E-GOVERNMENT IMPLEMENTATION FOR INTER-ORGANISATIONAL INFORMATION SHARING: A HOLISTIC INFORMATION SYSTEMS APPROACH FOR DEVELOPING COUNTRIES

By

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DECLARATION

I, Ephias Ruhode, declare that *the* contents of this thesis represent my own unaided work, and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

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Signed **Date**

ABSTRACT

Governments throughout the world are increasingly under pressure to transform in response to rapid changes in the global economy. They are faced with new and challenging situations as the social world, the economy, demography and technology keep changing. While literature reports some degree of success towards e-government implementation in the developed world, there is lack of empirical research on successes of e-government and information sharing practices of government agencies in developing countries. Designers of e-government solutions in all countries face challenges that are unique to their specific sociocultural, economic, geographic, environmental, political, and technical context. However, the peculiarity of e-government challenges is more evident in developing countries than in developed ones.

This research is motivated by the need to investigate an e-government phenomenon in a developing country context like Zimbabwe which is characterised by complex dynamics rooted in politics, economy and social setting. Emphasis is placed on the political nature and the complex institutional environments in which e-government develops and recognition is given to the key concepts of e-government which involve the technological and social aspects.

This study has been scoped empirically to explore e-government implementation efforts at government level then a case study of the Ministry of Tourism and Hospitality's e-Administration dimension of e-government, with focus on information sharing. Tourism is an example that e-government's parameters do not stop at the boundaries of the public sector. The research first conducted a document study of all policies and programmes initiated by the government of Zimbabwe towards public sector modernisation using ICTs. Secondly, in order to identify the status of e-government and information sharing as well as government's vision in the same, interviews were conducted with the Ministry of ICT's administration. Thirdly, a case study of the Ministry of Tourism and Hospitality was conducted to establish the extent and tools of information sharing between the ministry and other line ministries, departments and

other institutions nationally and internationally. Data from the case were analysed using the Activity-Driven Needs Analysis (ADNA). Research findings from all activities have been discussed and further developed in two solutions-oriented focus group meetings with senior managers at both ministries of ICT and tourism in the area of cross-government information sharing, and in feedback sessions with research participants.

Literature review, analysis of ICT policy documents and case study analysis were insights which underpinned the development of an e-government framework for developing countries. The emphasis of the framework is for e-government designers to place importance on political and institutional factors ahead of any other determinant. Consistent with ADNA and the critical realist perspective, the aim is not to influence these political and institutional factors, but to understand their modus operandi and hence to construct an e-government solution which recognizes the dictates of all stakeholders.

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"In ordinary life we hardly realize that we receive a great deal more than we give, and that it is only with gratitude that life becomes rich."

— Deitrich Bonhoeffer

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DEDICATION

For my late brother, Rameck Zivuku

BIOGRAPHY AND LIST OF PUBLICATIONS

Ephias Ruhode is a lecturer in the Information Technology Department at the Cape Peninsula University of Technology (CPUT) in Cape Town, South Africa. Prior to joining CPUT in 2007, Ephias had worked in Zimbabwe for 13 years in various capacities as Lecturer in Computing, Analyst Programmer, Software Development Manager and General Manager e-Commerce. He graduated with a Master of Business Administration (MBA) Degree from the Zimbabwe Open University in 2004. The title of his dissertation was: *Internet as a tool to support higher learning in Zimbabwe: A Case Study of Bindura University of Science Education*. He also received further training in computer technology in Japan and India. His research interest is in e-Business in general and e-Government applications in particular. In 2008, Ephias received CPUT's university research funding to carry out his research on e-Government in Zimbabwe. He is currently an active researcher with the Informatics Development for Health in Africa (INDEHELA) team.

During the course of Ephias' doctoral study, the following outputs were produced:

Journal Article

Ruhode, E., Owei, V, 2010. Harnessing Information and Communication Technologies for Diffusing Connected Government Applications in Developing Countries: Concept, Problems and Recommendations. *International Journal of Technology Diffusion (IJTD)*: IGI Global, *1*(1):2-19

Book Chapter

Ruhode, E. & Owei, V. 2009. Connected Government for a Developing Country Context: An Assessment of the Extent of Inter-Departmental Integration for Selected Government Departments in Zimbabwe. In Maumbe, B. M (ed). *E-Agriculture and E-Government for Global Policy Development*. Information Science Reference: IGI Global: 122-136.

Peer-Reviewed Conference Proceedings

1. Ruhode, E., Owei, V. & Maumbe, B. 2008. Arguing for the Enhancement of Public Service Efficiency and Effectiveness Through e-Government: The Case of Zimbabwe. *IST-Africa Conference*, Namibia, 2008.

2. Ruhode, E., Owei, V. 2009. Integrated Architecture Framework for e-Government: An Assessment of the e-Government Policies and Initiatives. *Proceedings of the International Conference on e-Government*, Boston, USA, 2009, 165-173.

Programme Chair and Conference Proceedings Editor

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ABBREVIATIONS AND LIST OF ACRONYMS

ActAD	Activity Analysis and Development
ADB	African Development Bank
ADNA	Activity-Driven Needs Analysis
BAZ	Broadcasting Authority of Zimbabwe
CCS	Central Computing Services
CSZ	Computer Society of Zimbabwe
EAI	Enterprise Application Integration
EDI	Electronic Data Interchange
ERP	Enterprise Resource Planning
GISP	Government Internet Service Provider
GNU	Government of National Unity
GOZ	Government of Zimbabwe
GPA	Global Political Agreement
GTA	Government Telecommunications Agency
HIV	Human Immune Virus
ICT	Information and Communication Technology
IOIS	Organizations as Inter-Organizational Information System
ISD	Information Systems Development
ITU	International Telecommunication Union
MICT	Ministry of Information and Communications Technology
MSTD	Ministry of Science and Technology Development
NECF	National Economic Consultative Forum
NERP	National Economic Recovery Programme
NGOs	Non-Governmental Organisations
OECD	Organisation for Economic Co-operation and Development
OECD	Organisation for Economic Co-operation and Development
POTRAZ	Postal and Telecommunications Authority of Zimbabwe
PSKN	Public Service Knowledge Network
RBZ	Reserve Bank of Zimbabwe
STERP	Short Term Emergency Recovery Plan
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Education and Scientific Organisation
WSIS	World Summit on the Information Society
ZARNET	Zimbabwe Academic and Research Network
ZBC	Zimbabwe Broadcasting Corporation
ZESA	Zimbabwe Electricity Supply Authority
ZIMRA	Zimbabwe Broadcasting Corporation
ZTA	Zimbabwe Tourism Authority

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CHAPTER ONE

INTRODUCTION

"An investment in knowledge pays the best interest."

— Benjamin Franklin

1.1 BACKGROUND TO THE RESEARCH PROBLEM

Governments throughout the world have initiated modernization programmes to achieve effective social outcomes towards improving service delivery to their constituencies. Governments have been viewed as complex, mammoth bureaucratic establishments with a set of information silos that erect barriers to the access of information and make the provision of services cumbersome and frustrating (Kumar et al, 2007). However with the emergency of Information and Communication Technologies (ICTs), it is possible to improve efficiency and effectiveness of internal administration within governments and to relocate government services from government offices to locations closer to the citizens (Gichoya, 2005). Tapscott (1995) asserts that ICTs support the "age of network intelligence", reinventing businesses, governments and individuals.

