A CRITICAL ASSESSMENT OF THE E-READINESS STATUS OF ZIMBABWE'S PUBLIC SECTOR INSTITUTIONS: EXPLORING THE REGISTRAR GENERAL DEPARTMENT'S LEVEL OF PREPAREDNESS TO UTILISE THE ONLINE PASSPORT APPLICATION SYSTEM (2012-2016)

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE MASTER OF SCIENCE DEGREE IN PUBLIC ADMINISTRATION

DEPARTMENT OF POLITICAL AND ADMINISTRATIVE STUDIES

FACULTY OF SOCIAL STUDIES

UNIVERSITY OF ZIMBABWE

MARCH 2017

ABSTRACT

The proliferation of Information Communication Technologies (ICTs) in the public sector has influenced modern states to adopt e-government systems in order to accelerate the delivery of public services and heighten citizens' access to government information. Different states are at different levels of preparedness to adopt and fully utilise e-government systems. Like other modern governments, the Government of Zimbabwe has adopted a number of e-government applications in its various departments with varying degrees of success. However, to date, no formal research has been carried out to establish the e-readiness status of Zimbabwe's public sector institutions. From this background, this research reflects on the e-readiness status of public sector institutions in Zimbabwe. The study assesses the Registrar General Department's level of preparedness to use the online passport application system. The research was anchored at exposing the main measures that have been adopted and currently being implemented by the government of Zimbabwe towards improving the e-readiness status of public sector institutions. The study utilized purposive and systematic sampling methods in selecting the key informants and respondents. Data was gathered using questionnaires, in-depth interviews and documentary review. Research findings demonstrated that notable measures towards improving e-readiness include but are not limited to the plan to establish the National Data Bank, plan to establish a Universal Service Fund and the liberalisation of the ICT sector, among other strategies. Despite these remarkable efforts, the study reveals that the government is delaying the adoption of the key e-government legislation such as the Cyber Security Act and the belated 2015 National ICT Policy. The major conclusion drawn from the study findings is that government departments in Zimbabwe are not yet adequately prepared to make effective use of e-government systems.

Dedications

To Dr. Unique, my late parents, all my friends and colleagues. Your dreams to see me excelling in the academic field will forever be cherished.

Acknowledgements

I give profound appreciation to my supervisor Dr. A. G. Nhema for his intellectual guidance and unwavering support from the gestation to the culmination of this project. I am also thankful to Dr. T. Zinyama, Mr. E.V. Masunungure, Professor G. Zhou, Dr. H. Chingono, Ms M. Chiware, Mr. H. Zvoushe, Mr. S. Hofisi and Dr. M. Mupanduki, my lecturers in the Department of Political and Administrative studies for their counsel in shaping this project. As Isaac Newton, the great scientist, once said, "If I have been able to see further than others, it is because I have stood on the shoulders of giants". This research would not been successful without the aforementioned "giants" because their contributions inspired me to soldier on.

My sincere gratitude also goes to the staff in the Registrar General's Department, the Ministry of Home Affairs and the Ministry of Information Communication and Courier Services for their cooperation and insightful contributions during the course of the research. To my classmates, Gerald Tinashe Maumbe, Munashe Matambo, Prosper Manavele, Moira Tambaoga, Charity Dhliwayo, Diana Muketiwa, Lea Kamuna and Rutendo Kanyai, thank you for the unwavering support in making this work a success. Above all, I would want to thank God for being the "strong tower" of my academic life.

TABLE OF CONTENTS

List of Figures

List of Tables

Abbreviations and Acronyms

CAG	- Comptroller and Auditor General
CBD	- Central Business District
CCCB	- Computer Crime and Cybercrime Bill
CISCs	- Community Internet Service Centres
CSPPM	- Computer Systems Policy Project E-readiness Assessment Model
CSA	- Cyber Security Act
DDB	- Departmental Data Banks
DEG	- Digital Era of Governance
DPWC	- Data Processing and Warehousing Centres
EIU	- Economist Intelligence Unit
E-POPDP	- E-People Online Petition & Discussion Portal
GDS	- Government Data Store
GGOGMM	- Gartner Group Open Government Maturity Model (GGOGMM)
GoZ	- Government of Zimbabwe
GSB	- Government Service Bus
GSNs	- Government Secure Network system
G2C	- Government to Citizens
G2E	- Government to Employees
G2G	- Government to Government
HIT	- Harare Institute of Technology
HPC	- High Performance Computing
HSLs	- High Speed Lines
ICN	- Informatics Centred Network
ICTs	- Information Communication Technologies
IG	- Inclusive Government
ITU	- International Telecommunication Union

ISPs - Internet Service Providers

LANs - Local Area Networks

MoFED - Ministry of Finance and Economic Development

MoHA - Ministry of Home Affairs

MoICTPCSs - Ministry of Information Communication Technology, Postal & Courier Services

MTSPs - Mobile Telecommunications Service Providers

MU - Modernisation Unit

NCIA - National Computing and Information Agency

NDB - National Data Bank

NDC - National Data Center

NeGP - National e-Governance Plan

NIC - National Information Coordination Code

NICNET - National Informatics Centres Network

NPM - New Public Management

OPC - Office of the President and Cabinet

PIP - Passport Information Portal

PFMs - Public Finance Management System

PKI - Public Key Infrastructure

POTRAZ - Postal and Telecommunications Authority of Zimbabwe

RG - Registrar General

RGD - Registrar General's Department

SADC - Southern African Development Community

SWANs - State Wide Area Networks

UNI - Unique Citizen Identity

UNDESA - United Nations Department of Economic and Social Affairs

USF - Universal Service Fund

WANs - Wide Area Networks

ZIMRA - Zimbabwe Revenue Authority

ZRP - Zimbabwe Republic Police

ZISPA - Zimbabwe Internet Service Providers Association

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.0 Introduction

This dissertation assesses Zimbabwe's level of preparedness for effective utilisation of e-government systems in public sector institutions. The research investigated the Registrar General Department's level of readiness to effectively utilise the online passport application e-government system. This introductory chapter presents the background of the problem, statement of the problem, significance of the study, study hypothesis, research objectives, research questions, the methodological overview, limitations and delimitations of the study.

1.1 Background of the Problem

The advent of the New Public Management paradigm (NPM) in the late 1990s led to the emergence of a new public administration era characterised by paperless flow of information between the government and its various stakeholders such as citizens, businesses and employees (Dunleavy et al, 2005). According to Kitaw (2006:24) NPM brought about e-government which entails the adoption of Information Communication Technologies (ICTs) to facilitate internet based public administration. In line with these arguments, Morrison (2013:87) noted that the adoption of e-government systems by several governments worldwide has transformed public administration processes from the traditional manual service delivery techniques to the use of modernised online service delivery systems. Grant (2008:89) also argues that where there are properly developed supporting frameworks, e-government applications are capable of amplifying access to government information by various stakeholders wherever they are and whenever they want through the online platforms.

The United Nations Department of Economic and Social Affairs/UNDESA (2014) stated that the strategic use of ICTs in government can result in a more inclusive, effective, responsive, efficient and transparent public administration. Moreover, Hughes (2003:189) also argues that in most e-ready countries, e-government applications have enhanced the delivery of public services and catapulted easy communication between the government and its stakeholders. However, e-government systems can only be useful if the government is ready to effectively utilise them. According to the United Nations Department of Economic and Social Affairs global e-government development survey of 2014, highly functional online service provision platforms are attributed to high ICT literacy skills amongst stakeholders, unlimited user

accessibility due to properly developed telecommunications infrastructure among other e-readiness indicators. Morrison (2013:27) also highlights that when a country is 'e-ready', e-government systems can be used to transform dysfunctional government structures into efficient agents of public service delivery. It can therefore be argued that in an e-ready society, e-government systems can enhance rapid and regular interaction between the government and its stakeholders. This is achieved through the provision of government information and services on the Internet. To support this point, Asogwa (2011:44) explains that e-government initiatives provide opportunities to improve governance as the systems make the government more responsive to the ever growing demands from rapidly growing global populations. One can therefore appreciate that where public sector institutions are unprepared to embrace ICTs, public administration processes will be monotonous and opaque whilst service delivery will be mediocre.

From this background and in response to the NPM wave, the Government of Zimbabwe (GoZ) has adopted a number of e-government applications with varying degrees of success. According to Yaw (2012:17) in 1999 the government of Zimbabwe adopted the Public Finance Management System (PFMs), an online public expenditure management application established to monitor and control expenditure in all spending ministries and public sector institutions. However, according to the 2011 Comptroller and Auditor General's (CAG) report, although the PFMs was a major signal by the government of Zimbabwe in embracing e-government systems in the public sector, this online application has struggled to harness fiscal prudence and financial discipline in public sector institutions. Yaw (2012:67) attributed the ineffectiveness of the PFM system to extensive power cuts, underdeveloped telecommunication infrastructure which all suggests Zimbabwe's unpreparedness to effectively utilise this electronic government system. Experiences with the challenges militating against the effective use of Public Finance Management system suggest that the will to embrace e-government systems in Zimbabwe is there, but the capacity to make the e-government systems functional is lacking.

In October 2012, the government of Zimbabwe made a landmark e-government development move by introducing the online passport application platform. The objective was to enable efficient application of new passports and renewal of expired ones online. The system was launched to enable passport applicants the platform to download passport application forms online. Nhema and Zinyama (2016:15) note that in line with the online passport application initiative, the Registrar General's Department (RGD) was digitalised in 2012 and the

department introduced its website: *http://www.rg.gov.zw* to allow passport applicants to download applications forms on the internet. However, since the introduction of the online passport initiative in October 2012, no formal academic research has been conducted to determine Zimbabwe's level of preparedness to adopt and fully utilise the online passport application e-government system. This research therefore seeks to interrogate the functionality of the online passport system that was introduced in the Registrar General's Department.

There have been several developments in terms of e-government development in Zimbabwe. For example, the adoption of the 2012 Zimbabwe National ICT Policy was a landmark move as the policy provided the bedrock for further e-government development in Zimbabwe. According to Rajah (2015:14), the purpose of this policy framework was to provide the requisite guidance and direction to the formulation and implementation of ICT strategies and programmes in and across all sectors of the economy. In addition, academic and tertiary institutions in Zimbabwe are offering ICT training programmes on a government curriculum development initiative to enhance ICT literacy amongst citizens. According to Rajah (2015:13-14), the Nziramasanga Education Commission Report of 1999 recommended ICT teaching and learning in schools as an early foundation in the development of ICT literacy amongst citizens. Moreover, since 2012, there have been strides to establish websites for public institutions such as the Zimbabwe Revenue Authority (ZIMRA) whose website is *http://www.zimra.co.zw* and the Zimbabwe Republic Police (ZRP) accessible at *http://www.zrp.gov.zw*. Zimbabwe's government ministries such as the Ministry of Finance and Economic Development (MoFED) also have public websites.

Despite all these e-government developments, the e-readiness condition of most public sector institutions in Zimbabwe is still obscure. It is from this backdrop that the researcher finds it timely to assess and ascertain the e-readiness position of Zimbabwe's public sector institutions. Taking the aforementioned e-readiness improvement measures into consideration, it is worthwhile to interrogate the missing link or the major barricade (s) that mars endeavours to improve e-readiness in Zimbabwe. The current study will interrogate the RGD's experiences in adopting the online passport application system to determine its e-readiness status. The study also seeks to unravel the e-readiness indicators in place, expose factors that militate against e-readiness and proffer recommendations for future improvement.

1.2 Statement of the Problem

Concern over the incapacity of Zimbabwe's public sector institutions to fully utilise established e-government systems is overwhelming. Nevertheless, not much has been done to address this issue because the e-readiness condition of most public sector institutions in Zimbabwe is unknown. Existing literature on e-readiness in Zimbabwe has neither clearly expressed the e-readiness indicators in place for the different public sector institutions in Zimbabwe nor proffered pragmatic recommendations to improve e-readiness. What is clear in existent literature such as UNDESA (2014) and Rajah (2015) are the challenges to e-government development such as underdeveloped ICT infrastructure, limited user access facilities and high level of unawareness amongst the intended users. UNDESA (2014) noted that because of these challenges, Zimbabwe ranks 'very low' on the global e-readiness indexes. However, the rank presented by UNDESA does not fully convince one who is observant of e-government development initiatives adopted by the government of Zimbabwe since the year 2012. This study therefore seeks to formally generate information useful in an attempt to close the gap in existing literature on the e-readiness condition of Zimbabwe's public sector institutions.

1.3 Objectives of the Study

The study seeks to:

1. Assess Zimbabwe's current level of preparedness towards full utilisation of e-government applications in public sector institutions.
2. Evaluate government efforts towards improving the e-readiness of public sector institutions.
3. Explore the factors militating against improved e-readiness and effective use of e-government systems in Zimbabwe.
4. Suggest recommendations for improving e-readiness variables in Zimbabwe.

1.4 Research Questions

1. What are the e-readiness indicators available in Zimbabwe's public sector institutions?
2. Which strategies have the government of Zimbabwe adopted to improve the e-readiness level of public sector institutions?

3. What are the challenges militating against the efforts to improve the e-readiness of public sector institutions in Zimbabwe?
4. Which initiatives can be adopted to improve the e-readiness level of Zimbabwe's public sector institutions?

1.5 Hypothesis

The study hypothesizes that reliable internet accessibility by intended users of e-government applications can enhance the e-readiness status of Zimbabwe's public sector institutions.

1.6 Justification of the Study

The researcher considers it an unfair assessment for one to label Zimbabwe as entirely unprepared to adopt e-government systems without a formal assessment of the functionality of one or more e-government systems currently employed in Zimbabwe's public sector institutions. This study is therefore an organisation specific and exhaustive survey of the e-readiness status of the RGD as one of Zimbabwe's public sector institutions. The study serves as a knowledge repository for academics and practitioners seeking information on e-government readiness in Zimbabwe. The findings of the study provide policy relevant information to help e-government policy makers in crafting strategies and measures to ensure that Zimbabwe becomes an e-ready society. Moreover, the study findings are a current update on the current e-readiness status of public sector institutions in Zimbabwe.

1.7 Methodological Overview

The study employed the mixed methods approach to sample respondents as well as to collect, present and analyse data. According to Johnson et al (2004:31), the mixed methods approach combines qualitative and quantitative research methods and instruments in a single study. Thus, the mixed methods approach was useful in this study because the researcher collected for both qualitative and quantitative data on the e-readiness status of Zimbabwe's public sector institutions, specifically the Registrar General Department. The study employed an exploratory research design where the case of the Registrar General Department's office in Harare was investigated to determine its e-readiness position.

1.8 Delimitations of the Study

The study is case and time bound. Firstly, the study focussed on the case of the Registrar General Department's adoption of the online passport system. Further, the study concentrated

on e-readiness improvement measures in this organisation from 2012 the year when the online passport system was adopted and 2016 the year the study was conducted.

1.9 Limitations of the Study

The researcher encountered limitations such as inability to access confidential information which if made available may enlighten the researcher on the state of preparedness Zimbabwe is to adopt the e-passport system. The RGD was reluctant to release the list of passport applicants as required by the researcher as the sampling frame. The researcher guaranteed confidentiality of information as a measure to counter these possible limitations and consequently access the required information. Moreover, the unavailability of some key informants was another limitation to a study. Where this limitation was encountered during the research, other possible key informants such as Deputy Director in the absence of the Director were interviewed as alternative and authentic sources of the required information.

1.10 Dissertation Structure

The dissertation is organised into five chapters. Chapter 1 is the introduction which presents the background to the study, statement of the problem, the justification of the study, the research objectives, research questions, limitations and delimitations, study hypothesis and the methodological framework to be used. Chapter 2 presents the literature review and theoretical framework of the study where relevant literature on e-readiness and e-government development in selected countries is reviewed. Chapter 3 lays out the research methodology to guide the study by presenting the research design, sampling procedures, data collection instruments, data analysis methods and the data presentation techniques to be used in the study. The major findings and analysis of the data gathered in the field and in documentary sources are presented in chapter 4. The final chapter presents the conclusions drawn from the analysis of data and also the recommendations proffered by the researcher.

