp drop from 39 in 2018. Its score, however, was 0.7500 which was above the world average of 0.5654.



E-Participation Index	2020	2018	2016	2014	2012	2010	2008	2005	2004	2003
Zambia (Rank)	158	132	118	143	134	180	170	151	151	123
Zambia (Value)	0.30950	0.39890	0.35593	0.17647	0.02630	0.00000	0.00000	0.00000	0.00000	0.01720

Figure 12: Zambia e-Participation Index **(Source:** UN Government Knowledge base, 2020**)**

Zambia was ranked 158 at the global level compared to 132. This clearly shows a drastic drop in Zambia's ranking at the e-Participation Index with a score of 0.3095 way below the global average of 0.5654. The world leader for the e-Participation was Estonia with a score of 1.000 translating into a 100% score.

2.10 Network Readiness Index (NRI)

The NRI rests on four fundamental dimensions: Technology, People, Governance, and Impact. The Network Readiness Index of 2019 ranked a total of 121 economies. Kenya, South Africa and Zambia were ranked as shown in table 8.

Table 8: Network Readiness Index - Africa

Country/Economy	Score	Rank	Technology	People	Governance
South Africa	47.38	72	47.88	37.87	66.61
Kenya	38.19	93	34.02	32.50	55.89
Zambia	26.20	112	18.87	18.99	44.52

Source: Portulans Institute (2019).

Zambia was ranked 112 scoring 26.20 out of a total score of 100. Zambia poorly performed on technology and people. South Africa and Kenya on the other hand were ranked 72 and 93, respectively.

2.11 Challenges and Barriers of e-Government Implementation

Matavire et al., (2010) observed that e-Government implementations in developing countries were generally more problematic in comparison to those in the developed nations. Some of the challenges faced in e-Government development and implementation include policy issues, ICT infrastructure, human capital development, change management, strategy, leadership role, and partnership and collaboration (Ndou 2004). Bhuiyan (2009) echoes these sentiments, even going as far as adding corruption as an added challenge; especially where the developing country's political landscape is characterised by a political elite who influence the direction of ICT initiatives. Rami (2017) found that a lack of skills and trained staff were some of the major challenges that countries encounter in their journey toward digitalization. In addition, a study by Nkohkwo & Islam (2013) on "*Challenges to the Successful Implementation of e-Government Initiatives in Sub-Saharan Africa: A Literature Review,"* ICT infrastructure was the biggest challenges., followed by human resources, legal framework, Internet access and connectivity, language, illiteracy, awareness, and the digital divide amongst others. Therefore, e-Government challenges can be summed up as identified by Alshehri and Drew (2010) as shown in figure 13 below:

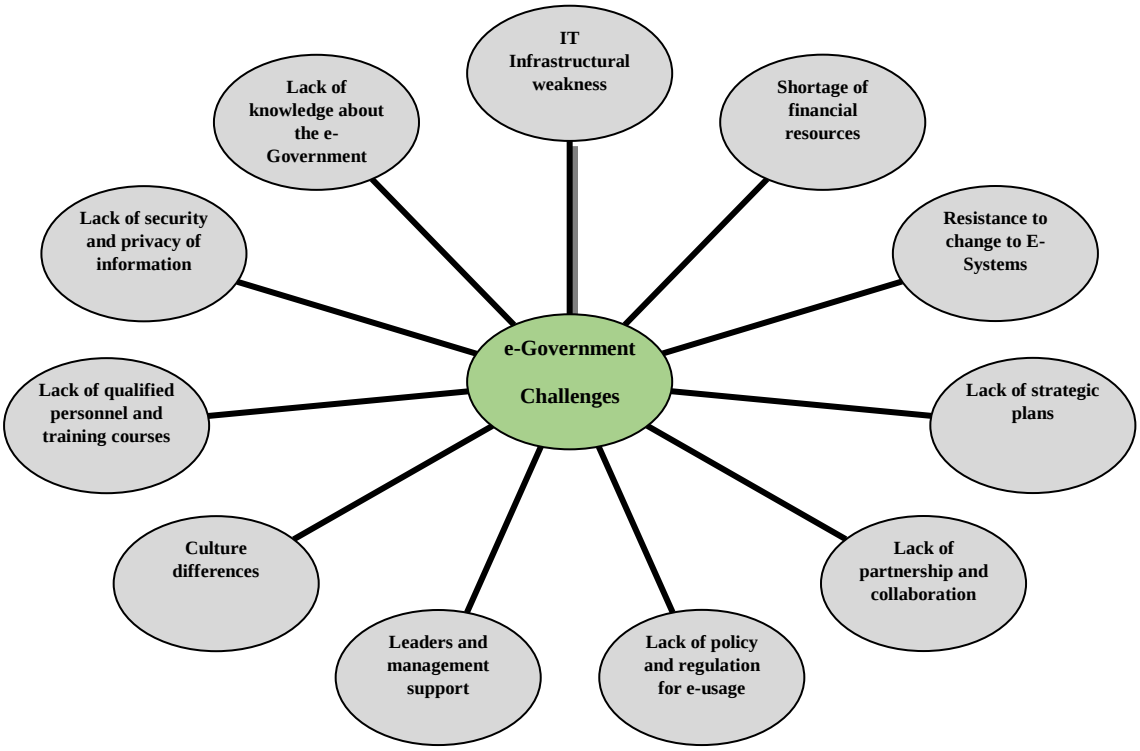


Figure 13: e-Government Challenges (**Source**: Alshehri and Drew, 2010)

According to the European Commission (2007), the following are the seven barrier categories that inhibit e-Government implementation:

a. **Leadership failures**: Slow and patchy progress to e-Government can result from a lack of adequate leadership during any stage in the initiation, implementation, promotion, and ongoing support of developments.

b. **Financial inhibitors**: Concerns about the costs of implementing and developing e-Government, together with inappropriate cost/benefit analysis approaches, can constrain the flow of investment at the levels necessary to support future e-Government innovation.

c. **Digital divides and choices**: Inequalities in skills and access can limit and fragment e-Government uptake. Failure to clearly address the needs of potential e-Government users can also hamper e-Government uptake even by citizens and businesses with appropriate levels of access who may choose not to use available e-Government services.

d. **Poor coordination**: Lack of coordination and harmonisation can put a brake on establishing appropriate e-Government networks and services that cross governance, administrative and geographic boundaries.

e. **Workplace and organisational inflexibility**: The realization of e-Government benefits can be constrained by inflexibilities in responding to the need to make necessary changes in public administration practices, processes, and organisational structures to allow them to be better able to make appropriate effective use of electronic networking capabilities.

f. **Lack of trust:** Heightened fears about inadequate security and privacy safeguards in electronic networks and a general distrust of government can undermine confidence in e-Government.

g. **Poor technical design**: Interoperability blockages caused by incompatibilities between ICT systems or difficult-to-use interfaces to e-Government services exemplify the kinds of practical flaws that can become serious operational obstacles to take-up of what otherwise appear to be valuable e-Government systems.

2.12 Case Studies for e-Government Coordinating Institutions

These are several institutional models that have been employed to provide central coordination for e-Government delivery of services. They include establishing a dedicated government agency or forming a committee of agency heads or chief information officers. The central e-government coordination involves a formal organisational unit located within public administration or linked to a broader Information Society. Two developing countries were considered namely Kenya, and South Africa, based on the Hanna and Qiang e-Government Institutional model embraced by various countries.

2.12.1 Kenya

The Ministry of Information, Communications and Technology is responsible for formulating, administering, managing, and developing the Information, Broadcasting and Communication policy. Through Executive Order No. 1/2016, the Ministry was split into two state Departments - the State Department of Broadcasting and Telecommunications and the State Department of ICT and Innovation in May 2016. The State Department of ICT and Innovation is responsible for the national ICT policy and innovation, promotion of e-Government, promotion of software development industry, ICT Agency (e-Government, Kenya ICT Board and Government Information Technology Services), provision of ICT technical support to Ministries, Depatments and Agencies (MDAs), policy on automation of Government Services, development of National Communication Capacity and Infrastructure, management of National Fibre Optic Infrastructure (MoICT, 2020). Prior to 2004, critical e-Government services were operated by the Government IT services (GITs), a department in the Ministry of Finance. Kenya has adopted the Technical model for e-Government, highlighted in Table 6 above based on the Hanna and Qiang Institutional Coordination Model.

Kenya's ICT currently governed by the National ICT Policy of 2019 that replaced the 2006 National Policy and was aligned with the new constitution, and Vision 2030 (MoICT, 2019). The Kenya ICT Board, Directorate of e-Government (Cabinet Affairs) and Government Information Technology Services (GITS) [Treasury] were merged into this Kenya ICT Authority in 2013. The merging of the three entities was to address issues of coordination and duplication that emerged (ICTA, 2019). Prior to 2004, critical e-Government services were operated by the Government IT services (GITs), a department in the Ministry of Finance. In terms of human resources, the Government CIO (GCIO) has no specific laws or mandates for CIO positions. Legislative changes have seen the Kenya ICT Board, Directorate of e-Government and Government Information Technology Services (GITS) were merged into this Kenya ICT Authority in 2013 with a wider mandate and greater regulatory powers. (2017).

Furthermore, a new coordinating government structure, the ICT Authority, has been created to take over and centralise a number of ICT sector functions and responsibilities and undertaking centralised sourcing and view of all shared services items. It has been tasked to rationalise and

streamline the management of all Government of Kenya ICT functions. Thus, its broad mandate entails enforcing ICT standards in Government and enhancing the supervision of its electronic communication, promoting ICT literacy, capacity, innovation, and enterprise in line with the Kenya National ICT Masterplan 2017 (ICTA, 2020).

The following key strategic documents were also developed: The National ICT Masterplan 2014 - 2017, National Broadband Strategy 2018-2023, and a National Cybersecurity Strategy. However, both the National ICT Masterplan and the National Broadband Strategy lack the necessary monitoring and evaluation components to guide ongoing implementation (Mungai, 2017). ICTA has also developed the Kenyan Government Wide Enterprise Architecture (GEA) Framework as a minimum standard to use across all government departments and agencies.

Some of the challenges identified in e-Government implementation include among others:

a) Government CIO, the use of emerging technology and e-Government promotion are the weak point of Kenya. There are no specific laws or mandates for CIO positions in Kenya.

b) Change management practices to promote a smooth change process as these will help assist will resolve failures in communication as well as coordination that have sometimes led to the failure of e-Government strategies implementation within the institutions (Riany et al, 2018).

c) Low automation levels of business processes, thus threatening effective service delivery against the backdrop of increasingly high demands for efficiency in Government.

d) Public data and information are stored in silos and disparate non-standard formats that are difficult to access.

e) Silo provision of government services by government agencies that are not citizen-centric.

f) A dearth of competent and skilled human capacity due to inadequately and inappropriately equipped universities and tertiary institutions.

g) Inadequate policies, legal and institutional frameworks at the national and devolved county levels of government.

h) Cultural and attitudinal resistance to the implementation of ICT-based services and offerings.

i) ICTA is perceived as a statutory body under the Ministry of ICT rather than an ICT leader with oversight over all flagship ICT projects, although the legal notice order that created ICTA gives it mandate across the public service.

In terms of service delivery, Kenya has made strides in implementing the following e-Services including iTax a fully integrated automated solution for the administration of domestic taxes. The web supported platform provides internet-based taxpayer registration, filing and status enquiries with real-time monitoring of accounts (Kuria, 2015), e-Procurement system providing easy access to documentation and simplifying the bidding process to suppliers. Integrated Financial Management Information System which has been integrated with iTax system and Central Bank of Kenya (Ndung'u, 2017). Huduma centres providing a one-stop shop for the public to obtain birth certificates, national identity cards, passports, registration of business names, and applications for marriage certificates, drivers' licences, among others (MyGov, 2015).

2.12.2 South Africa

Department of Public Service and Administration (DPSA) is responsible for the development and coordination of the government's overall e-government strategy. Key legislation for e-government is the Public Service Act of 1994 and its subsequent amendments which provide for, amongst others, the establishment of norms and standards relating to e-government and information management in the public service. Other policy measures put in place include Minimum Information Security Standards (MISS), Handbook on Minimum Interoperability Standards (MIOS), Electronic Communications Transaction Act, 2002, The Electronic

Communications Bill, 2000 that has transformed South Africa's telecommunications Industry. The Public Service Regulations of 2001 enabled e-government implementation followed by An Open-Source Software Strategy and Policy, 2006, Implementing these policies necessitated the creation of the State IT Agency (SITA) formed as a central, shared service provider to government departments and provinces (responsible for the acquisition, installation, implementation, and maintenance of IT in the public sector). The Government IT Officer's Council (GITOC) is the principal inter-departmental forum focusing on ICT and information management in the South African public service. It was formed to perform two major roles namely: advise the government on ICT policies and strategies, and to bring CIOs together to collaborate on common solutions. These work with the Office of the Government CIO created within the Department of Public Service and Administration (DPSA, Mawela et al, 2017).

Other key milestones in e-Government include the Protection of Personal Information (POPI) Act of 2013 which aims at promoting the protection of personal information processed by public and private bodies. The National ICT Integrated White Paper Policy adopted in 2016 focusing on 'people-centred' development orientated and inclusive digital society, and the National Development Plan (NDP) 2030. The National e-Strategy and e-Government Strategy and Roadmap 2017 whose development was led by the Department of Telecommunications and Postal Services (DTPS)

DPSA acts as a policy-making, regulating and strategy formulating body with the detailed purpose of coordinating e-Government activities across government to ensure proper measurement of ICT effectiveness in Government in collaboration with the National Treasury (Naidoo, 2012). This shows that South Africa has adopted the Administrative model for e-Government, which is shown clearly in Table 6.