For all countries, use of ICTs for government reinvention is increasing, though developing countries are still in the early stages of full-scale ICT deployment (Gichoya, 2005). The developed world (primarily Europe, North America and the Far East), have claimed benefits of ICTs in government than Africa, South America and some parts of Asia. Contemporary literature is replete with claims that through expanding the base of information and best practices through research, analysis and sharing of information, economic growth and development can be realised at a faster pace. Interdependence amongst organisations, particularly in government entities, is a very little known concept in governments within Africa, as evidenced by lack of an information pool that can equip citizens, business and other government departments to access resources. The overarching challenge in governments is the emergency of 'islands' of government silos that are frequently unable to interoperate due to fragmentation resulting from

uncoordinated efforts at all levels of public administration (European Commission, 2003). The transformation from these isolated silos to technology-enabled networks is a global trend driven by various societal forces such as the growing complexity of problems that call for collaborative responses, the increased demand on the part of citizens for more personalized and accessible public services, which are to be planned, implemented and evaluated with their participation, and the opportunities presented by the Internet to transform the way the government works for the people (UN, 2012). Information sharing within the government ministries and departments in African governments will provide new opportunities to enhance governance, which can include improved efficiency, new services, increased citizen participation, and an enhanced global information infrastructure. It is an effort at information pooling amongst multiple players across the public, private and voluntary sectors in order to consolidate existing, and generate new, intellectual capital with a view to improving programming in governance and development (CIDA, 2007).

This research seeks to understand the e-government phenomenon and its subsequent enablement of information sharing within and between departments and other organisations. The context under study is a developing country setting. There is not much literature on empirical research on e-government successes and information sharing practices of government agencies in developing countries. According to Schuppan (2009), an exact ranking of sub-Saharan African countries with regard to the implementation of e-government is difficult because the countries of this region are rarely mentioned in academic literature – with the exception of South Africa – in relevant studies. This study argues that by following cognitive principles of information management technology-enriched information environments can provide advanced means for the production of information and constructive communication (Huggett et al., 2007) even in a developing country setting. ICTs enable the creation of new sources of information, support of individual and organisational memory (de Vasconcelos, et al., 2003), faster access to information sources, application of information in and across time and space and more rapid application of new information through workflow

automation. Citizens are now demanding from government, information from a single location, and scholars have termed this concept 'whole-of-government' approach, 'joined-up government', 'connected government' and also 'one-stop government'. Information such as documents on laws or policies across sectors like education, health, finance, social welfare and labour, etc, must flow from the government to the citizen, government to business or government to international organisations.

This study is positioned within e-government discourses because it recognises various e-government perspectives, including the technical, political, socio-economic and theoretical debates. According to Macueve (2008), *technical discourses* tend to stress aspects of software, hardware, connectivity, access, communications and e-government technical models (Gil-García and Pardo 2005; Signore *et al.* 2005). *Political debates* revolve around formulation of e-government visions, strategies and policies. The *socio-economic aspect* of e-government has been the subject of much debate in e-government implementations especially of developing countries (Macueve, 2008). Institutional, educational, and sociocultural issues have often been cited as contributing factors to little successes of e-government projects in developing countries (Tedre et al, 2011). A more detailed discussion on social aspects to e-government development will be discussed in Chapter Two. Lastly, the use of theoretical lens to explain the e-government phenomenon is also a rising trend (Macueve, 2008) in contemporary IS research. In this study, the need to draw on traditional methodological approaches is recognised but reconstituting them to fit specific research contexts is emphasised.

The information sharing dimension of e-government in developing countries, particularly in sub-Saharan Africa, has never received any attention from scholars. The little information provided has shown a very narrow perspective where e-government is reduced to the extent to which public service processes are conducted online (Schuppan, 2009). Organizational transformation underpinned by information sharing and collaboration is not recorded in e-government literature as a central theme. This study makes a significant contribution to theoretical underpinnings of the e-government

phenomenon as will be explained in later chapters (Chapters Two, Three, Four and Five). This study's research problem is presented in the next section.

1.2 RESEARCH PROBLEM

The researcher's personal experience necessitated the undertaking of this study. The researcher has presented the background in section 1.1 as an ICT expert conversant with technological developments globally. Drawing from the background already presented as well as the researcher's experience of government services in Zimbabwe, the following issues are observed:

(i) There is absence of information sharing activities within the departments and ministries in the Government of Zimbabwe
(ii) The Government of Zimbabwe is acutely aware of the critical role that ICTs play in socio-economic development as demonstrated by the formulation of various ICT policies and programmes.
(iii) There is much evidence of computerisation and embracing of ICTs across the public sector, but there is lack of collaboration in the implementation of ICT-based tools
(iv) Most citizens of Zimbabwe, particularly the young to middle-aged, are well enlightened about modern technological trends as evidenced by the cell phone penetration rate of 79 per cent (POTRAZ, 2012), the highest in the region. Zimbabweans do access internet services via cell phones and computers and are also aware that other governments globally and many in Africa are conveniently availing online services to their citizens.

The above issues bring to the fore the statement of research problem for this study, which is the following:

> *Government Ministries and Departments in Zimbabwe do not have a collaborative approach to information sharing in order to create an information pool from where information can be harvested and shared for*

the benefit of the citizens, the business community, international community and other stakeholders.

A critical question which is then raised is:

How can the government of Zimbabwe leverage on the opportunities presented by e-government and subsequent information sharing?

Central to this main question are sub-questions:

- *What have the ICT and e-government policies achieved towards e-government implementation in Zimbabwe?*
- *Do the ICT and e-government policies address the peculiarities of social and economic needs of Zimbabweans?*
- *What are the enablers and barriers to e-government implementation within the Government of Zimbabwe?*
- *What is the nature of current information sharing mechanism within the Government of Zimbabwe (considering the Ministry of Tourism and Hospitality case study)?*
- *What framework can guide development of information sharing through e-government*

To fully understand and explain the e-government phenomenon in Zimbabwe, this research shall do the following:

- Examine and analyse government policy documents on e-government
- Identify one ministry as a case study of information sharing activities and mediating technologies
- Develop a theoretical framework/model based on the ministry in the case study, to provide for information sharing for effective intra and inter-governmental collaboration.

This research is motivated by the need to investigate an e-government phenomenon in a developing country context like Zimbabwe which is characterised by complex dynamics rooted in politics, economy and social setting. E-government is a social phenomenon which in this research is studied within the information systems (IS) domain. Roode (1993) defines IS as:

> *"An inter-disciplinary field of scholarly inquiry, where information, information systems and the integration thereof with the organisation is studied in order to benefit the total system (technology, people, organisations and society)" (cited in de la Harpe, 2008).*

Evidence of research on e-government under different political and social environments is not available. This study therefore envisages a significant contribution to research where useful insights are provided for studies under socio-political environments as complex as those obtaining in Zimbabwe. Much recently, IS research has seen use of theoretical and philosophical lenses in order to understand the e-government phenomenon. As will be explained in Chapter Two, this research adopts a socio-technical perspective, which is a set of theories and concepts that seek to jointly optimize the co-evolution of organizations and technology.

E-government discourses have gained recognition across technology and public administration disciplines. This study is positioned within the broader e-government discourse because of the anticipated theoretical, methodological and practical contributions it will make to the body of research. Theoretical models will be formulated to represent thoughts and constructs within the e-government context and information sharing in particular. The argumentation towards methodological contribution lies in the application of analytical lens of the activity driven needs analysis within the critical realist paradigmatic view. The e-government information sharing framework for the Ministry of Tourism will be the practical contribution to be claimed by this study.

