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Assessing the institutional capacity for e-Government in the Telecommunications sector in Zimbabwe. The case of POTRAZ

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DEDICATION

I dedicate this work to my family for the support they gave to me during the time I was conducting this research, especially to my mother who encouraged me to pursue my dream despite her deteriorating physical health before her untimely death due to cervical cancer; friends and my work colleagues. An inspirational quote from one motivational speaker says "If you are not prepared to chase after your dream, be prepared to chase other people's dreams".

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ABSTRACT

The level of e-government in most African states including Zimbabwe is considered low compared to other Continents. The country lacks institutional mechanisms for ICTs integration into the country's development strategies. Thus, the government of Zimbabwe still heavily relies on the manual based system and in-person visits to government offices to satisfy the requirements of specific transactions. The objectives of the research study were set as follows; to identify the policy and legal frameworks governing e-government processes in Zimbabwe; to analyse the impediments to institutional capacity in the telecommunications sector for e-government and to recommend improvements to the institutional capacity of the telecommunications sector. The literature review showed that the successful implementation of e-government in the public sector results in efficient and effective government processes, less paper work and transparency. In political science institution is regarded as the formal and informal rules used to translate citizen's preferences into public policy. E-government involves the application of ICTs to improve efficiency and effectiveness. The theoretical framework looked into the New Public Management paradigm (NPM). The case study indicated e-government programs in countries like South Africa, Ghana and India. Qualitative and quantitative approaches where chosen to triangulate the research findings. Interviews were carried out and questionnaires distributed to the staff members of POTRAZ as the target population. From the research findings it emerged that Zimbabwe has not surpassed the Interactive phase of e-government, also the policy and legal frameworks are inadequate to provide for capacity building including life-long learning. The Government Internet Service Provider (GISP) is not being fully utilized by government officials. The study concludes that the government of Zimbabwe is failing to partner private companies and investors in the ICTs sector resulting in the still-birth of ICTs in the country. To date Zimbabwe has failed to launch a policy that promotes cyber-security. Home grown solutions in software applications and development are not adequately addressed by the current policy and legal framework. The study recommends that the government should promote the use of digital signatures and encryption to protect user ID's; increase e-government stakeholder participation; and focus on public private partnerships to improve on ICT development programs.

LIST OF ACRONYMS

G2C	Government to Citizen
G2G	Government to Government
G2B	Government to Business
GIS	Geographical Information System
GITOC	Government Information Technology Officers Council
GISP	Government Internet Service Provider
IAP	Internet Access Provider
ICT	Information and Communication Technology
IDI	ICT Development Index
ISP	Internet Service Provider
ITU	International Telecommunications Union
MISA	Media Institute of Southern Africa
NECF	National Economic Consultative Forum
NGO	Non-Governmental Organisation
POTRAZ	Postal and Telecommunications Regulatory Authority of Zimbabwe
PPP	Public Private Partnership
PTC	Posts and Telecommunications Corporation
RCZ	Research Council of Zimbabwe
SADC	Southern African Development Community
SIRDC	Scientific and Industrial Research and Development Centre
SITA	State Information Technology Agency

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CHAPTER ONE

INTRODUCTION

1.0 INTRODUCTION

Electronic government refers to the use of information communication technologies, such as Wide Area Networks (WAN), the internet and mobile computing by government agencies. The use of these technologies has the ability to transform relations with citizens (G2C), businesses (G2B) and other government departments (G2G). Thus, a successfully implemented e-government program facilitates a change from routine based, inwardly focused government department and agencies to organisations that are knowledge based, networked and externally focused on service (OECD 2005). However, Schware (2005) acknowledges that many countries have unsuccessfully attempted to deliver e-government programs.

Public administration is undergoing drastic changes in many parts of the developing world. The problems faced by government are increasingly becoming complex and global. According to McCourt (2013) a similar trajectory of reforms to developed nations have been followed by many developing countries supported by aid donors and broader governance agendas. The traditional manual approach to public sector administration is based on a top-down approach with emphasis on values of hierarchy and integrity, separated from politicians and citizens.

This chapter focuses on the background of the study, tracing the historical developments of ICTs in Zimbabwe from the pre-colonial period to date. This chapter also states the challenges and problems faced by the government of Zimbabwe leading to the implementation of the e-government program. The challenges are included in the statement of the problem section. The background of the study traces the adoption and implementation of e-government in Zimbabwe from the historical development dating back to 1972 with the establishment of the Central Computing Services (CCS). The aims of the study are stated in the objectives of the study, which is to assess the policy and legal framework governing e-government in Zimbabwe. The limitation sets the boundaries of the area of study.

1.1 BACKGROUND TO THE PROBLEM

Zimbabwe emerged as an independent state in 1980 after a long protracted armed struggle against The British colonial regime. The independence brought not only a new chapter to the disadvantaged and excluded indigenous black people, but also placed a heavy burden on the inclusive government and inexperienced civil servants. The independence made it imperative to restructure the public administrative system. The main clientele of the colonial public service were the minority whites. At independence the government constituted about 46 000 civil servants (Zimbabwe Human Development Report, 2000). However, in quantitative terms the civil service rapidly expanded to 190 000 civil servants by 1990. The Kavran Report (1989, vol, 1, 8) catalogued a number of problems experienced in the public bureaucracy that emerged after independence. Amongst these problems faced was an oversized public service, weak management practices, centralization resulting in slow decision making and waste due to an overlap and duplication of functions within ministries. The Kavran Report (1989) further notes that the private sector particularly bears the burden of bureaucratic delays in processing a variety of applications to government, such as project approval and price increases. These problems cumulatively represent the chief sources of public sector inefficiency and incapacity to deliver satisfactory services.

The inadequacies and inefficiency of the traditional public administration model prompted the government to embark on further public sector reforms under the auspices of the New Public Management paradigm (NPM). The program's main elements included downsizing and rationalizing the services, decentralization of decision making and introducing performance management techniques (Kavran Commission, 1989). The techniques and application are imported from the private sector, oriented on profit maximization through increasing efficiency and effectiveness, and performance in the private sector. Information Communication Technology (ICT) is one important application of NPM and the subsequent development of electronic government (e-government). Adoption of the global wave of information technology systems is therefore necessary to efficiently reduce the time and effort involved in government processes, with the aim to improve public service delivery mechanism.

The historical development of e-Government in Zimbabwe can be traced back to 1972 with the establishment of the Central Computing Services (CCS). This initiative ensured the provision of ICT services in the public sector. There have been significant developments of

ICT initiatives in the post-independence era. The Nziramasanga Education Commission Report aimed at providing recommendations for the introduction of ICT teaching and learning in schools as an early foundation in the development of ICT literacy. This was followed by the Science and Technology Policy of 2002 which aimed to promote and harness science and technology for national development (Laudon and Laudon, 2000). The National Economic Consultative Forum (NECF) and the Government of Zimbabwe (GoZ) aided by the United Nations Development Programme (UNDP) facilitated the e-Readiness Survey to assess the Zimbabwean government preparedness become a knowledge based society in 2005. The survey indicated that there was a lot of work to be done in terms of preparing Zimbabwe for e-business. Out of a score of 4, Zimbabwe scored 1.4 (National e-Readiness Survey, n.d). With respect to e-Government, the survey findings indicated that the Zimbabwe Government possesses an immense potential through its wide area network. The findings indicate some progress on ICT based efforts by the Zimbabwe government. The low score is a result of a backward ICT infrastructure especially in telecommunications.

The government also adopted the Integrated Results Based Management (IRBM) system which encompasses e-government as an integral component. The e-government initiatives were further reinforced following the establishment of a standalone Ministry of Information Communication Technology (Under the Inclusive Government), tasked with promoting use of ICT,s. An All Stakeholder Consultative Workshop was held in August 2010 and shaped a blueprint document entitled *Zimconnet: E-Government Framework and Implementation Strategy* (2010-2015). The Office of the President and Cabinet set up an E-government Policy and Technical Advisory Committee to superintend the implementation of e-government in Zimbabwe.

Massive investments have been made by both the government and the private sector in the ICT sector. These investments include a terrestrial link and an optic fibre cable en-route to the undersea cable in the Indian Ocean. This project has enabled reliable, high-speed internet access, enhanced voice in addition to data services – at affordable prices. This has also been complemented by similar projects within Zimbabwe being done by network operators, to link major cities by optic fibre. According to Biti (2012), the Tele-density and the internet penetration rate in Zimbabwe continues to steadily improve, though the percentages are still very low, for example the internet penetration rate was expected to reach 19% from 13% by 2012.