1:11 Conclusion

This chapter introduced the research study which is on assessing the e-readiness of public sector institutions in Zimbabwe. The background of the problem, the statement of the problem, research objectives, the justification of the study, research questions, study hypothesis, limitations of the study, delimitations of the study and the methodological overview. The next chapter will focus on the literature reviewed in this study and the theoretical framework to guide the research.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Introduction

This chapter reviews literature on e-readiness variables within the context of global e-government development. This is achieved through the presentation of e-readiness indicators, e-government maturity models and e-government interactions which all shed light into the theme of e-readiness. The chapter also presents an overview of e-readiness and e-government development experiences in countries such as Korea Republic, India and Rwanda. The conceptual and theoretical framework of the study will also be presented.

2.1 Conceptual Framework

This section presents a scholarly review of the key concepts to be used in this study.

2.1.1 The concept of E-Government

Different authorities have developed varied, but comparable definitions of e-government. Holmes (2011:2) defines e-government as "the use of information technologies, in particular the internet, to deliver public services in a more convenient, customer-oriented, cost-effective and efficient way". According to Hughes (2003:182), e-government is the adoption of any information and communication technology by a government for the purpose of enhancing delivery of public services. In addition, Dunleavy et al (2005:478-479), postulate that e-government is the use of ICT systems to transform public administration process in a Digital Era of Governance (DEG). UNDESA (2014:6) defined e-government as "the application of ICTs within public administration institutions to optimise the internal and external functions of the government, transform and expedite government interactions with its stakeholders".

Gleaning from the above definitions, e-government can be defined as the adoption and use of technology to facilitate online public administration. It is the centre piece of information systems reforms to digitize the delivery of services and the process of governance. Holmes (2011:23) contends that the overall objective of e-government is to improve the government's interaction with its stakeholders, enhance public institutional transparency and to curb corruption and procrastinations in the delivery of public services. E-government allows stakeholders to access government services online without visiting the offices physically.

2.1.2 Conceptualising E-Readiness

The concept of e-readiness can be understood from diverse scholarly perspectives. Nevertheless, what is recurrent in all the definitions of e-readiness is that some level of preparation to use Information Communication Technologies for enhanced access to government information and services suffices a country to be regarded as either e-ready or not. Grant (2008:34) defines e-readiness as the state of preparedness any government is to adopt, implement and fully utilise e-government systems to enhance public service delivery. In addition, Heeks (2005:8) postulates that e-readiness is an indication of the internal capacity of government institutions to meaningfully utilise e-government applications. Thus, for one to determine the e-readiness status of a specific government or institution, an e-readiness assessment must be carried out. Moon (2002:89), avers that an e-readiness assessment adjudge how prepared a government is for the adoption of ICTs to facilitate efficient delivery of public services.

The e-readiness status of a country is shown on the e-government readiness index and this can only be determined after an e-readiness assessment survey as established by Fountain (2009:14). A lower rank on the e-readiness index signifies low level of e-readiness, whilst a higher rank resembles significant strides in embracing e-government systems (ibid). George (2004:45) propounds that a number of e-readiness indicators are used to adjudge a government's e-readiness status. According to the E-Government Toolkit for Developing Countries (2010), some e-readiness indicators include but are not limited to advanced Information Communication infrastructure, user awareness, unlimited user accessibility to e-government applications and supporting legislative frameworks. These indicators will be discussed in detail in the later stages of this chapter.

E-readiness assessments surveys are key sources of information for the e-government development agenda in the developed and developing world. According to Lau (2003:49), e-readiness assessments are useful in that they provide policy relevant information to assist ICT policy makers in developing strategies to improve the country's ability to embrace and fully utilise e-government systems. From e-readiness assessment findings, governments can identify areas where they are lagging behind in terms of e-government development and consequently formulate alternative courses of action improve ICT penetration in various sectors of the economy. It is from this backdrop that the current study is timely and justified as it seeks to assess the e-readiness status of Zimbabwe's public sector institutions.

2.1.3 The Online-Passport Application System

E-government has transformed government to stakeholder interactions in various ways. The introduction of the online passport application platform in several countries is one notable indicator of how public administration institutions have been transformed by the advent of e-government. According to Morrison (2013:17), the online-passport application platform is an electronic government system that facilitates processing of new passport applications and renewal of expired ones on the internet. Morrison (ibid) further highlights that where the system is properly developed, it is capable of reducing travel costs and allows passport applicants to apply for new passports and renew expired ones wherever they are as long as they can access the internet.

Thus, the online passport system makes application for new passports and renewals more efficient as passport application forms will be available online. However, this system heavily depends on internet accessibility by the passport applicants. It is therefore critical to ensure internet accessibility in all parts of the country for the e-passport system to be fully functional. There are varying degrees of success in the adoption of the online passport application system. UNDESA (2014) indicates that in countries such as the Republic of Korea and India, the online passport application system has been successful due to properly developed telecommunication infrastructure which foster unlimited user accessibility. According to UNDESA (2014), in most developing countries, the online passport application platform has not been successful due to limited internet connectivity which mars user accessibility. Thus, this study assesses the Zimbabwean experience in terms of e-readiness to adopt and effectively utilise the online passport application e-government platform.

2.2 Literature Review

Reviewed e-government development literature has shown that e-readiness indicators, e-government maturity models and effectiveness of e-government interactions are useful frameworks in assessing a government's e-readiness status. E-readiness maturity models include the United Nations' (UN) and Gartner's e-government maturity models among others. Enshrined in these models are e-readiness indicators such as the presence of an e-government policy framework, development of a robust network of ICT infrastructure to enhance unlimited user accessibility among other e-readiness pointers. Below is a review of literature on e-readiness indicators, e-government maturity models and e-government interactions.

2.2.1 E-Readiness Indicators

Successful assessment of e-readiness requires an in-depth appreciation of e-readiness indicators. E-readiness indicators are the pointers that reflect a government's state of preparedness to adopt e-government systems (Burn and Robin, 2003:57). The main e-government indicators available in literature are the presence of an e-government policy framework, well developed ICT infrastructure network to allow enhanced internet connectivity by users, high ICT literacy and awareness amongst users as well as the establishment of government/organisation portals. The implication of these indicators on a government's e-readiness status will be examined below.

2.2.1.1 E-Government Policy Framework

According to the Economist Intelligence Unit (EIU), Readiness Rankings model developed in 1997, the first or primary e-readiness indicator is the availability of a regulatory or legislative frame work which show the political will or commitment of the top leadership to embrace e-government systems. In support of this point, Moon (2002:31) argues that the presence of e-government legislation is the primary step to show that the country is ready to move towards a digital era of governance. West and Chiran (2008:4) propounds that legislative frameworks can be in the form of ICT policies and e-government development strategic frameworks. Furthermore, Grant (2008:16) contends that an e-government legislative framework involves action plans as well as ICT policies and procedures providing the vision and plans of the government to move towards e-governance. The legislative framework provides the overall legal and political support for e-government development in a country. To reinforce this point, Mhlanga (2006:1) cited by Nhema and Zinyama (2016:14), highlights that national ICT policy and e-strategy provide a roadmap towards a knowledge society. Thus, the formulation of an ICT policy framework is the primary indicator of any government's political will or e-leadership to enhance its state of preparedness to adopt e-government systems. Therefore, this study interrogates the presence of an e-government policy framework in Zimbabwe as part of assessing the government's e-readiness status.

2.2.1.2 Developed ICT Infrastructure Network

The presence of a well-developed ICT infrastructure network is also another key e-readiness indicator as highlighted in the Network Readiness Model. George (2004:17) avers that a well-developed ICT infrastructure network comprises of a matrix of fibre optic, wireless, wired networks, National and Local Level Data Centres (NLLDCs), Community Information

and Internet Access Centres (CIIACs), information security infrastructure rural area connectivity networks. Therefore, an e-ready government should have developed this ICT infrastructure. In addition, Ebrahim and Irani (2005:29) propound that well developed ICT infrastructure is the backbone of e-government success. This is because ICTs allow connectivity and access to government services by a plethora of stakeholders. ICT infrastructure includes both hardware and software systems. According to Kraemer and King (2008:47), some hardware systems include network infrastructure such as satellites, storage devices, PCs, scanners, printers among others whilst software systems include web servers, application servers, and firewalls among others. To further elaborate, Ebrahim and Irani (2005:31), note that ICT infrastructure systems facilitate acquisition, storage and advanced online communication and information transmission between the government and its stakeholders.

From the arguments above, it can be noted that properly developed ICT infrastructure enhances internet connectivity or user accessibility by all stakeholders. In support of this point, Lau (2003: 60) provides that user accessibility is a major pointer of preparedness to embrace e-government systems. According to Hughes (2003:187), user accessibility and enhanced internet connectivity can be promoted through the establishment of Local Area Networks (LANs) and Wide Area Networks (WANs) as well as High Speed Lines (HSLs) such as optic fibre cables in all parts of the country. In the same vein, Lau (2003:89) argues that LANs allow integration and fast connectivity to the internet via PCs, laptops and mobile phones within a restricted geographical area without complications. Moreover, LANs facilitate online transmission of data of various formats such as texts, graphics, audio, video among others (ibid). On the other hand, Lau (2003:91) states that a Wide Area Network is a communication network that makes use of existing technology to connect local computer networks into a larger working network that may cover both national and international locations. Hughes (2003:188) further posits that besides LANs and WANs, the establishment of Community Internet Service Centres (CISCs) in villages and all locations is an indication of the government's will to enhance internet connectivity and user accessibility to e-government systems.

User accessibility entails that all stakeholders have convenient or reliable access to government services and information whenever they want and wherever they are. Ebrahim and Irani (2005:12), holds that an e-ready government fosters regular and effective interactions between the government and citizens (G2C), Government to Government

agencies (G2G), Government to Businesses (G2B), Government and its Employees (G2E). Furthermore, e-readiness entails that access to online service is fully developed to allow products, services and information transfer, access and utilisation by various stakeholders. In support of this argument, Heeks (2005:89) argues that in an e-ready society there should be unlimited access to online information services in order to allow cross pollination of information and service between the government and its stakeholders. Therefore, the government has an obligation to establish relevant ICT user access facilities as conduits to relay public services to consumers. This study assesses Zimbabwe's e-readiness status through interrogating ICT infrastructure development and user accessibility strategies.

2.2.1.3 Online Information Security Systems

The establishment of an online information security system is another primary indicator of e-readiness. ICT infrastructure should be intertwined with robust information security applications that will act as a firewall against cyber-crime (Grant, 2008). According to Lau (2003), ICT infrastructure should be supported by the establishment of information security systems to enhance user privacy by protecting information stored online. To add on this argument, Grant (2008:13) suggests that information security software systems such as the Public Key Infrastructure (PKI), firewalls, digital signatures, digital certificates, and sophisticated encryption techniques are a key requirement before the implementation of e-government system. Thus, a government's e-readiness status can be assessed through the availability or absence of information security systems.

Therefore, the formulation of ICT security policies becomes a key component of e-readiness and e-government development initiatives. According to Grant (2008:17), for a government that is e-ready, effective information systems should be in place in order to reduce cyber-crime. The information security systems protect and prevent information theft, identity fraud and reduce the risk of information vulnerabilities online (ibid). The E-Government Toolkit for Developing Countries (2010:34) highlights that to enhance security of information online, a Government Secure Network system (GSNs) can be established as it will facilitate protection of online information transmissions and reduce identity theft. The role of the GSNs is to block or deny unauthorised access to information (ibid). The system should also allow back-up and recovery of information when there is a technological breakdown. This study investigates the availability of online security information systems in the Registrar General's Department in order to determine its e-readiness basing on this key e-readiness indicator.

2.2.1.4 Government/Department Information Portals

The reviewed literature also reflected that the presence of e-government interoperability portals is another critical indicator of e-readiness. According to Azab et al (2007:56), an interoperability portal is central program that works as an intermediary Management Information facility between various stakeholders and the government. Thus, an interoperability framework's main objective is to provide one stop integrated, client-centric government services to the citizens as well as businesses (Heeks, 2005). The development of a government portal leads to effective integration of different government services online (West and Chiran, 2008:9). According to the International Telecommunication Union (ITU) Annual Report (2009), a central government portal can be established through the creation of a Government Service Bus (GSB) to be the middle linking platform of coordination and integration of a number of government services and transactions. Heeks (2005:9) also argues that the e-government portals act as Data Processing and Warehousing Centres (DPWC) for the government. According to West and Chiran (2008:43), portals allow the collection of data from multiple sources and their integration and storage in the Government Data Store (GDS). The data will then be processed and disseminated to various stakeholders such as citizens, businesses, employees and government departments.

In line with the arguments above, Moon (2002:42) contends that e-government portals are essential online interactive platforms allowing public organisations to extend e-services to citizens, other government agencies, businesses and employees. West and Chiran (2008:19) also assert that government portals give the government an internal capacity for data or information absorption, storage/archiving and dissemination. Therefore, a government portal is an umbrella data base for all government departments, authorities and administrations responsible for promoting interoperability and integration of government services. It can therefore be argued that the establishment of government or organisational portals is a clear signal of a government's preparedness to interact with its various stakeholders. This study therefore investigates the availability of an e-government portal in the Registrar General Department in order to assess the department's e-readiness status basing on this indicator.

2.2.1.5 Information Communication Technology (ICT) Literacy

The level of ICT literacy is another factor to consider when assessing a government's e-readiness level. According to Azab et al (2009:35), human resources technological skills determine the level of readiness a country is to adopt e-government systems. This implies that

having ICT literate personnel is critical for e-government development initiatives. To further clarify on this point, Moon (2002:12) postulates that shortage of qualified ICT staff stalls e-government development programmes. In addition, Zanied et al (2007:189) also holds that the major barricade to e-readiness is the lack of ICT training and skills amongst users and administrative personnel. To Ebrahim and Irani (2005:61), an e-ready country should prioritise ICT literacy training so that citizens will be capable of utilising e-government platforms provided by the government. Therefore, governments should show the will to assist its personnel and citizens to acquire ICT skills. According to the E-Government Toolkit for Developing countries (2010:37), most governments in the developing world have introduced ICT courses in the pedagogy of schools, colleges and universities in order to improve ICT literacy amongst citizens. It can therefore be concluded that efforts to improve ICT literacy indicates significant strides towards e-readiness. It can also be noted that ICT literacy should be accompanied by user awareness campaigns. According to Lau (2003:86), users may be unaware of the existence of e-government applications and platforms and it is the responsibility of the government to sensitise them. This study therefore interrogates the measures adopted by the government of Zimbabwe towards improving ICT literacy and user awareness of the online passport system and other e-government systems in Zimbabwe.

2.2.2. E-Government Maturity Models

The e-readiness status of an organisation or country can also be assessed using e-government maturity models such as Gartner's and the United Nations' models on the e-maturity levels of e-government. According to Ebrahim and Irani (2005:161), stages in e-government maturity models are used to assess e-readiness and e-government development progress from immature (one-way communication) to the mature (digital democracy) stage. The advantage of having a stage-wise approach is to offer governments abilities to measure their progress in terms of e-government development as Hughes (2003:188) contends. Hughes (ibid) further comments that e-government maturity models depicts the development of e-government as a continuous process from the immature or one way communication stage to the two/multiple way communication phase (digital democracy). Various countries exist at different levels of maturity. According to Heeks (2005:19), each government is at a certain stage of e-government maturity depending on the level and effectiveness of interactions between the government and stakeholders. In this study the e-government maturity models below are used to assess the e-readiness status of the Registrar General Department in Zimbabwe.