The remainder of this chapter is structured as follows: the next section traces the emergence and need for e-government in Africa and why scholars should undertake analytical studies on the state of e-government research in Africa, as according to Burke (2012), none is available. The section that follows presents e-government in Zimbabwe as the empirical setting of the study, followed by a section which presents key vocabularies used in the thesis. The last section presents the overview of the entire research report.

1.2 EMERGENCE OF E-GOVERNMENT IN AFRICA

At the turn of the 21st Century, calls by management paradigms for a rejuvenation of administrative systems globally, became louder, placing African governments into focus Burke (2012). According to Burke (2012), conceptions of the developmental state called for an interventionist approach by the public sector, noting the advances made by the Japanese state in fostering industrial development (Johnson, 1982). ICTs were therefore identified as the best intervention tool since by design, they process, store and disseminate information in a more accurate, faster and reliable manner. OECD (2003), define "e-government" to mean:

> *"..the use of new information and communication technologies, and particularly the Internet, as a tool to achieve better government".*

Between 2005 and 2012, significant developments have been recorded in Africa with respect to internet use (more than 32 million by 2008 (ITU, 2009)), mobile phone penetration (246 million (ITU, 2009)) and infrastructural efforts including submarine fibre-optic cables connecting Africa to the rest of the world. The development and implementation of e-government in Africa is therefore studied in the two-fold contexts: pressure to improve public service delivery on one hand and developments in ICTs on the other.

Explosive growth in internet usage and rapid development of e-Commerce in the private sector have put growing pressure on the public sector to serve citizens electronically, which is often known as the e-government initiative (Leijenaar, 2007). During the 2007 Ministerial e-government Conference Proceedings in Manchester, Peter Vanvelthoven, Belgian Minister for e-government highlighted that his Government's Information Society philosophy called for change. He noted that information gathering must be based around the need of citizens and business, including the need to curtail repetitive form-filling demands on businesses and citizens. The consistency of information must be guaranteed, stored in systems that are integrated so they can be shared across public bodies. Sean Shine, Managing Director of Accenture, also stressed the need to change public services and processes from the outside in. He called on governments to engage more and more effectively with their citizens, by proactively telling them what information needs to be shared, how it will be protected and how that information will improve their public services. According to Ndou (2004, as cited in Matavire, 2008), e-government represents a paradigm shift for governments from traditional models to more service-based models which view citizens as customers.

While this study acknowledges findings by several scholars that e-government implementations in developing countries is problematic (Chigona et al, 2008; Ndou, 2004; Heeks, 2003; Dada, 2006), the researcher argues that significant strides made by Africa towards e-government development are worth documenting and as such should attract scholarly consideration. Burke (2012) contends that despite many challenges rooted in colonial history, fragmentation of their polity and economy as well as social diversity, African countries are at varying stages of e-government implementation. The researcher argues therefore that the deliberate efforts made by many national administrations in Africa to implement e-government as evidenced by e-government policies and e-readiness programmes, call for scholarly attention.

1.4 ZIMBABWE: THE EMPIRICAL SETTING

This section presents the general background on Zimbabwe, ICT developments in Zimbabwe and the rationale behind the selection of the case, the Ministry of Tourism and Hospitality.

1.4.1 ZIMBABWE: BACKGROUND

Zimbabwe is a landlocked country covering an area of 390,757 km^2 of which 85% is agricultural land and the remainder comprising national parks, state forests and urban land. Zimbabwe is bordered by South Africa to the south, Botswana to the southwest, Zambia to the northwest and Mozambique to the east. The geographical location of Zimbabwe is shown on Figure 1.1.

Zimbabwe has a population of over 12 million. The urban population is about 34.7%, while the rural population is estimated at 65.3% (Gono, 2009). According to 2005 figures, the adult literacy and the youth literacy rates are 89.4% and 97.7% respectively (UNDP, 2008). At independence in 1980, Zimbabwe inherited a dual economy from the former colony, Britain, which was characterised by a well-developed modern sector and poorly developed rural sector accommodating more than 80% of the population (Zimbabwe Millennium Development Goals Report, 2004). The period 1980 - 1995 was characterised by very strong growth in social indicators such that by 1995, Zimbabwe almost attained universal primary education (Zungunde, 2009).

Zimbabwe's capacity to deliver on the sustainable development front, including e-government initiatives, has been acutely weighed down by unprecedented political and economic turmoil the country is reeling under. The government's controversial land reform programme has reportedly been the cause of significant damage to the commercial farming sector rendering the country a net importer of food after having traditionally been the source of jobs, exports, and foreign exchange. In their quest to correct lingering colonial imbalances, the Zimbabwe government embarked on several

Figure 1.1: Map of Zimbabwe (Source: CIA, 2012)

home-grown reform programmes. As a result, the situation in Zimbabwe between 2000 and 2008 deteriorated and is well captured by Zungunde (2009):

> *"The country was beset by unparalleled economic challenges with sustained periods of negative gross domestic product (GDP) growth rates; massive devaluation of the local currency; rocketing food price increases; loss of jobs; a crumbling health care system; brain drain leading to shortage of teachers in schools, and the subsequent deterioration of the educational*

system; massive de-industrialisation; general despondency and dismal performance from the once thriving agricultural sector. All these issues happened in a highly charged political environment that lead to human rights violation accusations and the imposition of sanctions from western developed countries. Cholera outbreaks claimed many lives and brought the dire plight of socio-economic problems of Zimbabwe to the forefront of many international news reporters …".

This period was characterised by severe hard-currency shortage that led to hyperinflation and chronic shortages in imported fuel and consumer goods. By 2008, Mlambo and Raftopoulos (2010) report that

"The Zimbabwean economy had undergone a veritable meltdown, with all indicators signifying a country in severe distress. For instance, inflation rates were estimated in percentages of hundreds of millions, while the country's currency, now denominated in quintillions, becoming virtually worthless".

In addition to the crises indicated above, the greatest loss Zimbabwe suffered was in human capital. Professional Zimbabweans who migrated into South Africa, Botswana, the UK, US, Australia, New Zealand, etc are estimated to be over 3 million.

On the political landscape, hostilities among opposing parties resulted in the inauguration of a Government of National Unity (GNU) under a Global Political agreement (GPA) in September 2008. The new government introduced a number of measures to stabilise the economy, one of which was the official declaration of the use of multiple currencies in the purchase of goods. Participating political parties shared ministries, a development which saw the introduction of new ministries. Of note is the establishment of the Ministry of ICT (MICT) for the first time in Zimbabwe. The MICT would ensure that ICTs receive budget allocations and the attention they deserve, with expectations of reforms, growth and development in the sector (Zungunde, 2009).

Even though the implementation of the GPA has been widely believed to be uneven, economic reforms that followed have borne positive results for the economy. Real GDP grew by about 6% in 2009 and also by the same margin in 2011. Another major achievement was to bring down inflation to 3% by April 2011 (ADB, 2012). Despite the said achievements, the government of Zimbabwe still faces a number of difficult economic problems, including infrastructure and regulatory deficiencies, on-going indigenization pressure, policy uncertainty, a large external debt burden, and insufficient formal employment. The ADB (2012) advises that key reforms aimed at addressing external indebtedness and improving the investment climate especially in the areas of property rights, indigenization and land reform, will also be vital if the economy is to continue to make progress.