1.2 STATEMENT OF THE PROBLEM

The level of e-government presence in most African states is considered low compared to other continents. South Africa and Angola exist as the few exceptional cases of countries that have developed to moderate e-government presence, whereas Egypt is the only African country in the zone of high e-government presence (United Nations 2008). Developing countries face many hurdles to advance e-government services. For instance, Ghana registry failed to maintain reliable data recording the number of employee's working in the public service. The available data contained numerous deficiencies including records of workers that do not exist (ghost workers), and inaccurate data on each employees rank, tenure and pay rate. The paper based system of tracking employees contained many errors. Such problems can be generalized across most African states, including Zimbabwe. Zimbabwe's public sector is also facing the problem of accessibility of public servants from their respective offices. Many civil servants are accused of poor customer/clientele service characterized by arrogance, rudeness and absence from work stations (Kavran Report, 1989). Moreover, the public service is facing a serious problem of excessive centralization whereby decision-making is virtually the preserve of a few top officials, thereby invariably referring simple but urgent decisions, that can easily be delegated to field officers, to head office. These bureaucratic inefficiencies delay the decision making process, increase costs and create a fertile ground for corruption. Government employees are too slow in serving clients and this results in long queues at most government offices like the Registrar General's office, municipality offices, government agencies and licensing bodies.

There is lack of institutional mechanisms, as well as unclear guidelines for ICT integration into the country's economic development strategies (Mhlanga, 2006). With the exception of a few services, the citizens and businesses in Zimbabwe have to obtain services in the traditional way waiting in queues to obtain multiple documents from different sources to satisfy the requirements of a specific transaction (visiting physical offices) and then repeating the process again and again. This way of interacting is cumbersome and it increases opportunities for corruption. The fast moving technological development in the sector requires monitoring and evaluation tools to ensure that the government of Zimbabwe moves abreast with the information age and establishes institutional mechanism. The role played by institutions is critical in the formulation and implementation of e-government programs, however these institutions are often treated as an after-thought. Umbrella organisations are

often overlooked in the coordination of interdependent e-government activities. Also, in countries where these institutions exist, as in Zimbabwe, they lack a clear division of responsibility between various government departments and agencies. Such overlapping authority creates bureaucratic and political obstacles for e-government, thereby inhibiting effective administration and policy coordination across government. The obstacles often lead to over-centralized e-government management under a single ministry. This contributes to the overriding of authority and decision made by other government agencies, such as POTRAZ, delegated to carry out the specific mandates, by the parent Ministry.

According to North (1990) in developing e-government institutions context matters. Whether developing and developed there is no one size fits all approach on institutional model. In e-readiness and administrative development all governments are starting from different level, even though the governments share common challenges. Therefore, governments need solutions adapted to different situations and circumstances. There is emerging evidence about the impact of alternative institutional arrangements. Thus emphasis in this study is on identifying institutional models, strength and weaknesses than prescribing best practices.

1.3 OBJECTIVES OF THE STUDY

- To identify the policy and legal frameworks governing e-government processes in Zimbabwe;
- To analyse the implementation process of e-government;
- To establish the effectiveness of the telecommunications sector in developing e-government programs;
- To analyse the impediments to institutional capacity in the telecommunications sector for e-government in Zimbabwe;
- To recommend improvements to the institutional capacity of the telecommunications sector for e-government in the country.

1.4 RESEARCH QUESTIONS

- What are the policy and legal frameworks governing e-government processes in Zimbabwe?
- What is the implementation process of e-government?
- How effective is the telecommunications sector in developing e-government programs?

- What are the impediments to institutional capacity of the telecommunications sector for e-government?
- How can the institutional capacity of the telecommunications sector be improved in Zimbabwe?

1.5 JUSTIFICATION OF THE STUDY

The research is curious to understand and inform institutional capacity requirements for POTRAZ to successfully develop and expand the e-government program. Although the e-readiness survey was carried out on the preparedness of the government of Zimbabwe, the survey was holistic in nature and too broad to extensively cover specific areas, particularly POTRAZ. The survey did not identify basic institutional models suitable to the context of Zimbabwe. Rajah (2015) acknowledges that the Zimbabwe government adopted a program of applying information communication technologies (ICTs) in the public sector. However the program has not evolved from the emerging phase since implementation. Therefore, the need for empirical research concerning the strengthening of institutional capacity of the telecommunications sector and POTRAZ in particular, in terms of e-government readiness. The aim of the study is therefore to recommend context based best practices for POTRAZ that is suitable to the Zimbabwean environment. The research is also informs the Board of directors at POTRAZ on institutional capacity building through recommending institutional mechanism to implement e-government, The Ministry of ICTs is informed by case studies of implementing successful e-government programs in the region and international, recommendations will be made for policy makers to formulate and implement successful policies. The study seeks to recommend strategies to comprehensively embrace ICT based solutions and alternatives in government processes. The research aims to find means and ways to promote ICT utilization, hence reducing the need to visit physical government offices. These strategies are expected to benefit the citizens in need of government services and eliminate cumbersome processes involved in government transactions.

1.6 LIMITATIONS

Whereas all efforts will be harnessed to produce an extensive study, nevertheless challenges are expected during the course of the research. The main limitation being that, the method misses the best sample size that fully represents the population under study. Also, amongst the militating challenges is that, the research will be taken in a very short space of time, thus they will not be much time to conduct an extensive study. Also, the research falls in the

qualitative field of study therefore subjectivism is a value that cannot be ignored in this type of research. According to Sunders et al (2009) with judgmental or purposive sampling on is enabled to use personal judgment to select cases that best answers the research questions and achieve objectives set. The method is most appropriate when working with small samples such as case study research. Thus the sampling technique is value laden and subjective in nature. However, quantitative techniques will be included, to triangulate data gathering methods. This complementary effort is expected to add objectivity into this research.

Access to information pertaining to sensitive national issues will be hard to obtain, in respect of policies and regulations regarding access to information in government departments and agencies. This pertains to institutions holding national interests and state secrets. Such issues are strictly monitored and not easily available for public scrutiny because of the Official Secrets Act. However, all efforts will be taken to gather academic material for scholarly debates, analysis and assessment.

1.7 DELIMITATIONS

The study investigates the institutional capacity for e-government in Zimbabwe focusing specifically on the application of information communication technologies in government process. Information communication technologies adoption has been widely embarked upon in government processes by government ministries, departments, and agencies. The study follows, case studies of the e-government implementation program in countries in the region and international world. Therefore, comparisons will be made of developed countries and developing countries in Africa and other parts of the world.

1.8 ORGANIZATION OF THE STUDY

Chapter One

The chapter focuses on introducing the area of study, e-government highlighting the nature, purpose and benefits of the ICT's. The study traces the historical developments of e-government in Zimbabwe from the pre-colonial period to present. The major highlights is the research objectives highlighting the aims of the study, research questions and justification of the study emphasize the importance of the study to policy makers and government departments. The limitations and delimitations of study are also included in the chapter.

Chapter Two

In Chapter Two the study focuses on literature review. The chapter establishes the conceptual framework of the study. The theoretical and empirical literature review are the major highlights in the chapter. The study exposes the research gaps through interrogating research and studies that have already been carried on e-government.

Chapter Three

Chapter Three covers the research methodology and design, which is the detailed blueprint guiding the research study towards the research objectives. In this chapter data collection methods such as interviews, observations and questionnaires will be carried out.

Chapter Four

Chapter Four is concerned with data presentation and analysis of findings. The data collected in chapter three is processed through tabulation, using bar graphs and pie charts to establish patterns and trends on e-government.

Chapter Five

Chapter Five concludes the study and presents conclusions and recommendations for possible application in government processes.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

Around the world governments are realizing the value of e-government. E-government programs that are well designed and implemented improve efficiency in the delivery of government services; simplifies compliance with government regulations; reinforces citizen participation and improves trust in government, and results in cost savings for citizens, business and government. Chapter Two includes the conceptual framework, incorporating definitions and explaining the concept of institutional capacity and e-government. The theoretical framework includes the paradigm of New Public Management (NPM), the literature review and case studies are part of the major highlights of the chapter, reviewing e-government programs from the international and regional countries such as India, Ghana and South Africa. The chapter draws lessons from the case studies highlighted establishing recommendations, methods, and strategies to overcome common challenges affecting e-government processes.

2.1 CONCEPTUAL FRAMEWORK

2.1.1 Institutional Capacity

Practices and interventions to succor institutions to improve efficiency and attain institutional objectives began in the 1950's (Morgan, 1999). In the 1950's interventions to design and strengthen the capacity of public sector agencies was known as institutional building, as a result of the dominant activity to build and complete basic institutional infrastructure in targeted countries (Morgan and Qualman, 1996:3). The institutions were in most cases imported or transplanted models from developed countries. During the 1960's and 1970's the focus changed from institutional building to institutional strengthening. The objective was to strengthen the newly established and completed institutions. Activities focused on individual organizations and not on broader environment or sector, as the institutions were specifically formed to implement development projects, also referred to as project management units. In the 1980's the term institutional development replaced institutional strengthening, as a result of the failure to strengthen government agencies in the long term because the institutions were established on a temporary basis to accomplish specific projects (Shields, 1984:84). The

institutional development approach emphasized working with the established organizations in a broader environmental context. The approach emphasized not only developing the capacities of government agencies, but also developing the ability to sustain capacity. The term capacity building or capacity development gained prominence recognizing the importance of working with private and non-governmental organizations. The significant changes show that institution and institutional capacity play a pivotal role in the development process.