2.2.2.1 Gartner Group Open Government Maturity Model (GGOGMM)

The Gartner Group Open Government Maturity model can be useful in assessing an organisation's e-readiness position. This model states that the implementation and adoption of e-government applications generally pass through four maturity stages which are the information stage, interaction stage, transaction stage and the transformation stage as noted by Heeks, (2005) and Grant (2008). The first e-government maturity stage according to Gartner's model is the web presence phase. According to Gartner (2000), web presence is a billboard stage where government information is displayed on government websites, but it will be static. This stage is a one way information dissemination phase of e-government maturity where there is less interaction between the government and its stakeholders. Moreover, Hughes (2003:188) further highlights that, at the information stage, government departments and agencies use the World Wide Web (www) to post information about themselves for the benefit of external and internal users.

Thus, it is at this stage when organisational websites are established to provide information outlining the purposes of the public organization and how it can be contacted (Hughes, 2003:191). According to the E-Government Toolkit for Developing Countries (2010), the information stage does not include real provision of tangible services. At the information stage, websites provided by departments rarely function and have limited capacity for updates. Gartner (2000) also argues that the information stage simply makes the government present online but meaningful transactions and interactions cannot be done at this phase. It can be argued that a government at the information stage of maturity is not yet ready for full utilisation of e-government systems. From this background, this study investigates whether the Registrar General Department has reached, passed or is still at the information stage of e-government maturity.

The interaction is the second phase in Gartner's e-government maturity model. According to Gartner (2000), the interaction phase entails enhancing public involvement in the process of government functioning. Gartner (ibid) also propound that at this e-government maturity phase, people can submit their queries and grievances through email, check the status of their grievance, voice their opinion and help in policy formulation on important issues through online opinion polls and discussion forums. Heeks (2005:87) notes that this is a digital democracy stage in which citizen use ICT as an enabler that can potentially support participatory and democratic processes. Thus, the interaction stage avail a whole range of

online services to stakeholders. Gartner (2000) also states that at the interaction stage of e-government maturity, a public organisation provides services on a 24/7 basis which would have otherwise been done over the conventional 'counters' only during the normal working hours of the day. According to Hughes (2003:189), at the interaction or processing stage, application forms may be downloaded, completed and posted online for processing by a government department. In this study, the Registrar General Department's e-readiness status was assessed using the standards set in the interaction stage of e-government maturity.

The third stage in Gartner's e-government maturity model is transaction. According to Gartner (2000), the transaction phase involves the effective use of established websites and other online applications that allow users to conduct transactions online. According to Layne and Lee (2001), this stage enables citizens to conduct transactions online. Thus, at the transaction stage, the user is able to access the service online in the complete sense. Transactions at this stage may include online monetary transaction and payments by stakeholders without having to visit the government office. Gartner (2000) further states that at the transaction phase, services such as online booking, payment of taxes, land registration, renewal of passports and Identity cards, and payment of utility bills which require transaction can be effectively provided through web enabled applications. In this study, the standard interactive expectations prescribed in this stage are used to assess the Zimbabwe Registrar General Department's e-readiness status.

The fourth and last stage in Gartner's e-government maturity model is transformation, a phase where all the government services are available online. According to Gartner (2000), it is at the transformation stage where the government will acquire the distinction of being called a digital state. This point is supported by Dunleavy et al (2005:478) who contends that the transformation stage in Gartner's e-government maturity model is characterised by the emergence of a Digital Era of Governance (DEG). According to UNDESA (2014), only a few countries such as Korea Republic and India have reached the transformation stage of e-government maturity. Morrison (2013:16) notes that the transformation stage of e-government maturity results in the transmogrification of public service delivery systems from manual approaches to digitalised platforms. Therefore, this complete overhaul from manual to digital methods signals a government's e-readiness. In this study therefore, prescriptions in the transformation stage are used in comparing the Registrar General Department in Zimbabwe's level of e-readiness with other Central Registry Offices globally.

2.2.2.2 United Nations E-Government Maturity Model

In 2001, the United Nations (UN) proposed a five stage e-government maturity model with a focus on web based public service delivery. According to Moon (2002:17), the five e-government maturity phases identified in the UN model are the emerging web presence, enhanced web presence, interactive web presence, transactional web presence and seamless network web presence. According to this model, the emerging web presence is the initial stage where government departments' websites provides mostly basic and static information with limited interactive options for stakeholders. This phase is followed by the enhanced web presence stage where there are notable improvements on government websites in-terms of providing dynamic, specialized and regularly updated information (Moon, 2002:17).

The interactive web presence is the third phase in the UN model of e-government maturity. According to Moon (2002:19), at the interactive web presence stage, users and service providers are connected to government portals (websites) and interaction become more sophisticated than in the former stages. It is at this stage where services such as search facilities and accessibility of various forms are enhanced (ibid). In the UN e-government maturity model, the interactive web presence phase is followed by the transactional web presence stage. Moon (2002:19) furthers avers that at this fourth stage, there are regular two-way interactions between the citizen and the government as users can conduct and complete transactions online. The fifth and final stage in the UN e-government maturity model is the seamless/networked web presence. At this sophisticated and advanced stage of e-government maturity, all services and functions across all government levels are integrated and citizens can access any kind of services from a central portal at any given time wherever they are located (ibid). This is the highest stage of e-readiness. No formal research has been done to assess the e-readiness status of Zimbabwe's public sector institutions using the UN e-government maturity model. Accordingly, in this study, the stages in the UN e-government maturity model are used to assess the e-readiness status of the RGD in Zimbabwe.

2.2.3 E-Government Interactions

Effective e-government interactions indicate a government's high e-readiness status as argued by Lau (2003). E-government interactions are defined by Hughes (2003:189) as exchanges and deployment of information and service between the government and its various stakeholders. According to the E-Government Toolkit for Developing Countries (2010), although the government interact with a gamut of stakeholders, there are primarily four forms

of e-government interactions and these are Government to Government (G2G), Government to Citizens (G2C), Government to Business (G2B) and Government to Employee (G2E). The regularity and effectiveness of these interactions or lack of it reflects a government's e-readiness status. This study will interrogate the online passport system as a G2C interaction involving the Registrar General Department and the citizens. The effectiveness of this interaction model is used in assessing the Department's e-readiness status. Below is an outline of the main e-government interactions.

2.2.3.1 Government to Government interaction (G2G)

Hughes (2003:191) posits that G2G interactions involve the exchange of electronic information amongst various government departments. This exchange could be both intra and inter agency at the national level where information exchanges occur amongst national, provincial and local levels of government (ibid). In addition, the G2G exchange can be international when the exchange involves two or more national governments. For example, the exchange of information between the Registrar General Department and the Ministry of Home Affairs (MoHA) will be an intra G2G interaction whilst the online exchange of information between the Government of Zimbabwe and the government of the Republic of South Africa (RSA) will be an international G2G link. The study assesses the Registrar General Department's capacity to effectively interact with the MoHA as its parent Ministry.

2.2.3.2 Government to Citizens Interaction (G2C)

The e-readiness status of a government can also be determined by the effectiveness of G2C interactions. According to Hughes (2003:190), G2C interactions entail the dissemination of information and delivery of services by the government to the citizens online. The objective of G2C interactions is to enhance citizen participation in the policy formulation by the government, a process conceptualised by Hughes (2003) as e-democracy. Hughes (2003:189) further holds that G2C interactions are meant to make transactions such as obtaining certificates, renewing licenses, paying taxes and bills less time consuming and convenient. However, Hughes (2003:190) laments that the full impact of G2C links will not be felt until there are greater numbers of citizens both connected to the internet and using it. Thus, unlimited internet connectivity by both the government and citizens is integral for G2C interactions to be effective. The online passport application system is one of the G2C interactive platforms. Therefore, this study assesses the effectiveness of this G2C interactive system in order to determine the e-readiness of the Registrar General Department.

2.2.3.3 Government to Business Interactions (G2B)

The ability of a government conduct effective e-transactions with commercial entities is also an indicator of e-readiness. According to Hughes (2003:190), G2B links entails electronic exchanges or commercial transactions between the government and business entities. Hughes (ibid) further states that through G2B interactions, there is improved and efficient procurement of goods and services by the government from the commercial business entities. G2B interactions involve the transaction and exchange between the government and the businesses regarding licenses, taxation and policies issued for various sectors as argued by Hughes (2003:189). Thus, effective government to business interchange is a key indicator of e-readiness in a country as this allows more efficient trade between the government departments and business stakeholders.

According to Morrison (2013:64), in Korea Republic for example, all procurement process such as bidding, awarding contracts, contracting, delivery, and payment are handled online on the central government business website *www.g2b.go.kr*. Thus, registered companies are enabled to participate in biddings of all public organizations, including national organizations, local government bodies, and public corporations, by a single registration in the G2B system (ibid).In this study, the main case study and thrust is on the e-readiness status of the Registrar General Department. The RGD is not a business entity and does not have a profit making motive. Therefore, the G2B interaction is not a major assessment framework for the RGD's e-readiness. Nevertheless, G2B interactions have been discussed in this chapter to aid fuller appreciation of e-government interactions.

2.2.3.4 Government to Employee Interactions (G2E)

The effectiveness and regularity of information exchange between the government and its employees is another key signal of e-readiness. According to the E-Government Toolkit for Developing countries (2010), G2E interactions entail the exchange of work related information between the government and the employees. Hughes (2003:190) also adds that G2E interactions cover online exchange of information on employment guidelines, benefits and pay structures, employee welfare schemes, work rules and regulations, changes in government policies and work updates. The objective of G2E interactions is to enhance regular communication between the government and its employees. In this study however, the G2E interaction will not be used as a main assessment framework for e-readiness in the RGD although its discussion helps in the comprehension of e-government interactions.

2.3 Theoretical Framework

The research is guided by the Computer Systems Policy Project E-readiness Assessment theory or model (CSPP). According to West and Chiran (2008:17) the CSPP model assesses e-readiness status on the basis of country's ability to live in the networked world. Accordingly, this model considers 'e-ready' a country that has high-speed internet access and application of ICTs in schools, government offices, businesses and homes as argued by West and Chiran (2008:18). In this study therefore, these factors will be used as the instruments for assessing the e-readiness of the Registrar General Department. Thus drawing from assumptions in this model, the study will assess the rate of internet accessibility by successful and unsuccessful online passport applicants who have attempted to use the system. In addition, the study will also survey the rate of internet accessibility and use in government offices, schools and homes to determine Zimbabwe's readiness to live in the networked world. Gleaned from this model is internet accessibility as a major variable for e-readiness.

2.4 E-Readiness Country Experiences

This section presents a review of literature on e-readiness and e-government development in Korea Republic, India and Rwanda.

2.4.1 E-Readiness and E-Government Development in Korea Republic

The United Nations Global E-Government Readiness Report (2014) ranked Korea Republic number one in the world in terms of e-readiness. The report attributes this high e-readiness index rank to the availability of effective e-government interactive platforms supported by a robust ICT infrastructure network that the government established. According to Zanied et al (2008:8), in 1996, the Korean government introduced the electronic procurement service platform on its website *www.g2b.go.kr*. This is a platform where all procurement procedures are handled online, and a single window of procurement is open to improve efficiency and transparency of public procurement (Zanied et al, 2008). In addition, electronic customs clearance services are also done online *www.portal.customs.go.kr* (ibid). This platform was introduced to streamline export/import logistics business and processes as well as inspect and quarantine corruption at ports of entry. Zanied et al (2008) also argues that Korea Republic also has a comprehensive online tax collection system that is facilitated on the website *www.hometax.go.kr*. Through this platform, taxpayers can handle tax affairs online at home or work without visiting the tax office. Thus, traditional cumbersome tax administration

activities such as, billing, and payment are processed online and information is retrieved anytime by taxpayer. Moreover, the Korea Republic government also established an effective internet civil services delivery platform through the central government portal *www.egov.go.kr*. Through this interactive platform, people can access administrative services anytime, anywhere on the internet. According to Zanied et al (2007:17), the system allows citizens to request up to 720 civil services online without visiting administrative offices and receive the results by regular mail.

Furthermore, to promote citizen participation in public affairs, the Korea Republic government established an e-democracy platform known as the e-People Online Petition & Discussion Portal (e-POPDP) that is accessible on the website *www.epeople.go.kr*. According to Morrison (2013:17), this system facilitates citizens' participation in policy making by processing their complaints and suggestions via a single window. Through this platform, people can provide their opinions on unfair administrative handling, infringements of their rights and interests, improvement of institutions, and various policies using an integrated online window (ibid). Morrison further argues that all administrative organizations are linked to the e-people window that receives and processes people's complaints and suggestions and citizens can check the outcome online. Moreover, Holmes (2011:16) also highlights that the On-nara Business Process System (O-BPS) is also another information management application established by the Korea Republic government that has increased the efficiency and transparency of administration by handling, recording and managing in a standardized way all the business procedures of the government online. Through this system, government business progress and performance are systematically managed ensure accountability and transparency of public administration (ibid).

In addition, the government of the Republic of Korea also set up e-government institutional frameworks such as National Computing and Information Agency (NCIA) as highlighted by Morrison (2013:28). The NCIA operates and manages all government information systems by integrating them into two data centers and provide non-interruptible administrative services by the best information technology and expertise (ibid). Morrison further argues that back-up systems of the major infrastructure, state-of-the-art security facilities, and top-notch human resources ensure uninterrupted availability of e-Government services 24/7 are also other indicators of e-readiness in Korea Republic. However, the major e-readiness threat identified in Korea Republic has been the high rate of cyber-crime.

In light with the above information security threats, Morrison (2013:39) further highlights that there are high annual rates of cyber-crime in Korea Republic regardless of sophisticated and advanced online information protection systems. Therefore, public confidence in online information privacy has greatly diminished due the high rate of identity theft among other forms of cyber-crime. This study sought to gather data on e-readiness in Zimbabwe to compare and draw lessons from Korea Republic's e-readiness experience.

2.4.2 E-Readiness and E-Government Development in India

In e-government development literature, India is regarded as one of the global success stories on the adoption and use of e-government systems. In terms of e-readiness, India is ranked third in the world as reflected in the United Nations Global E-readiness survey of 2014. Several factors are attributed to this relatively high e-readiness index. Firstly, the Indian government established a robust policy framework to guide the implementation of e-government. According to West and Chiran (2008:107), some of the e-government policy instruments in India include the Internet Service Provider Policy, Information Technology Act, National e-Governance Plan (NeGP) among others. In addition, to the policy frameworks, the government of India is also regarded as e-ready in terms of advanced ICT facilities to foster user accessibility. According to West and Chiran (2008:109), the government of India established State Wide Area Networks (SWANs) in all parts of the country to enhance internet connectivity. These networks are supported by Community Services Centres (CSCs) in all parts of the country also to facilitate universal access to e-services by all stakeholders. Monga (2009:5) defined CSCs as broadband enabled computer facilities that offer a range of government services to citizens, businesses, government employees among other stakeholders.

In addition, West and Chiran (2008:13) further state that the setting up of District Information Systems and National Informatics Centres as back as in 1987 signalled the government of India's strides towards e-readiness through promotion of user accessibility facilities. More so, massive countrywide ICT infrastructure development in India is aimed at enhancing online access to the remotest of villages. In terms of online information security, the government of India established a cyber-security system called the Unique Citizen Identity (UCI) which prohibits unauthorised access to information (West and Chiran, 2008:78). According to Zanied et al (2007:56), in terms of e-government portal, the government of India established a National Data Bank (NDB) which is in New Delhi. The NDB receives all information online

through National Informatics Centres Network (NICNET) a system which is connected to all districts and regional state offices (ibid). The strides by the government of India to move from catalogue to digital era of governance are transparent. Accordingly, most of the established e-government systems in India are functional as argued by Morrison (2013:67). For example, the Passport Information Portal (PIP) adopted by the government of India in 2003 has managed to reduce bureaucratic pathologies associated with manual passport applications (ibid). According to Zanied et al (2007:80), the PIP has reduced travel expenses for passport applicants as the portal allows the applicants to download, complete and submit passport application forms online wherever they are located. Drawing from the Indian experience of the PIP system, it can be noted that when the government is ready in terms of policy framework, online information security systems, user accessibility and availability of central portals, e-government systems will accelerate the delivery of public services.