1.4.2 OVERVIEW OF ICTS IN THE GOVERNMENT OF ZIMBABWE

The Government of Zimbabwe has demonstrated awareness of computer technology for forty years. Apart from the Computer Society of Rhodesia which was formed in 1972, the government established the Central Computing Services (CCS) in the same year. The CCS which was then under the Ministry of Finance, had a mandate to provide a central computer facility to all government departments and ministries. The use and deployment of ICTs within the government progressed steadily and in 2008, a fully-fledged Ministry of Information Communication Technology (MICT) was established to provide ICT services to the public and government institutions. Other government organisations which are involved in ICT and technology related activities include, among others, the Ministry of Transport, Communication and Infrastructural Development, the Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ), the Ministry of Science and Technology Development (MSTD), the Ministry of Finance, Government Internet Service Provider (GISP), Government Telecommunications Agency (GTA), Zimbabwe Academic and Research Network (ZARNET), Transmedia (National TV and radio broadcaster infrastructure provider and Internet access services) and other government companies and public enterprises.

Figure 1.2 shows the institutional arrangements of the ICT stakeholders in Zimbabwe. The GOZ controls the ICT regulatory agencies (POTRAZ, BAZ, and MIC) and a number of the dominant service providers in the market. These include Tel*One, Net*One, Powertel/ZESA, and the Zimbabwe Broadcasting Corporation (ZBC). The ministries of ICT, Transport and Communications, and media, information and publicity have different responsibilities for various ICT services.

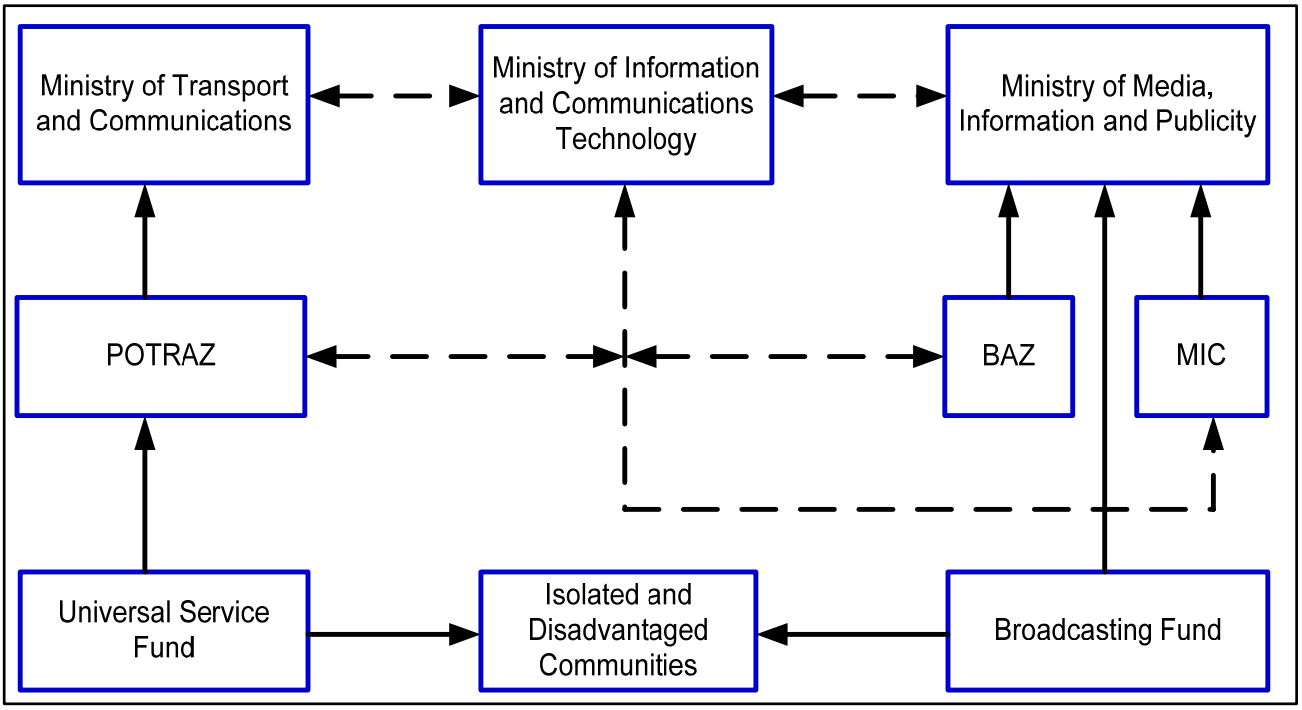

Figure 1.2: Institutional Relationships for the ICT Sector (Source: MICT, 2010)

Over the years several ICT related documents were produced and have become reference points and guidelines for ICT implementation. They include the second Public Service Reform Program (1998-2000), the Nziramasanga Education Commission Report (1999), Science and Technology Policy (2002), Vision 2020, Industrialization Policy (2004), the e-Readiness Survey (2004), the National ICT Policy Framework (2007) and the Ministry of ICT Strategic Plan (2010).

Pertinent to this research are developments in Zimbabwe's telecommunication market. Current voice providers include TelOne, NetOne, Econet and Telecel. BuddeComm, a global independent telecommunications research and consultancy company reports that

Zimbabwe has, since the establishment of the GNU, invested in millions of US dollars in network infrastructure expansion. Phenomenal growth in telecommunication usage has been witnessed between 2009 and 2011. Figure 1.3 shows the statistics and market share for the telecommunication sector as at June 2012 (POTRAZ, 2012). It is revealed by POTRAZ that Zimbabwe's tele-density increased from 81.5% in the year's first quarter to 89.9% in the second quarter which is a phenomenal jump, indicative of the rapid adoption of mobile phones by Zimbabweans. It has also been reported that internet penetration was about 12 per cent as of December 2011 (POTRAZ, 2012).