The discipline of economics and sociology refer to institution as any formal and informal agreement between people such as cultural habits, complexes of status relationships, rules and conventions (Goldsmith, 1992: 582). In political science institution is regarded as the formal and informal rules and practices that are used to translate citizen's preferences into public policies, public systems of offices and positions, rights and duties, powers and immunities (Lipjhart, 1894:3). A multi-disciplinary definition portrays institution as the humanly devised constraints that structure political, economic and social interactions to create order and reduce uncertainty. Informal constraints include sanctions, customs, traditions and code of conduct, formal rules cover constitutions, laws and property rights. The World Bank (2000) contrasts the term institution with organization. Institution and organization are affected by policy design. However institutions are broader in context and less subject to frequent change. Anderson and Murphy (2000) use institutions and organizations interchangeably in public administration and development theory.

Capacity refers to the ability of the individual or group to carry the responsibilities. Therefore, capacity is the ability to perform tasks and produce outputs, to define and solve problems, and make informed choices (Franks, 1992:52). Capacity depends on the capability of the people, the overall size of the task, the resources needed to perform the task and the frameworks within which capacities are discharged. Therefore, capacity means the ability of an organization to perform and pursue its objectives. Effectiveness and efficiency are two most common objective indicators used in measuring institutional capacity and the performance of public organizations. Subjective measures such as citizen and customer satisfaction are used to assess the institutional capacity of government agencies (Grindle, 1997:41). According to Grindle (1997:37) public sector institutional context refers to the overall rule and procedures that direct the government organizations and employees across a

country, this includes the structures of formal and informal influences that affect the functions of public institutions.

The UNDP (1997) applies a three level conceptual framework to analyze and assess the capacity of public institutions, the system, the entity and the individual levels. The individual level refers to the skills and competencies of staff available in each institutions and work ethic in performing the functions effectively and efficiently within the entity. The entity relates to the organizational structure and working mechanisms, working culture and the resources. However, the institutional capacity is influenced by external factors in the environment such as political, economic and cultural factors (UNDP, 1997). The systems level refers to the national and regional regulatory framework and policies that manage the institutions, factors within the system level include both the entity and individual level.

2.1.2 E-government

Osborne and Gaebler (1992) point out that, government is the mechanism used to make communal decisions and the way organizations provide services that benefit all people such as, national defense, environmental protection, police protection. Therefore, government is the way people solve collective problems. Government is also defined as the system by which a state or community is governed or the action or manner of controlling and regulating a state, organization, or people. According to Nasser and Yared (2005), e-Government refers to the use of ICT by government agencies. E-government involves the application of ICT to enhance effectiveness and efficiency, establishing transparency and accountability of transactional exchanges within and between government and other sectors such as citizens and businesses. E-government also refers to the application of ICTs to improve the interactive process with citizens (Gage, 2002). Gil-Garcia and Luna-Reyes (2003) defines e-government as the use of information and communication technologies in government to provide public services to improve managerial effectiveness and to promote democratic values and mechanisms, as well as a regulatory framework that facilitates information intensive initiatives and fosters the knowledge society.

The level of e-Government development is classified along five levels Emerging, Enhanced, Interactive, Transactional, and Connected level (United Nations 2008). Emerging is the most basic level, followed by the Enhanced phase, e-government activities at this phase focus on publishing basic information on the web. Intermediate levels encompass the interactive phase

and the transactional phase, governments use websites to support two-way communication, process transactions online, and aggregate content and services through portals. At advanced levels there is the Connected phase, governments use the web to integrate services across ministries, provide tools for public feedback and deliberation and customize the web visit for each user through personalization technologies and push technologies.

The first level is the Emerging Stage. The United Nations survey (2008) reports that at this stage governments develop websites to post information about different government agencies. Visitors to the web site can access information, official documents, download forms, and contact government officials through e-mail. The content is static and allows the government to have a place on the web. The site provides such basic information about the agency as the type of services provided, hours of operation, contact information, location of offices, and links to policies and procedures.

The second level is the Enhanced Stage. According to the UN (2008) the e-government strategy at the Enhanced stage, focuses on implementing channels for individuals to communicate with government officials, search for information and services. There is typically a full landscape of sites for each public organization. The user can access web features that provide greater interaction between citizens and different government agencies.

The third level is the Interactive Stage. Governments begin to use a web portal to deliver a wide variety of services and content (UN, 2008). Typically, a web portal serves as the gateway to the e-government services and contains links to the different branches of government. The web visitor is able to access important information and offer features to download forms and retrieve data from agency databases that once required in-person visits to government offices.

*The fourth level is the Transactional Stage***.** The UN (2008) observes that e-government strategies focus on features that allow individuals to perform electronic transactions such as making payments, filling out and submitting applications, or renewing licenses. Many of the developing countries have initiated national e-government strategies to add more self-service applications online. The applications connect the user directly to backend transaction processing systems. The online services provide access twenty-four hours and seven days a week. ICT infrastructure developments in this phase enable government agencies to implement cross-agency and shared services.

The fifth level is the Connected Stage. This level features government ministries operating using a fully integrated ICT infrastructure and seamless government processes (UN, 2008). This phase includes integration across government agencies, between central and regional and local governments, and across sectors. Citizens have access to all levels of government in a transparent manner. Governments measure the performance and quality of service and evaluate how well its ministries are doing to provide e-Government services. Governments have made efforts to diversify access points by creating mobile phone applications and services. Governments are integrating Web 2.0 features such as blogs, wikis, to enhance information sharing and collaboration as a way to support greater citizen participation in government decisions.

2.2 THEORETICAL FRAMEWORK

2.2.1 New Public Management

The approach towards the NPM began in the 1970s to early 1980s. The Prime Minister of the United Kingdom Margret Thatcher and The United States emerged as the first. The governments of New Zealand and Australia joined the movement. NPM administrative reforms were introduced on the agendas of most OECD countries (OECD, 1995). In the late 19th century, the administrative mechanisms in the U.S. were dominated by the spoils system, for example distribution of administrative positions to party loyalists that contributed to the victorious party's electoral success. Incompetence, inefficiency, and corruption were common (Weber, 1956:839; Schachter, 1989). In response to administrative inefficiencies, the government reformed politics and administration, introducing interventionist state, the separation of politics and administration, the merit principle (tenured, neutral, and competent administrators), and sound financial management. The achievements and successes include a career civil service, line-item budgets, and less political partisanship and corruption (Eisenach, 1994).

According to Drucker (1968) New Public Management includes components such as, budget cuts, privatization, decentralization, market-driven competition, performance management, user charges, contracting out and e-government. NPM is informed by the public-choice theory (Drucker, 1968). Contracting out reflects rational oriented management designed to strengthen government agencies and departments. Transaction-costs theory also informs the NPM paradigm and influences the introduction of user charges economics. Competition is

designed to motivate departments within an organization, internal competition and revolving funds. Decentralization is also a concept that comes from neoclassic thought. NPM is a market-led restructuring of the public sector, the public sector reforms are also referred to as administrative revolution or paradigmatic shift, characterized by managerial reform, business-like service delivery, value for money and client-orientation, ideas derived from the private sector. The World Bank (2000) asserts that the rationale for adopting NPM are the weaknesses or failures of traditional state bureaucracy in terms of monopolistic nature, managerial inefficiency, excessive corruption and self-serving agenda. The essence of NPM was to reduce the scope and role of the public bureaucracy, and transfer resources and services from public sector to private sector and restructure the public service in the image of business management to improve on efficiency, productivity, innovation and responsiveness. According to Schachter (1989) the introduction of electronic government, e-government, is aimed at influencing the principles of the NPM, through providing electronic based solutions to bureaucratic inefficiency, excessive corruption and self-serving agenda. The use of ICTs is a technological based means of attaining the objectives of NPM such as responsiveness, accountability, innovation, reduce corruption, increase production and improve efficiency.

2.3 LITERATURE REVIEW

2.3.1 Policy and legal frameworks governing e-government process in Zimbabwe

The Constitution of Zimbabwe [Chapter 12: 05] provides for the establishment of the Zimbabwe Media Commission. Prior to the deregulation of the telecommunications sector there was one player in the telecommunications sector, the Postal and Telecommunications Corporations (PTC). The Postal and Telecommunications Act [Chapter 12:05], Act No. 4 of 2000, disbanded the Postal and telecommunication Corporation (PTC) establishing successor companies to work as separate entities in the postal, telecommunications and cellular telecommunications licensing. The iniative resulted in the creation of Zimpost, Tel One and Net One public entities providing postal, telecommunication and cellular telecommunication services respectively. In 2011 the government enacted the Protection of Power, Communications and Water Infrastructure as a solution to the problem of vandalisation of power, communications and water infrastructure. According to Thomas Dye, (2001) public policy is whatever government chooses to do or not to do. Therefore, public policy consists of the actions and inactions of government's, decision not to act is in itself public policy.

Public policy is chiefly the preserve of government and it is only government's decision that is counted as public policy.