However, the major challenge to e-government development in India has been the shrinking of budgetary allocation towards the ICT sector since 2011. According to Morrison (2013:79), the government of India is no longer prioritising the ICT sector when annual budgetary allocations are made. This has made repairs and maintenance of already established ICT infrastructure problematic (ibid). Morrison further highlights that database administrators in India's public institutions are facing challenges in updating public websites due to archaic and dysfunctional software. Therefore there have been widespread calls for the government of India to reprioritise the ICT sector in order to revamp the e-government development agenda. In this study, the Indian e-government experience is compared with the Zimbabwean situation.

2.4.3 E-Readiness and e-Government Development in Rwanda

In Africa, Rwanda is the leading success story of e-government development as argued by Monga (2009:17). The Rwandan government has embarked on several efforts towards a high e-readiness index. The first e-government development strike was the launch of the National Information and Communications Infrastructure Plan in 2001 to facilitate e-government development. From 2011 to date, the government of Rwanda has also funded the training of all government employees so that they become ICT literate. According to Monga (2009:18), the government of Rwanda also adopted an ICT skewed education curriculum in learning institutions with the overall objective being to achieve an e-literate citizenry country status (Monga, 2009). The government of Rwanda has shown the political will to embrace

e-government systems by focussing attention on improving its ICT infrastructure by establishing high-speed fibre optics across the country to enhance internet connectivity as reported in the International Telecommunication Union Annual Report of 2009.

2.5 Challenges to E-Readiness in Developing Countries

There are several challenges that militate against efforts to improve a government's e-readiness. According to Morrison (2013), the main challenge to e-readiness is the lack of political will to adopt e-government systems. Morrison further highlights that in most developing countries, e-leadership is absent. This is mainly because of the fear that e-government systems will expose corrupt political leadership. Thus, e-government reforms are crushed as they are viewed as a threat to perpetual corruption that's benefits the elite clique. The lack of political will is exhibited by the absence of policy frameworks to govern the implementation of e-government systems. In addition, inadequate funding is another challenge that militates against efforts towards e-readiness. According to Morrison (2013:91), most governments in the developing world have no fiscal space to support e-government development initiatives. This is indicated by the fact that the ICT sector receives an insignificant potion of the budget annually. Thus, the dire financial crises in most developing countries militate against the development of e-government as most government are financially handicapped to invest in ICT projects which are meant to enhance e-readiness.

Moreover, a high ICT illiteracy level is also another key challenge against e-readiness in most developing countries. Monga (2009:78) laments that investment in ICT human capital is generally low in most developing countries and this is major barrier to e-readiness. This situation is mainly attributed to the shortage of funds to support the training and development of human capital in Information Communication Technology literacy skills. Thus, where human capital in ICT is generally low, e-readiness in some countries will remain a myth.

2.6 Conclusion

This chapter presented an appreciation of e-readiness and the global development of e-government. Various e-readiness indicators and e-government maturity models such as the UN e-government maturity model were presented. The chapter also presented e-readiness experiences in countries such as Korea Republic, India and Rwanda. Factors that mar e-readiness initiatives in developing countries were also highlighted. The next chapter presents the research methodology to guide study.

CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the research methodology to be used in the study. The chapter lays out the research design, study area, target population, sampling procedure, data collection methods, data analysis and presentation techniques as well as the ethical consideration to be upheld in the research.

3.1 Research Design

This is an exploratory research in which a case study research design was used to assess the e-readiness status of Zimbabwe's public-sector institutions. Silverman (2011:176) argues that a case study is appropriate in exploratory research because it allows the researcher to focus on a single and manageable case that is thoroughly investigated to obtain generalizable data. In this study therefore, the case of the Registrar General Department' state of preparedness to adopt the online passport application system was explored. The mixed methods approach was used in sampling, data collection and analysis as well as presenting research findings. According to Ragin (2004:14), the mixed methods approach combines qualitative and quantitative research techniques in a single study in a process called triangulation of methods. Neuman (2014:146-147) also argues that mixed methods helps the researcher to obtain highly comprehensive data in both numerical and textual format in a single study. Moreover, Berg (2001:4) comments that by combining qualitative and quantitative research approaches, the researcher obtains a more substantive comprehension of the subject under study. Below is an outline of the study area, target population and how the mixed methods approach was used in sampling, data collection, analysis and presentation.

3.2 Study Area

The study was conducted in Harare, at the Registrar General Department (RGD), the Ministry of Home Affairs as well as the ICT Ministry's offices. The RGD was selected because it is the administrative center for the application and issuance of passports in the Harare Central Business District (CBD). The RGD offices are located at the corner of Harare Street and Herbert Chitepo Street in the Harare CBD. Data was also collected from the Ministry of Home Affairs since it is the Registrar General Department's parent ministry. The offices of the Ministry of Home Affairs are located in the 11th floor at Mukwati Building in Harare.

3.3 Target Population

The target population in this study included passport applicants, key officers in the Registrar General Department and the Ministry of Home Affairs, Ministry of ICT as well as e-government practitioners and academics. Neuman (2014:252) defines the target population as "the concretely specified large group of many cases from which the researcher draws a sample…" The target population is the source of primary data to answer the research questions (Babbie, 2010:123). The researcher purposefully targets this population because it is the primary source of data on e-readiness and e-government development in Zimbabwe.

3.4 Sampling Methods

Sampling is defined by Marshall and Rossman (2012:24) as the process of selecting research participants from the target population. In this study, both probability (quantitative) and non-probability (qualitative) sampling techniques were used in selecting respondents and informants. Below is an outline of the sampling methods to be used in this study.

3.4.1 Probability Sampling Techniques

Babbie (2010:187) defines probability sampling as the selection criteria in which the population elements to be selected into the sample have an equal chance/probability of being selected. The probability sampling methods used in selecting participants in this study are systematic and simple random sampling. According to Neuman (2014:258), systematic sampling is a process in which a researcher selects every K^{th} element from the sampling frame using a fixed and predetermined sampling interval. For example, on a list frame, the researcher may systematically decide to choose every *fifth* unit (representing K^{th}) to be part of the sample. In this study therefore, systematic sampling were used to sample online passport applicants using the applicants' list obtained from the Registrar General Department's office as the sampling frame. In addition, the researcher also used the random sampling technique to select respondents from the same list frame.

3.4.2 Non-Probability Sampling Techniques

Non-probability sampling is defined by Berg (2001:28) as the sampling criteria in which the elements in the population have an unequal and low chance of being selected into the sample. In this study, the non-probability sampling techniques used are purposive sampling and convenience sampling. According to Berg (2001:33), convenience sample relies on available

subjects or those who are close or easily accessible when sampling is carried out. Neuman (2014:248) argues that in convenience sampling (also called accidental, availability, or haphazard sampling) the primary criteria for selecting cases is that they are easy to reach, convenient, or readily available when the sampling is done. Thus, in convenience sampling the researcher selects anyone he or she happens to come across (ibid). In this study therefore, the researcher employed convenience sampling to select passport applicants queuing at the Registrar General Department's passport office for interviewing.

In addition, purposive or judgemental sampling will also be used to select key informant interviewees. According to Berg (2001:34), when developing a purposive sample, researchers use their special knowledge or judgement about some group to select subjects who represent this population. The rationale for using purposive/judgemental sampling in this study is to ensure that individuals with information on the online passport application, e-readiness and e-government development in Zimbabwe are selected for in-depth interviewing on these concepts. Thus, through the purposive sampling technique, key informants will be selected from the Ministry of Home Affairs, Ministry of ICT and from the Registrar General Department. The researcher also used purposive sampling to select e-government practitioners and academics and data will be collected from these respondents through interviews. Below is an outline of how data on e-readiness in Zimbabwe's public sector institutions was collected using primary and secondary data collection methods.

3.5 Data Collection Methods

Data was collected using both primary and secondary methods. The researcher combined qualitative and quantitative techniques in collecting data. Key informant interviews were the main qualitative technique used and these were conducted in the form of face to face interviews and telephone interviews. The survey questionnaire method is the quantitative data collection method to be used in the research. Documentary sources were also consulted. Below is an overview of the mixed data collection methods used in the study.

3.5.1 Key Informant Interviews

Marshall and Rossman (2012:67) note that a key informant interview is a primary method of collecting qualitative data using a set of pre-planned open ended and semi structured questions. In this study, the key informants are officers and administrators were drawn from the Ministry of Home Affairs, the Ministry of Information, Communication and Courier

Services as well as the Registrar General Department. Key informant interviews were employed in this study because they allowed the researcher to gather in-depth information one-readiness from these officers. The aforementioned officers have information on the online passport application and other e-government developments pursued by the Government of Zimbabwe. Key informant interviews have been selected in this study because as argued by Berg (2001:177), they allow the researcher to focus on and obtain information from few informed individuals. The research used both telephone and face to face interview techniques to collect required information from the key informants.

3.5.2 Survey Questionnaires

Burns and Grove (1996:389) define a survey questionnaire as "a quantitative data collection technique in which large quantities of statistical data are collected from several respondents using questionnaires". A questionnaire is defined by Babbie (2010:246) as "a document containing a set of questions designed to solicit required information from respondents". In this study, closed ended questionnaires were designed and disseminated to respondents. Neuman (2014:317) argues that in a survey, questionnaires allow the researcher to ask several questions at once which allows the researcher to measure several variables simultaneously. In this study therefore, closed ended questionnaires were disseminated to selected passport applicants. This was done in order to collect statistical data on the annual number of successful and unsuccessful online passport applicants. This data was useful for making conclusions on the percentage of success or failure of the online passport systems which helped to determine the Registrar General Department's level of preparedness to effectively use the online-passport system. The survey questionnaire method was also used to collect data on the number of people who are aware or unaware of the online passport application platform in order to determine the level of readiness on the basis of user awareness.

3.5.3 Non-Participatory Observation

Non-participant observation is defined by Patton (2001:16) as a data collection method in which the researcher observes phenomena covertly from a distance without directly participating. In this study, non-participant observations were used to identify the number of passport applicants who still use the 'over the counter' method to get passport application forms at the Registrar General Department's passport office. The statistical data obtained was useful in determining the functionality of the online passport application system.

3.5.4 Documentary Review

Documentary review is defined by Marshall and Rossman (2012:15) as the process of searching for information from written literature or secondary information sources. In this study, the researcher reviewed secondary information sources such as annual e-readiness reports, e-government development journals, newspaper articles and the internet in order to supplement data collected from primary sources. ICT policies and e-government development strategic plans in Zimbabwe was also reviewed to assess e-readiness in terms of supporting legislative frameworks. Moreover, data obtained from documentary review was compared with findings from fieldwork to draw authentic conclusions.

3.6 Data Presentation and Analysis

Data collected in this study was presented on pie charts, tables and other graphical formats. From these formats, the data was analysed using both qualitative and quantitative methods. Data analysis is defined by Silverman (2011:63) as the process of refining the collected data to produce required information. Qualitative data analysis methods that were used are discourse analysis, thematic analysis and content analysis whilst quantitative data was analysed using descriptive statistics.

3.6.1 Content Analysis

DeMarrais and Lapan (2004:79) define content analysis as an examination of written documents, interview texts or speeches to identify key motifs that helps in comprehending the subject under study. In this study therefore, content analysis was used to analyse data collected from both primary and secondary sources such as journal articles, global and continental e-readiness reports, e-government development books, texts recorded in interviews, newspaper articles and other sources of data with e-readiness content.

3.6.2 Thematic analysis

Thematic analysis has been defined by Silverman (2011:119) as the application of codes to the data collected in order to search for recurrent patterns. In this study, thematic analysis was used to search for recurrent themes concerning e-readiness from data collected through primary methods such as interviews and from secondary sources such as e-readiness reports. The identified recurrent patterns were used to generate themes for building valid arguments concerning the level or e-readiness in Zimbabwe's public sector institutions.

3.6.3 Descriptive Statistics

Statistical data collected through surveys was analysed using descriptive statistics. According to Howell (2009:27) descriptive statistics is a quantitative data analysis method that gives numerical data some meaning with the aid of computerised techniques such as the Statistical Package for Social Sciences. Thus in this study, the researcher used descriptive statistics in two respects, that is in computing the average percentage of successful/unsuccessful online passport applicants and data on the number of applicants who are aware or unaware of the existence of the online passport system. The results obtained from this analysis were useful in assessing e-readiness basing on the functionality of the online passport application platform and also on user awareness of this e-government system.

3.7 Ethical Considerations

For research findings to be both valid and credible, the researcher must uphold ethical values such as the need to obtaining informed consent from would be participants, promotion of the privacy of participants and avoiding deception, argues Patton (2001:12). This research is no exception. The first ethical step in this study was to obtain a research authorisation letter from the Department of Political and Administrative Studies at the University of Zimbabwe. The letter was useful in introducing the researcher to the target population. The letter was used to obtain informed consent from the respondents as a way of promoting voluntary participation. According to Babbie (2010:62), forcing people into participating is unethical. Therefore, to promote voluntary participation in this study, the researcher will not coerce the participants. The participants were guaranteed privacy and confidentiality as the research is solely for academic purposes. In addition, the researcher does not disclose the identities of participants without their consent as a way of promoting their privacy.

3.8 Conclusion

The chapter presented the mixed methodological approach to guide the researcher in sampling research participants, collecting data, presenting and analysing the data. The target population, study area and the ethical values to be upheld in the researcher have also been presented. The next chapter presents the major findings and analysis of the data on the e-readiness status of Zimbabwe's public sector institutions with the central focus on the Registrar General Department's state of preparedness to utilise the online passport application system from the period 2012 to 2016.

CHAPTER FOUR

MAJOR FINDINGS AND ANALYSIS OF DATA

4.0 Introduction

This chapter presents and analyses the major findings of the study on the e-readiness status of Zimbabwe's public sector institutions. The study hypothesized that reliable internet access by intended users of e-government applications can improve the e-readiness condition of Zimbabwe's public sector institutions. The study's main thrust was to explore the Registrar General Department's state of preparedness towards effective utilisation of the online passport application system. Thus, the study sought to interrogate this case in order to gather data for answering three overarching research questions which are:

- What strategies has the government of Zimbabwe adopted to improve the e-readiness conditions of public sector institutions?
- What are the challenges militating against the efforts to improve the e-readiness status of public sector institutions in Zimbabwe?
- Which initiatives can be introduced to improve the e-readiness level of Zimbabwe's public sector institutions?

4.1 Review of the Research Methodology and Field Research Experiences

In this exploratory study, the mixed methods approach was used in sampling participants and collecting data. Thus, both qualitative and quantitative research instruments were employed in the study. The researcher used purposive sampling in selecting key informants such as the Communications officer in the Ministry of ICT's Department of Policy Coordination Development and E-government, the Deputy Director of Information Services and Governance in the Ministry of Home Affairs' Department of ICT, the Coordination and Services officer in the Registrar General Department's Passport Office and other ICT practitioners and E-government academics. Eight key informant interviews were scheduled and of these, seven were successfully conducted. One targeted key informant advised the researcher that she could only respond through open ended questionnaires and not oral interviews citing her busy schedule as an excuse. Forty questionnaires were successfully used to collect statistical data on user-awareness to e-government services. Below is an outline of the major research findings and analysis of data on the e-readiness status of Zimbabwe's public sector institutions in general and the Registrar General Department in particular.