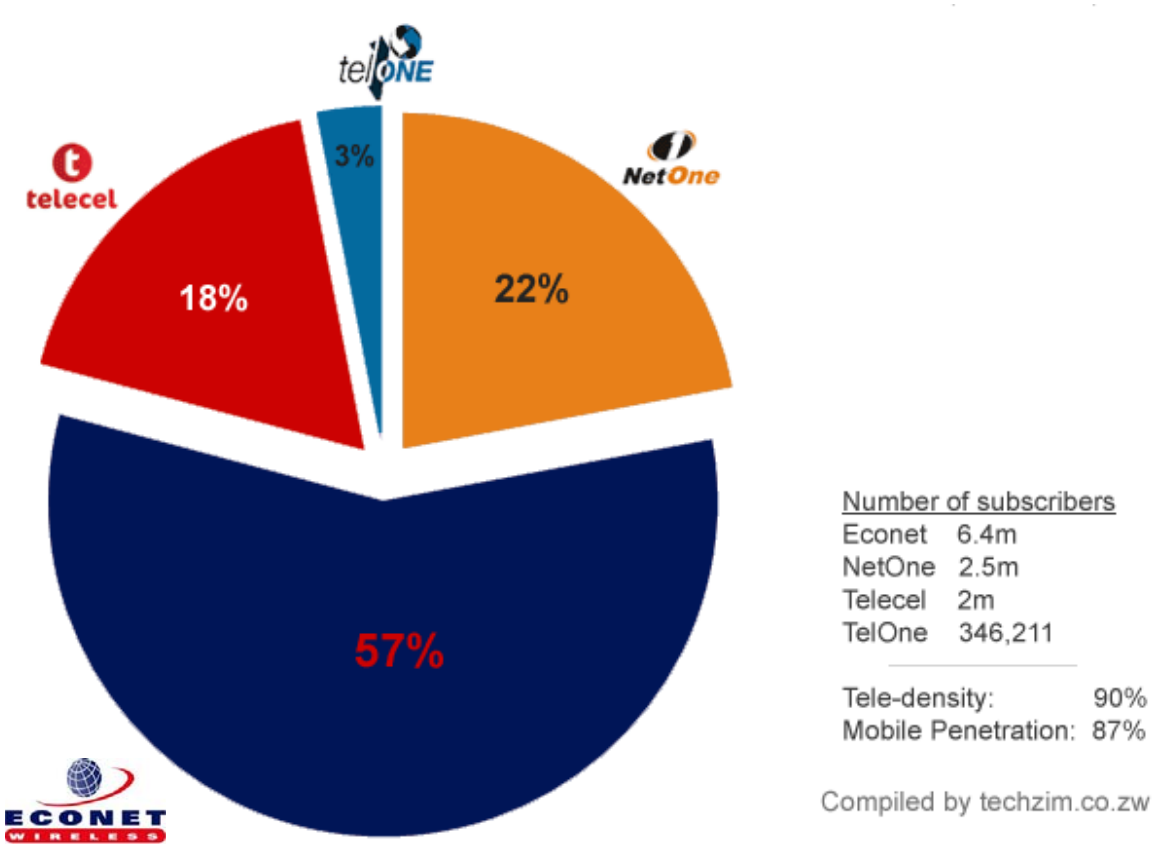

Figure 1.3: Statistics and Market Share for Telecommunication Sector as of June 2012 (Source: POTRAZ, 2012)

Technologies such as ADSL, 3G mobile, WiMAX, WiFi, etc are widely used in Zimbabwe. Like every other developing country as reported by Tedre et al (2011), the reality of a rural village in Zimbabwe is that there is:

- No electricity
- No landline phones
- No computers
- Poor public transport
- Poor road network
- Poor postal service

…but there are mobile smart phones.

A development which points to the phenomenal growth and penetration of internet-based equipment is the scrapping of payment of import customs duty on computers, cell-phones and other selected information and communication products and gadgets by the Zimbabwe Revenue Authority (ZIMRA) in 2009. For over a decade, Zimbabwe's economy depended heavily on foreign currency inflows from the estimated three million people that fled into the diaspora. The same people in the diaspora also send gadgets like smart phones, computers, iPads, etc to their relatives some of whom are in the rural areas.

Leveraging on the growth in telecommunication usage, the Ministry of ICT's mission is:

> *"to transform Zimbabwe into a knowledge-based society so as to enhance the country's competitiveness in the world in order to stimulate and sustain economic growth through the systematic application and innovative use of Information and Communication Technologies (ICT)".*

The ICT Ministry's overall functions are:

- Develop appropriate policies and strategies that enhance provision of information and communication technological innovations

- Spearhead the development of appropriate regulatory frameworks that facilitate the promotion of information and communication technology
- Champion and promote ICT literacy and utilization in the country in order to enhance regional and international competitiveness as a nation
- Promote and coordinate national ICT research and development of software, hardware and infrastructure so that it reaches best international standards
- Develop supportive and enabling infrastructure to ensure equitable access to ICTs by all citizens including disadvantaged groups and rural communities
- Introduce and enforce stringent quality of service standards in the provision of ICTs
- Create a conducive environment for investment in the areas of ICTs through public private partnerships (MICT Strategic Plan, 2010).

As stated earlier (in section 1.1), this study has been scoped empirically to explore e-government implementation efforts at government level then a case study of the Ministry of Tourism and Hospitality's e-Administration component of information sharing. The research first conducted a document study of all policies and programmes initiated by the government of Zimbabwe towards public sector modernisation. Secondly, in order to identify the status of e-government and information sharing as well as government's vision in the same, interviews were conducted with the Ministry of ICT's administration. Thirdly, a case study of the Ministry of Tourism and Hospitality was conducted to establish the extent and tools of information sharing between the ministry and other line ministries, departments and other institutions nationally and internationally. Research findings from all activities have been discussed and further developed in two solutions-oriented focus group meetings with senior managers at both ministries of ICT and tourism in the area of cross-government information sharing, and in feedback sessions with research participants. The next sub-section gives the rationale behind the choice of the Ministry of Tourism and Hospitality.

1.4.3 CASE RATIONALE: MINISTRY OF TOURISM AND HOSPITALITY

The bases for selecting the Ministry of Tourism and Hospitality as a case study are twofold. Firstly, the researcher had previous rapport with senior officials including the permanent secretary who is the administrative head of the entire ministry. Conducting field work under conditions of mutual understanding between researcher and informants would guarantee unbiased data which otherwise would be compromised in the backdrop of political unpredictability that prevailed in Zimbabwe at the time of the research.

Secondly, the need for electronic services in the Ministry of Tourism and Hospitality is deemed by the researcher as more pressing than any other ministry. Tourism is an example that e-government's parameters do not stop at the boundaries of the public sector (OECD, 2005). Since the emergence of the Internet, travel planning (e.g., travel information search and booking) has always been one of the main reasons that people use the Internet (Buhalis and Jun, 2011). The Ministry of Tourism is also evidence that political factors have influence towards the functioning of government enterprises and the general performance of an economy. Designers of national projects like e-government must critically factor in political variables in all design stages. Many e-government models for developing countries do not however recognise the salient nature of such factors. Tourism has historically been an important sector in the Zimbabwean economy. In 1996 for example, international tourism receipts comprised 57.2% of commercial services exports (Christie and Crompton, 2001). Zimbabwe's tourism fortunes then started declining steadily at the turn of the century owing to political instability.

Critical to Zimbabwe tourism's success will be its ability to forge effective partnerships and collaborations with many different players locally, regionally and internationally. Tourism has closely been connected to progress of ICTs (Buhalis and Jun, 2011), which have become "relevant on all operative, structural, strategic and marketing levels to facilitate global interaction among suppliers, intermediaries and consumers around the world" (Buhalis & Law, 2008; Egger & Buhalis, 2008). Buhalis and Jun (2011) further assert that internet-enabled tourism, known today as e-tourism, provides a wide range

of opportunities for business expansion in all geographical, marketing and operational senses. It is in this view that the researcher is motivated to investigate e-government-enabled information sharing within and across the Ministry of Tourism and Hospitality. In addition to agriculture and mining, the economy of Zimbabwe has traditionally relied on tourism as stated before. Zimbabwe has a warm climate and endowed with many tourist attractions including one of the Seven Natural Wonders of the world, the Victoria Falls. Other attractions include wildlife diversity in its system of protected areas, one of the largest man-made lakes in the world (i.e., Lake Kariba), scenery and eco-diversity in the Eastern Highlands, ancient ruins of Great Zimbabwe, Mana Pools National Park, and its neighbouring Sapi and Chewore Safari Areas, was granted World Heritage Site status by UNESCO in 1984, and now forms one of two Core Areas of the new UNESCO Middle Zambezi Biosphere Reserve.

The Ministry of Tourism and Hospitality Industry was created in 2009. The aim was to better focus national attention on tourism development. The vision behind this development was to recognise the importance of the tourism industry as a leading contributor to the national economy and to support its potential to promote social and sustainable development in Zimbabwe. The idea was to develop tourism in a systematic manner, position it as a major engine of economic growth and to harness its direct and multiplier effects for employment and poverty eradication in a sustainable manner. The study therefore acknowledges tourism to be the most information intensive, where exchange of information is very important at every stage in both the marketing and the sales cycles of the tourism product. ICTs have therefore become an almost universal feature of the tourism industry (Tahayori and Moharrer, 2006).