2.3.2 National, Regional and Global Context

The mainstreaming of computer-based learning is a recommendation established in the Nziramasanga Education Commission report (1999). The report recommended the learning and teaching of ICTs in schools, colleges and universities in Zimbabwe, constituting an important component of the national ICT policy. In 2002 the government of Zimbabwe adopted the Zimbabwe Science and Technology Policy which was later revised in 2010. The emphasis of the policy is to promote self-reliance and ensure the provision of a comprehensive framework for the development of science and technology. In 2004 to 2006 the government formulated the National Economic Recovery Programme (NERP) focusing on the need for Zimbabwe to tap into the pontential of science and technology. In 2011 to 2015 the government launched the Medium Term Plan highlighting the need to converge ICTs as the pivot of global socio-economic transformations. The Plan identified ICTs as an essential catalyst for national socio-economic growth significant in the transformation of Zimbabwe into a knowledge based society. In 2012 to 2016 the government established the Industrial Development Policy which recognized the government as geared to embrace ICTs and e-technology through the National ICT Policy framework headed by the Ministry of ICTs. In 2013 to 2018 the government developed the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIM-ASSET) which recognizes the importance of rehabilitation of infrastructural assets.

E-government is an organizational concern rather than merely technical (Feng, 2003). Therefore, the implementation of e-government principles needs new rules, laws, policies and addressing bureaucratic changes for electronic activities such as archiving, electronic signatures and transformation of information, intellectual property rights and data protection.

2.3.3 Analysis of the implementation process of e-government

The ability of the government to implement e-government programs and the willingness of citizens to adopt and use the online service determines successful implementation (Prattipati 2003). The contributing factor to the failures of e-government programs is that government institutions may not use system development practices effectively to implement e-Government systems. Kendall and Kendall (2008) notes that, system development methods

use a structured approach to analyze, design and implement information systems to support users and the business functions of an organization. Systems analysis involves working with the users of the system to identify the needs and incorporate steps to build the system within the constraints of the organization. Implementing a system without proper planning may yield an e-government service, for example, that is dissatisfactory to the user and cause the system to fail ultimately. Also, information system development practices need modification to work in local African conditions. Korpela et al (2000: 134-135) argue that, the information system development practices and methodologies taught and used in industrialized countries are designed in a different setting separate from the African context and African ICT actors. Information system development practices are not universal, hence need adjustment to any given socio-economic, cultural and organizational setting. However. Upton and Staats (2008) observe that, it is difficult for people in organizations to know the specifications of an e-government program before implementation. Therefore a socio-technical approach towards ICTs development is recommended. Thus, concepts like incremental decision-making or improvisational change management are suggested to match the results of each stage reached during the respective project. Hence unplanned change is not considered as disruptions, which have to be avoided, but as opportunities to improve the project results (Dovifat, Brueggemeier et al. 2007 127).

2.3.4 Effectiveness of e-government programs

Seifert and Bonham (2003) describe the benefits of e-government as providing a website that is cost-effective in exchanging information, for the government and users. From the agency's point of view, for instance, a website can reduce the number of enquiries agency staff has to deal with, by providing answers to the most common questions or queries (also known as FAQs, Frequently Asked Questions). This means an agency can dedicate less staff time to dissemination activities, allowing either for a reduction in staff numbers, or for their employment elsewhere in the agency. Websites also represent a cheaper alternative to the production and dissemination of printed materials, like leaflets and letters. The immediacy of web publishing also allows the fast release of news and other information items to the public. Conducting transactions online is also generally faster, as data can be recorded and transferred quickly, as opposed to, traditional ways of handling bureaucratic procedures, such as paper-based forms, manual input by officials.

2.3.5 E-government implementation challenges

The lack of shared standards and compatible infrastructure are some of the challenges faced in the implementation of e-government programs in government departments and agencies. According to Sharma and Gupta (2003) a strong technological infrastructure is required in the implementation of e-government frameworks, hence an effective telecommunications infrastructure is mandatory to deliver e-government services. Moreover, implementation of e-government initiative face major obstacles in maintaining and developing privacy and security. Basu (2004) notes that privacy is a guarantee of protection regarding individual information. Sharma and Gupta (2003) observes that collection of personal data for legitimate purposes, privacy, and processing is an obligation of the government in order to ensure citizens' rights. Moreover, privacy in networks should be effectively responded to in order to increase public confidence in ICTs. Basu (2004) points out that confidence, privacy and vigilant handling of personal information is important to e-government applications.

2.4 CASE STUDIES

2.4.1 Andhra Pradesh, India

In India, the state government of Andhra Pradesh implemented an e-procurement service in 2001 as a critical component of e-government portfolio of services. Andhra Pradesh is the most populated state in southern India (UN, 2008). Government leaders of Andhra Pradesh desired to modernize the complex paper-intensive processes using ICTs. However, in the time leading up to the project, the government of Andhra Pradesh made investments into information technology infrastructure. As such, there were few computers in use across the administrative departments and the government lacked the appropriate level of organizational and technical capabilities to design, implement, and maintain any type of web-based transaction processing system. In spite of lacking an adequate ICT infrastructure and technical skills, the leaders of Andhra Pradesh pushed forward to fulfill its strategy by forming a public private partnership with the high tech firm, Commerce One India (UN, 2008). Through this collaboration, Commerce One India provided much needed technical expertise in developing internet applications and also agreed to operate the e-procurement system. In exchange for taking on these responsibilities, the government of Andhra Pradesh allowed Commerce One to earn revenues by charging users a four percent transaction fee. The development process was also carried out with a great deal of involvement of companies

that supply the government of Andhra Pradesh with goods and services. Suppliers also played an important role. First, suppliers provided feedback to help the government decide on the best design of the e-procurement system during the early phases of the project. Second, suppliers participated actively in various meetings and training sessions. These factors contributed to the success of the e-procurement system. Approximately $8 billion of transactions were processed through the e-procurement system in 2005. Among the issues that the government of Andhra Pradesh plans to resolve are developing a process to centralize supplier registrations, standardizing procurement processes across all of the government departments, and passing more legislation to support e-procurement (UNESCAP 2006).

2.4.2 Geographic Information Systems and e-Government in South Africa

The enterprise approach to GIS also enables governments to extend the reach of e-government services to mobile and wireless technologies in developing countries. In South Africa, GIS and mobile and wireless technologies are used to support government efforts of building e-government systems to manage health related issues. This includes such examples as the tracking of tuberculosis, HIV/Aids, and malaria (Tanser, et al. 2000). The Public Health Ministry in South Africa pilot tested using GIS and global positioning satellite (GPS) tools to track the spread of communicable diseases in rural villages. Public health workers travel to remote villages and go from house to house to check on people with illnesses. The location coordinates of the villages are marked using GPS. The UN (2008) also notes that, the GPS includes a data entry form where the public health workers can record data about the villager based on visual inspection and diagnostic interviews. The information is sent via cellular technology to the central public health office. The data updates different map layers and integrated into a GIS. The public health analyst can determine trends and patterns and develop strategies for treatment. Unlike tabular reports, the maps allow for highly effective identification of diffusion patterns. The data can also be overlaid with other related data such as the location of streams, and roads to study causal factors in the spread of the disease.

The South African government have gone further than merely crafting the e-government policy through the Public Service Regulations of 2001 to enable implementation of e-government (Naidoo, 2012: 62-64). The crafting of the policy was followed by an open source Software Strategy and Policy 2006. Implementing these policies created the State Information Technology Agency (SITA). SITA was formed as a central shared service provider to the South African government departments. The Government Information

Technology Officers Council (GITOC) was established to encourage and facilitate a forum for consultation and deliberation of ICTs. The council acts as an advisory board to the Minister of Public Service and administrator of ICTs related matters. The office was created to act as a policy making, regulatory and strategy formulating body with the detailed purpose of coordinating e-government activities across the South African government.

2.4.3 Ghana: An Inside Look at Technological Challenges of e-government

The UN (2008) acknowledges that the government of Ghana developed human resource (HR) information systems. In the implementation phase, data inaccuracies in the paper records caused major problems such as employees failing to receive salaries for months. Ghana implemented back-office database systems that provided greater data accuracy and accountability to enable government leaders to make informed decisions and policies about personnel adjustments. In 2000, the Ministry of Communications and Technology was formed to lead Ghana in developing its telecommunication infrastructure and provision of e-Government services. In 2006, Ghana made another significant step ahead in its e-Government strategy by launching e-Ghana, to enhance the growth of the ICT sector, support local ICT businesses and IT Enabled Services, and promote the development of e-Government applications and government communications (World Bank 2007). Though the mobile communications to access audiovisual content is increasing policy-makers observed that most of the content involves pornography, sports, and entertainment rather than content addressing more pressing needs of education, employment and empowerment (Orhin 2007).