However, there are some challenges that were identified by DTPS (2017), that South Africa faces in implementing e-Government programmes and these include among others:

a. Lack of a synchronized approach by government departments to digital transformation.

b. Fragmentation of e-Government initiative due to not being directed and managed in a collaborative manner resulting in a lack of accountability and responsibility due to overlapping roles between departments.

c. Duplication of processes, and databases which are incompatible.

d. Lack of a dedicated budget allocation for a specific implementation of e-Government programmes.

e. Roles of OGICTO, SITA and GITO are not clearly defined or understood thus misunderstanding on which institution leads and manages e-Government implementation have arisen.

In terms of service delivery, South Africa has been implementing the following e-Services that are accessible through the CIPC website and provide services for online registration of a company, reserving a name for company registration, and submission of annual returns (CIPC, 2020). South Africa Revenue Services provides online services that include among others for Pay-As-You-Earn, Value Added Tax, Personal Income, Request for Tax Clearance Certificate, Tax Calculators among others (SARS, 2020)

2.12.3 Gaps Identified in the Countries Reviewed

i. Literature reviewed shows that coordination has been a challenge due to fuzziness in the roles in coordinating institutions. Some roles overlap between different departments.

ii. Coordination and Collaboration mechanism do not have force of law and therefore, poses a challenge in implementation due to working in silos. Collaboration is a key factor for the efficient delivery of seamless online services and shared infrastructure.

iii. There was generally uncoordinated funding and commonly financing of e-Government seemed low.

iv. The position of GCIO was implemented but was not backed by law.

v. Sensitization on the change processes seemed to be another issue and as such there was resistance of change due to attitudes and cultural norms.

vi. Lack the necessary monitoring and evaluation components to guide ongoing implementation.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Methodology

A Methodology is as central to the research process as it is regarded as the lens through which a researcher looks when making decisions to acquire knowledge about social phenomenon and getting answers to the research questions. Simply put, it specifies the types of research designs and research methods that may be employed to gain knowledge about a phenomenon. The research approach adopted for this study was positivism and interpretivism (quantitative and qualitative). Positivists prefer scientific quantitative methods, while interpretivists prefer humanistic qualitative methods (Thompson 2015, Chilisa 2011) and this was used to gain insights and aid in the interpretation of results.

3.1 Research Design

The research design refers to the arrangement of conditions for the collection and analysis of data in a manner that aims to combine relevance to the research purpose (Brown & Heywood, 2005). The mixed design was used to answer the research questions as well as ensuring that the research objectives are met. Mixed-method research is research in which the researcher mixes both qualitative and quantitative research approaches within a stage of the study or across two of the stages of the research process. In short, the researcher uses the qualitative research paradigm for one phase of a research study and the quantitative research paradigm for another in order to understand a research problem more completely (Creswell, 2005).

Quantitative Research - focuses on the measurement and classification requirements of the information that is gathered in a more structured, rigid, fixed and is predetermined in their use to ensure accuracy in measurement and classification (Kumar, 20,11 p104). This research approach was used, employing the questionnaire structured surveys that were conducted to the population that was selected.

Qualitative Research - focuses to understand, explain, explore, discover, and clarify situations, feelings, perceptions, attitudes, values, beliefs, and experiences of a group of people (Kumar, 2011, p104). Through this method, data was collected mainly in form of descriptions. This included structured interviews that were conducted with specific individuals within the institutions that deal with e-Government policy and strategy issues (Ministry of Transport and Communication and Cabinet Office), coordination (Smart Zambia Institute), regulations in both ICT sector and professionals (ZICTA and ICTAZ). The information gathered through interviews and discussions were used to gain more insights useful for interpretation of the results from the quantitative study. Further, information was also gathered by visiting different websites to gather information on e-services. Figure 14 shows a summary of the research methodology approach.

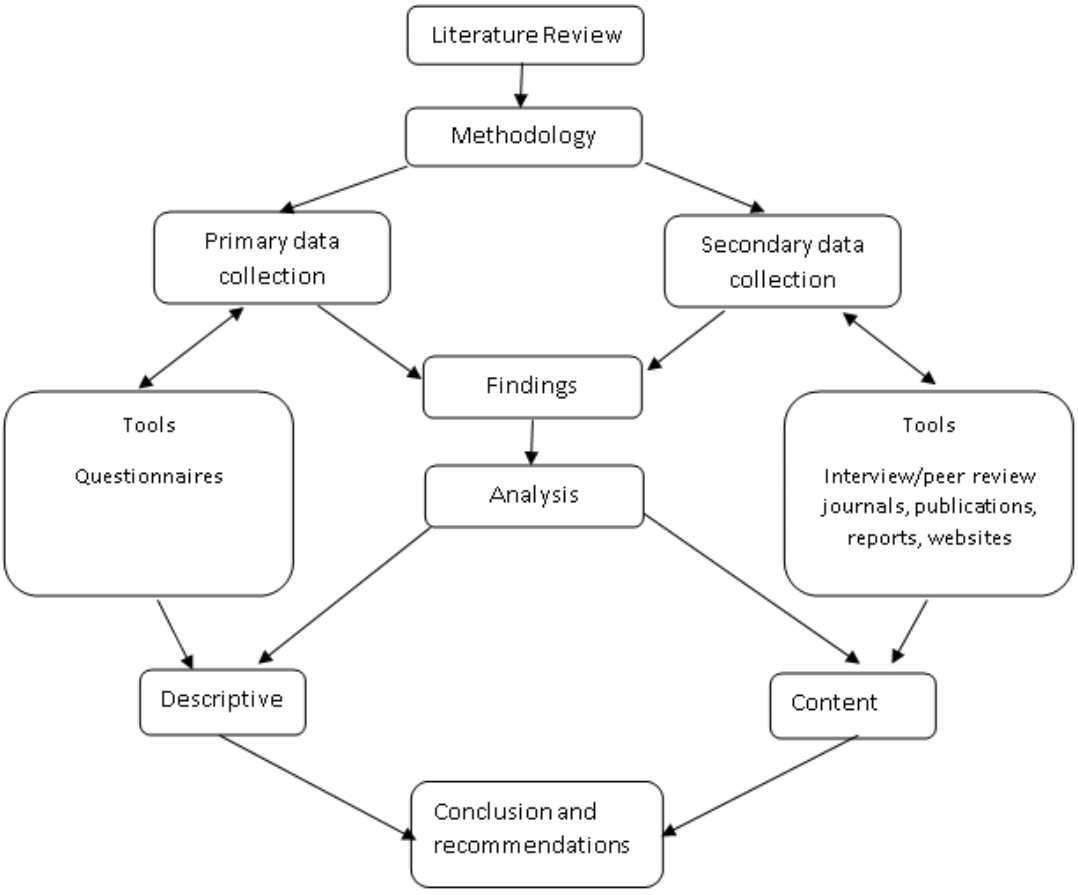


Figure 14: Research Methodology Approach

3. 2 Study area

The study focused on the role played by the institutional coordination models in implementing e-Government and inter-agency collaboration in implementing e-Government programmes in relation to e-Services in the Zambian context. The study looked at the e-Government institutional coordination models by Hanna (2007) and by Infodev/World Bank (2019) with emphasis on G2G, Odat's collaboration model (2012) and to understand at what level the country was in terms of e-Government development stage, using the Gartner Four-Stage Model.

3.3 Study Population

According to Babbie & Mouton (2017, p100), the population of the study is a group (usually of people) about whom we want to draw conclusions or the individuals that meet the selection criteria for a group to be studied (Easton and McColl, 1997). The study targeted a population 120 respondents covering all government ministries and selected spending agencies in Lusaka. The restriction of the study population to Lusaka was because all Ministries and selected agencies were based in Lusaka and could easily be reached given the resource and time constraints to undertake this research.

3.4 Study Sample

The survey targeted a population of 120 respondents comprising of ICT staff, planners and researchers from government Ministries and Agencies.

Using the Online Sample size calculator by Survey Monkey as shown in Table 15, a sample size of 120 with a confidence level of 95% and margin error of 5%, meant that that the sample size to be collected should have been 92 respondents. However, the response rate was 115 respondents.

Table 9: Online Sample Size Calculator

Population Size	**Confidence Level (%)**	**Margin of Error (%)**
120	95	5
Sample Size: 92		

Source: Survey Monkey

3.5 Sampling Techniques

The study used a random sampling method to select respondents (ICT staff, planners, and researchers) for quantitative data collection, while the non-probabilistic technique was used to select ministries departments and agencies to be part of the study, and these were purposively targeted by the researcher.

3.6 Data Sources

The data collected for this research consisted of both primary and secondary sources. The primary source of data was from the generated sample for the research and was captured from all Ministries and selected statutory bodies (Agencies). For the secondary sources data was gathered through published materials such as journals, websites, reports, and articles among others.

3.7 Data Collection

Data collection started with the literature review of published and unpublished materials in the fields of e-Government policy, strategy, legislation, programme in relation to e-services, coordination, and inter-agency collaboration that are linked to e-Government implementation. This mainly involved a desk study that helped in guiding and developing the discussions and survey tools used in the research. As Cooper and Schindler (2001) suggest, primary sources of data are original sources of raw data without verdict that represent an official opinion or position; this was particularly vital for this research as there is little published research on coordination and collaboration of e-government in Zambia

For the purpose of this study, the reseacher used survey questionnaires with both closed and open ended questions, carried out interviews and observations of e-services provided by selected government ministries/agencies websites. The details of the approach in data collection is follows:

i. The questionnaire was used to collect primary data and comprised of open and closed-ended questions. The close-ended questions provided more structured

responses to facilitate tangible recommendations and the open-ended questions provided additional information that could not be captured in the close-ended questions. According to Cohen et al., (2000), questionnaires are a suitable method to collect primary data because they make it easy to collect data, feedback is anonymous, and data can be processed by software packages such as excel and Statistical Package for Social Scientists. The quantitative data was collected using a self-administered questionnaire. Where it proved difficult for the respondents to complete the questionnaires instantly, the questionnaires were left with the respondents and collected later.

ii. The interviews consisted of open-ended questions or qualitative type items. The interviews were meant to provide insights from the selected institutions that deal with policy, strategy, regulation, and coordination in order to get a deeper understanding of the research area which was useful for interpretation of results.

iii. Observation - The researcher took time to observe selected online services and websites available for public service e-services delivery and how they collaborate with other systems considering the Gartner Four-Stage Model.

The questionnaires and interview questions were carefully designed and pre-tested under actual field conditions on a group of people similar to the study population. Ten (10) respondents were targeted for the pre-testing and this provided the researcher with an opportunity to assess how long it would take to complete the questionnaire and conduct interviews, identify, and make corrections on potential problems with the questionnaire and interview questions. These problems included refining questions that the respondents could not understand and enabled the researcher to revise the questionnaire and make it more user-friendly, with some open-ended questions that would allow the respondent to give their opinion and thoughts on the issues on the role of coordination and collaboration in implementing e-Government programme.

3.8 Data Analysis Interpretation

According to Amin (2005), descriptive statistics provides a technique of numerically and graphically presented information that gives an overall picture of the data collected. The obtained data from questionnaires was captured using Excel. The information collected is presented in bar charts, time series and pie charts in chapter 4.

3.9 Ethical considerations

Creswell (2013, p141) depicts the ethical issues in groupings as follows: there are "informed consent procedures, deception of covert activities, confidentiality towards participants, benefits to participants and requests that go beyond social norms". The letter to participants included all information required to ensure an adequately informed participant. Confidentiality issues were addressed during data collection and adhered to. The study considered voluntary participation of respondents without force. There was privacy to questionnaires so as to keep confidentiality of the information given by respondents. The researcher of this study exercised caution and diligence regarding ethical issues in adherence to the ethical requirement by the University of Zambia.

3.10 Limitation of Study

The study focused only on Ministries and selected agencies with emphasis on central government looking inwards or internal interactions. The data collection was limited to Lusaka due to limitation in time to conduct research and financial resources. In short, the focus was more on central government with prominence on Government to Government whose thrust is online communication amongst government organisations, departments, and agencies.

CHAPTER 4: DATA PRESENTATION AND ANALYSIS

4.1 Introduction

The results of this study were collected using questionnaires, observations on various websites, interviews and other secondary data collected from various relevant research papers and reports with the sole purpose of assessing e-Government coordination, inter-agency collaboration in the e-Government programme implementation as it relates to e-services, challenges faced and successes.

4.2 Demographic Information

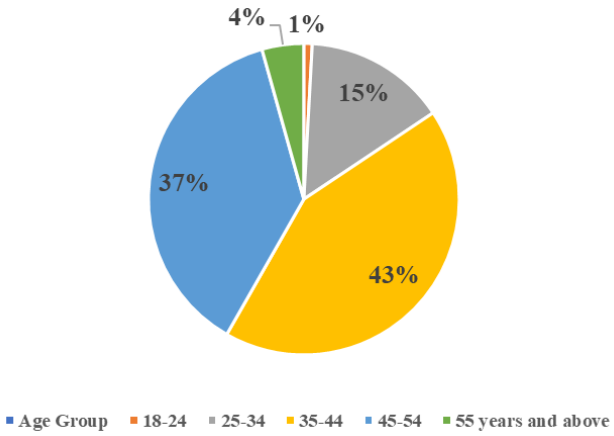


Figure 15: Respondents by Age Group

Figure 15 shows that the respondents with the highest response of 42.2 % were in the age group between 35 - 44 followed by 45 - 54 which had 37.4% and 15% for the age group 25 - 34.