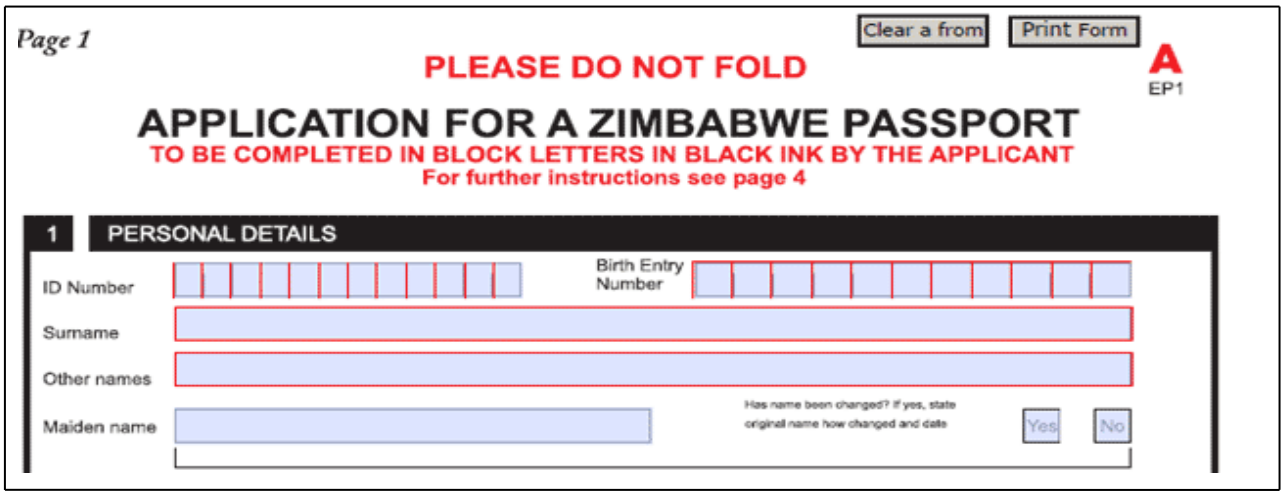
4.2 The Online Passport application system in Zimbabwe, a brief historical overview

Documentary search revealed that the Registrar General Department in Zimbabwe introduced the online passport application system on 12 October 2012 as part of e-government initiatives meant to accelerate the process of applying for new passports and renewing expired ones. In the Herald newspaper of 11 October 2012, the Registrar General, Mr Tobaiwa Mudede confirmed the adoption of the online passport application system when he proclaimed:

> The Department has introduced its new website http://www.rg.gov.zw to provide the public with all relevant information regarding the Department's operations and services…We have introduced a new computerised passport application form that can be accessed on our website. This platform will enable anyone with internet access to fill in the passport application form on the website from the ease of their home or office… Zimbabweans wanting to apply for passports can download application forms on the internet fill them in, print them and then pay a US$33 fee for the form on submission at the Department's Passport Office…The passport application form can only be printed after it has been completely filled in. This digitalisation would bring convenience to the public, improve efficiency in processing passports and reduce time spent queuing for passport application forms.

The then co-minister of Home Affairs in the Inclusive Government (IG) Mr. Kembo Mohadi also gave further confirmation on this development in the Herald newspaper of 11 October 2012 when he said, "the Registrar General's Department has digitised and soon everything will be very efficient", "…people will be able to download and fill the passport form online and then proceed to the Passport Office to get a serial number and pay for the document upon submission of the form". Figure 1 below shows the pictorial view of the passport application form that the RGD said can be downloaded on its website http://.www.rg.gov.zw.

Figure 4.1: The Zimbabwean Passport application form

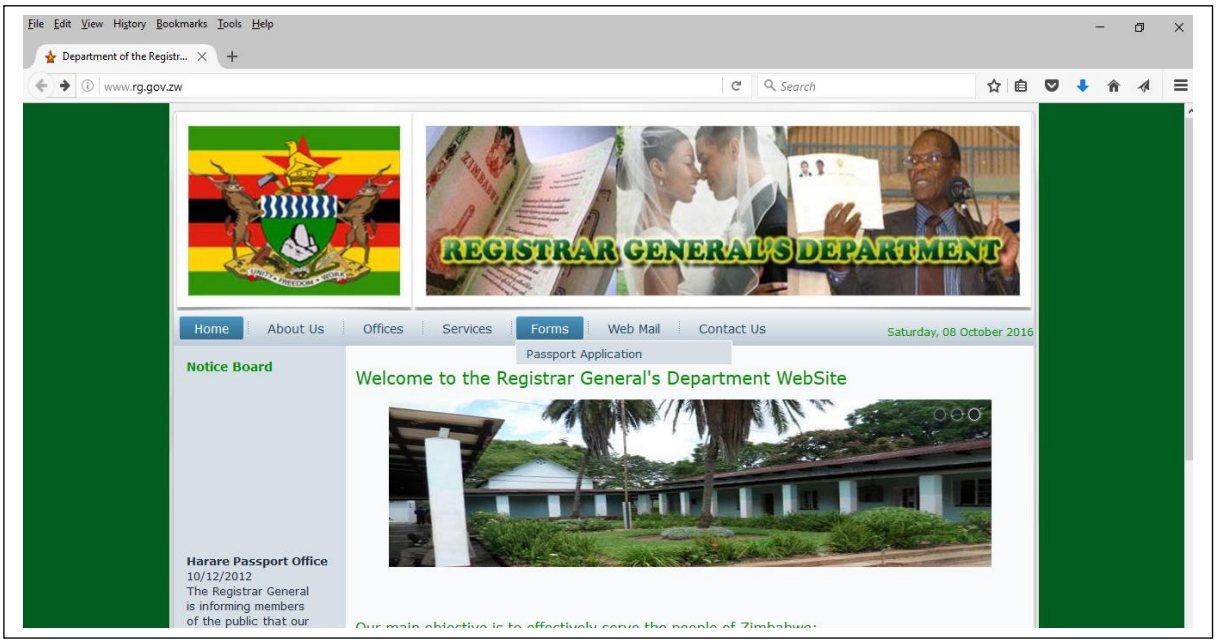


Source: http://www.techzim.com

4.2.1 Is the Online Passport System in Zimbabwe currently Functional?

The study revealed that the online passport form can not be accessed on the Registrar General Department's website because of Internet connectivity constrictions. Inquiries with passport applicants who have tried to download the form on the Registrar General Department's website indicated that the form is inaccessible on the department's website. Although there is a link to the passport form section on the Department's website, interviewd passport applicants lamented failed attempts to retrieve the form online. Figure 4.2 below shows the home page for the RG's Department and the proposed link for downloading passport forms.

Figure 4.2: The RGD website showing the passport form link



Source: http.//.www.rg.gov.zw

The study revealed that whenever one tries to download the form, the home page will reflect a reccurent caption; *Application for Zimbabwe Passport, to view this form you need: Internet Explorer and the latest version of Adobe Reader. Please Update your Browser*!, as will be shown below. In a questionannaire interview administered at the Registra General's Department on the 6th of January 2017, one respondent confirmed, "…this is a recurrent and fixed message, even if you have the latest version of Adobe reader and have an updtated Internet Explorer browser, you will not access the form on the website". Responding to the questionnaire, the respondent further dismissed the system as he commented, "I don't understand this system, if you want you can try it yourself". To confirm these statements, the

researcher tried to download the form to no avail. Figure 4.3 below shows evidence of the message reflected on the website when one attempts to download the form.

Figure 4.3: Evidence of access limitations to downloading the passport application form

Source: http://www.techzim.com

What these accesibility challenges suggest is that the RGD is not yet prepared to utilise the online passport application system. From these findings, one can assert that the RGD is still at the information stage of Gartner's maturity model of e-government because the department is not yet prepared to use online passport system as a functional G2C e-government interaction. Gartner (2000) noted that when a department is at the information stage of e-government maturity, its website is rarely updated and there is one way flow of information from the department to the stakeholders and not in reverse. This point resonates with the findings in the study about the static nature of the RGD's website. The study revealed that the department has limited capacity to update its website. In fact, the RGD's website was last updated in 2012. These findings point to the fact that the RGD has not yet reached the interaction stage in Gartner's e-government maturity model. Had the department reached the interaction stage, passport application forms could be dowloaded online, completed and posted by applicants. The study revealed that the RGD still uses the convectional over the counter approach as statistical findings exposed that over 150 applicants collect passport application forms physically form the Department's Passport office everyday. This situation shows the RGD's state of unpreparedness to utilse the online passport application system.

In terms of the the UN e-government maturity model therefore, it can be noted that the RGD is still at the emerging web presence stage. According to Moon (2002:17), at this stage of the UN e-government maturity model, government departments' websites provide mostly basic information with limited interactive platforms for users. The study found out that the RGD has not yet reached the interactive web presence stage of the UN e-government maturity model because passport applicants can not access the form online. The Chief Secretary in the Registrar General's Passport Office confirmed in an interview held on the 12th of January 2017 at the RGD's Passport Office that it is difficult to download the passport application form on the website because of several limitations such as the lack of an effective departmental portal and general internet connectivity challenges. Nevertheless, it is encouraging to note that the government of Zimbabwe is making remarkable progress in terms of ehnacing internet connectivity so that in future, the RGD becomes e-ready to use the online passport system as an effective G2C online interaction. The section below presents findings on the strategies indicating the government of Zimbabwe's political will towards improving the e-readiness status of public sector institutions despite there being a number of drawbacks as will be discussed in the analysis hereunder.

4.3 Government Strategies to Improve the E-readiness of public sector institutions

This section presents the findings on the e-readiness measures that the government of Zimbabwe has adopted and is planning to introduce in order to improve its departments' state of preparedness to use e-government systems.

4.3.1 Formulation of Legislation for E-Government Development

The study revealed that to put ICT systems in public institutions to effective use, a government must be e-ready in terms of the legal and regulatory framework on ICT adoption and use. In an interview with an e-government academic at Harare Institute of Technology (HIT), the researcher leant that an e-government legislative framework is a critical indicator of e-readiness improvement as it determines and establishes the vision, strategic and action plans for the endorsement of various e-government systems, programmes and projects. This point resonates with Grant (2008:89) who stipulates that the presence of e-government legislation is an e-government development enabling factor that reflects the political will or e-leadership of the government to embrace ICTs in its departments. The research established that e-government legislation is the focal indicator of e-readiness because a legislative framework coordinates all e-government development initiatives.

The study discovered that in terms of an e-government legislative framework, the government of Zimbabwe has only adopted the ZimConnect E-Government Framework and Implementation Strategy of 2011-2015 and the 2012 Zimbabwe National ICT policy. It was observed that the 2012 National ICT policy is currently the primary governing legislation for e-government development and other ICT related initiatives in Zimbabwe's public sector institutions. Through the 2012 National ICT policy, the government of Zimbabwe envisioned to create a knowledge-based society with ubiquitous connectivity by the year 2020. From this vision, the government of Zimbabwe has embarked on several measures such as ICT infrastructure development, establishment of websites in public sector institutions among other projects whose objective is to enhance citizens' access to government services online.

The study revealed that the National 2012 ICT policy is supported by the ZimConnect E-Government Framework and Implementation Strategy. The ZimConnect framework was crafted in 2011 and finalised in 2012 with its purpose being to guide the implementation of e-government systems in Zimbabwe. The main objective of the ZimConnect framework was to establish e-government systems that would improve service delivery. Presenting the 2011 annual National Budget, the then Minister of Finance and Economic Development Mr Tendai Biti indicated that the ZimConnect framework would facilitate the launch of online government services, something that would reduce red tape and reign in corruption that comes with traditional service provision. However, in a telephone interview on 5 January 2017, an ICT practitioner and e-government analyst at Technology Zimbabwe (Techzim) who requested anonymity noted that the ZimConnect framework is a rudimentary piece of legislation which failed to deliver its promises. This is largely because of the lower level of e-government use and poor state of ICT infrastructure in Zimbabwe, he explained. In line with formulating a robust e-government legislative framework, the study discovered that the government of Zimbabwe is in the process of formulating other supportive e-government legislation such as the Cyber Security Act and the National ICT Policy of 2015. The formulation of these Acts is however belated.

4.3.2 E-Government Legislation currently being crafted in Zimbabwe

The study observed that the current e-government legislative framework in Zimbabwe is not yet comprehensive because of the absence of cyber security legislation. From this background, the study revealed that besides the ZimConnect Framework and the 2012 ICT Policy the government is currently modelling the Cyber Security Act and the National ICT

Policy of 2015. However, the study noted that the government is delaying the adoption of these two pieces of e-government legislation and this has stalled progress towards e-readiness as will be discussed below.

4.3.2.1 The 2015 National ICT Policy Draft

Despite it being 2017, the draft 2015 Zimbabwe National ICT Policy is yet to be passed into law. The study revealed that the Bill is still awaiting adoption into law although it was approved by Cabinet in August 2015. As a result, the National ICT Policy of 2012 is the current governing legislation for all e-government development initiatives in Zimbabwe. However, the 2012 National ICT policy has been deemed archaic by an e-government academic and ICT practitioner interviewed at the Harare Institute of Technology (HIT) on the 6th of January 2017, hence the proposed adoption of the 2015 ICT Policy. If passed into law, the 2015 ICT Policy will become the primary enabling legislation for e-governance in Zimbabwe. In a telephone interview held on 5 January with a key informant at Techzim, the government was blamed for dragging the formulation of and procrastination the adoption of key e-government enabling legislation especially the 2015 National ICT Policy. In the same telephone interview, the key informant who requested anonymity further revealed that the government of Zimbabwe's laxity to pass key e-government legislation has greatly stalled efforts to improve e-readiness of public sector institutions.

4.3.2.2 The Zimbabwe Cyber-Security Bill

In 2013, the Government of Zimbabwe was lauded for crafting the Computer Crime and Cybercrime Bill which signified remarkable efforts towards establishment of cyber-security legislation in Zimbabwe. In an interview conducted at the Ministry if Home Affairs Offices with the Integrated Governance Services Officer in the Ministry's Policy and Research Development Department on the 9th of January 2017, it was revealed that the objective of formulating this law is to enhance protection and privacy of information online. If adopted, this law will help reduce sharing of incrimating messages amongst citizens and reduce cyber-crimes. The Bill seeks to consolidate the law of computer related crimes as well as to provide legal basis for investigating and collection of evidence for computer and network related crimes. The purpose of the Bill as provided in Part II is to hedge against offences related to the use of computers and computer networks. Section 5 of the Bill provides that unauthorised access to a computer system owned by the state is an offence. Section 6 stipulates that an offence known as illegal remaining will be committed when a person obtains legal access to a

computer, use it for the purpose originally intended, but remains logged in and continues to use the computer for other purposes not originally authorised. In Section 7, the Bill states that it is illegal to intercept the transmission of data amongst computers intentionally without lawful excuse. Section 8 prohibits illegal system interference which is defined as fraudulent or mischievous alteration or manipulation of data, a program or system installed in a computer. Data espionage is a cyber-security crime under Section 9 of the Bill. As defined in the Bill, data espionage is the act of obtaining for oneself or for another person computer data which are not meant to be accessed for him or that person especially where the data concerned is protected against unauthorised access. Section 10 of the Bill prohibits illegal system interference which is defined as the act of unlawfully hindering the proper functioning of a computer system or interference with a person who is lawfully using/operating a computer system. Computer forgery is also a crime under section 12 of the Bill and this is defined as the intentional and unlawful modification, deletation, alteration, suppression of computer data resulting in inauthentic data which will be regarded erroneously by users as authentic and legal yet it is not.

In addition to the above proposed provisions, Section 16 of the Bill prohibits identity theft which is defined as an act where a person transfers, use or possess the means of identification of another person without authorisation. Harassment using electronic means is also an offence under Section 23 of the Bill. The Bill defines this crime as the act of intentionally, without lawful justification initiating any electronic communication with the intention to coerce, intimidate, harass or cause substantial emotional distress to another person utilising means of electronic communication. Section 24 of the Bill focuses on the protection of property rights. Thus, violation of property rights is an offence under this section. The Zimbabwe Cyber-Security Bill proposes to give courts in Zimbabwe the jurisdiction to try cyber-security crimes as stipulated under Section 26 (1) of the Bill. The Bill provides that punishment for the offences range from paying a fine determined by the courts to imprisonment for a period between three to ten years depending on the offence committed.