2.5 LESSONS DRAWN

The key lessons from the case studies highlights the strategies government organizations developed communication methods to overcome the significant barriers that the technical developers, such as, computer programmers, systems analysts, database developers, and network administrators, commonly experience in building e-Government services. The key lessons include:

2.5.1 Information sharing

Information sharing is important to provide the information and motivation for greater involvement and decision making;

2.5.2 Training

Training is needed to do problem solving and to increase skills for day-to-day decision making;

2.5.3 Job security

Job security provides the understanding that improving a service performance will not result in the direct loss of jobs;

2.5.4 Feedback platform

The government should provide suppliers with feedback platform to help the government decide on the best design of the e-procurement system during the early phases of the project. Suppliers should participate actively in various meetings and training sessions before and during the implementation of e-government. These factors contributed to the success of the e-procurement system

2.5.5 Effectiveness and efficiency

GIS enables governments to tap into the effectiveness and efficiency of e-government services through extending the reach of e-government services to mobile and wireless technologies in developing countries.

2.5.6 Data accuracy

Ghana implemented back-office database systems that provided greater data accuracy and accountability to enable government leaders to make informed decisions and policies about personnel adjustments

2.6 CONCLUSION

Innovation is less likely to be adopted without the support of apex management. Therefore, the highest level of government which is the executive are require to support e-government initiatives to ensure the implementation process becomes a success. Executive support, such as the President of a country and Cabinet Ministers should show commitment to provide a positive environment that encourages general participation in e-government. The political will and commitment by public officials play an important role in the implementation of e-

government. Internal government operations can be greatly improved by e-government applications. Also cost-quality ratios in government services can be improved through e-government. Therefore public sector reforms are carried out through e-government programs, resulting in complete overhaul and transformation of government processses. Automation of procedures is therefore a major priority through changing the way government conducts business and performs service delivery functions.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 INTRODUCTION

Research can either be carried out using the quantitative or qualitative approach (White, 2000). A combination of the two approaches can also be used to carry out a research. According to Hammersley (1992) it does not matter which method is used, the process of enquiry is the same in sciences, and the departure into paradigms stultifies debate and hampers progress. The two approaches however are evaluated differently, quantitative research is regarded as value free (Silverman, 2000).

In this research, the researcher chose to use both qualitative and quantitative approaches, which is methodological triangulation but qualitative approach as the main research approach and the later as a complementary one. Dawson (2002) argues that triangulation improves the analysis and the interpretation of findings in research. Assessment, surveys review and the corroboration of findings is effectively improved through triangulation and becomes an essential tool for effective monitoring and evaluation. Dawson (2002) points out that, the use of multiple methods to study a phenomenon is referred to as triangulation. Thus the strength of one method compliments the weakness of another.

The previous chapter looked into the literature concerning the subject under study, assessing the institutional capacity of the telecommunication sector for e-government in Zimbabwe. This chapter explores the research methodology that was applied in the study. Furthermore the discussion centres on methods of researching to collect reliable and valid data for the research questions as well as the overall objective of the study.

3.1 RESEARCH DESIGN

Zikmunnd (2003) defines research design as a master plan specifying the methods and procedures for collecting and analysing the needed data. In addition, research design is a framework or blueprint that plans action to the research project. In this regard, Yin (2008) notes that the logical sequence connecting empirical data to the study's research questions and conclusions is termed the research design. The researcher is also guided in the process of collecting, analysing, and interpretation of observations. Thus the research design allows the

researcher to draw inferences of causal relations among variables under investigation. In this research the study utilizes in-person interviews to the staff members of POTRAZ, and ten (10) questionnaires will be distributed to POTRAZ comprising of open-ended questions. Thus an interview guide composed of six (6) questions and questionnaire guide of five (5) questions will be prepared for the respondents. Document search is also adopted as a process of collecting data. In analyzing and interpretation of data gathered the researcher will use tables as a simplified method of interpretation.

3.1.1 Target population

Saunders, Lewis and Thornhill (2009:106) define population as set of all members about which a study intends to make inferences. The results of the study are generalized upon the population. A target population is the actual population to which the research would really like to generalize however, this population is rarely available. In this study a sample was drawn from the telecommunications sector. The sector comprises of a population that has an understanding and a bearing on the use of ICTs in the government. Given the technical aspect which is associated with ICTs, the researcher chose those who are conversant with the problem at hand. Thus the research drew population from POTRAZ and representatives in the telecommunication sector.

3.1.2 Research instruments

Dawson (2000) refers to research instruments as the process of collecting data for the purpose of the research. The findings of the research study are validated by triangulation of instruments and confirmation of the data obtained through different methods. Dawson, (2000) asserts that the construction of a research instrument or tool for data collection is the most important aspect of a research project because the findings and conclusions of the study are based upon the type of information the researcher collects, and the data collected is entirely dependent upon the questions the researcher asks of respondents. Thus, “garbage in garbage out” is also applicable for data collection. The research instrument provides the input into a study, therefore the quality and validity of the output (the findings), are solely dependent on the instruments applied. This research used structured and unstructured interviews, questionnaires and document analysis to gather information. The advantages and disadvantages of these instruments are discussed below to justify suitability of the research study.

3.1.3 Interviews

An interview is a two way process which allows one to interact with respondents thus facilitating a more probing investigation that cannot be achieved through a questionnaire. Personal interviews allows the researcher to follow a rigid procedure and search for answers to pre-conceived questions. Output and research findings are largely dependent on the ability of the interviewer in collecting data. Accordingly an interview approach is justifiable since detailed information was required to assess the institutional capacity of the telecommunication sector for e-government. In this study interviews were conducted with the representatives of various departments of POTRAZ.

The interview has its own merits and demerits which Dawson (2002) identifies below. The interview has an advantage of higher response rate that is generally achieved since responses are provided directly. Also, responses are spontaneous, data collection is immediate, and the method is faster than questionnaires. The researcher can also probe further for reasons of responses from questions asked and more questions can be asked. An interview allows for greater data accuracy and the approach is also useful when response data of a technical nature is required, as in the case of ICTs which requires technical persons to provide answers to questions asked. Non-verbal responses can also be observed and noted. Personal interviews are time consuming and requires the interviewers to be trained. Therefore personal interviews more expensive in terms of transport, food and accommodation allowances and training costs. As a result of costs and time constraints fewer interviews are conducted. However, in this study the constraints of transport cost, food and accommodation will not be necessary since the interview are conducted in Harare where the POTRAZ headquarters are located and the researcher is also locally based. Hence, the researcher has chosen to use an interview.

3.1.4 Questionnaires

The questionnaire is a commonly used tool in quantitative research, and is good for gathering information from groups. For example, questionnaire can provide information on the levels of motivation giving information on the employee's knowledge, opinions and preferences. Questionnaires can elicit reactions, beliefs and attitudes from subjects and also encompass a variety of instruments. The respondent mails the questionnaires to the respondents and request for returning of the questionnaires after completion (Saunders, et al 2009). The questionnaire can either be closed or open ended type of questionnaire. In an open ended

questionnaire the respondents use their own words to answer the question for instance, *what do you think…?*. The researcher intends to use open-ended type of questionnaires, since the answers sought in this study require some technical background of ICTs.

The strengths of questionnaires include, gathering responses in a standard way and the approach is more objective than interviews. Another important contribution of questionnaires is respondents have enough time to consider their responses carefully. In this regard the researcher will distribute the questionnaires to the respondents and collect them on a later, so as to allow ample time to the employees of POTRAZ, who have a busy work schedule, to respond in their most flexible time. Moreover the method is easy to analyse and can be done with computer software (SPSS). Questionnaires also permit anonymity, thereby maintaining ethical principles of confidentiality and privacy. Hence, information can be collected from a larger sample, the researcher intends to distribute ten (10) questionnaires to POTRAZ. However the major setbacks of open ended questions in a questionnaire is they produce large quantities of data that take a long time to process and analyse. Respondents may answer superficially especially if the questionnaire is too long and difficult to get good response because there is no motivation for respondents.

3.2 Documentary Research

The research had to rely on documents to have a deeper understanding on the current situation experienced in the telecommunication sector. Thus the research was forced to rely on knowledge about the use of ICTs by government departments and agencies on published documents by organisations. This research also analysed annual reports of the telecommunication sector published by POTRAZ. The reports included developments and statistics held by POTRAZ and the telecommunication sector representative bodies concerning previous cases of implementation and growing the use of ICTs in Zimbabwe. According to Zikmunnd (2003) document search provides reliable information reflective of the clear testimony of the situation obtaining in the sector, providing an empirical review of ICTs in the country. However, document research is time consuming as some notes are difficult to analyse. In this case the researcher took long to complete the analysis.

3.3 SAMPLING AND SAMPLING TECHNIQUES

Saunders (2009) define sampling as a process of selecting a few (a sample) from a bigger group to become the basis for estimating or predicting a fact, situation or outcome regarding a

bigger group. Saunders, Lewis and Thornhill (2009) asserts that whatever one's research questions or objectives there will arise a need to collect data to answer the questions or objectives but it is often impractical for a researcher to survey the entire population hence the need for samples. Wegner, (1993) define a sample as a population taken into consideration under statistical inquiry. Information is obtained through representatives of the organisations chosen, for example POTRAZ. In this regard, the research will use purposive or judgmental sampling. Saunders, Lewis and Thornhill (2009:237) are of the view that, purposive or judgmental sampling enables the researcher to make personal judgment in selecting cases that answers the research questions and meeting of objectives. The method of sampling is used in very small samples, for example case studies. Under those circumstances the researcher will speak to those with responsibilities and knowledge concerning the subject at hand.