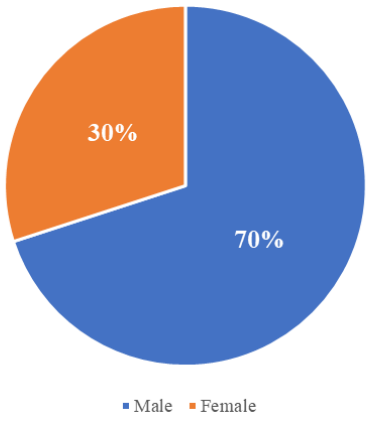


Figure 16: Respondents by Gender

Figure 16 shows that male had a high response rate for the study with 70% compared to female respondents who had 30%.

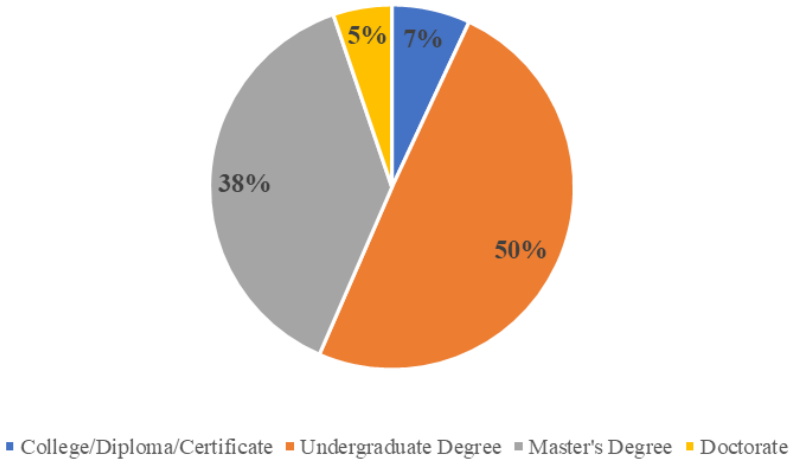


Figure 17: Respondents by highest Level of Education

Figure 17 shows that most of the respondents in terms of the level of education were undergraduate accounting for 50%. Those at Masters' level 38%, College/Diploma/Certificate accounted for 7% while those at doctorate level accounted for 5%.

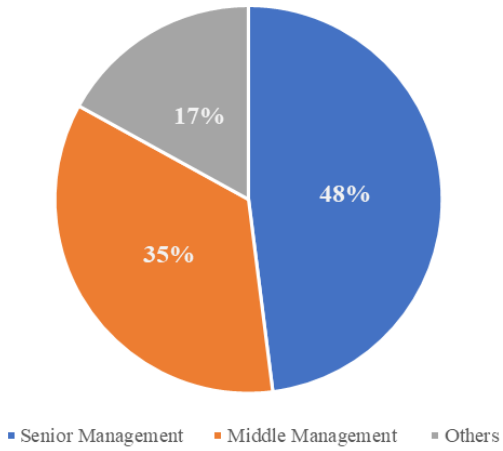


Figure 18: Respondents Level of Management

In terms of the level of management, senior management accounted for 48% of the respondents while middle management and other levels recorded 35% and 17% respectively as shown in Figure 18.

4.3. e-Government Institutional Coordination

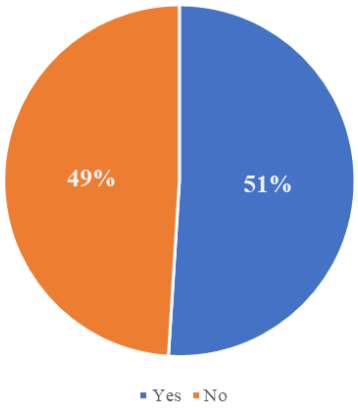


Figure 19: Government Legislation in place for coordinated implementation

Figure 19 shows that 51% of the respondents indicated there was no e-Government legislation in place to facilitate a coordinated implementation of programmes while 49% said such legislation was in place. The pieces of legislation that were cited as being in place were the Information and Communication Technology Act, Electronic Transaction Act, Information and Communication Technology Association of Zambia Act and Government Gazette Notice No.

836 of 2016. Those at the senior management level were more aware of the existence of legislation when the information was cross-referenced. This shows that more work needs to be done to ensure that those at lower levels of management are made aware of the pieces of legislation for implementing e-Government programmes. Further, the Parliamentary Report of the Committee on Media, Information and Communication Technologies for the Fourth Session of the Twelfth National Assembly also highlighted that there was no specific piece of legislation that governed the implementation of e-Government in Zambia (Parliament, 2020). Therefore, for smooth implementation of the e-Government programmes in Zambia, there is a need to hasten the coming up with the law that holistically addresses e-Government. From the literature reviewed and various reports reviewed, this study confirms the non-availability of a specific law in place for e-Government.

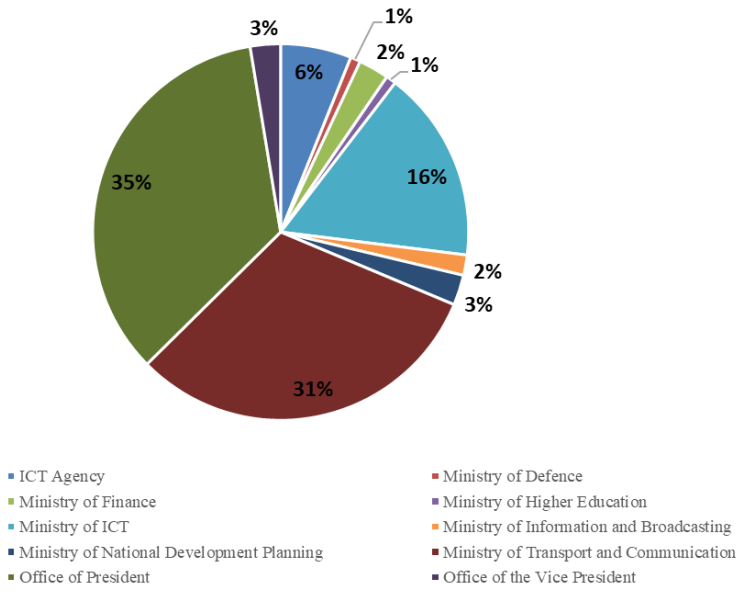


Figure 20: Preferred e-Government Coordination Institution location

Figure 20 shows that 35% of the respondents indicated that the e-Government Coordinating Institution should reside in the Office of the President, 31% in the Ministry of Transport and Communication, 16% that a new Ministry of Information and Communication Technology be created and 6% indicated that an ICT Agency is established. Other were 3% apiece Office of the Vice President and Ministry of National Development Planning.

This resonates with other studies done by OECD (2005) and Estevez et al (2007) on institutional models of coordination that concluded that there is no 'one size fits all" solution to the question of how best to coordinate e-Government. The study affirms that Zambia should continue using the Administrative Coordination for e-Government as espoused by Hanna and Qiang (2009) Model for Institutional Coordination because it facilitates the integration of administrative simplification and reforms into e-Government. Additionally, the Office of the President wields power and authority making it easier to coordinate unlike if it was placed in any other Ministry. Nevertheless, this model may lack the technical expertise required to coordinate e-Government or the financial and economic knowledge to set priorities. The coordination department still needs to be able to rely on a formal authority in case collaboration fails (Wojtarowicz and Herold, 2014). The study further observed that there were also strong views to moving to Technical Coordination (Ministry of Transport and Communication) because the ICT policy function falls their jurisdiction.

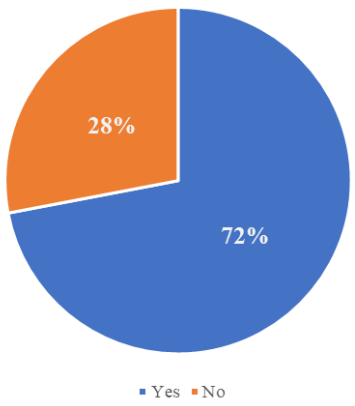


Figure 21: Strong leadership and commitment

Figure 21 shows that most of the respondents accounting for 72% agreed that there was strong leadership and commitment to implement e-Government programmes while 28% said no.

The strong leadership is exemplified by the establishment of the coordination institution (SZI) under the Office of the President and raising the position of the National Coordinator for e-Government to the level of Deputy Secretary to the Cabinet. Further, the president strong

commitment to e-Government can be seen by the introduction of e-Cabinet, where cabinet meetings are held paperless.

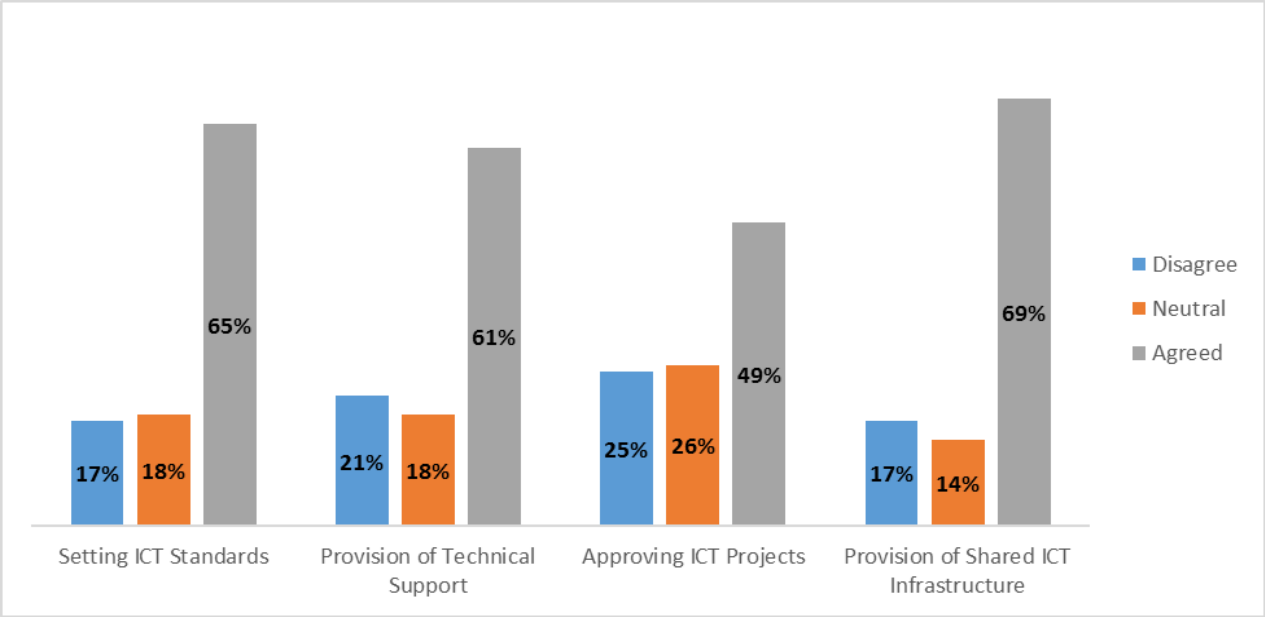


Figure 22: Roles done by a Coordinating Institution

Figure 22 shows that 65% of the respondents agreed that setting standards were the role of the coordinating institution while 18% were neutral. 17 % disagreed that the coordinating institution (SZI) played this role. 61% of the respondents agreed that the provision of technical support was provided by the coordinating institution while 21% disagreed. 18% remained neutral. 49% agreed that the coordinating institution was involved in the approving of ICT projects in Ministries/agencies while 26% remained neutral and 25 % disagreed. 69% of the respondents agreed that the coordinating institution was responsible for the provision of shared infrastructure by while 17 % disagreed and 14% were neutral.

The study shows that roles for setting standards, provision of technical support, shared ICT infrastructure, approving ICT projects and ICT were the responsibility of the coordinating institution. These responsibilities at the centre to trigger full system integration within government to enable different agencies to share common government data sources such as databases (Ebrahim & Iran, 2005). Consequently, having a central coordinating institution also helps to deal with setting technical standards, avoid duplication of efforts by individual agencies,

increase information sharing, promote the use of government standards and policies, and facilitate the centralised acquisition of ICT (Estevez et al, 2007) to benefit from economies of scale.

4.4. e-Government Inter-Agency Collaboration on e-Services

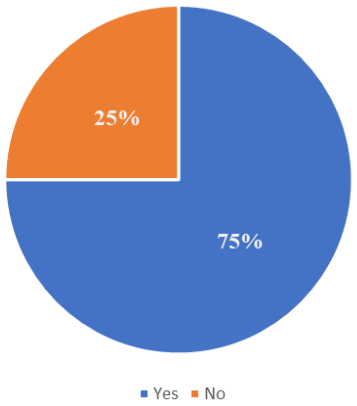


Figure 23: Project requiring data input from other government systems (Database)

Figure 23 shows that 75% of the respondents indicated that ministry/agency projects currently being implemented required data input from other government systems (databases), while 25% said they do not. From the information gathered from different websites, most of the e-services provided show clearly that they require data from other systems. For example; for one to acquire land, they require a National Registration Card, for one to acquire a tourism license, they require a certificate of incorporation from PACRA, Tax clearance certificate from ZRA, Investment License from ZDA and some identification either by NRC for local investor or passport and work permit for a foreigner which is issued by the Department of Immigration. This opens discussions on having laws that will ensure privacy and data protection for the citizenry due to sharing of information. It was observed by Ebrahim and Irani (2005) that when system shares common databases across government agencies, customers and business entities are served better as they will only enter common information usually required by several agencies once and then replicated across government agencies removing data duplication. This helps to cut down on the cost of doing business, reduce processing time and increases service delivery.