1.5 DEFINITIONS OF KEY CONCEPTS

This subsection presents definitions of key contemporary concepts used in this study.

1.5.1 INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs)

Definitional inconsistencies exist around the concept of ICTs because the concepts, methods and applications involved in ICTs are constantly evolving. However, unanimity

among scholars rests in any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form to describe ICTs. Central to this definition is the way these different digital systems can work with each other. According to Buhalis (2003), ICTs include “the entire range of electronic tools, which facilitate the operational and strategic management of organisations by enabling them to manage their information, functions and processes as well as to communicate interactively with their stakeholders for achieving their mission and objectives.”

The “I” in ICTs considers the nature, the management and the strategies around “I”nformation. The value and meaning of information, the manipulation, processing, and security of information become the primary concern. The “C” means that the information will then be communicated and modern ICTs have created a "global village," in which people and businesses can communicate with others across the world in an instant. The “T” is the “T”echnology (ies) which traditionally was computer-based. ICTs therefore are computers, digital television, mobile devices, email, robots, etc. According to Werthner and Klein (1999), this convergence of ICTs effectively integrates the entire range of hardware, software, groupware, netware and humanware and blurs the boundaries between equipment and software.

1.5.2 E-GOVERNMENT

This study recognises the diverse meanings of e-government by researchers. Short for electronic government, e-government is also known as e-gov, digital government, online government, connected government or transformational government. The World Bank defines e-government as:

> *“The use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to*

information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions".

The above definition encompasses m-Government, which is defined by Antovski and Gusev (2005) as an emerging discipline concerning the rise of advanced mobile and wireless communication technologies that would improve the quality of service that government services offer to citizens.

1.5.3 ELECTRONIC TOURISM (E-TOURISM)

E-Tourism is defined by Buhalis (2003) as the application of ICTs on the tourism industry. Buhalis (2003) suggests that e-tourism reflects the digitisation of all processes and value chains in the tourism, travel, Hospitality and catering industries. E-Tourism is underpinned by the understanding, incorporation and utilization of ICTs by tourism enterprises in order to strategically serve their target markets, improve their efficiency, maximize profitability, enhance services and maintain long-term profitability (Tahayori and Moharrer, 2006).

1.5.4 MEDIATING TECHNOLOGIES

In the context of this study, "Mediating Technologies" are the technologies that bring together informational resources from diverse sources. These are the technologies that facilitate cooperation, coordination and interrelationships between organizational units as well as external entities. A pragmatic analysis of the nature of these technologies and their contribution will be discussed in Chapter Six.

1.6 RESEARCH MAP

This thesis has eight chapters. *Chapter One* presents the introduction which covers background leading to the statement of the research problem. Research questions, objectives, aim and expected contribution of the study are also presented. The context

of the research and the rationale for case study selection and definitions of key concepts used in the thesis are also presented in this chapter.

Chapter Two presents an overview of available academic literature. The literature review describes, summarizes, evaluates and clarifies the literature that is related to e-government and information sharing, with a specific focus on developing countries. The chapter also locates this study within the information systems (IS) domain. The literature review was used to develop a theoretical lens on the basis of which the researcher explored the empirical research object. The overarching conceptual framework that guides the rest of the study is also presented in this chapter.

Chapter Three presents the philosophical paradigms and the research methods for the study. The Critical Realist paradigm is discussed in detail as the philosophical lens of the study. A case study research approach is also discussed in this chapter. All the analysis approaches which cover Chapters Four, Five and Six are also discussed in this chapter.

Chapter Four reports on the qualitative analysis of the government ICT policy documents, leading to a critical narrative analysis of the same. The policy documents analysed include the Strategic Plan (2010), National ICT Policy Framework (2006), National e-Readiness Survey Report (2005) and others. The tensions which emerge from the analysis of the policy documents are discussed in this chapter.

Chapter Five reports the findings on enablers and barriers on e-government implementation in Zimbabwe. The chapter mainly provides knowledge contribution to the body of research by way of an insight towards designing appropriate intervention programs in the implementation of the e-government information sharing framework to be presented in Chapter Seven.

Chapter Six presents the application of the activity driven needs analysis (ADNA) tool on the case study. The chapter is organized focusing on two main research themes

which are: needs and requirements on one hand and evaluation on the other. These two research themes lead to the outcome constructed around the presentation of current situation which is a description of the case (around the needs and requirements theme) and the evaluation of the case.

Chapter Seven presents a synthetic analysis of results from Chapters Four, Five and Six. Based on the literature review and research findings, recommendations for improving information sharing to establish a complete e-government implementation are presented in the form of an e-government framework as it is applied to the Ministry of Tourism and Hospitality case.

Chapter Eight presents the summary and the overall evaluation of the study. Theoretical, methodological, knowledge and practical contribution of the study to the broader e-government discourse within the IS domain is presented in this chapter. Also presented in this chapter are limitations of the study and recommendations for further research.