3.3.1 Judgmental sampling

This is a type of non-probability sampling. The sample is selected by the researcher and conforms to some criteria of the area of study (Saunders et al, 2009). For instance, samples are made from those with previous experience of the subject matter, in this case POTRAZ employee have been chosen by the researcher because of their expertise and experience in the field of ICTs. Limitations are that, sample size is not representative of a larger population, therefore generalisation is more restricted. Also, the sample maybe biased, especially where subject volunteers. However, POTRAZ represents the entire Telecommunications sector by virtue of being the regulatory authority of the sector.

3.4 DATA PRESENTATION

Data can be summarized and presented in various forms such as, tabulation. Tabulation deals with presentation of data in tabular form. A table is an array of data in rows and columns (Adedayo, 2000). Tabulation condenses a large mass of data and brings out the distinct pattern in a data in an attractive form. Tabulation enables comparison to be made easily among classes of data and takes up less space than data presented in narrative form. Other forms of data presentation include pictogram, pie charts and bar graph. However, in this study the researcher utilizes data presentation in tabular form in analyzing the demographic distribution and responds rate.

3.5 DATA ANALYSIS

3.5.1 Content analysis

The method of content analysis generates data from document, the media and from reality, often with the help of a category system. Literature too can be studied by means of a content analysis, that is, if it is used as a data source. There are two main categories in the content analysis that is, the qualitative and quantitative content analysis. A qualitative content analysis concerns extracting information from a large quantity of textual and audio-visual material that is relevant for the researcher.

3.5.2 Statistical Package for Social Sciences (SPSS)

The careful inspection of graphical output can convey information more vividly and quickly than the same information contained in numerical tables and written reports. Graphs can display findings concisely, clearly and in an easy to understand format, that is a picture is worth a thousand words. Data that has been collected is cleaned, coded and presented in tables, graphs and charts. There are many ways of presenting data, for instance, pie chart/diagram, simple bar chart, component bar chart, multiple bar chart and stem and Leaf Plot.

According to Creswell (1994) after collection of data the researcher begins analyzing the data collected. Establishing of categories, application to raw data, coding, tabulation and ultimately drawing statistical inferences are the related operations of analyzing data. Data should be condensed into manageable categories, classified into purposeful usable groups for further analysis. Coding is in done preparation for tabulation stage. Tabulation is a part of the methodical technique to tabulate the data in form of tables (Creswell, 1994).

3.6 CONCLUSION

The Chapter highlighted the research methodology and design specifically looking at the target population, sample and sampling procedure and data collection instruments used by the researcher and data presentation and analysis. The next chapter will focus on data presentation, interpretation and analysis.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF FINDINGS

4.0 INTRODUCTION

The chapter aims to present, analyse and interpret research findings on the area of study that is, assessing the institutional capacity of the telecommunications sector for e-government in Zimbabwe. The first section of this chapter deals with the presentation of socio-demographic characteristics of respondents. Thereafter findings of the research study are presented, analysed and interpreted in accordance with the objectives of the research study. Data analysis was restricted to content analysis and Statistical Package for Social Sciences (SPSS) to validate the findings. Various data gathered was presented in the form of tables based on the usefulness of the data for easy analysis and interpretation.

4.1 DEMOGRAPHIC ATTRIBUTES OF RESPONDENTS

4.1.1 Demographics distribution

Table 4.1 Demographic distribution

Age group	Lower subordinate	Middle management	Top executives
65-and above			
55-64			1 male
45-54		1 male : 1 female	1 male
35-44	1 male : 1 female	1 female	
25-34	2 males : 1 females		
18-24			
Under 18 years			

Source: field work

From the table above, managerial employees constitute 3 males and 2 females, and lower subordinates constitute 5 staff members, representing a 1: 1 ratio of the sample. The apex management accommodate an age group of 45-59 years, this is attributed to the basic requirement for work experience in the appointment of senior management positions. Experience and seniority are the basis of promotion for some organisations, as claimed by Armstrong (2010). Thus, strategic management and overall decision making is in the hands of traditional generation of leaders. The core duties and tactical operations are left to the age groups of 45 years and below, comprising of technicians and middle level managers. McLeod (2013) in his study on age dynamics found out that the age range from twenty-four (24) to

fourty years (40) is characterised by people who are constantly exploring the environment and have a latent trait of creativity which can only be put to use when the environment and circumstances permit.

4.2 RESPONSE RATE

4.2.1 Summary of response rate

Table 4.2 Response rate

Target population	Research instrument	Target sample	Number of respondents	Response rate
Lower subordinates	Questionnaire and interview	6	5	83%
Middle management	Questionnaire and Interview	6	3	50%
Top executives	Interviews	2	2	100%
Total		14	10	71%

Source: field work

According to Leed (2009) a response rate refers to the percentage or section of participants who contributed their knowledge towards the research study. Zikmund (2003) states that response rate has to do with the entire number of questionnaires returned or completed or interviews administered, over the number of suitable people who were asked to take part in the research study. The researcher distributed a total of ten (10) questionnaires and carried out four (4) interviews to the employees of POTRAZ in various departments and levels. The sample size can be generalisable given the staff complement of the institutions which stands at around seventy (70) members. The researcher received a response rate of seventy-one percent (71%). Out of the ten (10) questionnaires distributed only six (6) respondents returned. The researcher could not achieve a 100% response rate because of time constraints on the part of respondents. The researcher interviewed 4 staff members, representing a response rate of 100%. This can be attributed to the rapport formed between the researcher

and the staff at POTRAZ, and the interest of the respondents in the subject matter. The overall response rate is 71% which is above the 70% mark suggested by Jackson (2011), which is imperative to produce accurate and useful results.

4.3 RESEARCH FINDINGS

4.3.1 Adoption and utilization of ICTs in the government of Zimbabwe

According to Braun and Clarke (2006:79) thematic analysis is a qualitative analytic method for identifying, analysing and reporting patterns (themes) within data. It minimally organises and describes your data set in (rich) detail. However, frequently thematic analysis goes further than this, and interprets various aspects of the research topic.

Strong Agree = 5 Agree = 4 Rather = 3 Disagree = 2 Strongly Disagree = 1

Table 4.3 level of ICTs adoption in the government of Zimbabwe

Stages of e-government in Zimbabwe	5	4	3	2	1
1. Emerging phase	4	2	3		1
2. Enhanced phase	3	5	1	1	
3. Interactive phase	1	2	5		2
4. Transactional phase	1		1	5	3
5. Connected phase			1	3	6

Source: field work

From the table above, most respondents pointed out that the level of ICTs adoption in Zimbabwe has not surpassed the third stage, the interactive phase. Therefore, there is general agreement amongst the respondents that the government is in the emerging phase, where activity is focused on developing websites to post information about different government agencies. Respondents agree that information can be accessed from government websites,

downloading of forms and government officials can be contacted through e-mails. Just like other developing countries the government of Zimbabwe falls into the first and second stage, since there is typically a full landscape of sites for each public organization. The fifth stage which is the connected phase had the least aggregate score from the findings. Based on the findings above, it can be noted that the government has not fully utilised ICTs to overcome in-person visits to government offices. Furthermore, the Government of Zimbabwe has not copiously computerized its functions, as many processes are still done manually. This is symptomatic of the slow rate in which the government is adopting ICT in its day-to-day processes. Since the government is the largest consumer in any country, low use of ICT by government translates to low uptake and usage by the citizens and businesses in the country. Many countries in Africa are now advocating for a review of the school curricula to facilitate instilling of ICTs literacy from early stages of education through to tertiary levels. A certain level of education and appreciation of ICTs is necessary in order to at least understand and work with ICTs. Pragmatic, practical, innovative education systems must constantly be developed and reviewed to address Africa's needs today and in the future in line with technological developments in the ICT sector.

4.3.2 ICTs Policy and legal framework

There is inadequate law and regulatory frameworks regarding emerging areas like cyber-security, data protection, e-transaction, and convergence. The Zimbabwean government and other legislative boards are slow in response of the law to technology and industry developments. In interviews conducted in this research, the respondents indicated that the inadequacies of the policy and legal framework expose the limited participation of stakeholders in the development of legislation and ICTs regulation in Zimbabwe.