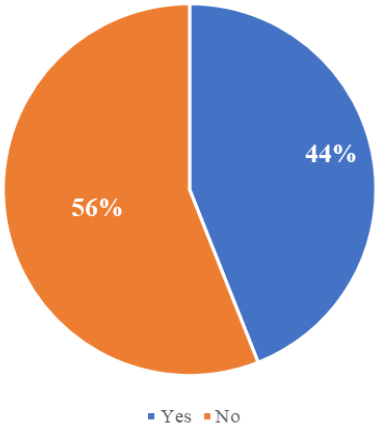


Figure 24: Framework for Inter-Agency Collaboration

Figure 24 shows that 56% of the respondents indicated that there was no framework in place for inter-agency collaboration while 44% said there was a framework for inter-agency collaboration.

In terms of inter-agency collaboration, it was clear that most ministries/agencies require input from databases of other ministries/agencies. Additionally, the study showed that there was an increased collaboration in e-Government project implementation following the establishment of a coordinating institution Smart Zambia Institute (SZI). However, attainment of collaboration seemed more inclined to management collaboration and a gap existed in terms of information and technology and employee collaboration when aligned to Odat's collaboration model (2012). The two segments of collaboration need strengthening as capacity building (skilling) was identified as one of the challenges to e-Government implementation. This challenge was also identified by studies done by Chipeta (2017).

In South Africa, for instance, fragmentation of e-Government initiative was attributed to them not being directed and managed in a collaborative manner resulting in a lack of accountability and responsibility due to overlapping roles between departments (DTPS, 2017). Instances where a ministry charged with e-governance development, faces hurdles of other ministries, ordinarily horizontally, undermine such a ministry charged with this responsibility to determine issues for all ministries. Additionally, one area that requires attention as identified as a weakness in the

Zambia e-Government master plan is not having a framework of e-Government collaboration (e-Government Division, 2019). This study confirms this assertion.

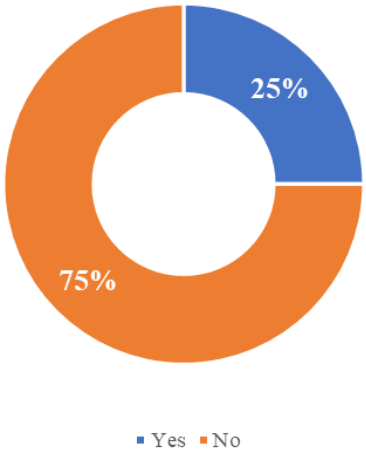


Figure 25: Availability of Legislation to enforce Interoperability

Figure 25 shows that 75% of the respondents indicated that there was no legislation in place to enforce interoperability while 25% percent indicated that it was available. This however poses a challenge to in terms of information sharing and having the same standards. From the perspective of public services, it is argued that addressing interoperability challenges improves the efficiency of service delivery, access to the services breaking the traditional boundaries and increases coordination among existing services resulting in added efficiency gains (UNDP 2007, Novakouski & Lewis, 2011). A government administration that has the political will and power to organise, manage, and fund an e-Government interoperability project in a way that addresses all the interrelated issues will have a much better chance for success. The various stakeholders that made submissions to the Parliamentary Committee on ICT and Media did observe that interoperability was a challenge as integrating systems was an obstruction in the implementation of e-Government effectively (Parliament, 2020)

The study further shows that it is therefore imperative to have interoperability frameworks backed by law as it is an integral part of the Whole-of-Government approach to e-Government services integration. Integration of different technological platforms and solutions into common

solutions and services, lead to the collaboration ability of cross-ministerial and cross-border services for citizens, businesses, and public administrations (Viik et al (2019).

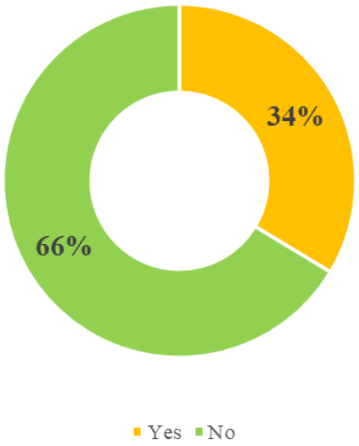


Figure 26: Provision of Online Transaction

Figure 26 shows that 66% of the respondents indicated that they did not provide online transactions while 34% stated that they provided online transactions. This resonates with the positioning of Zambia on the Gartner's Four-Stage Model which shows the country is in between Web Presence and Interaction. However, the study also observed that some of the e-services deployed by different ministries and agencies have moved from interaction to transaction. For instance, one is now able to purchase road tax, pay for ground rent without visiting a ministry or agent (self-service).

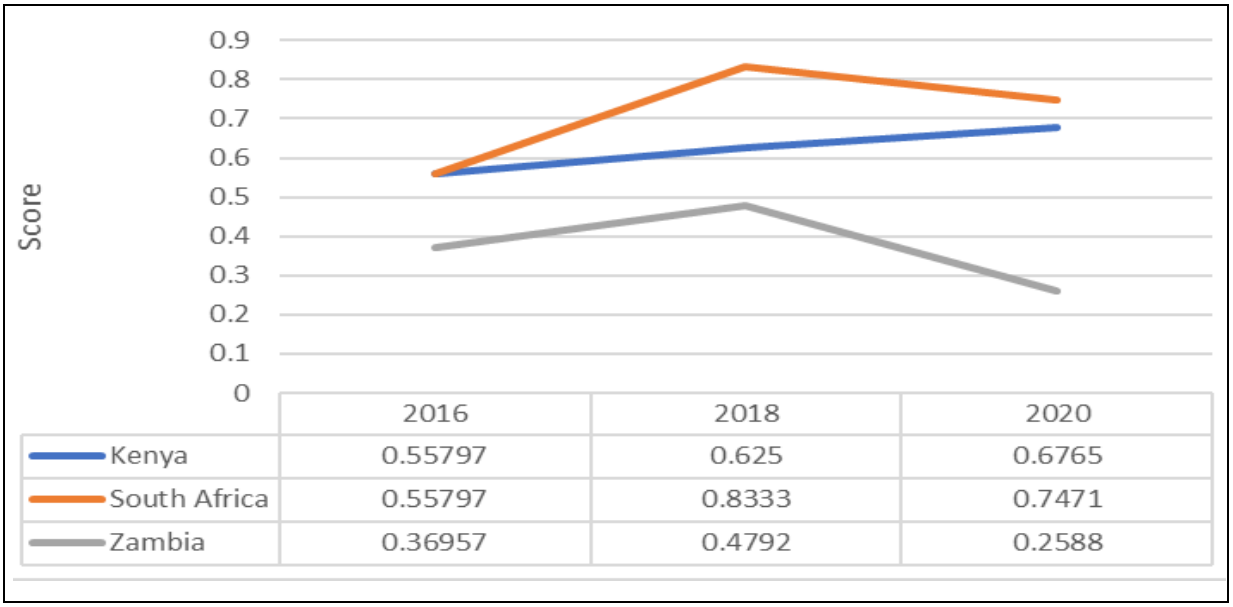


Figure 27: Online Service Index

The study has shown that Zambia has continued to lag in terms of online services as indicated in the Online Service Index (OSI) shown in Figure 27. Zambia scored 0.2588 in 2020 compared to 0.4792 in 2018 on the Online Service Index. This was far below the global average of 0.5620 and a regional (Africa) average of 0.3704. This clearly shows that much needs to be done to improve this aspect if Zambia is to be competitive on the regional and global standing.

On the other hand, Kenya has shown consistency in performance as there has been a stable increase in its score moving from 0.55797 in 2016 to 0.6765 in 2020 while South Africa had a decline, scoring 0.7471 in 2020 compared to 0.8333 in 2018 but remained above the global average.

The study highlights that more is required to be done in improving online presence. The websites assessed show some progress has been made on some e-service, but some still lag as they remain at web presence. It is also clear that the challenge could also be attributed to infrastructure challenges, where these e-services are carried as seen in the low performance on the Telecomm Infrastructure Component which has a score of 0.33940 and the Network Readiness Index where Zambia scored 26.20 out of 100. It under-performed in Technology and People. Furthermore, the

ITU (2009) reported that infrastructure is a key dimension of e-Government since it is needed to carry information and services.

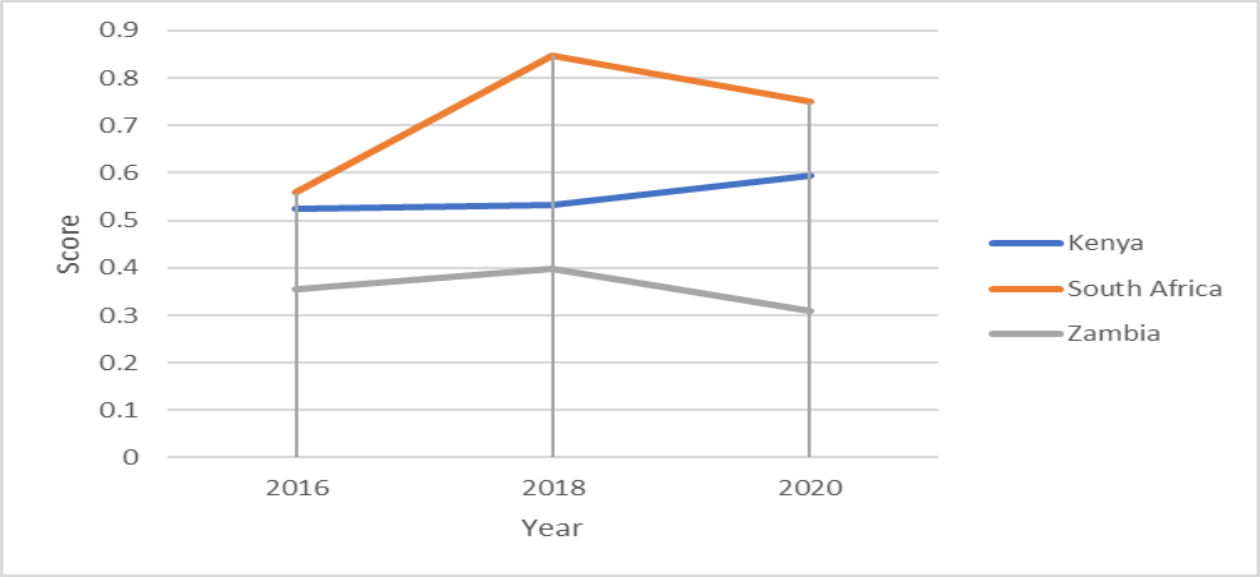


Figure 28: e-Participant Index

On the e-Participation index which focuses on e-Information (availability of online information); e-Consultation (Online public consultations); e-Decision-making (directly involving citizens in decision processes), Zambia's performance had a score of 0.3095 in 2020 compared to 0.3989 in 2018 as shown in Figure 28. This was below the global average score 0.5677 and a regional (Africa) score of 0.3613 resulting in the country ranking on the e-Participation Index dropping from 132 position in 2018 to 158 in 2020.

The study observed that as much as appropriate infrastructure, adequate telecommunication facilities, good online presence, and enhanced human capabilities in terms of literacy have been provided, lack of willingness to access the service through online mode would be a major setback for the government. It is for this reason why electronic participation must be tracked over various services if Zambia is to have citizens more engaged to participate in the e-decision making process. For instance, Estonia has 99% of the public services available online 24/7 (Heath, 2019). 30% of its population use internet voting (i-Voting) and in 2020 was ranked first in e-Participation. Zambia can draw lessons from such countries.

Table 10: E-Government Development Index

	Year		
Country	2016	2018	2020
Kenya	119	122	116
South Africa	76	68	78
Zambia	132	133	148

Table 10 shows that in 2020, Zambia's ranking on the EGDI was 148 compared to 133 in 2018. One of the outcomes in the Zambia e-Government master plan is to improve the country's competitiveness on major global indices. The study shows a decline, and this requires more work to be done in improving this outcome. The drop in the ranking was attributed to the low score on the Online Service Index and Telecomm Infrastructure Components. This could also be attributable to what the respondents had indicated on the provision of online services that most of them have online presence but do not provide online transactions while others indicated that ICT infrastructure was a challenge.

4.5 e-Government Successes and Challenges

4.4.1 e-Government Successes

The study highlighted that all the government ministries/agencies had websites which was positive. Some of the websites visited are or have transitioned from interaction to transactional when mapped to the Garters Four-Stage Model. For example, e-Visa, Road tax, ground rent payments can be done end to end by the customer from the comfort of ones' home. Further Cabinet meetings are conducted paperless.

The elevation of position of National Coordinator (Permanent Secretary) position to Deputy Secretary to the Cabinet has also shown political will toward the e-Government agenda. The study showed 72% of the respondents acknowledged that there were strong leadership and

commitment to e-Government implementation. The placing of SZI under the Office of the President shows a high premiere placed on e-Government implementation.

The establishment of a Government-Wide Area Network (GWAN) which connects more than 101 MPSAs and carries 19 e-services has improved the government network. The study showed that 69% of the respondents agreed that the coordinating institution was responsible for the provision of shared infrastructure by while 17 % disagreed and 14% were neutral. According to (Parliament, 2020), to further improve connectivity for G2G, Phase II would interconnect all Government provincial headquarters and some priority programmes in Lusaka while Phase III would interconnect all the districts.