However, although the formulation of the Bill was concluded July 2013 the Government of Zimbabwe is still in the process of modelling the Computer Crime and Cybercrime Act (CCCA). The delay in adopting this law further reflects that the Government of Zimbabwe has been sluggish in adopting key legislation to foster e-government development. It can be argued that where a government is lethargic in adopting key e-government legislation, all other e-readiness strides will be defeated because of the absence legislative guidance.

Speaking at the Online Ethics and Privacy Indaba held in August 2016, the incumbent Chairperson of the Parliamentary Committee on ICT Mr Nelson Chamisa noted that:

> The fact that the Zimbabwe draft Cyber-security Bill is yet to be tabled in Parliament, albeit it was concluded in July 2013 is a retrogressive gesture towards adoption of ICT security legislation in Zimbabwe.

Source: Nehanda Radio, 12 August 2016

The findings above expose the reality that there is no functional cyber-security legislation in Zimbabwe to date. The government of Zimbabwe has not prioritised the adoption of cyber security legislation. Cyber-security legislation is critical in the development of e-governance in various ways. Morrison (2013:46) notes that cyber-security legislation is critical for e-government development as it protects telecommunications systems and connected computing devices, personnel, infrastructure, applications and services in the cyber environment. According to Heeks (2005:12), the thrust of cyber-security legislation is to attain and maintain the security properties of the country's assets against security risks in the cyber environment. Mhlanga (2006) also notes that cyber-security legislation is critical for e-government development as it entails a collection of tools, policies, security concepts, security safeguards, guidelines, risk management approaches, actions, training, best practices, assurance and technologies that can be used to protect user in the cyber environment. Cyber-security legislation ensures the availability, integrity and confidentiality of data in cyberspace (ibid). The study revealed that most people in Zimbabwe feared victimisation online because of the absence of an effective cyber security law to curb cyber-crimes.

The study also observed that unlike the government of Zimbabwe which is still working on an effective e-government legislative framework, in India, the situation is different. The government of India has crafted a robust e-government legislative framework. According to West and Chiran (2008:107), some of the e-government policy instruments in India include the Internet Service Provider Policy, Information Technology Act, National e-Governance Plan (NeGP) among other pieces of legislation all in support of e-government development initiatives. In the case of the Registrar General Department, the study observed that there was no law or statutory instrument that empowered the RGD to adopt the online passport application system in October 2012. Thus, the absence of empowering legislation suggests that the RGD is unprepared to adopt the online passport application system.

4.4 Liberalisation of the ICT sector to enhance User Access to the Internet

The Government of Zimbabwe liberalised the ICT sector in 2010 as a strategy to make the sector vibrant by fostering competition for internet service provision. In this liberal ICT sector, the operations of all the Internet Service Providers are regulated by the Postal and Telecommunications Authority of Zimbabwe (POTRAZ). The study revealed that since the liberalisation of the ICT sector, there has been remarkable growth in Internet usage amongst the Zimbabwean populace and an increase in user access facilities such as Internet cafes. In an interview conducted on the 11th of January at the ICT Ministry offices in Harare, an official in the ICT Ministry revealed that statistical records in the Ministry show that there are over 100 thriving internet cafes in the Harare CBD up from less than 30 cafes in 2011. These cafes are working well with ISP such as Ecoweb, Zol Online among others in enhancing Internet accessibility, he revealed. According to statistics obtained from the Ministry of ICT the number of ISP has grown from 17 in 2011 to more than 35 in 2016 due to the growing demand for Internet services by both the business community and the general public. The table below shows the trends in the growth in Internet usage in Zimbabwe from the year 2012-2016. The growth has been attributed to increase in internet facilities and ISP since the liberalisation of the ICT sector in 2010.

Table 4.1: Growth in Internet Usage in Zimbabwe from 2012-2016.

YEAR	POPULATION	INTERNET USERS	% INTERNET USERS TO THE POPULATION
2012	12 874 610	2 567 513	19.9%
2013	13 247 589	3 245 756	24.5%
2014	13 782 920	4 197 998	30.5%
2015	14 218 451	5 378 651	37.8%
2016	14 546 961	6 759 032	46.5%

Source: Ministry of Information Communication Technology and Courier Service, Zimbabwe

In a telephone interview conducted on 12th of January 2017, the Chairperson of the Zimbabwe Internet Service Providers Association (ZISPA) highlighted that the increase in the number of Internet cafes in Harare and other cities is attributed to the tremendous demand for Internet use amongst the public especially the young generation who seek regular access to the World Wide Web (www) for academic and social reasons. He further noted that Mobile Telecommunications Service Providers (MTSPs) such as Econet Wireless, Telecel Zimbabwe and NetOne have also contributed fairly to the pursuit of unlimited Internet access.

Moreover, the study also revealed that TSPs have combined well with Internet Service Providers (ISPs) in ensuring enhanced internet access. The ISP in Zimbabwe includes Africa Online, Ecoweb, Telconet, Zol Online, ZimWeb and Com One. In addition, temporal removal of duty on ICT hardware and software in 2012 also promoted the acquisition and the use of ICTs in the country. All these developments have contributed immensely to the growth in internet usage inn Zimbabwe since the year 2012 due to the government's move to liberalise the ICT sector. However, the problem of universal access to e-government services online is persistent as discussed below.

4.4.1 Limitations to Universal Access to the Internet

The study noted that regardless of the positive developments to enhance user access, universal internet access is still a major challenge in Zimbabwe. It was discovered that although majority of Zimbabweans have the potential to access government services online, high Internet tariffs are a major barrier to universal Internet access across the country. In a key informant interview carried out on the 11th of January at the Ministry of ICT offices in Harare, an officer in the Ministry of ICT's Department of Policy Coordination Development and E-Government divulged that it is worrying that only those who can afford the Internet tariffs can enjoy the services offered by the government online. Thus, despite the mushrooming of Internet cafes in several of Zimbabwe's Central Business Districts (CBDs) since the year 2012, Internet access is still a major challenge because the majority cannot afford the high Internet tariffs. A snap short survey in the Harare CBD revealed that internet cafes charge between $1 and $2 per hour for one to access the internet. This situation restricts citizens from accessing government services online.

The Computer Systems Policy Project E-readiness Assessment (CSPP) model which is the study's theoretical framework stipulates that unless citizens have the ability to live in the networked world, without any hindrance, a country will remain in the unprepared bracket on the e-readiness index. According to West and Chiran (2008:18), the CSPP model considers as 'e-ready' a country that has high-speed internet access and application of ICTs in schools, government offices, businesses and homes. This has not been the situation in Zimbabwe where universal internet access is very limited. The study noted that there is no free internet service for ordinary citizens as the government is yet to establish a mechanism to assist people without the financial capacity to access government services online.

In line with the above, the study found that the government is planning to promote universal access to the Internet. In an interview held on the 11th of January 2017 at the ICT Ministry's offices in Harare, an officer in the Ministry of ICT's Department of Policy Coordination Development and E-Government revealed that that the Government of Zimbabwe is aware of the prevailing challenge of limited universal access to the internet by citizens. As a response, the government is planning to establish the Universal Service Fund (USF) to guarantee affordable broadband services by all the citizens. The USF will help in ensuring universal access to e-government services in marginalised areas of Zimbabwe, while in effect reducing the cost of ICTs to the majority of Zimbabwe's population who cannot afford the high Internet tariffs. Promoting universal access through the USF is a positive e-readiness move by the government of Zimbabwe.

4.5 Level of User-Awareness to E-Government Systems in Zimbabwe

The study sought to explore the level of user awareness of e-government systems used in Zimbabwe's public sector. Documentary sources such as UNDESA (2014) exposed that it will be an effort in vain if the government introduces online service delivery systems in its departments without sensitising the intended users about the establishment of the e-government systems. To clarify this point, Morrison (2013:18) aptly states that:

> …users must be made aware of the e-government systems in place because the systems are more to the benefit of the users than the government itself…the intended users of online systems established in government departments should not only know about the online system itself, but more so be taught on how the system works.

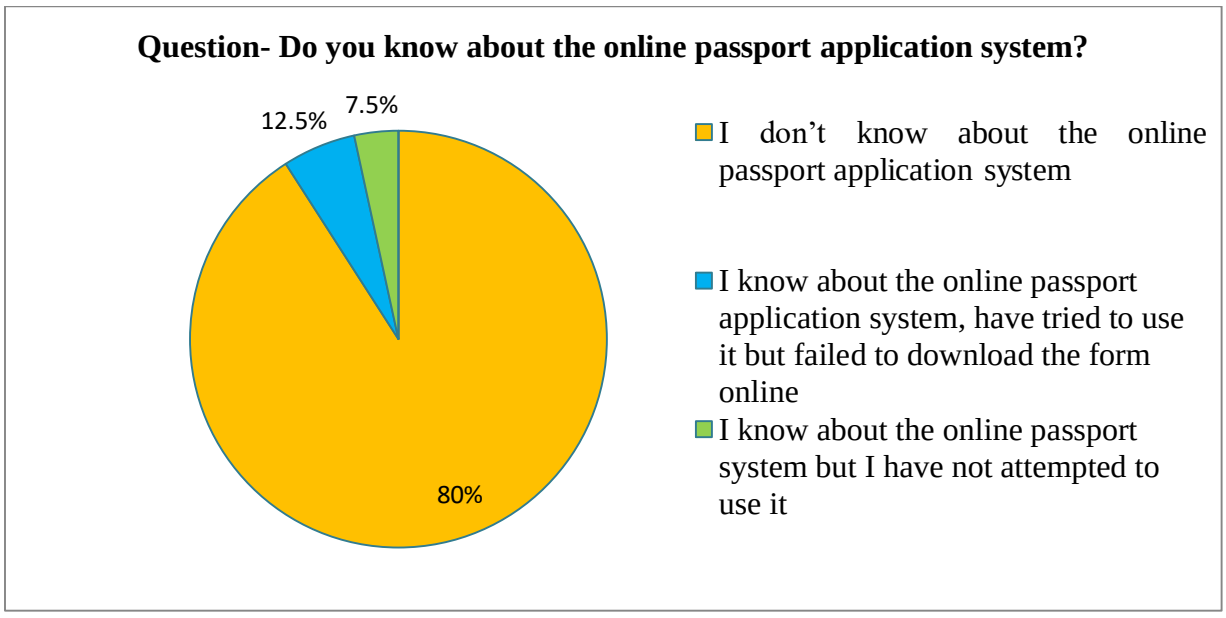
However, despite the need for user consciousness as exposed in literature, the study revealed that the level of user awareness to e-government systems in Zimbabwe's public sector institutions is generally low. Inquiries made with several respondents interviewed by the researcher at the Registrar General's offices on the 6th of January 2017 revealed that some people are totally ignorant of the systems to the extent that they don't even know what e-government is all about. One respondent confirmed the ignorance by posing the question, *Shamwari ndiudzewo kuti chii chinombonzi e-government chacho?* (My friend can you tell me what e-government is?). The study therefore noted that it is very difficult to implement e-government systems when most people do not know what e-government is all about. There is need for awareness on the concept of e-government and e-government systems in Zimbabwe's government departments. According to Fountain (2009:34), e-government stakeholders can be sensitised about e-government systems through awareness campaigns,

conferences, workshops, outreach programmes and the use of advertisements in print and electronic media. The study revealed that these measures have not been effectively used in Zimbabwe to alert citizens about e-government systems in government departments. As a result, most people in Zimbabwe still use traditional approaches to seek government services because they lack awareness of the established e-government systems.

4.5.1 The Level of User Awareness to the Online Passport System in Zimbabwe

The majority of the passport applicants who responded to questionnaires are unaware of the online passport application system. One respondent even posed the question, '*Online passport ndicho chii ichocho, yakatanga riini*? (What is an online passport application system and when was it introduced?)'. This response was a convincing confirmation of high unawareness level most passport applicants are about the online passport application system. From the forty (40) questionnaires administered, 32 (80%) of the sampled applicants said that they were totally unaware of the online passport application system. Three (7.5%) respondents held that they 'heard and read about it in the newspapers' but never attempted to use the system because they doubted its functionality. Five respondents (12.5%) held that they were aware of the system, have tried and failed to download the form online on several occasions. Figure 4 below shows the level of awareness to the passport application system.

Figure 4.4: Pie chart showing the level of awareness of the online passport application System from a sample of 40 respondents



Source: Data from 40 sample Questionnaires administered

In a telephone interview held on 5 January 2017, an ICT consultant at Techzim who requested anonymity revealed that despite the fact that a growing number of the population in Zimbabwe is computer-literate, their awareness to the e-government opportunities that the Internet presents to them is significantly limited. He also commented that as a result of lack of awareness to e-government services, the bulk of Internet use amongst Zimbabweans is related to social media platforms such as Facebook, WhatsApp, Twitter and Instagram which all do not provide meaningful access to government services and information. He also revealed that government websites are rarely visited online because people don't know about their existence and services available on the websites.

Thus the study revealed the need for the government to prioritise user aware of the established e-government systems in order to ensure easy online access to the services. Further evidence revealed that with respect to accessing government services and information online, the Internet is generally under-utilised in Zimbabwe. Apart from social networking, the Internet is used for very little else. The government has been shouldered with the brunt of the blame for failing to raise awareness on the opportunities offered by the systems in place for e-government development. Thus, e-government systems are not being effectively utilised despite the high ICT literacy levels amongst the majority of the citizens because public awareness to these systems is limited. This problem is compounded by the insecurity amongst those few aware who fear victimisation online since there is no cyber security legislation in place to protect their information on the internet.

4.6 ICT Literacy and ICT skewed Human Capital Development initiatives in Zimbabwe

The study revealed that despite the introduction of an ICT inclined curriculum in learning institutions, there is a shortage of ICT skilled manpower to roll out ICT programmes in the public sector. In an interview, an academic at HIT noted that investment in ICT education has not reaped fruits because the government is not currently recruiting the graduates with 'digital minds' into its various departments. He further highlighted that as a result instead of being 'ICT staffed', government departments remain 'starved' of qualified ICT personnel because of the freeze on new personnel recruitments imposed by the government in September 2012. This shortage is a serious knock as the available digital literacy which drives uptake and usage of ICT services in the public sector is no being exploited.

Inquires with key informants interviewed at HIT on the 6th of January 2017 revealed that it is paramount for the government to prioritise recruitment of qualified ICT personnel into its

departments. Responding to a question on ICT skewed Human Capital Development initiatives in Zimbabwe in an interview conducted on the 11th of January 2017 at the ICT Ministry's offices, the Deputy Director in the Ministry of ICT's Department of Research Infrastructure Development and Management highlighted that the government intends to increase ICT learning and usage in Primary and Secondary schools as well as tertiary learning institutions. The official however lamented that the progress in enhancing universal ICT literacy has been stalled by unreliable internet access and erratic power cuts in most learning institutions especially in rural areas. The result is unevenness in the acquisition of ICT literacy skills between the rural and urban populace in Zimbabwe, he revealed. This unevenness widens the digital divide because of low level of ICT usage by the rural populace.

4.7 Zimbabwe' Status on Government Interoperability Portals

The study sought to inquire about interoperability portals in Zimbabwe's government departments. An interoperability portal is central software program that works as an intermediary Management Information platform to facilitate one stop integrated, reliable and regular interaction between the government and its stakeholders (Azab et al, 2007:56). Interoperability portals are a key indicator of e-readiness. The study revealed that in Zimbabwe, a functional central government portal is yet to be established. In a telephone interview held on 5 January with an ICT analyst at Techzim, it was revealed that in 2013 the Ministry of ICT launched ZimConnect, a state e-services portal meant to provide government stakeholders with a platform to access government service online. If it had been harnessed effectively, ZimConnect was expected to be a convenient site for processing visa applications, company registration, corporate name change, deeds search, the processing of investment as well as operating licences for business stakeholders. However, the ZimConnect portal has not produced intended results. The study revealed that the ZimConnect portal is currently dysfunctional mainly because of internet connectivity challenges.