Very effective = 5 Effective = 4 Rather = 3 Less effective = 2 Not effective = 1

TABLE 4.4 Effect of ICT policy and legislation

Description	5	4	3	2	1	Weighted score
Nziramasanga commission report	4	3	1	2		39
Postal and Telecommunications Act	2	3		5		32
Zimbabwe science and technology policy	3	1	1	4	1	31
National ICT Policy	3	4	2	1	1	40
AIPPA	2			2	6	20

Source: field work

The table above shows that generally the Nziramasanga Commission Report (1999) had a positive influence on ICT policy in-as much as the respondents gave the report a strong weight compared to other variables. The report recommended the introduction and mainstreaming of computer-based teaching and learning in the pedagogy of our schools, colleges, universities and other institutions of higher learning. Pertinent to highlight is that the AIPPA, Criminal Law amendment (Communication) Act No: 1 of 2011 had inherent weakness in failing to broadly cover issues related to ICT's, hence the low score attributed by the respondents. Privacy and security are critical obstacles in implementation of e–government. Privacy refers to the guarantee of an appropriate level of protection regarding information attributed to an individual (Basu, 2004). Government has an obligation to ensure citizens' rights regarding privacy, processing and collecting personal data for legitimate purposes only (Sharma and Gupta, 2003). Concerns about website tracking, information sharing, and the disclosure or mishandling of private information are universally frequent. The Postal and Telecommunications Act [Chapter 12:05], Act No. 4 of 2000, came into operation in 2000, enabled the deregulation of the telecommunications sector resulting in the introduction and growth of internet users in the country. The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) was established in terms of the Postal and

Telecommunications Act [Chapter 12:05]. POTRAZ was established in 2001. The second Information and Communication Technology Policy (2012) is a culmination of a review process that considered the first Zimbabwe National ICT Policy (2005).

However, the cybercrime bill was not included in the above table as the bill is yet to be passed into law. This is a Bill for an Act to criminalize offences against computers and network related crime; to consolidate the criminal law on computer crime and network crime; to provide for investigation and collection of evidence for computer and network related crime; to provide for the admission of electronic evidence for such offences, and to provide for matters connected with or incidental to the foregoing. According to *The Herald* (17/08/2016) some provisions of the Bill run counter to the constitution, especially the Bill of Rights, for instance internet service providers (ISP) will be compelled to disclose the source of any content considered cybercrime as contained under section 35 (1) on interception of content data. OECD (2005:56) states that e-government uses ICTs to provide online convenient access to updated, interactive and relevant government information services. For this to be fulfilled there is need to develop a national information security strategy (cyber security) to protect electronic information storage and usage, develop e-government policy and legal framework to facilitate implementation of policy buttressed by creating e-government services accessible to all citizens and in language understood by the target population. Tan (2007:17) highlights that to set and enforce common laws, regulations and IT governance in support of e-government development and operation, governments should create institutions responsible for, among other things, developing e-government policies and legal and regulatory framework for issues such as e-transactions, e-security and privacy and access to information. In Zimbabwe, according to Minister of ICTs Supa Mandiwanzira (*Zimbabwe Independent*, 12/08/2016) the draft ICT policy was approved by the cabinet. The endorsement from the government paves way for the policy to become an official framework for the government's plans to move towards the modelling and approval of supporting legislation like computer crime and cybercrime bill as well as e-transaction bill. The current ICT policy touches among others, ICT infrastructure government, content, ICT growth, local ICT industry development and empowerment, affordable broadband, ICT research, converged regulator and cyber security.

4.3.3 Implementation process of e-government

In Zimbabwe ICTs innovation is limited, research and development (R and D) and entrepreneurship. The framework for research and development to harness and stimulate the advantages of ICTs is lacking. Education is key to social, scientific and technological development. The number of ICTs qualified personnel is inadequate, also lacking a homogenised national ICT training certification. Thus. There is need to provide exposure of ICTs to young generation and the employed. ZIMSTAT (2011) indicates that the literacy rates in Zimbabwe is pegged at 97 percent, the highest in Africa. Zimbabwe possess a high potential to become a knowledge society.. However, efforts by the Office of the President and Cabinet to set up an E-government Policy and Technical Advisory Committee to superintend the implementation of e-government in Zimbabwe is commendable. These efforts complemented by the massive investments by the government and the private sector in the ICTs sector including the terrestrial link and an optic fibre en-route to the undersea cable in the Indian Ocean are notable improvements in the developments of e-government programs in the country. These e-government projects enable reliable, high speed internet access and data services at affordable prices.

4.3.4 Effectiveness of the telecommunications sector in developing e-government programs

Postal and Telecommunication Company (PTC) was unbundled in 2000, resulting in the creation of three separate entities and the subsequent deregulation of the sector. The Government Internet Service Provider (GISP), was established in 1998, designed to turn all manual systems into E-Systems and provide fast, reliable, high-tech, and cost effective internet connectivity solutions to all of Zimbabwe Government Ministries. The government of Zimbabwe is promoting the online registration of liquor licenses as facilitated by the State e-service website called ZimConnect. This is a Ministry of ICT online service that was launched in 2017 to provide people with an online alternative for accessing some State services. The name ZimConnect was crafted in 2012 by the former Minister of ICTs Nelson Chamisa as the e-government framework. According to the National Budget Statement (2016) ZimConnect is highlighted as a programme that would facilitate the launch of online government services. The site offers a number of government e-services which include visa applications, company registration, corporate name change, deeds search, the processing of investment and mining licenses as well as the licensing for local government services like

operating a liquor store (http://www.techzim.co.zw). The payment for any of the applications can also be made electronically and the site uses Pay-now as its aggregator, something that conveniently brings mobile money payments onboard and opens it up to the unbanked.

4.3.5 Challenges and constraints of using ICTs based operations

From the questionnaires, POTRAZ employees provided the information tabulated below. The aggregate score is achieved by multiplying the level of influence by the numbers of respondents who have the same opinion, where the scores ranged from:

3- High influence 2- average influence 1- low influence

TABLE 4.5 constraining factors

Factors	High influence	Average influence	Low influence	Weighted score
Infrastructure development	6	3	1	25
Technical skills and knowledge of ICTs	1	4	5	16
Policy and legal framework	3	4	3	20
Cybercrime	1	3	6	15
Privacy and protection of information	1	7	2	19
Preference of traditional systems	3	4	3	20
Political will	1	6	3	18

Source: field work

Table 4.6 depicts the challenges and constraining factors affecting the use of ICTs in government ministries, departments and agencies. The major factors highlighted in the interviews and questionnaires include infrastructure development, depicted with the highest

aggregate score influencing the use of ICTs. MISA (2013) observes that, ICT providers share infrastructure on purely contractual basis. The regulator is playing a limited oversight role in enforcing sharing, this has resulted in unnecessary duplication of infrastructure and wastage. Preferably, ICT operators should compete on the basis of services provided as opposed to infrastructure. Policy and legal framework shared the second highest weighted score, reflecting weak legislation and policies addressing infrastructure sharing in the telecommunications sector. Therefore, the legislative and policy environment is highlighted as the main inhibiting factor to ICTs. This is further explained by the POTRAZ (2012) report on Licensed Communications Providers, stating that Internet Access Providers (IAP) whose licenses as furnished by POTRAZ are nine (9). However, the total number of IAPs, including those whose statistics relating to their Internet subscribers and incoming and outgoing bandwidth was not recorded with POTRAZ, is twelve (12). Preference of traditional systems portrays a culture and trust of traditional methods such as paper-based method of communicating. Technical skills and knowledge of ICTs though a critical factor in the use of ICTs is portrayed to be of low influence as a constraint to ICTs. However, most staff in public libraries, especially those who have been out of the library school for more than five years, hardly possess such skills because their training did not prepare them for work-place IT instruction (MISA, 2013).

There is inadequate ICT skills in the country. The shortage of ICT skilled manpower to roll out ICT programs has a knock-on digital literacy which drives uptake and utilization of ICT services. The education curriculum in Zimbabwe, until recently with the new curriculum review has not been addressing the factor of ICTs adequately, therefore the level of digital literacy at grassroots level is very low to stimulate service uptake and utilisation, especially in rural areas. Therefore, there is need to integrate ICTs in the education curricula and schools, commencing from early childhood education level as well as to promote ICTs uptake within communities. Cybercrime though important is less of an inhibiting factor compared to other variables as attributed in the table above. However it should be highlighted that there is no cyber-security framework in place in Zimbabwe. According to Basu (2004) cyber-security is the 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 the cyber environment and related assets. Political will proved a stronger influence than cybercrime and technical skills in the above table, highlighting the significance of participation and leading role of political leaders. As in the case of the success

of the Rwandan ICT sector, which starts and ends with the President of Rwanda (Mwangi, 2006). Therefore, the Rwanda case illustrates that strong political will and commitment at the highest level of government can influence and transform uptake of e-government programmes. Moreover, the President and the cabinet should commit not only in terms of rhetoric, but also in action in e-government programmes. Thus Rwandan President is considered the Champion of ICT (Mwangi, 2006).

4.4 CONCLUSION

The chapter provided for the presentation and analysis of the data through tables and excerpts collected during the course of the research study from different respondents (employees in various departments at POTRAZ) as well as making use of secondary data from the company, POTRAZ and other relevant articles. The data was interpreted along the research topic: an assessment of the institutional capacity for e-government in the telecommunication sector in Zimbabwe. Interpretation of data was done using deductive and inductive methods.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter presents a summary of the research, the conclusions and recommendations. Chapter One introduce the area of study which is grounded in public administration. Information communication technology is one important application of New Public Management (NPM) and the subsequent development of e-government. However, the historical development of e-government started in 1972 with the establishment of Central Computing Services (SSC). Zimbabwe's public sector is facing a problem of accessibility of public servants from their respective offices. Part of the objectives in the study is to recommend improvements to the institutional capacity of the telecommunications sector for e-government in Zimbabwe. The study is curious to understand and inform the institutional capacity requirements for POTRAZ to develop and expand the e-government program. Therefore, the researcher intends to recommend context based best practices for POTRAZ aptly fitting the Zimbabwean environment.