4.4.2 e-Government Challenges

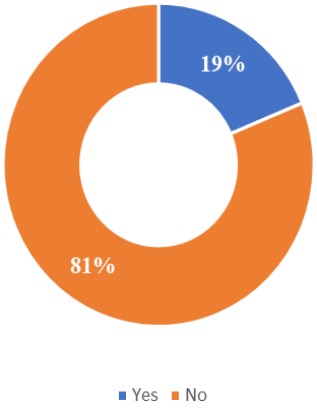


Figure 29: Involvement of the Coordinating Institution in Workplan and Budgets at MPSAs

Figure 29 shows that 81% of the respondents highlighted that the coordinating institution was not involved in the preparation of the Annual Workplans and Budget for e-Government programme/projects in MPSAs while 19% indicated that the coordinating institution was involved.

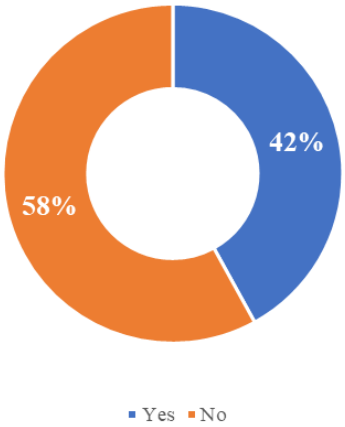


Figure 30: e-Government change process from manual to e-Services

Figure 30 shows that 58% of the respondents indicated that there was no considerable work done in the e-Government change process from manual to e-services while 42% indicated that enough was done.

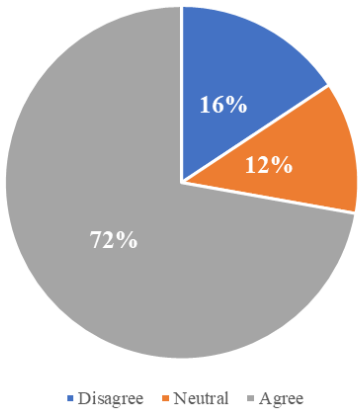


Figure 31: Insufficient budgetary allocation for e-Government programme/projects

Figure 31 shows that 72% agreed that there was the insufficient budgetary allocation for the implementation of e-Government programme/projects. 16% disagree that funding was insufficient while 12% remained neutral.

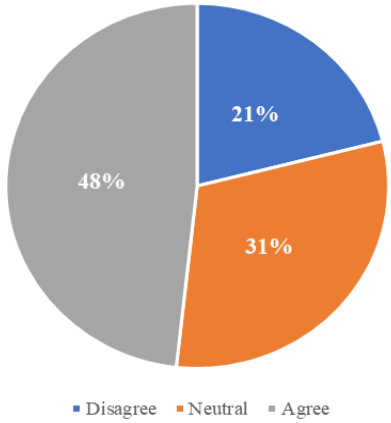


Figure 32: Lack of knowledge about e-Government programme/projects

Figure 32 shows that 48% agreed that there was a lack of knowledge about the e-Government programme/projects being implemented, 31% remained neutral and 21% indicated that there were knowledgeable of e-Government Programme/projects being implemented.

Studies by Nkohkwo & Islam (2013) and Alshehri and Drew (2010) identified awareness and lack of knowledge about the e-Government programmes as areas that require to be dealt with so that the public is well informed. This gap clearly shows the needs to enhance awareness programmes so that there is appreciation on the e-Government agenda for the country especially on the e-services that the government is rolling out through various MPSAs. Chipeta (2017) in his study also observed this gap.

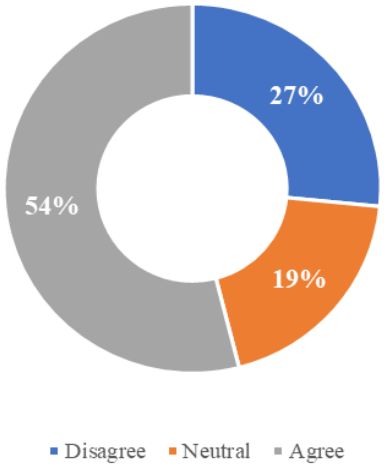


Figure 33: Limited Skills for ICT Staff

Figure 33 indicates that 54% of the respondents agreed that ICT Staff had limited skills while 31% said ICT skills were not limited. 19% of the respondents remained neutral.

Figure 34: Identified Challenges for e-Government Implementation

Figure 34 highlights challenges identified by respondents on what they deemed as impediments to e-Government implementation. Those prominently included e-Government awareness, capacity building, low budget for e-Government implementation; and e-Government coordination and collaboration, among others. Other issues are the change process from manual to e-services still require work due to resistance of change, policy and legal framework, reporting structure, among others.

i. **Low budgetary allocation to e-Government**

Currently, e-Government programmes funding undertaken by Ministries/Agencies is funded directly from the treasury as appropriated in the national budget by Parliament. From the study, 72% agreed that there was insufficient budgetary allocation for implementation of e-Government programme/projects while 16% disagreed that funding was insufficient while 12% remained neutral It was further established that the central

coordinating institution (SZI) does not play a key role in the preparation of annual work plan and budgets for MPSAs with 81% of the respondents agreeing to this assertion and as such resulting in fragmentation when implementing e-Government programmes. Lack of centrally budgeting for e-Government programmes or having a platform where Ministries/Agencies can collaborate on common areas of interest when there is the low budgetary allocation is a challenge as such there is no beneficiation of economies of scale. The lack of funding is echoed in various research studies highlight this as a concerning impediment [Almarabeh and AbuAli (2010); Ebrahim and Irani (2005); Heeks (2002); Ho (2002); Janssen and Shu (2008); Wang (2009)]. DTPS (2017) indicating lack of a dedicated budget allocation for a specific implementation of e-Government programmes.

.

ii. **Capacity Building (Skilling)**

According to respondents of the study, 58% indicated that the coordinating institution was not providing capacity building programmes to MPSAs while 42% were of the view that capacity building provision was being given by the coordinating institution. This resonates with other studies Ndou (2004) highlighting human capital development as a challenge while Bhuiyan (2009), Rami (2017) found that lack of skills and trained staff were some of the major challenges that countries encounter in their journey toward digitalization. Alshehri and Drew (2010) also highlighted the lack of qualified personnel and training courses. Other studies in Zambia by Chipeta (2017) on the human capital aspect, revealed that 81% said there was a lack of specialized ICT skills available to drive the implementation of e-government. This could be attributed to the coordinating institution not playing a key role in undertaking skill gap analysis. This study shows that 77% of the respondents were of the view that the coordinating institution did not undertake skill gap analysis for ICT staff in Ministries/Agencies.

iii. **e-Government Awareness**

The study showed that 48% of the respondents agreed that there was a lack of knowledge about the e-Government programme/projects being implemented, 31% remained neutral and 21% indicated they were knowledgeable of e-Government Programme/projects being implemented.

Further respondents identified lack of e-Government awareness as the biggest challenge to e-Government implementation. Additionally, a study by Chipeta (2017) showed there was inadequate awareness and sensitization to the public and the people about the e-government and its benefits to the government in Zambia. This could also be one of the reasons why the country underperformed on the 2020 e-Participation Index.

iv. **ICT Infrastructure**

Despite Government establishing a Government-Wide Area Network (GWAN) that connects more than 101 MPSAs and carries 19 e-services, infrastructure remains a challenge as was identified by the respondents in this study. The coordinating therefore has a key role to play in addressing this challenge. As much as the study showed that the coordinating institution was responsible for the provision of shared infrastructure, more needs to be done in improving ICT infrastructure in government. This was also identified in a report by Parliament (2020). Other studies by Rorissa & Demissie, (2010) revealed that infrastructure was a limiting factor in e-Government implementation. Chipeta (2017) highlighted that telecommunication infrastructure inadequate to support the distribution of electronic services while Bwalya (2007) observed ICT infrastructure was an impediment to e-Government adoption. Therefore, attention needs to be paid to ICT infrastructure as it is the gateway to e-service provision. ITU (2009) also highlighted that effectiveness of e-Government services in reaching citizens and businesses depends greatly on the availability of ICT infrastructure thereby prudent for decision-makers to evaluate the status and development of ICT infrastructure in their countries. This is affirmed by the study done by UNDESA on EGDI where the

Telecomm Infrastructure Component and the Network Readiness Index of Zambia underperforming on this front.

v. **Policy and Legal Framework**

The study also showed that policy and legal framework form part of the challenges for e-Government implementation. 51% of the respondents indicated there was no e-Government legislation in place to facilitate the implementation of programmes This is supported by the Parliamentary Report on ICT and Media which highlighted that there was no specific piece of legislation that governed the implementation of e-Government in Zambia (Parliament, 2020). Therefore, for smooth implementation of the e-Government programme in Zambia, there is a need to hasten in coming up with the law that holistically addresses e-Government.

Interoperability also remains a challenge due to the lack of a legal framework. A key component of e-government initiatives is the ability of multiple government and non-government organisations to share and integrate information across their traditional organisational boundaries. e-Government interoperability, therefore, represents a set of multidimensional, complementary, and dynamic capabilities needed among these networks of organisations to achieve successful information sharing (Pardo et al. 2011). The study showed that 75% of the respondents indicated that there was no legislation in place to enforce interoperability. Therefore, without this critical element, it can be difficult to realise the level of cooperation and coordination among the participating government departments.

In Zambia, the ICT policy lies in the Ministry of Transport and Communication and e-Government is in the Office of the President. In South Africa, for instance, policy development is a function of DPSA (OGCIO) and the implementation is decentralised to government departments (GITOs). The DPSA indicated the lack of coordination to the model adopted disables them to effective control over implementation.

vi. **e-Government Coordination and Collaboration**

The study showed that 56% of the respondents indicated that there was no framework in place for inter-agency collaboration. Fountain (2013) emphasised the need for leaders to create in parallel the institutional and organisational processes that allow cross-agency actions to be sustained over time, such as formal agreements, defined roles and responsibilities, pooled resources, and shared performance goals as this has the potential to save money, simplify government for citizens and business and make public service more productive. Lack of coordination by the coordinating institution in preparation of annual work plans and budgets leads to ministries/agencies working in silos. Further, the non-involvement in undertaking skills gap analysis by the coordinating institution is another issue that creates a gap in human capital development. When mapped to the Collaboration Model by Odat (2012) gaps exist in terms of information and technology collaboration and employee collaboration.

75% of the respondents indicated ministry/agency projects currently being implemented required data input from other government systems (databases), and therefore issues of data protection, privacy, security and legal recognition of electronic interactions and electronic signatures arise. This was also observed on the data that was compiled looking at e-services being implemented by ministries/agencies when the collaboration aspect was looked. These agencies need information from each other's databases.

One other issue attributable to the coordination challenge is that it is viewed as a command-and-control environment and is likely to raise barriers to e-government implementation as it inhibits ministries/agencies to feel empowered and restricts their ability to cooperate with others.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The study has shown that e-Government coordination and inter-agency collaboration requires considerable elements of government such as roles, authority, processes and ultimately structures. Consequently, it encounters challenges as some agents want to work in silos to safeguard their interests. Further, the study has shown that e-Government Coordination Institutional models cannot be ignored considering that various government agencies are involved in the implementation of e-Government programmes within the context of e-services. The study has further shown that online communication and collaboration allows government agencies and departments to share databases to enhance the efficiency and effectiveness of processes thereby saving money, time, and efforts. Guided by the research objectives of the study, the following conclusions can be made based on the following research questions:

a) What institutional coordination model is used in implementing e-Government programmes in Zambia and other jurisdictions?

The study has shown that Zambia has adopted an administrative model of institutional coordination in implementing e-Government by placing the coordinating institution in the Office of the President. This assertion arises from the findings of the study when mapped to the Hanna and Qiang (2009) Institutional Coordination Model. This study has brought out key issues that can be used to design and recommend a structure for the e-Government coordination and collaboration while at the same time ensuring that a legal framework is put in place to address the shortcomings identified.

b) How much awareness has been done on the role of coordination in e-Government implementation?

The study shows awareness is key if e-services are to be fully embraced and utilised. It was observed that there are several e-services currently being provided, however, even amongst

government institution knowledge about e-Government programmes being implemented are not well known. Therefore, awareness needs to be undertaken so that citizens are enlightened about the e-Government Programme (e-service) that are available online for them to access and on how they can be engaged online for them to participate in electronic decision-making processes.

c) How effective is the inter-agencies collaboration in implementing e-Government programmes in relation to e-services?

The study has demonstrated that collaboration is a key ingredient to successfully implementing e-Government in Zambia. Conversely, Government to Government, which is more concerned with the back office and if properly harnessed, can trigger enhanced delivery of services to the citizenry when the administrative walls (silos) of Ministries/Agencies are broken. What remains is to put in place are the necessary policy and legal framework to support e-Information sharing and having in place an interoperability framework. The issues that arise when information sharing comes into play are issues of data protection and privacy and these will require to be addressed.

The country needs to improve its infrastructure and e-services (online transaction) provided as a way of improving its standing on the e-Government Development Index in line with the outcomes on improving competitiveness as outlined in the Seventh National Development Plan and e-Government Master plan. Infrastructure in this instance is a highway through which e-services are channelled and if not considered, no matter how many e-services are deployed some sections of society will be excluded.

d) What are the successes and challenges in the coordination and collaboration of e-Government programmes in a developing country like Zambia?