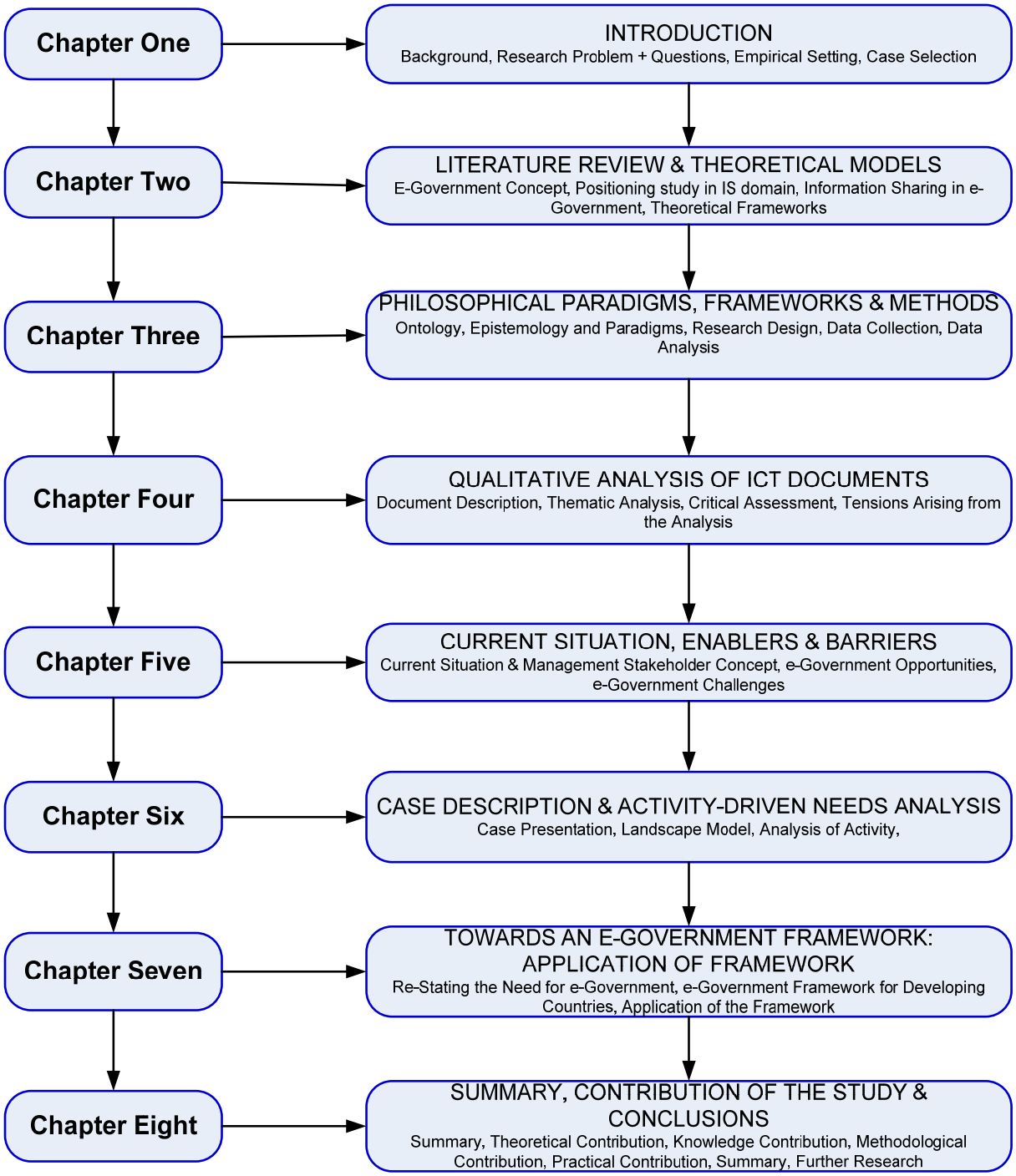

Figure 1.4: Research Map

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL PERSPECTIVES

Research in the Information Systems field examines more than just the technological system, or just the social system, or even the two systems side by side; in addition, it investigates the phenomena that emerge when the two interact

- Lee.

2.1 INTRODUCTION

The chapter presents a discussion of a holistic framework for locating the e-government concept within the IS domain and also articulating strategies for enabling information sharing in government. As stated in Chapter One, the study acknowledges several definitions of the e-government concept. The chapter sets the tone of the definition of e-government adopted in the entire study. Theoretical foundations of the e-government phenomenon are also discussed, leading to the construction of an overarching e-Government Information Sharing Framework at the end of the chapter. Emphasis is placed on the political nature and the complex institutional environments in which e-government develops and recognition is given to the key concepts of e-government which involve the technological and social aspects.

This chapter is organised as follows: the e-government concept is explained in the next section followed by an overview of e-government in developing countries. The section that follows positions the study within the information system domain by presenting some information system theories and models which have been applied to e-government studies. The next section presents the information sharing concept within e-government. In this section, e-government is described as both a technological and social construct by three models which lead to the construction of the framework in the next section before the chapter ends with a summary.

2.2 THE E-GOVERNMENT CONCEPT

The concept of e-government followed the adoption of e-commerce by private sector. This study acknowledges diverse definitions of e-government as shown in Table 2.1. In the context of this study, “electronic government” (e-government), “digital government”, “internetworked government”, “connected government” and “government online” are used synonymously.

The term “electronic government” appeared both in the academic and non-academic literature in the mid-1990s (Scholl, 2010; Grönlund & Horan, 2004) and the work has grown rapidly into an interdisciplinary research field (Burke, 2012). The main domains under which e-government falls are computer science, information systems, public administration and political science (Heeks and Bailur, 2007). The two main domains which have received much attention from academic research are information systems and public administration. There is still however no overarching theory which can explicitly underpin the development and deployment of e-government. This explains that e-government, as a discipline of research is still in its infancy.

This study recognises the many definitions of e-government since the term was first introduced in the mid-1990s. The definitional variances can be clearly observed in Table 2.1. This study adopts the definition of e-government as follows:

> *“E-government is the use of any information and communications technology (ICT) based initiative to connect government to citizens and business nationally and internationally; provide information to government employees; and to connect government agencies together, in order to achieve higher levels of service delivery, internal processes and sharing of government information”.*

The World Bank (2003) places emphasis on the transformative capability of e-government but also acknowledges that e-government is about changing how

governments work, share information, and delivers services to external and internal clients.

Reference	Definition	Focus
Bonham et al. (2001)	E-government involves using information technology, specifically the internet, to deliver government information, and in some cases, services, to citizens, businesses, and other government agencies.	Internet Information and service delivery
Deloite and Touche (2002)	The use of technology to enhance the access to and delivery of government services to benefit citizens, business partners, and employees.	Access Service delivery
Heeks (2002a)	The use of information and communications technologies (ICTs) to improve the activities of public sector organizations.	Improvement
OECD (2003)	The use of ICTs, and particularly the internet, as a tool to achieve better government.	Internet
Basu et al (2004)	E-government involves the automation or computerization of existing paper-based procedures in order to prompt new styles of leadership, new ways of debating and deciding strategies, new ways of transacting business, new ways of listening to citizens and communities and new ways of organizing and delivering information. Ultimately, e-government aims to enhance access to and delivery of government services to benefit citizens.	Transformation Access
Ndou (2004)	The use of ICT tools to reinvent the public sector by transforming its internal and external way of doing things and its interrelationships with customers and the business community.	Transformation
Stoltzfus (2004)	A program that utilizes internet communication technology (ICT) to improve communication, service, and transactional processes with stakeholders.	Internet Communication and service delivery
Chen, Chen, Huang and Ching (2006)	E-government is a permanent commitment by government to improve the nature of the relationship between the private citizen and the public sector through enhanced, cost-effective, and efficient delivery of services, information, and knowledge.	Service delivery Public sector Efficiency
World Bank	eGovernment refers to the use by government agencies of information technologies … that have the ability to transform relations with citizens, businesses, and other arms of government.	Transformation
Maumbe, Owei and Alexander (2008)	E-government is the use of any information and communications technology (ICT) based initiative to improve government service delivery and internal processes.	Transformation Access

Table 2.1: Selected definitions of e-government

This study avoids a common focus by many researchers that the “e” in e-government implies that the focus of e-government should be on the relationship between the public organisation and the public via the visible web interface. The internal organisational processes focusing on the information management as an important antecedent of the organisation’s interface with the public has been ignored in e-government discourses. Figure 2.1 illustrates the typical three major dimensions of e-government, namely the citizens, business and government.