The study revealed that the government is in the process of establishing an alternative central government portal in the form of a National Data Center (NDC). In an interview held with the Deputy Director in the Ministry of ICT's Department of Research Infrastructure Development and Management on 11 January at the ICT ministry offices in Harare, it was revealed that the MoICTPCSs is at an advanced stage in setting up a National Data Centre, which will allow the government of Zimbabwe to centralize its information storage, management, dissemination and protection. From the same interview, it was further observed that the High

Performance Computing (HPC) housed at the University of Zimbabwe is an initiative towards the establishment of a NDC. The National Data Centre will be a critical interoperability program designed to support both public and high security services and information as discovered in the same interview. The Zimbabwean situation with regards to the establishment and presence of functional interoperability portals at central government and departmental level is in sharp contrast with the Indian experience. Documentary search revealed that in 2007, the government of India established its interoperability portal known as the National Data Bank (NDB) which is coordinated in New Delhi. The NDB receives all information online through National Informatics Centres Network (NICNET) a system which is connected to all districts and regional state offices (ibid). The information received is then processed and stored or disseminated from the NDB.

According to Zuppo (2016), in 2015, the government of India proposed to introduce Departmental Data Banks (DDB) in all of its public sector institutions. However, financial constraints have stalled the establishment of DDBs in India. The government of Korea Republic has also established a central government portal closely similar, but different to India's NDB. According to Holmes (2011:23), in the Republic of Korea, the National Information Coordination Code (NICC) has been set up by the government as its central interoperability portal. This system receives, integrates and manages all government information and also provides non-interruptible administrative services online. This study suggests that the government of Zimbabwe should speed up the establishment of functional government and departmental portals as a measure to improve e-readiness.

4.7.1 The Registrar General Department' situation on the Interoperability Portal

The study revealed that the RGD does not have a departmental portal besides its website that is not regularly updated. As a result, the department faces challenges in receiving, storing, processing and disseminating information and services online because of the absence of an internal Management Information system. According to an official in the RGD who requested anonymity, the absence of a departmental portal or program is one of the reasons why the online passport system has not been fully functional as applicants cannot retrieve the application form online where there is no central portal to manage the department's information online. The Zimbabwean experience is different from the situation in India where the online passport application system has been successful because the Government of India established the Passport Information Portal (PIP) in 2003. According to Zanied (2007:80), the

PIP has managed to reduce bureaucratic pathologies associated with manual passport applications in India. The system has reduced travel expenses for passport applicants as the portal allows the applicants to download, complete and submit passport application forms online wherever they are located (ibid). The absence of an interoperability portal in the RGD in Zimbabwe shows that the department is not yet fully prepared to operationalize the online passport system.

4.8 The state of ICT Infrastructure in Zimbabwe

The development of ICT Infrastructure is critical for the provision of and access to e-government services. Usually, an e-ready country is one that has a robust ICT infrastructure network. The study revealed that ICT infrastructure comprises of both hardware and software facilities. According to Kraemer and King (2008:67), hardware facilities are the physical structures such as fibre optic cables, network boosters, satellites and computers. Software facilities include but are not limited to cyber security firewalls and computer software. Properly developed hardware and software facilities enable uninterrupted connectivity and usage of e-government systems by all stakeholders. The study noted the absence of a robust ICT infrastructure in Zimbabwe. Despite concerted efforts to develop the country's ICT infrastructure network, the problem of inadequate communications infrastructure still persists in the ICT sector. This has perpetuated the digital divide which is a major problem in Zimbabwe. The study revealed that broadband coverage in rural and remote areas remains low as coverage is mainly concentrated in affluent urban areas due to poor ICT infrastructure.

According to Mhlanga (2013), speaking at the E-Tech Africa ICT Policy review workshop held in Harare on 6 March 2013, the Director of Infrastructure Development in the Ministry of ICT confirmed that whilst there has been significant roll out of communications infrastructure with 2G exceeding 75% population coverage in most parts of Zimbabwe, high speed broadband coverage is still patchy with most rural and remote areas remaining uncovered. This situation has limited universal internet service and widened the urban-rural digital divide a situation that militates against universal access. The study also found that most of the ICT gargets used for accessing online services are electric powered and unreliable electricity has rendered some of this ICT infrastructure dysfunctional. Lamenting this challenge, an official in the Ministry of ICT interviewed on 11 January 2017 revealed that erratic supply of electricity in Zimbabwe has adverse effects on the development and use of ICTs and a permanent blow to e-readiness and e-government development.

The aforementioned problems are compounded by inadequate investment capital to repair old and install new ICT equipment. Commenting on the limited financial reserves towards ICT infrastructure development in an interview held on the 11th of January 2017, an official in the Ministry of ICT revealed that it is difficult to secure long term domestic funding for ICT projects in a declining economy. He further noted that where financial assistance in the form of loans is available the interest rates charged by the lenders are exorbitant. The official concluded that this situation has adversely affected ICT infrastructure development and growth in the ICT sector in Zimbabwe.

The situation in Zimbabwe is in sharp contrast to the Indian case where there is a full-fledged ICT infrastructure network. Documentary search revealed that the government of India established State Wide Area Networks in all parts of the country to enhance internet connectivity. Grant (2008:15) asserted that these networks are supported by Community Services Centres (CSCs) that were established in all parts of the country to facilitate universal access to e-services by all stakeholders. Monga (2009:5) defined CSCs as broadband enabled computer facilities that offer a range of government services to citizens, businesses, government employees among other stakeholders. In addition to the ICT infrastructure development in India, West and Chiran (2008:13) state that the setting up of District Information Systems and National Informatics Centres as back as in 1987 signalled the government of India's strides towards e-readiness through promotion of user accessibility facilities. In Zimbabwe, access facilities such as CSCs are yet to be established in rural areas and other remote parts of the country.

4.8.1 Strategies to Improve the Condition of ICT infrastructure in Zimbabwe

The study revealed that the government of Zimbabwe is planning to embark on programmes to establish high speed and high capacity links to enable Zimbabwe's integration towards global interconnectivity. In an interview held at the ICT Ministry's offices on 11 January 2017, the Deputy Director in the Ministry of ICT's Department of Research Infrastructure Development and Management highlighted that plans are at an advanced stage towards setting up a national ICT backbone for broadband services, information and applications to avoid the duplication of investment by service providers in the country. The ICT backbone will improve internet connectivity across all provinces and cascade down to district levels. From the same interview, it was disclosed that the government of Zimbabwe has adopted a policy to encourage commercial infrastructure sharing amongst Telecommunication and Internet

Service Providers. This policy provides the regulatory and legal framework to enable the creation of a platform where Internet Service Providers can share infrastructure upon agreeing pricing models. Infrastructure sharing will removes high investment costs towards the establishment of already existing ICT facilities by a competitor and this leaves investors with fresh financial reserves to fund new ICT projects, he revealed. The research also found out that because of the infrastructure sharing policy adopted by the government, ISPs and Telecommunications companies can save up to 40% of capital costs. The study discovered that currently, Internet Service Providers and Telecommunications companies share infrastructure such as boosters network facilities on purely contractual basis with the regulator (POTRAZ) playing a limited oversight role in enforcing the sharing. In a telephone interview conducted on 6 January with an ICT academic at the HIT, it was revealed that infrastructure sharing reduces unnecessary duplication of infrastructure and wastage of investment capital. Further telephone interviews with other ICT experts at Techzim on 5 January 2017 revealed that ideally, Telecommunications operators and Internet Service Providers should compete on the basis of services provided as opposed to infrastructure ownership.

4.9 The Institutional Framework for E-Government Development in Zimbabwe

The establishment of an institutional framework to guide e-government development initiatives is another key e-readiness indicator. In Zimbabwe, the Ministry of Information Communication Technology, Postal and Courier Services (MoICTPCSs) is the main institution responsible for e-government and adoption of ICTs in the public sector. According to Mhlanga (2013), the MoICTPCSs in Zimbabwe is coordinated by the Modernisation Unit (MU) in the Office of the President and Cabinet (OPC). Other institutional frameworks include regulators such as the Postal and Telecommunications Authority of Zimbabwe (POTRAZ). The study revealed that in terms of ICT penetration, Zimbabwe has a potentially vibrant ICT sector to provide adequate and efficient e-government services countrywide because of the establishment of these institutions.

4.10 Zimbabwe's E-Readiness Index/Rank in the SADC Region

In July 2014, Zimbabwe was ranked fourth on the UNDESA E-government Development Index for SADC countries. These rankings were based on three e-government development variables which are the Online Service Component, Telecommunications Infrastructure Component and the Human Capital Component as shown in the table below.

Table 4.2: The 2014 UN E-Government Development Index for SADC Countries

Country	Regional Rank	Global Rank	EGDI	Online Service Component	Telecommunications Infrastructure Component	Human Capital Component
South Africa	1	93	0.4669	0.3858	0.3466	0.7282
Botswana	2	112	0.4198	0.3071	0.2969	0.6555
Namibia	3	117	0.3880	0.3228	0.2719	0.5693
Zimbabwe	**4**	**126**	**0.3585**	**0.3071**	**0.2238**	**0.5445**
Swaziland	5	138	0.3056	0.1339	0.1629	0.6200
Tanzania	6	146	0.2764	0.2992	0.0808	0.4492
Lesotho	7	153	0.2629	0.1575	0.1179	0.5135
Zambia	8	163	0.2389	0.1417	0.1247	0.4504
Mozambique	9	164	0.2384	0.3150	0.0545	0.3457
Malawi	10	166	0.2321	0.1732	0.0484	0.4746

Source: UNDESA Global E-Government Survey Report 2014

4.11 Conclusion

This chapter presented the major study findings and analysis of data. As presented in the chapter, a plethora of barricades mar the efforts by the government to prepare its departments to operationalize e-government systems. Regardless of the challenges, the government of Zimbabwe has continued to craft measures to improve the e-readiness status of its departments. From the findings, it can be concluded that progress towards the e-readiness of public sector institutions in Zimbabwe has not been satisfactory. Findings from the Registrar General's Department case confirmed that public sector institutions in Zimbabwe are not yet fully prepared to adopt e-government systems. The next chapter reflects on the study conclusions and recommendations for improving the e-readiness position of Zimbabwe's public sector departments.

CHAPTER FIVE
CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The study assessed the e-readiness status of Zimbabwe's public sector institutions. An evaluation of the Registrar General Department's state of preparedness to utilise the online passport application system was carried out. The sections below presents the conclusions drawn from the study findings about the e-readiness realities and recommendations made towards improving e-readiness in Zimbabwe's public sector institutions.

5.1 Conclusions drawn from the Research Findings

There are several conclusions drawn from the findings on the e-readiness status of the Registrar General's Department in particular and public sector institutions in Zimbabwe in general. These conclusions are as follows:

5.1.1 Citizen awareness of e-government systems is low in Zimbabwe

The study established that the effective use of ICTs in the public sector has been derailed because of the low level of user awareness. The study findings revealed that the majority of intended users of e-government systems are not aware of these applications. Some citizens do not even know what e-government entails. As a result, citizens continue to visit government offices for information and services that can be accessed on departmental websites, because they don't know about the existence of these websites. The study therefore concludes that where user awareness is low, all other efforts to improve e-readiness will be undermined as revealed to be the case in Zimbabwe.

5.1.2 The absence of a comprehensive e-government legislative framework undermines E-readiness improvement initiatives in Zimbabwe

Findings from the study reflected that the legislative framework for e-government development in Zimbabwe is not yet comprehensive. The government is yet to adopt guiding legislation in key areas in the e-government development agenda. For example, cyber security legislation is yet to be adopted into law. A revised national ICT policy to incorporate modern issues arising from a dynamic technological environment has not been passed into law since its approval by cabinet in August 2015. As a result, the e-government legislation in Zimbabwe does not adequately support the country's e-government development initiatives.

5.1.3 The effectiveness of E-government interactions is undermined by the absence of Interoperability portals in government departments

Research findings revealed that the Registrar General's Department and other public sector institutions in Zimbabwe do not have interoperability portals. The absence of portals has marred the effectiveness of e-government interactions. For example, one of the reasons why the online passport application system (G2C interaction) has been dysfunctional is because the Registrar General's Department does not have an interoperability program or portal to receive and process passport applications online.

5.1.4 There is high Digital Divide and limited Universal Internet access in Zimbabwe

The study findings established that Internet user access facilities are more concentrated in urban centers than in the rural areas and this has widened the digital divide in Zimbabwe. The majority of the rural populace therefore have limited access to the Internet, henceforth e-government services. The study also established that despite the proliferation of Internet access facilities such as Internet cafes in urban areas, high Internet tariffs in Zimbabwe limits universal access to e-government services. The government is yet to implement measures to enhance universal access to government services and information by citizens online.

5.1.5 There is low ICT Literacy amongst the current crop of government Employees

The study findings revealed that the majority of incumbent government employees do not possess adequate ICT skills to improve use of ICTs for e-government development in Zimbabwe's public sector institutions. The study therefore concludes that e-government applications cannot be successfully used in government departments when public administrators lack the requisite ICT skills to facilitate information processing and dissemination online.

5.1.6 E-government systems in Zimbabwe are not yet fully Functional

Findings from an assessment of the online passport application system pointed to the overall conclusion that despite concerted efforts to improve e-readiness, e-government systems in Zimbabwe's public sector institutions are not yet fully functional. Government departments in Zimbabwe are not yet adequately prepared in terms of governing legislation, interoperability portals, human capital and relevant technological infrastructure for e-government systems to be fully operational. The effect has been the continued dependence on traditional approaches to service delivery such as over the counter method to accessing passport application forms.

5.2 Recommendations

The researcher suggests that the following measures be considered and implemented to improve the e-readiness status of public sector institutions in Zimbabwe.

5.2.1 Raising Awareness of e-government systems

There is need to heighten the level of awareness amongst users of e-government systems so that they can make use of these modern and convenient means of accessing government information and services. The initiation of education and outreach programmes to spread awareness about the benefits of e-government amongst the common masses is critical. Print and electronic media such as newspapers, radio and television can be used in raising awareness about the existing e-government systems in various government departments.

5.2.2 Developing partnerships with private and Non-Governmental sectors to improve ICT infrastructure in Zimbabwe

The study established that for e-government efforts to be successful, it is imperative that ICT infrastructure be developed. The government of Zimbabwe need to set up National and State level data centres and other access facilities operational on 24/7 basis to ensure uninterrupted connectivity. This can be done by establishing a network of partners with private sector institutions and collaboration with Non-Governmental Organisations (NGOs) and International Agencies to develop the country's ICT facilities. According to Grant (2008) NGOs are capable of assisting the government in policy making for e-government initiatives. International Agencies like the World Bank and other Development Banks can be engaged for financial and technical assistance e-government projects in Zimbabwe.

5.2.3 Speeding up the formulation of supportive e-government legislative framework

The crafting of a comprehensive policy framework to guide e-government efforts is critical in Zimbabwe. The government should prioritise the formulation of a legislative framework that will give the scope for e-government development. The legal and regulatory measures would define the national level e-government development vision and strategic goals and give direction to e-government. The adoption of key e-government legislation such as the Cyber Security Act will show the commitment from the political leadership to improve e-readiness. Without a comprehensive e-government legislative framework, e-government development objectives will be defeated.

5.2.4 Recruitment of ICT professionals into government departments

The government should prioritize the recruitment of ICT Professionals into its departments. An ICT skilled government workforce will help in the design and development of effective e-government programmes and projects. In addition, ICT skilled government employees would co-operate and participate in the process of e-government implementation.

5.2.5 Development of modern Online Information Access Facilities

Universal online access to government information and services should be prioritised. The establishment of District Information Centres (DICs) can be useful in reducing the digital divide prevailing in Zimbabwe. The government should also speed up the establishment of the Universal Service Fund (USF) to promote universal access to government services online by the majority of people who cannot afford the high Internet tariffs.