Finally, the study has shown that there is strong leadership commitment to support e-Government implementation as the position of National Coordinator (Permanent Secretary) for e-Government was elevated to the level of Deputy Secretary to the Cabinet. The study has further highlighted ICT impediments to e-Government implementation as such ICT

infrastructure, capacity building, awareness, collaboration and coordination and budget among others.

5.2 Recommendations

Structure for Collaboration and Coordination

The study proposes a structure to enhance e-Government coordination and collaboration by extending the Institutional Coordination model adopted (Administrative Model), by incorporating a Council of Chief Information Officers (Heads of ICTs) to the structure, to make coordination and collaboration more effective as outlined in Figure 35 below. This will help resolve break administrative walls (silos) between different ministries and agencies. This should be backed by law for it to work. This structure will help resolve challenging issues pertaining to budgeting, ICT standards, infrastructure, capacity building and the gaps identified in the Odat Collaboration Model regarding information technology collaboration and employees Collaboration by taking a whole-of-government approach in e-Government implementation. Coordination and collaboration are key factors for the efficient delivery of unified online services and shared infrastructure.

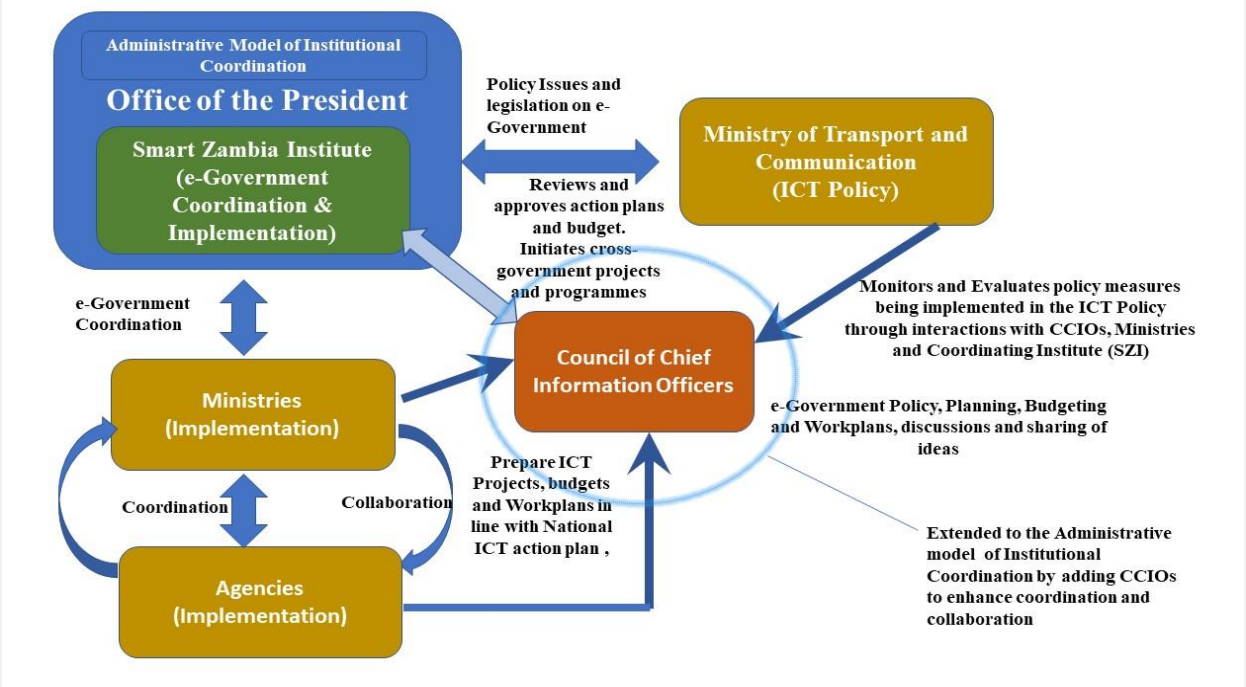


Figure 35: Proposed Coordinating Structure for Institutional Coordination

The Government of the Republic of Zambia in the Seventh National Development Plan (7NDP) has emphasised the multi-sectoral approach to programme implementation away from the sector approach employed in the Sixth National Development Plan. This demands close collaboration between Ministries and Agencies for purposes of reduction in duplication and effort, optimal utilisation of government resources and hence the need for a clearly defined e-Government coordination and collaboration framework.

Legislative and Regulatory Framework

e-Government coordination and collaboration to function effectively, requires that there is more data sharing to move from web presence to transformation on the Garners four-stage model. This will require putting legislation in place that will enforce interoperability and integration needed to provide e-services in a whole-of-government approach. Since data sharing is involved issues of protection of personal data against abuse by different government agents arises. Therefore, to instil public confidence in the utilisation of e-services, laws dealing with data protection and privacy are inevitable. Further to better coordinate e-Government roles, responsibilities and structures, putting in place e-Government legislation is critical.

e-Government Awareness Programme

A lot of progress has been made towards taking some e-Government services online. However, much needs to be done in terms of awareness of the benefits of the services being deployed. Smart Zambia Institute should coordinate the development of an Information, Education and Communication strategy to address the gap regarding awareness of e-Government programmes being implemented and make public the e-Government Masterplan 2018 to 2030. This will increase the uptake of these services by the citizens.

e-Services

There is a need to introduce more transactional services online by the Government by moving from simply providing information on websites (web presence) to providing a single-entry window for citizens and businesses to access digital public services (transformation) This transformation will not only make the Government visible but more accessible and will cut down transaction costs as citizens will be able to make payments for government services from the comfort of their homes or offices. This will also aid to improve Zambia's performance on the EGDI. Therefore, the government needs to keep track of its online services which currently are between web presence and interaction on the Garner Four-Stage Model and move them up the ladder to the transaction and transformational. This is attainable when there is more coordination and collaboration.

5.3 Suggestions for further studies

This study focused on coordination and collaboration looking at Government to Government with institutional coordination. There is a need to undertake further study on local government or vertical coordination. Currently, Zambia has in place a decentralisation policy, whose thrust is devolution. This entails making service delivery or decisions made at the local authorities' level (Local Government). Therefore, there is a need to undertake further studies in Zambia to assess how coordination and collaboration of implementing e-Government programmes in Zambia is being undertaken at local government (vertical)**.**

REFERENCES

Abu-Shanab, E., and Shehabat I. (2018). The influence of knowledge management practices on e-government success - A proposed framework tested; Transforming Government: People, Process and Policy Vol.12 No. 3/4, pp. 286-308; Emerald Publishing Limited 1750-6166 DOI 10.1108/TG-02-2018-0016.

Aichholzer, G., and Schmutzer, R. (2000). Organizational Challenges to the Development of Electronic Government. Paper presented at the 11th International Workshop on Database and Expert Systems Applications

Almarabeh, T., and AbuAli, A (2010 pp. 29-42). A General Framework for E-Government: Definition Maturity Challenges, Opportunities, and Success. European Journal of Scientific Research, vol. 39(1).

Babbie, E., & Mouton, J. (2017, p100). The practice of social research; South African Edition, Published by Oxford University Press Southern Africa (Pty); Cape Town

Banda, S. (2012). Success and Failure of e-Government Projects in Developing Countries: The Case of Zambia - Master's Thesis, Global Information & Telecommunication Technology Program, School of Innovation KAIST.

Baum C. and Di Maio A. (2000); Gartner's Four Phases of E-Government Model, Gartner Group, Research Note, Available [Online] on http://aln.hha.dk/IFI/Hdi/2001/ITstrat/Download/Gartner_eGovernment. Accessed 5 October 2019

Bhuiyan S. (2009). e-Government in Kazakhstan: Challenges and its Role to Development. Public Organization Review (2010) 10:31–47

Bwalya, K. J. (2009). Factors affecting Adoption of E-Government in Zambia, Electronic Journal on Information Systems in Developing Countries (EJISDC - 2009) 38, 4, 1-13.

Berger, G. and Steurer, R. (2009). "Horizontal Policy Integration and Sustainable Development Conceptual Remarks and Governance Examples" ESDN Quarterly Report; Available [Online] on http://sd-network.eu/?k=quarterly%20reports&report_id=13 Accessed on 12th June, 2019

Biddick, M (2009). "Government IT Priorities," InformationWeek Government. Available [Online] http://www.informationweek.com/news/government/enterprise-architecture/218500752 Accessed on 18 January, 2020

Brown and Heywood (2005). An integrative framework for explaining reactions to decisions: interactive influence s of outcomes and procedures. Psychol. Bull. 120(2).

Bose, R. (2004) Information Technologies for Education & Training in E-Government. International Conference on Information Technology: Coding and Computing, 5-7 April 2004, 203-207.

Cabinet Office (2015). Report on the Institutional Framework for the proposed Centre of Excellence for e-Government and ICT.

Carbo, T., & Williams, J. G. (2004). Models and metrics for evaluating local electronic government systems and services. Electronic Journal of E-Government, 2(2), 95−104.

CIPC (2020); Companies and Intellectual Property Commission – e-Services; Available [Online] at https://eservices.cipc.co.za/Default.aspx Assessed on 20 November 2020

Chilisa, B.(2011). Indigenous Research Methodologies. Thousand Oaks: Sage.

Chipeta, J. (2018). " A Review of E-government Development in Africa A case of Zambia ", Journal of e-Government Studies and Best Practices, Vol. 2018 (2018), Article ID 973845, DOI:10.5171/2018.973845.

Christensen, T., and Lægreid, P. (2008). The Challenge of Coordination in Central Government Organizations: The Norwegian Case. Public Organization Review, 8(2), 97-116.

Cooper R. D and Schindler, S. P. (2001) Business Research Methods, 7th Edition. McGraw-Hill, New York.

Council of Europe (2017): Guidelines and Roadmap for full deployment of e-Governance Systems in Africa. Available [Online] on https://www.coe.int/en/web/good-governance/12-principles-and-eloge(2017) Accessed on 18th May, 2019

Creswell, J.W. (2005). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (2nd ed.). Upper Saddle River, NJ: Pearson Education.

Dada, D. (2006). The Failure of E-government in Developing Countries: A Literature Review. the Electronic Journal on Information Systems in Developing Countries, Vol. 26, no. 1, pp. 1 - 10.

De Vries, M. and J. Nemec, J. (2013). "Public Sector Reform: An Overview of Recent Literature and Research on NPM and Alternative Paths." International Journal of Public Sector Management 36(1), 4 – 16.

Echebarria, K. (2001). Goverment Modernization and Civil Service Reform: Democratic Strengthening, Consolidation of the Rule of Law, and Public Policy Effectiveness (No. 80485). Inter-American Development Bank, p. 1.

e-Government Division (2019); Smart Zambia Electronic Government Master Plan 2018 – 2030,

Ebrahim, Z. and Irani, Z. (2005) 'E-government adoption: architecture and barriers', Business Process Management Journal, 11(5), pp. 589–611. doi: 10.1108/14637150510619902

Estevez, E., Janowski, T., and Ojo, A., and Khan, I. K. (2007) Coordination Offices for e-Government; UNU-IIST Report No. 363; Available [Online] http://i.unu.edu/media/unu.edu/publication/1491/report363.pdf Accessed on 20th February 2019.

Evans, D., and Yen, D.C., (2006). E-government: Evolving relationship of citizens and government, domestic, and international development. Government Information Quarterly, Vol. 23, 207-235.

Fang Z. (2002), e-Government in Digital Era: Concept, Practice and Development; International Journal of the Computer, the Internet and Management, 10. 2, 1 - 22

Fountain, J. (2013). Collaborating Across Boundaries Series - Implementing Cross-Agency Collaboration: A Guide for Federal Managers, Available

Fountain, J.E. (2001). Building the Virtual State. Washington DC: Brookings Institution.

Gant, Jon P. (2008). Electronic Government for Developing Countries. Geneva, ITU.
Gibbons, P., Arzt, N., Burke-Beebe, S., Chute, C., Gary, D., Flewelling, T., Jepsen T., Kamens, D., Larson, J. Ritter, J., Rozen, M., Selover S., & Stanford J (2007). Coming to Terms: Scoping Interoperability for Health Care. EHR Interoperability Work Group, 2007

Grant, G.G. & Chau D. (2006); Developing a Generic Framework for e-Government. In M. G. Hunter and F.B. Tans (Eds); Advanced Topics in Global in Information Management Vol. 5pp. 398. London: Ideal Group Publishing

Gregory, G. (2007) e-Government, Encyclopedia of political Communications. Los Angeles

GRZ (2009). Information and Communications Technology (ICT) Act No. 15 of 2009. Government Printers.

GRZ (2009a). Electronic and Communications and Transactions Act No. 21 of 2009. Government Printers.

GRZ (2016). Government Gazette notice No 836 of 2016, Government Printers

GRZ (2012). Statutory Instrument No. 38 of 2012 - The Information and Communication Technologies (Universal Access) Regulations, 2012. Government Printers.

GRZ (2018) The Information and Communications Technology Association of Zambia Act No. 7 of 2018. Government Printers.