5.2 CONCLUSIONS

5.2.1 Policy and legal frameworks governing e-government

The findings reveal that the ICT policy does not adequately provide for capacity building including life-long learning in Zimbabwe. Of much concern is the fact that Zimbabwe has to date failed to launch a policy that promotes cyber security. There is only a draft Computer Crime and Cybercrime Bill that is awaiting approval from the parliament before it becomes effective legislation (Tembo, 2013:1). This is risky in e-government development as business and citizens will hesitate to transact online if there are challenges of inconsistences in policy and no solid laws to protect them. Therefore, POTRAZ as a regulator is incapacitated to promote cyber security and enhance e-government programs. Clauses in the National ICT policy of 2012 that focus on e-government are similar to those stated in the 2005 ICT Policy. The fact that these objectives remain the same seven years after the crafting of the first policy reveal that nothing much has been done to fulfil these objectives. This reflects the gap that exist between policy formulation and implementation, for instance POTRAZ and largely the

telecommunication sector is not adequately equipped with the financial resources to implement e-government projects.

5.2.2 Implementation process of e-government

The study concludes that the government of Zimbabwe is failing to partner private companies and investors in the ICTs sector. A coordinated approach between the government e-government programs and those spearheaded by the private sector, civil society organisations and non-governmental organization is lacking resulting in the still-birth of ICTs in the country. Hence, Zimbabwe has barely surpassed the early phases of e-government.

5.2.3 Effectiveness of the telecommunications sector in developing e-government programs

The research concludes that conducting transactions online is low as opposed to traditional manual ways of handling bureaucratic procedures such as paper-based forms and manual input in government ministries. Government officials have increased knowledge and awareness of ICTs, however utilisation is minimal, personal visits to government offices to renew licenses are frequent.

5.2.4 Impediments to institutional capacity in the telecommunications sector for e-government

The research concludes that security of information systems is a major concern for government departments and institutions. There is a high risk of accidental or intentional disclosure to unauthorized access of information and systems. Institutional capacity to improve security technology, such as network security and document security in government departments and agencies needs constant upgrading to move abreast with technological advancements.

5.2.5 Overall conclusion

As the researcher embarked on the study there was a general understanding that the government of Zimbabwe adoption of ICTs dates back to 1972, with the establishment of the Central Computing Services. However, after going through the literature and the actual research it was found that the government of Zimbabwe is not fully utilizing ICTs to overcome problems experienced in the public bureaucracy such as bureaucratic delays in

processing applications and public sector inefficiencies. Massive investments including a terrestrial link and an optic fibre cable en-route to the undersea cable in the Indian Ocean have been made, the study focused on the institutional mechanism of the Telecommunication sector assessing the sectors' capacity. The significant conclusions from this study is that the capacity of institutions in the telecommunications sector in Zimbabwe require specific mechanism to develop and sustain e-government programs. Zimbabwe's adoption ICTs has not progressed from the early phases of e-government.

Therefore this research has shown that the policy and legal framework governing e-government is weak, hence does not support software applications and development and home grown solutions. Thus, the government relies heavily on software applications and development from developed countries which does not suit the African environment and institutional context. For instance, government officials are more exposed to gmail, yahoo than there are to GISP (Government Internet Service Provider). Policy and legislation on e-government is not effective in ensuring that the price of accessing the internet is made affordable.

5.3 RECOMMENDATIONS

5.3.1 E-government implementation

ICT infrastructure is an indispensable aspect of e-government development as it greatly affects its pace. Zimbabwe's ICT infrastructure is currently owned by both private and public entities and this includes both the backbone structure and the access network. The backbone structure is weak as the current base stations are mainly concentrated in towns and not remote areas. Therefore there is need for harmonization of ICTs infrastructure in Zimbabwe to ensure successful implementation of e-government programs.

5.3.2 Security technology

The government of Zimbabwe should promote the use of digital signatures and encryption to protect user IDs, passwords, credit card numbers, bank account numbers, and data transmitted over the internet and stored electronically fulfilling security goals in e-government. Protection of information and systems against unauthorized modifications, destruction access whether accidental or intentional disclosure is referred to as security of information system (Layton, 2007). Information security also covers the protection of hardware and software

assets, information architecture and the control of access to information. Information security is categorized into network security and document security according to Sharma and Gupta (2003). Thus, information security includes firewalls and limited access to data, maintenance and infrastructure protection. Feng (2003) notes that, it is imperative to protect user ID's, credit card numbers and data transmitted over internet or stored electronically by using security technology to fulfill security needs in e-government applications.

5.3.3 Stakeholder participation

Stakeholders in e-government such as government officials, citizens and business should participate actively in various meetings and training sessions before and during the implementation of e-government. These factors contribute to the success of various electronic services like e-learning, e-procurement, e-meetings, e-commerce, and e-banking**.**

5.3.4 ICTs solutions adapted to the local context

Context matters in institutional development. The circumstances prevailing in the Telecommunications sector of Zimbabwe is different from other developed countries, hence the need for ICTs solutions adapted to the local environment. The government needs to support software applications development in the country, for example the *road rules mobile app* (Tawanda Chikosi) had to curate content for its application without the assistance of the government. Government organisations must develop communication to overcome significant barriers that technical developers such as computer programmers, systems analysts, database developers and network administrators commonly experience in building e-government services.

5.3.5 Policy thrust in capacity building

The policy thrust in capacity building should enable equitable access to information communication technologies based education and training in the government and the nation at large, including the disadvantaged communities and stimulate training in software development, ICTs enabled services and ICTs resources development.

5.3.6 Public Private Partnerships

The government should focus on public private partnerships (PPPs) to improve on ICTs development programs. Coordinated approach between the government and non-state organisations must be improved for e-government programs. The support from the highest

level of government is needed for successful implementation. Top government officials provide a positive environment that encourages participation in e-government applications. There is need for the creation of an effective government private sector partnership, as neither government nor the private sector can embark on the growth of the ICT capacity alone. The Zimbabwe government must build information centres, kiosks and technology parks.

5.3.6 Establishment of quasi government institutions

The study recommends the establishment of a quasi-government organisation, similar to the Rwanda Information Technology Authority (RITA), in Rwanda and SITA in South Africa to co-ordinate activities in the ICT sector. The institutions should be responsible for the upgrading of the infrastructure; the monitoring and training of private and public educational organisations; providing incentives to international and local investors, and for general monitoring of the ICT sector in the Zimbabwe as a whole.

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APPENDICES

Appendix A: Interview Guide

Position of Respondent:……

Department:……

Date:..……

My name is Tonderai Movern Mahachi, a student undertaking a masters of public administration in the Department of Political Administration at the University of Zimbabwe. The study seeks to assess the institutional capacity of the telecommunications sector in Zimbabwe using the case of POTRAZ. Responses obtained in this study will be used for academic purposes. Confidentiality and privacy to information gathered in the study will be strictly observed. Your honest opinion to the question below is appreciated. Thank you.

1. Adoption and use of ICTs in POTRAZ

2. Policy and legal framework of implementing ICT based service delivery

3. ICT-based linkages between POTRAZ and its stakeholders such as government, citizens, and private companies
4. Effectiveness of ICT based operations and service delivery in POTRAZ
5. Challenges and constraints of using ICT based operations in the organization
6. Recommendations on improving the operations of ICT based operations and service delivery in the organisation

Thank you.

Appendix B: Questionnaire Guide

Position of Respondent:…….

Department:……

Date:……

My name is Tonderai Movern Mahachi, a student undertaking a masters of public administration in the Department of Political Administration at the University of Zimbabwe. The study seeks to assess the institutional capacity of the telecommunications sector in Zimbabwe using the case of POTRAZ. Responses obtained in this study will be used for academic purposes. Confidentiality and privacy to information gathered in the study will be strictly observed. Your honest opinion to the question below is appreciated. Thank you.

1. Briefly explain your understanding of the adoption and use of ICTs in POTRAZ?
   ……
   ……
   ……
   ……
   ……

2. What are the policy and legal frameworks of implementing ICTs based service delivery?

   ……
   ……
   ……
   ……
   ……

3. Briefly explain the ICT-based linkages between POTRAZ and its stakeholders such as government, citizens and business?

   ……
   ……
   ……
   ……
   ……

4. What are the challenges and constraints of using ICT based operations in the organization?

   ……
   ……
   ……
   ……
   ……

5. What are your recommendations on improving the operations of ICT-based operations and service delivery in the organisation?

   ……
   ……
   ……
   ……
   ……

Your response is greatly appreciated