5.2.6 The establishment of Departmental Interoperability portals

The government of Zimbabwe should also prioritise the establishment of national and departmental portals to facilitate information processing and dissemination online. Each government department must have its own portal of programme that is connected to the National Portal. As Management Information Systems, national and departmental portals can make e-government interactions more effective by coordinating information storage, processing and dissemination.

5.3 Areas for further Research

The study had delimitations as it assessed e-readiness of Zimbabwe's public sector institutions by focussing on one public institution and one e-government system. Thus, this study was narrowed to assess the Registrar General Department's state of preparedness to fully utilise the online passport application system and not any other public institution. Therefore, the researcher proposes that further e-readiness assessments can be carried out on other public institutions such as the Zimbabwe Electoral Commission (ZEC)'s state of preparedness to adopt the biometric voting e-government system as well as the Zimbabwe Revenue Authority (ZIMRA)'s e-readiness status towards the adoption of the electronic tolling system and other online revenue mobilisation strategies. E-readiness assessments on other public institutions will give a comprehensive appreciation of the public sector in Zimbabwe's state of preparedness to adopt and fully utilise e-government systems.

5.4 Conclusion

The study assessed the e-readiness status of Zimbabwe's public sector institutions by evaluating the Registrar General Department's state of preparedness to effectively utilise the online passport application system. In the assessment, assumptions enshrined in e-Government maturity models such as Gartner and the UN E-government maturity models were used as instruments to evaluate the RGD's e-readiness status from the period 2012-2016. In addition, E-government indicators such as the presence of well-developed ICT infrastructure, user awareness and ICT literacy amongst citizens or users, availability of central government and departmental portals and the presence of comprehensive e-government legislation were also useful in assessing the RGD's e-readiness status.

The research employed a mixed methodology to collect and analyse data. The study discovered that the government of Zimbabwe has embarked on several initiatives to improve the e-readiness status of its public sector institutions. The main strategies to date have been the liberalisation of the ICT sector to foster competition for the provision of Internet services and the adoption of the ZimConnect E-Government Framework and Implementation Strategy in 2011 which guides the implementation of e-government systems in the public sector. The study also revealed that the government of Zimbabwe is planning to introduce the Universal Service Fund as a financial reservoir to assist citizens who cannot afford high Internet tariffs. Despite all these efforts and plans, the study unravelled several barriers e-readiness in Zimbabwe with the main ones being the absence of comprehensive legislative framework to govern e-government development and limited universal access to the Internet amongst citizens. The study noted the delay in the adoption of key e-government development legislation such as the Cyber Security Act and the belated 2015 National ICT policy. Moreover, the absence of interoperability portals in government departments, the poor state of ICT infrastructure and low user awareness of e-government systems amongst citizens were also found to be some of the barricades to e-readiness in Zimbabwe.

Drawing from the research findings, the study concluded that public sector institutions in Zimbabwe in general and the Registrar General's Department in particular are not yet fully prepared to effectively utilise e-government systems. In light of this major conclusion, the study recommends the establishment of departmental portals, raising user awareness of e-government systems and speed formulation of supporting legislative framework as measures to improve the e-readiness status of public sector institutions in Zimbabwe.

BIBLIOGRAPHY

Books

Asogwa, F. 2009. *Fundamentals of Research Methodology*. Nsukka: Lawnet Communications.

Babbie, E .2010. *The Practice of Social Science Research*. Wadsworth: Thompson Learning Inc.

Berg, B. L. 2001. *Qualitative Research Methods for the Social Sciences*, 3rd Edition. Boston: Allyn & Bacon Publications.

Burn, J. & Robin, T. 2003. *E-Government and Development*. London. SAGE.

Creswell, J. W. 2010. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 7th Edition. Boston: Sage.

DeMarrais, K. and Lapan, S.D. 2004. *Foundations for Research: Methods of Inquiry in Education and the Social Sciences.* Mahwah, N.J: Lawrence Erlbaum Associates.

Fountain, J. 2009. *Building the Virtual State: Information Technology and Institutional Change.* Washington: DC7 Brookings Institutions.

Howell, C. D. 2009. *Fundamental Statistics for the Behaviour Sciences.* Washington DC: ITP.

Gartner. H. 2000. *Maturity Phases of E-government.* New York: New York University Press.

George, S. 2004. *International Benchmarking for a Digital Society*. Bussan: Brown University.

Grant, J.P. 2008. *Electronic Government for Developing Countries.* Geneva: ITU.

Heeks, R. 2005. *Implementing and Managing E-government: An International Text.* London: Sage Publications.

Holmes, L. 2001. *Electronic Government Challenges in Developing Communities.* London: Jonathan Cape.

Hughes, E.O. 2003. *Public Management and Administration: An Introduction*. New York: St Martin's Press.

Johnson, R.B., Onwuegbuzie, L. A. and Turner N. 2004. *Toward a Definition of Mixed Methods Research.* South Alabama: Mobile Sage Publications.

Kitaw, Y. 2006. *E-Government in Africa: Prospects, Challenges and Practices.* Boston: MOT Publications.

Kraemer, V and King Y. 2008. *The Adoption of ICTs in the Public Sector*. New Jersey: Thousand Oaks.

Lau, E. 2003. *Challenges for E-government Development:* Boston: OECD.

Marshall, G.B. & Rossman, C. 2012. *Designing Qualitative Research*. Thousand Oaks, CA: Sage.

Mhlanga, S. 2013. *E-Governance in Africa: A Totally Connected Government, the Zim-Connect Project*. Cape Town: Twenty Third Century Systems.

Monga A. 2009. *E-government Development in India: Opportunities and Challenges*. New Delhi, Kask Publishers.

Morrison J. 2012. *The E-Government Development Agenda in Developing Countries.* New Delhi. Trussmon Publications.

Neuman, L. 2014. *Social Research Methods: Qualitative and Quantitative Approaches* Seventh Edition. Harlow: Pearson Education Limited.

Patton, M. Q. 2001. *Qualitative Research and Evaluation Methods*.3rd Edition. Thousand Oaks, CA: Sage.

Ragin, C. 2004. *Combining Qualitative and Quantitative Research.* London: NSF.

Silverman, D. 2011. *Quantitative and Qualitative Research: Issues of Theory, Methods and Practices*, 3rd Edition. Los Angeles: Sage Publications.

West, D.M. and Chiran. A.M 2008. *Improving Technology Utilisation in Electronic Government around the World*. Tokyo: Asia Telecoms.

Yaw, D. 2012. *Assessment of the Zimbabwe Public Finance Management system for Investment Lending Projects*. World Bank.

Marshall, G.B. & Rossman, C. 2012. *Designing Qualitative Research*. Thousand Oaks, CA: Sage.

Patton, M. Q. 2001. *Qualitative Research and Evaluation Methods*. 3rd Edition. Thousand Oaks, CA: Sage.

Silverman, D. 2011. *Quantitative and Qualitative Research: Issues of Theory, Methods and Practices*, 3rd Edition. Los Angeles: Sage Publications.

Journal Articles

Azab, N. A., Kamel, S. and Dafoulas, G. 2009. "A Suggested Framework for Assessing Electronic government Readiness in Egypt". *Electronic Journal of E-government*, 7(1), 11-28.

Burn, J., & Robins, G. 2003.Moving towards e-government: A case study of Organisational Change Processes. *Logistics Information Management,* 16(1), 25–35. 14.

Ebrahim, Z. and Irani, Z. 2005. "E-government Adoption: Architecture and Barriers". *Business Process Management Journal*, 11(5), 589-611

Mhlanga, B. 2006. "Information and Communication Technologies (ICTs) Policy for change and the mask for Development: A Critical Analysis of Zimbabwe's e-readiness Survey Report". *The Electronic Journal on Information Systems in Developing Countries*, 28 (1), 1-16.

Nhema, A, G. and Zinyama, T. 2016. "E-Government and Development in Zimbabwe: An Appraisal". *Public Policy and Administration Research*, 6 (2), 13-23.

Layne, K., & Lee, J. W. 2001. Developing fully functional E-Government: A Four Stage Model. *Government Information Quarterly*, 18(2), 122–136. 5.

Moon, M.J. 2002. "The Evolution of E-government among Municipalities: Rhetoric or Reality?" *Journal of Public Administration Review*, 26(4), 424-434.

Morrison. D. 2013. "Developing a Generic Framework for E-government". *Journal of Global Information Management*, 13(1), 1–30.

Ebrahim, Z. and Irani, A, Z. 2005. "E-government Adoption: Architecture and Barriers". *Business Process Management Journal*, 11(5), 589-611.

Zanied, A. N. H., Khairalla, F.A., and Al-Rashid, W. 2007. "Assessing e-readiness in the Arab countries: Perceptions towards ICT environment in public Organisations in the state of Kuwait". *The Electronic Journal of E-government*, 5(2), 77-86.

Zuppo, C. M. 2016. Defining ICT in a Boundary-Less World: The Development of a Working Hierarchy. *International Journal of Managing Information Technology*, 6 (3) 23-36.

Newspaper Articles:

Chinduta, M. 2012. "Zimbabwe Passport Office Goes Online", *The Herald*, October 11, p13.

Razemba, F. 2013. "Reflections on the Online Ethics and Privacy Indaba", *Nehanda Radio*, August 12, p6.

Reports:

E-Government Toolkit for Developing Countries -2010.

International Telecommunication Union Annual Report on E-Government Development -2009.

The Comptroller and Auditor General Narrative Report on Appropriation Accounts, Miscellaneous Funds and Donor Funded Projects- Financial Year Ended December 31 2011.

The United Nations Department of Economic and Social Affairs/UNDESA Report on Global E-Government Development -2014.

Websites

http:// www.techzim.com [Accessed on 10 January 2017]

http:// www.rg.gov.zw [Accessed on 21 January 2017]

Appendix A: Interview guide for key informant interviews

My name is Leon Poshai, a postgraduate student pursuing a Master of Public Administration Degree at the University of Zimbabwe. I kindly ask for information responding to my dissertation research topic entitled "***A critical assessment of the e-readiness status of Zimbabwe's Public Sector Institutions: Exploring the Registrar General Department's level of preparedness to adopt the online passport application system (2012-2016).*** I guarantee that responses and opinions you give will be treated with confidentiality and all information will be strictly used for academic purposes.

Research Overview and Objectives

The research seeks to identify the measures taken by the government of to prepare the Registrar General Department to fully operationalize the online passport application system. The overarching objective of the study is to obtain information useful to ascertain the current e-readiness status of Zimbabwe's public institutions using the Registrar General Department's experience in adopting the online passport application system as the case study.

1.1 Key Informant's profile

Name of informant……...

Organisation……

Official designation……...…….....

1.2. Questions

1. How does the online passport application platform function? [Please Explain]
2. On which website can passport application forms be downloaded by applicants? [Please Explain]
3. When did the Government of Zimbabwe officially introduce the online passport application platform? [Please Explain]
4. Which awareness measures have been employed to inform passport applicants about the online passport application platform? [Please Explain]
5. Which law govern this e-government system? [Please Explain]
6. If there is governing legislation, when was the law enacted? [Please Explain]

7. What are the security measures in place to protect the system from abuse? [Please Explain]
8. How many passport applicants have used this platform since its introduction? [Please Explain]
9. In your own opinion and experience, do you consider the online passport application platform an effective mechanism for processing passports? [Please give reasons for your response]
10. What are some of the barriers to effective utilisation of the online passport application platform? [Please state and explain]

Thank You for Your Cooperation!

Appendix B: Questionnaire for Key Informants

My name is Leon Poshai, a postgraduate student pursuing a Master of Public Administration Degree at the University of Zimbabwe. I kindly ask for information responding to my dissertation research topic entitled "***A critical assessment of the e-readiness status of Zimbabwe's Public Sector Institutions: Exploring the Registrar General Department's level of preparedness to adopt the online passport application system (2012-2016).*** I guarantee that responses and opinions you give will be treated with confidentiality and all information will be strictly used for academic purposes.

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Instructions

1. Answer **all** questions. Take note that the questionnaire consists of both open ended and closed ended questions.
    i. For each closed ended questions, tick once in the box provided to show your preferred response.
    ii. For open ended questions, give your response (in your own words) in the spaces provided after each question. You are also free to give more details on the separate sheets of paper provided if the space provided below the questions is not sufficient for your response.

1.1. Informant's profile

Name of informant……...

Organisation……

Official designation……...…….....

Questions and Conceptualisation

1. How does the online passport application platform function? [Please Elaborate]

2. On which website can passport application forms be downloaded by applicants? [Kindly Explain]

3. When did the Government of Zimbabwe officially introduce the online passport application platform? [Please Explain]

4. Which awareness measures have been employed to inform passport applicants about the online passport application platform? [Please Explain]

5. Which law govern this e-government system? [Please Elaborate]

6. If there is governing legislation, when was the law enacted? [Please Explain]

7. What are the security measures in place to protect the system from abuse? [Kindly Elaborate]

8. How many passport applicants have used this platform since its introduction? [Please Explain]

Thank You for Your Cooperation!

Appendix C: Questionnaire for Respondents

My name is Leon Poshai, a postgraduate student pursuing a Master of Public Administration Degree at the University of Zimbabwe. I kindly ask for information responding to my dissertation research topic entitled "***A critical assessment of the e-readiness status of Zimbabwe's Public Sector Institutions: Exploring the Registrar General Department's level of preparedness to adopt the online passport application system (2012-2016).*** I guarantee that responses and opinions you give will be treated with confidentiality and all information will be strictly used for academic purposes.

Research Overview and Objectives

The research seeks to identify the measures taken by the government of to prepare the Registrar General Department to fully operationalize the online passport application system. The overarching objective of the study is to obtain information useful to ascertain the current e-readiness status of Zimbabwe's public institutions using the Registrar General Department's experience in adopting the online passport application system as the case study.

Instructions

1. Take note that the questionnaire consists of both open ended and closed ended questions.

iii. For each closed ended questions, tick once in the box provided to show your preferred response.

iv. For open ended questions, give your response (in your own words) in the spaces provided after each question. You are also free to give more details on the separate sheets of paper provided if the space provided below the questions is not sufficient for your response.

Respondent's demographic profile

a. Name of respondent……...
b. Residential location……
c. Age……..

Conceptualisation and Questions

a. Nature of passport application

New ☐

Renewal ☐

b. Are you aware of the online passport application platform:

Yes ☐

No ☐

c. If yes, how did you know about this e-government platform?

Media ☐

Word of mouth ☐

Other means (please specify and explain)

d. How convenient is the manual passport application process?

Reliable, efficient and secure ☐

Unreliable and Time consuming ☐

Other (please specify)

If you are aware of the online passport application platform, please share your experience of using this system, how convenient and efficient the system?

Date of completion……/……/…….

Thank You for Your Cooperation!

Appendix D: Data collection schedule with Key Informants

Interviewee	Organisation	Date	Nature of Interview
ICT Practitioner and E-Government Analyst	Technology Zimbabwe (TECHZIM)	05/01/2017	Telephone Interview
Academic and ICT Analyst	Harare Institute of Technology (HIT)	07/01/2017	Telephone Interview
Integrated Governance Services Officer	Ministry of Home Affairs, Zimbabwe (MoHA)	09/01/2017	Face to face Interview
Policy Coordination and E-Government Development Communications officer	Ministry of ICTCSs, Zimbabwe	11/01/2017	Face to face Interview
Deputy Director: Department of Research, Infrastructure Development and Management	Ministry of ICTCSs, Zimbabwe	11/01/2017	Questionnaire Interview
Chief Secretary	Zimbabwe Registrar General's Department	12/01/2017	Face to face Interview
ZISPA Chairperson	Zimbabwe Internet Service Providers Association (ZISPA)	13/01/2017	Telephone Interview