Habeenzu, S. (2010). Zambia ICT Sector Performance Review 2009/2010; Towards Evidence-based ICT Policy and Regulation Volume Two, Policy Paper 17, 2010

Halchin, L. E. (2004). Electronic government: Government capability and terrorist resource. Government Information Quarterly, 21(4), 406-419. http://dx.doi.org/10.1016/j.giq.2004.08.002

Hamza, H., Sehl, M., Egide, K., & Diane, P. (2011); A Conceptual Model for G2G Relationships, EGOV 2011, LNCS 6846, pp. 285–295, 2011. IFIP International Federation for Information Processing 2011

Hanna, N. K., Qiang, C. Z., Kimura, K., and Kuek, S. C. (2009). National E-Government Institutions: Functions, Models, and Trends, Available [Online] https://www.academia.edu/17652803/National_E-Government_Institutions_Functions_Models_and_Trends Accessed on 19th September 2019.

Heath, N., (2019); How Estonia became an e-government powerhouse, Available [Online] on https://www.techrepublic.com/article/how-estonia-became-an-e-government-powerhouse/ Accessed 21st November 2020

Heeks, R. (2003). e-Government in Africa: promise and practice. Institute for Development Policy and Management, Paper No. 13, University of Manchester, the UK.

Heeks, R. (2006). Managing and Implementing e-Government, Chapter 10 Online Appendix p.802.

Ho A.T.K (2002); Reinventing Local Government and the e-Government initiative: Public Administration Review, 62, 4, 434 - 444

ICTA, (2019). ICT Authority Strategic Plan 2020 – 2024 - *Promoting Digital Inclusion for Sustained Social and Economic Growth and Governance* Available [Online] on http://icta.go.ke/pdf/ICT%20Strategic%20Plan.pdf Accessed on 15th September 2020

IDG (2017, p.190). The 13th WASEDA – IAC International Digital Government Rankings 2017 Country Report – Kenya Available [Online] on https://idg-waseda.jp/pdf/2017_Country_Report.pdf Accessed on 15 October 2020

infoDev/World Bank. (2009). e-Government Primer, Washington, DC; infoDev/World Bank Available [Online] on http://www.infodev.org/publications, Accessed on 14th October 2019.

Iredale, R. (2001). The Migration of Professionals: Theories and Typologies. International Migration, 39(5), 7-26.

Islam, B., & Okudu, A. (2005). E-Government: the case of the Gambia, Briefing paper.

ITU, (2009 p2). E-Government Implementation Toolkit Introduction: E-Government Readiness Assessment Framework.

Iyer, L. S., Singh, R., Salam, A. F., and D'Aubeterre, F. (2006). 'Knowledge Management for Government-to-Government (G2G) process coordination', Electronic Government, Vol. 3, No. 1, pp.18–35.

Jansen, A., and Ølnes, S. (2014); The muddy waters of public e-services - The use and misuse of the concept and how to get out of the maze; Systems, Signs & Actions; An International Journal on Information Technology, Action, Communication and Work practices Vol. 8 (2014), No. 1, pp. 76–94

Kaaya, J. (2004). Implementing e-Government Services in East Africa: Assessing Status through Content Analysis of Government Websites. Electro. J. e-Govern., Vol. 2, no. 1, pp. 39-54.

Kettani, D., and Moulin, B. (2014). E-Government for Good Governance in Developing Countries; Empirical Evidence from the eFez Project, Anthem Press, UK ISBN 978-1-55250-561-8 (IDRC ebook) [Online] https://www.idrc.ca/sites/default/files/openebooks/561-8/index.html#ch03box1, Accessed 12th May 2019.

Klievink, B., and Janssen, M. (2010). Coordinating e-Government Service Delivery; Proceedings of the 11th Annual International Conference on Digital Government Research

Kumar, R. (2011, p104). Research Methodology – a Step-by-Step Guide for Beginners' Third Edition, SAGE Publications Asia-Pacific Pte Ltd, Singapore

Kunstelj, M., and Vintar, M. (2009). "One-Stop Government: Critical Analysis of the Concept and its Implementation in the Selected Countries." Paper for NISPAcee 2009 Annual Conference, Budva, Montenegro.

Kuria, W., (2015); "KRA to clarify on the iTax System on Thursday, Available [Online] at http://www.kachwanya.com/2015/06/17/kra-to-clarify-on-the-itax-system-on-thursday-18th-june/ Accessed on 12th November, 2020

Layne, K. and Lee, J. (2001), "Developing fully functional e-government: a four-stage model", Government Information Quarterly, Vol. 18 No. 2, pp. 122-36.

Lewis, G., Morris, E., Simanta, S., & Wrage, L. (2008). “Why Standards Are Not Enough to Guarantee End-to-End Interoperability,” 164–173. Proceedings of the Seventh International Conference on Composition-Based Software Systems (ICCBSS 2008). Madrid, Spain, IEEE Computer Society Press, 2008

Löfgren, K. (2007). “The Governance of e-Government: A Governance Perspective on the Swedish E-government Strategy.” Public Policy and Administration 22(3), 335 – 352.

Malotaux, M., Harst V., Guido, A., Jorgos, & Hahndiek, F (2007). Preparation for Update European Interoperability Framework 2.0—Final Report (Engagement 221402470). Gartner, 2007.

Matavire, R., and Brown, I. (2008), Investigating the use of “Grounded Theory” in Information Systems Research., In Proceedings of the 2008 annual research conference of the South African Institute of Computer Scientists and Information Technologists.

Maumbe, B. M., Owei, V., & Alexander, H. (2008). Questioning the pace and pathway of e-government development in Africa: A case study of South Africa's Cape Gateway project.Government Information Quarterly,25, 757–777.

Mawela, T., Ochara, N.M., and Twinomurinzi, H. (2017). E-Government Implementation: A Reflection on South African Municipalities. South African Computer Journal 29(1), 147–171.https://doi.org/10.18489/sacj.v29i1.444Copyright © the author(s); published under a Creative Commons NonCommercial 4.0 License (CC BY-NC 4.0).SACJis a publication of the South African Institute of Computer Scientists and Information Technologists. ISSN 1015-7999(print) ISSN 2313-7835 (online).

McClure, D. (2001) Electronic Government: Challenges Must Be Addressed with Effective Leadership and Management. GAO-01-959T, Testimony before the Senate Committee on Governmental Affairs, on behalf of the U.S. General Accounting Office, Available [Online] at http://www.gao.gov/new.items/d01959t.pdf , Accessed on 8/10/2019.

Merriam-webster.com (2019) Collaborate, Available {Online] on (https://www.merriam-webster.com/dictionary/collaborate)

MoICT (2019). National Information, Communications and Technology (ICT) Policy 2019

MoICT (2020). Functions of the State Department of ICT and Innovation, Available [Online] on https://ict.go.ke/ict-and-innovatioin/ Accessed on 12th October 2020.

Molfesh, S., Wanous, M. & Strachan, P. (2009). Understanding National e-Government: The Role of Central Government; Electronic Government, an International Journal 6, 1, 1- 8

MTC (2006). National Information and Communications Technology Policy.

MTC (2018). 2018 Annual Report, Available [Online] on https://www.mtc.gov.zm/?wpfb_dl=102; Accessed on 12th December 2019.

MTC (2018a); National Information and Communications Technology Strategy and Implementation Plan

Mulenga; P. (2019); MoU on Birth Registration Signed Available [Online] on https://www.znbc.co.zm/news/mou-on-birth-registration-signed/ Accessed on 12th November 2020

Mungai, A.N. (2017). e-Government Strategy Implementation and Performance of the public sector in Kenya; International Academic Journal of Human Resource and Business Administration | Volume 2, Issue 3, pp.301-338

Mutula, M. S. (2008). Comparison of sub-Saharan Africa's e-government status with developed and transitional nations. Information Management & Computer Security, Vol 16, no. 3, pp. 235-250.

Mzyece, M. (2012). A critical Analysis of e-Government in Zambia; The African Journal of Information and Communication Issue 12.

Naidoo, G. (2012). Implementation of E-government in South Africa - successes and challenges: the way forward, International Journal of Advances in Computing and Management, 1(1) January-December 2012, pp. 62-66 Copyright @ DYPIMCA, Akurdi, Pune (India)
Ndou, V. (2004), E-Government for developing countries; Opportunities and Challenges, The Electronic Journal on Information Systems in Developing Countries, Vol. 18, No. 1, 2004, 1-24.

Ndung'u, N., (2017); Chapter 10 - Digitalization in Kenya Revolutionizing Tax Design and Revenue Administration; Available [Online] https://www.elibrary.imf.org/view/IMF071/24304-9781484315224/24304-9781484315224/ch10.xml?language=en&redirect=true Accessed on 1st December 2020

Nkohkwo, Q.N., & Islam M.I. (2013). Challenges to the Successful Implementation of e-Government Initiatives in Sub-Saharan Africa: A Literature Review" Electronic Journal of e-Government Volume 11 Issue 2 2013, (pp253-253), available [online] at www.ejeg.com, Accessed on 12th December 2019.

Nkwe, N. (2012). E-Government: Challenges and Opportunities in Botswana, International Journal of Humanities and Social Science, Vol. 2 No. 17; September 2012.

Novakouski, M., and Lewis, G.A. (2011). Interoperability in the e-Government Context, Technical Note CMU/SEI-2011-TN-0, Carnegie Mellon University.

Nurdin, N., Stockdale, R., and Scheepers, H. (2014). Coordination and Cooperation in e-Government: An Indonesian Local e-Government Case, Electronic Journal of Information Systems in Developing Countries (EJISDC) 61, 3, 1-21.

Odat, A. M. (2012). Impact of Collaboration and Coordination among e-Government: A Case Study of Jordan; International Journal of Computer Science Issues, Vol. 9, Issue 5, No 3.

OECD (2003). OECD-e-Government Studies. The e-Government Imperative. 2003; [Online]; Available on http://www1.worldbank.org/publicsector/egov/EGovernmentImperative.pdf; Accessed on 28th June 2019

OECD (2015,). e-Government for Better Government; OECD Publishing, ISBN 92-64-01833-6.

Otubu, A. K. (2009). e-Government and Land Administration in Nigeria - A Recipe for Lagos State. (2005/2009) vol. 26 Journal of Private and Property Law University of Lagos Nigeria, Available at SSRN: https://ssrn.com/abstract=1405363 or http://dx.doi.org/10.2139/ssrn.1405363

Pardo, T.A., Nam, T & Burke B.G (2011). e-Government Interoperability: Interaction of Policy, Management, and Technology Dimensions**;** Available [Online] at https://journals.sagepub.com/doi/full/10.1177/0894439310392184 Accessed 12th June 2020

Parliament (2015). Speech for the Official Opening of the Fifth Session of the Eleventh National Assembly by His Exellency Dr. Edgar Changwa Lungu – President of Republic of Zambia Available [Online] on http://www.parliament.gov.zm/sites/default/files/images/publication_docs/Speech%2C%20Official%20Opening%20of%20the%205th%20Session%20of%2011th%20Assembly.pdf Accessed on 11th August 2019.

Peter, B. G. (2006). Concepts and Theories of Horizontal Policy Management: B.G. Peters and J. Pierre (Eds.), Handbook of Public Policy. London: SAGE.

Platera, F. (2019). Interoperability as the meeting point for a Digital Nordic League; Available [Online] at https://e-estonia.com/interoperability-as-the-meeting-point-for-a-digital-nordic-league/ Accessed on 29th November 2019.

Pollitt, C. (2003). Joined-up Government: A Survey. Political Studies Review, 1(1), 34-49.

Ramsey, T. (2004). On Demand Government: Continuing the e-Government Journey. Lewisville, Texas: IBM Press.

Riany, G., K., Were, S., Kihara, A. (2018). Influence of e-Government Strategy Implementation on the Performance of Public Service Delivery in Kenya. International Journal of Strategic Management. Vol. 7 (2) pp 32 – 49

Rorissa A. & Demissie D (2010); An analysis of African e-Government service websites, Government Information Quarterly' GOVINF-00649 , Published by Elsevier Inc

Rorissa, A. Demissie, D., and Pardo, T. (2011, pp354-362), Benchmarking e-Government: A comparison of frameworks for computing e-Government index and ranking" Gov. Inf. Q., vol. 28, no. 3.

Saner, R., Tosefa, G. Atramanov, A. Mogilevsky R. and Sahov, A. (2008). "Government Governance (GG) and Inter-Ministerial Policy Coordination (IMPC) in Eastern and Central Europe and Central Asia." Public Organization Review 8, 215 – 231.

SARS (2020); About us - Services Offered; Available [Online] at https://www.sarsefiling.co.za/Services.aspx, Accessed on 20th November 2020

Schedler, K., & Scharf, M. C. (2001). Exploring the Interrelations between Electronic Government and the New Public Management. Paper presented at the 13E Conference, Zurich

Schuppan., T. (2009). E-Government in developing countries: Experiences from sub-Saharan Africa. Government Information Quarterly 26 (2009) Elsevier Inc.

Schware, R. (2005). E-development: From excitement to effectiveness (Prepared for the World Summit on the Information Society). Washington, DC: World Bank Group.

Seifert, J.W., (2008). A primer on e-Government: Sectors, stages, opportunities, and challenges of online governance, e-Government in High Gear, p. 99

Siau, K. and Long, Y. (2005). Synthesizing e-government stage models – a meta-synthesis based on meta-ethnography approach; Industrial Management & Data Systems Vol. 105 No. 4, 2005 pp. 443-458 q Emerald Group Publishing Limited 0263-5577

Siau, K. & Long, Y. (2009). Factors Impacting e-Government Development; Journal of Computer Information; Available [Online] on https://www.researchgate.net/publication/265381067 Accessed on 12 November 2019.

Sta, H.B. (2018) 'Organisational structure for the e-government coordination and interoperability framework: a case study of Tunisia', Electronic Government, An International Journal, Vol. 14, No. 1, pp.51–77.

Stroetmann, V. N., Kalra, D., Lewalle, P., Rector, A., Rodrigues, J.M., Stroetmann, K.A., Surjan, G., Ustun, B., Virtanen, M., & Zanstraet P.E. (2009). Semantic Interoperability for Better Health and Safer Healthcare. Semantic HEALTH, European Commission.

SZI (2018). e-Government Master Plan Version 1.

Thompson., K. (2015). Positivism and Interpretivism in Social Research Available [Online] on https://revisesociology.com/2015/05/18/positivism-interpretivism-sociology/ Accessed on 20th November 2020

Titah, R. and Barki, H. (2006); E-government Adoption and Acceptance: A Literature Review, International Journal of Electronic Government Research, Vol.2, No.3, pp, 23-57.

Traumüller R. & Wimmer M. (2003); e-Government at a Decisive Moment: Sketching a Roadmap to Excellence, Electronic Government 2739, 1073 – 1073

UN (2014). e-Government for the Future We Want, E-Government Survey 2014, Department of Economic and Social Affairs, New York

UNDESA (2012). United Nations e-Government Survey 2012; Chapter 3 Taking a whole-of-government-approach Available [Online] on *https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2012-Survey/Chapter-3-Taking-a-whole-of-government-approach.pdf* Accessed on 18th November 2019.

UNDESA (2018); United Nations E-Government Survey 2018 - Gearing e-Government to support Transformation towards sustainable and resilient societies.

UNDESA (2020). E-Government Survey 2020 Digital Government in the Decade of Action for Sustainable Development

UNDP (2007) UNDP. e-Government Interoperability: Guide. United Nations Development Programme.

UNESCO. (2019). Vertical & Horizontal Coordination Available [Online] at https://en.unesco.org/inclusivepolicylab/policy-marker-social-inclusion-inclusive-policies/vertical-coordination#a-3 Accessed on 11th November 2019.

Varney, D ()2006. Service Transformation: A Better Service for Citizens and Businesses, a Better Deal for the Taxpayer. The Stationery Office 2006.

Viik, L. Nyman-Metcalf, K., Astok, H., Viiderfeld, T., Kaljurand, K., Püüa, M. (2019). Guidelines and Roadmap for full deployment of e-governance systems in Africa - Final Report, International Cooperation and Development

Wojtarowicz, N., and Herold, D. M. (2014). "Coordination Practices in Federal Government: The Case of Integration Policy in Austria,"Journal of Economic and Social Policy: Vol. 16 : Iss. 2, Article 10.

World Bank, LAC PREM (2001) “Issues Note: E-Government and The World Bank”. November 5, 2001

Yildiz, M. (2007). e-Government Research: Reviewing the literature, limitations and ways forward, Government Information Quarterly, vol. 24, no. 3, pp. 646-55.

Yong, J., & Koon, L., (2003). e-Government: enabling public sector reform, e-Government in Asia: Enabling Public Service Innovation in the 21st Century, Times Media, Singapore, pp. 3-21.

Zeithaml V.A., & Bitner M.J., (2003); Marketing Integrating Customer Focus across the firm. 3rd Edition, 2003, New York: McGraw Hill

APPENDICES

Appendix 1: Questionnaire

Master of Engineering in Information and Communication Technology (ICT) - Regulation, Policy and Management Questionnaire on the *"review the successes and challenges of coordinating the implementation of e-Government Programmes- a case of Zambia."*

SECTION ONE - DEMOGRAPHIC INFORMATION:

1. **Name of your Ministry/Agency (Optional):**

_____

2. **What is your age?**

18-24 years old	
25-34 years old	
35-44 years old	
45-54 years old	
55 years and above	

3. **What is your gender**

Male	
Female	

4. **What is your position?** ……

5. **In which level are you in your organization?**

a. Senior Management ☐ b. Middle Management ☐ Other ☐

6. **Number of years of work experience?**.....

7. What is the highest level of education that you have attained?

a. Secondary ☐ b. College/Diploma/Certificate ☐ c. Undergraduate Degree ☐

d. Masters' Degree ☐ e. Doctorate ☐ f. Others Specify……

SECTION TWO – INSTITUTIONAL COORDINATION

8. Does Government have any e-Government legislation in place that provides for a coordinated approach in eGovernment implementation?

a. Yes ☐ b. No ☐ c. Not sure ☐

9. If your answer to (8) is yes, please state the legislation……

……

……

10. Is there any National e-Government strategy in place to which Ministries/Agencies make reference to in implementing e-Government programme?

a. Yes ☐ b. No ☐ c. Not sure ☐

11. If your answer to (10) is yes, please state the strategy?

……..……..……

……

……..…

12. Does Government have a leading and coordinating institution responsible for the e-Government implementation?

a. Yes ☐ b. No ☐ c. Not sure ☐

13. If yes, kindly indicate year when this institution was established……

……..

14. What is the name of the Institution and title of the person heading it? ……...……

……..……

……

……

15. Where in central government is this leading and coordinating e-Government institution placed? In case of overlapping responsibilities, please check all that apply

a. Office of the President ☐

b. Ministry of Finance ☐

c. The Ministry of National Development Planning ☐

d. The Ministry of Transport and Communication ☐

e. Others please specify …….

16. In your opinion, in which Ministry or institution should the leading and coordination e-Government institution reside and why?.....

……

……

……

……

17. To whom does this leading and coordinating e-Government institution report to directly?

a. Head of State (President) ☐

b. The responsible minister ☐

c. Head of Civil Service (Secretary to the Cabinet ☐

d. Others Specify……

18. What are the main responsibilities of the e-Government coordinating institution in the central government? Please check all responsibilities that apply.

a. Advising strategy development ☐

b. Monitoring strategy implementation ☐

c. Prioritisation of ICT projects across the government ☐

d. Reviewing ICT projects across the government as needed ☐

e. Mandating external reviews of ICT projects across the government ☐

f. Approve or stop ICT projects across the government as needed ☐

g. Others specify:……

……

19. What role does the coordinating institution play in implementing e-Government programme in your Ministry/Agency? On a scale of 1-5(where 1= strongly disagree, 2= disagree, 3= neutral, 4= agree and 5= strongly agree) please rank your level of agreement with each statement by ticking the appropriate box.

		1	2	3	4	5
a.	Setting ICT Standards					
b.	Provision of Technical Support					
c.	Supporting ICT Skill Development					
d.	Approving ICT Projects					
e.	Procurement of ICT Equipment					
f.	Monitoring of ICT projects					
g.	Provision of shared infrastructure					

SECTION THREE: INTER-AGENCY CORDINATION AND COLLABORATION

20. Is your Ministry/Agency currently implementing any project that require data input from other government systems (databases)?

a. Yes ☐ b. No ☐ c. Not sure ☐

21. In your opinion, has the coordination of implementing e-Government projects provided for increased information sharing (databases) and collaboration between your Ministry/Agency with other government agencies?

a. Yes ☐ b. No ☐ c. Not sure ☐

22. If yes or no state, the reason for your answer?.....

……..…

……..…

23. How often does your Ministry/Agency engage with the e-Government coordination institution? a. Weekly ☐ b. Monthly ☐ c. Quarterly ☐ d. Yearly ☐ e. No engagement ☐

24. Does the e-Government coordinating institution provide a framework for inter-agency collaboration?

a. Yes ☐ b. No ☐ c. Not sure ☐

25. Is there legislation in place to promote (or enforce) interoperability of government information systems (your Ministry/Agency and other government institutions)?

a. Yes ☐ b. No ☐ c. Not sure ☐

26. If yes, state the name of the legislation…….....

……..……

27. In your view, how best would inter-agency collaboration be implemented?.....

……

……

……

SECTION FOUR (4) E-GOVERNMENT IMPLEMENTATION AT INSTITUTIONAL LEVEL

28. In your opinion is there strong leadership and commitment to implement e-Government Programmes in your Ministry/Agency?

a. Yes ☐ b. No ☐ c. Not sure ☐

28. Does your Ministry/Agency have any e-Government strategy or follow the national e-Government strategy?

a. Yes ☐ b. No ☐ c. Not sure ☐

29. If yes, state the name of strategy followed?.....

……

……

30. Does your Ministry/Agency have a website?

a. Yes ☐ b. No ☐ c. Not sure ☐

31. If answer to question (30) is yes, does your Ministry/Agency provide any online transaction to your customers:

a. Yes ☐ b. No ☐ c. Not sure ☐

32. Name the online transactions that your institution provide?.....

……

……

33. Is your Ministry/Agency currently implementing any ICT project that require data from other government institutional databases?

a. Yes ☐ b. No ☐ c. Not sure ☐

34. Does your online transaction require collaboration with another Ministry/Agency database?

a. Yes ☐ b. No ☐ c. Not sure ☐

35. If answer is yes, what challenges do you face in implementing the online service with the other Ministry/Agency ……..……

……

……

……

36. Do you think there are enough measures put in place to ensure there is a eGovernment change process from manual to e-services?

a. Yes ☐ b. No ☐ c. Not sure ☐

37. Are there any ICT institutional changes that have occurred arising from creation of an e-Government coordinating institution?

a. Yes ☐ b. No ☐ c. Not sure ☐

38. If yes, State the institutional changes that have occurred?.....

……

……..……

39. Are there any conflicting roles between your Ministry/Agency with the Coordinating Institution?

a. Yes ☐ b. No ☐ c. Not sure ☐

40. If yes, State the conflicting roles?.....

……

……

……

41. Does your organisation follow standards from the coordinating institution to ensure interoperability?

a. Yes ☐ b. No ☐ c. Not sure ☐

42. How effective does the coordinating institution communicate with your Ministry/Agency on progress made in implementing the eGovernment programme in Zambia?

a. Very effective ☐ b. Effective ☐ c. Neutral ☐ d. Ineffective ☐ e. Very ineffective ☐

43. Does the coordinating institution provide for eGovernment capacity building programme for ICT staff in your Ministry/Agency?

a. Yes ☐ b. No ☐ c. Not sure ☐

44. If the answer to question (43) is yes, how effective are these capacity building programmes?

a. Very effective ☐ b. Effective ☐ c. Neutral ☐ d. Ineffective ☐ e. Very ineffective ☐

45. **Does the coordination institution undertake a skills gap analysis for ICT Officers in your Ministry/Agency?**

a. Yes ☐ b. No ☐ c. Not sure ☐

46. **Does the coordinating institution play any role in your procurement of ICT products and services in your Ministry/Agency?**

a. Yes ☐ b. No ☐ c. Not sure ☐

47. **If yes at question (46), state the role the coordinating institution play in your procurement of ICT products and services?** ……
……
……

48. **Does the coordinating institution play a role in developing of your annual workplans and budget for eGovernment programme/projects?**

a. Yes ☐ b. No ☐ c. Not sure ☐

SECTION FIVE (5) E-GOVERNMENT CHALLENGES

49. **Below are statements on some of the challenges of e-Government implementation at the Ministry/Agency level. On a scale of 1-5(where 1= strongly disagree, 2= disagree, 3= neutral, 4= agree and 5= strongly agree) please rank your level of agreement with each statement by ticking the appropriate box.**

		1	2	3	4	5
1	Lack of knowledge about eGovernment programmes					
2	Inadequate telecommunication Infrastructure					
3	Privacy and security issues					
4	Low internet penetration					
5	Lack of Policy and Regulation issues					
6	Limited ICT staffing and skills					
7	Poor culture towards digital services					

8	Poor leadership and Management support					
9	Management systems and structures					
10	Lack of Collaboration and cooperation amongst Ministries/ agencies					
11	Insufficient budgetary allocation for eGovernment programme/projects					
12	Resistance to Change from traditional (manual) to e-Administration					

50. In your opinion what should government do to ensure successful implementation of eGovernment programmes?……..……...……

……

……

……

THANK YOU FOR YOUR PARTICIPATION.

Appendix 2 Interview Questions

1. What has Zambia done in terms of legislation to ensure that there is coordination and inter-agency collaboration in implementing e-Government programmes. Also state the law that govern e-Government implementation if any?

   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……
   ……

2. How best is inter-agency collaboration implemented considering that government agencies don't seem to work well together?.....
   ……
   ……
   ……
   ……
   ……

3. Is there a National e-Government Strategy that gives direction on e-Government agenda and guides Ministries and government agencies in terms of eGovernment implementation? Kindly give highlights on the same

   ……
   ……
   ……
   ……
   ……

4. How has placing of the e-Government Coordinating institution in the Office of the President helped to ensure effective and efficient implementation of e-Government programmes?……
   ……
   ……
   ……
   ……

……
……
……
……
……
……
…….

5. At what stage is Zambia in terms of development of e-government?

   i. *Web presence* [ ]
   ii. *Interaction* [ ]
   iii. *Transactional* [ ]
   iv. *Transformational* [ ]

6. In your view in reference to your response to (5), what are the major barriers to e-government implementation in Zambia? ……
   …….
   ……..……
   ……..……
   ……..……
   …….

7. In what way does the e-Government Coordinating institution communicate to your institution in terms of progress made by the country in eGovernment implementation?.....
   .....
   ……
   ……
   ……
   ……

8. Has Government made strides on professional development for Government ICT staff and garnered the right skills for e-Government implementation? Explain.....
   ……
   ……
   ……
   ……
   ……
   ……
   ……

9. What should government do to ensure successful implementation of eGovernment programmes?…….

……
……
……
……