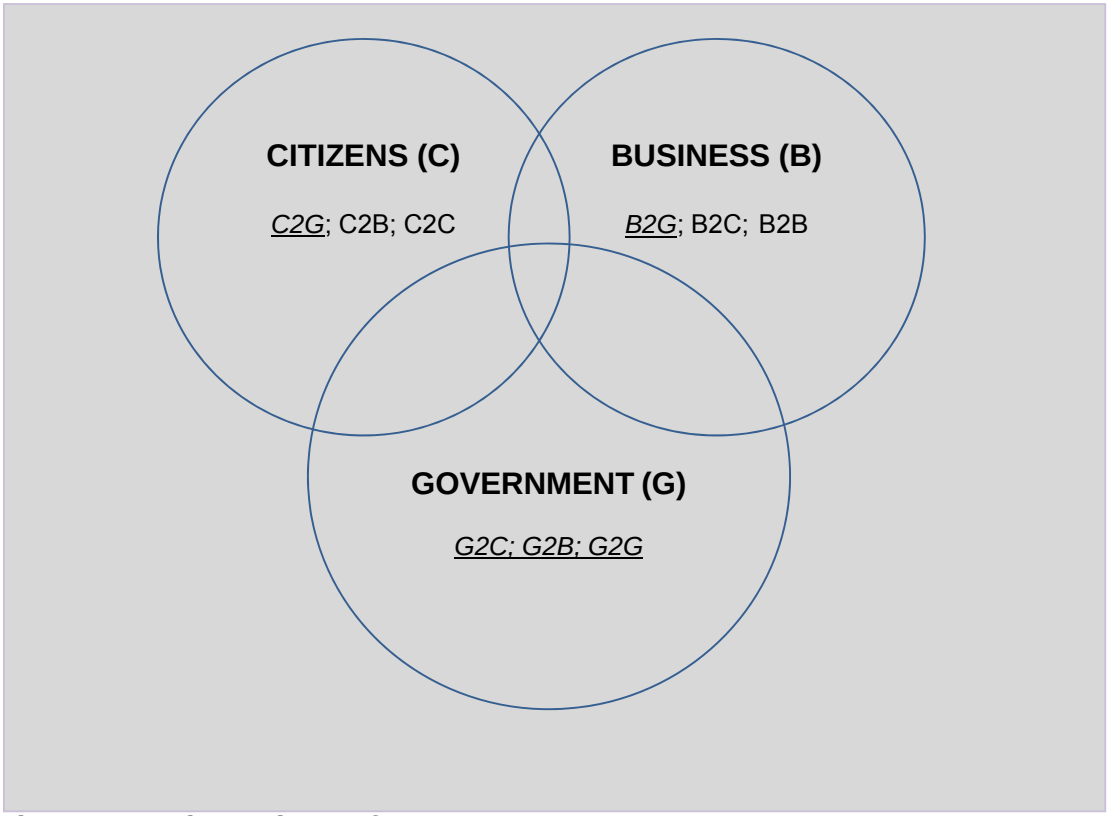

Figure 2.1: Dimensions of e-government

Analogous to e-commerce, which allows businesses to transact with each other more efficiently (B2B) and brings customers closer to businesses (B2C), e-government aims to make the interaction between government and citizens (G2C), government and business enterprises (G2B) and inter-agency relationships (G2G) more friendly, convenient, transparent, and inexpensive (United States’ e-government Strategy, 2003).

Table 2.2 explain the dimensions of e-government presented in Figure 2.1.

e-Government Dimension	Interaction between Stakeholders
Citizen-to-Government (C2G)	Allows for exchange of information and communication between citizens and government.
Government-to-Business (G2B)	Consists of electronic transactions where government provides businesses with the kinds of information they need to transact with government. An example is an e-procurement system.
Government-to-Citizen (G2C)	One-way delivery of public services and information by the government to citizens.
Business-to-Government (B2G)	Refers to marketing of products and services to government to help government become more efficient through improved business processes and electronic records management. An e-procurement system is an application that facilitates both G2B and B2G interactions.
Government-to-Government (G2G)	Allows for online communication and information sharing among government departments or agencies through integrated databases.

Table 2.2: Explanation of dimension of e-government

This study draws mostly on the literature of G2G dimension of e-government and inter-organisational information sharing. Heeks (2001:5) refers to this dimension of e-government as e-Administration. According to ibid, one of the aims of e-Administration is:

> *"to make strategic connections in government: connecting arms, agencies, levels and data stores of government to strengthen capacity to investigate, develop and implement the strategy and policy that guides government processes. Examples of such connections are central-to-local, ministry-to-ministry, executive-to-legislature, and decision maker-to-data store. Automation and informatisation support this by digitising existing information channels. Transformation supports this by creating new digital channels. The rationale is to provide clearer direction for public sector and state processes and to provide for a more evidence-based approach to policy and process".*

While the focus of this study is information sharing within the e-Administration domain, Heeks (2001) also identifies two more domains of e-Society/e-Citizens and e-Services.

According to Ndou (2004), e-Society explains the relationships and interactions beyond boundaries, among stakeholders and consumers of government services. E-Citizens and e-Services realise the connections and interrelationships among governments and citizens and to deliver automated services (Ndou, 2004). Figure 2.2 depicts these three domains with e-Government being found in the overlapping area.

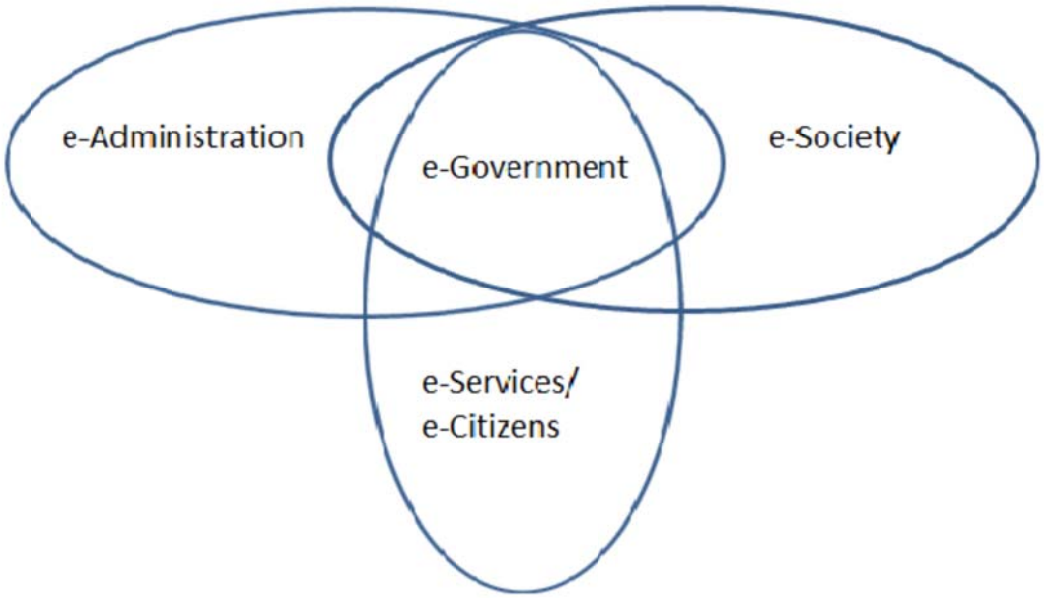

Figure 2.2: Domains of e-government (Source: Ndou, 2004)

The growing focus on the e-Administration domain is precipitated by the inefficiencies of silo-based e-government where, according to CS Transform (2010), each government agency:

- Maintains its own databases even for universal common data items such as citizens' birth records, identity, addresses, etc
- Builds its own bespoke applications for functions which are common to other agencies
- Builds the common bespoke applications in a manner that duplicates expenditure as well not fostering inter-operability with other government institutions.

The e-Administration domain is located within the new concept of 'transformational Government', sometimes called Government 2.0 or 'Citizen-Enabled Government'.

OASIS (2010) explains that this new approach of Transformational Government is where:

> *"… [governments] are now getting to grips with the much broader and complex set of cultural and organizational changes that are needed for ICT to deliver significant benefits to the public sector ... It encompasses a new, virtual business layer within government that allows an integrated, government-wide, citizen-focused service to be presented to citizens across all channels, but at no extra cost and without having to restructure government to do so".*

Figure 2.3 illustrates the transition from legacy Government 1.0 systems to a transformed Government 2.0. The two key enablers which according to CS Transform (2011) make the journey toward Government 2.0 possible are:

- An increasing understanding and awareness of the governance changes required
- A set of market innovations to transform the way that governments and citizens engage with the underlying technology

Figure 2.3 also shows five key phases of e-government development as governments adapt to an information-based economy which demand an understanding of a fundamental shift in the dynamics of citizens' expectations. They are fragmented government, interoperable government, integrated, citizen-focused, and citizen-enabled or transformational government. As citizens and other stakeholders' expectations of government increase in the age of cloud computing and social media, benefit realization of such transformation has been recorded by many governments. The benefit realisation from e-government has trigered a rush by governments around the world to transform government business through technology.

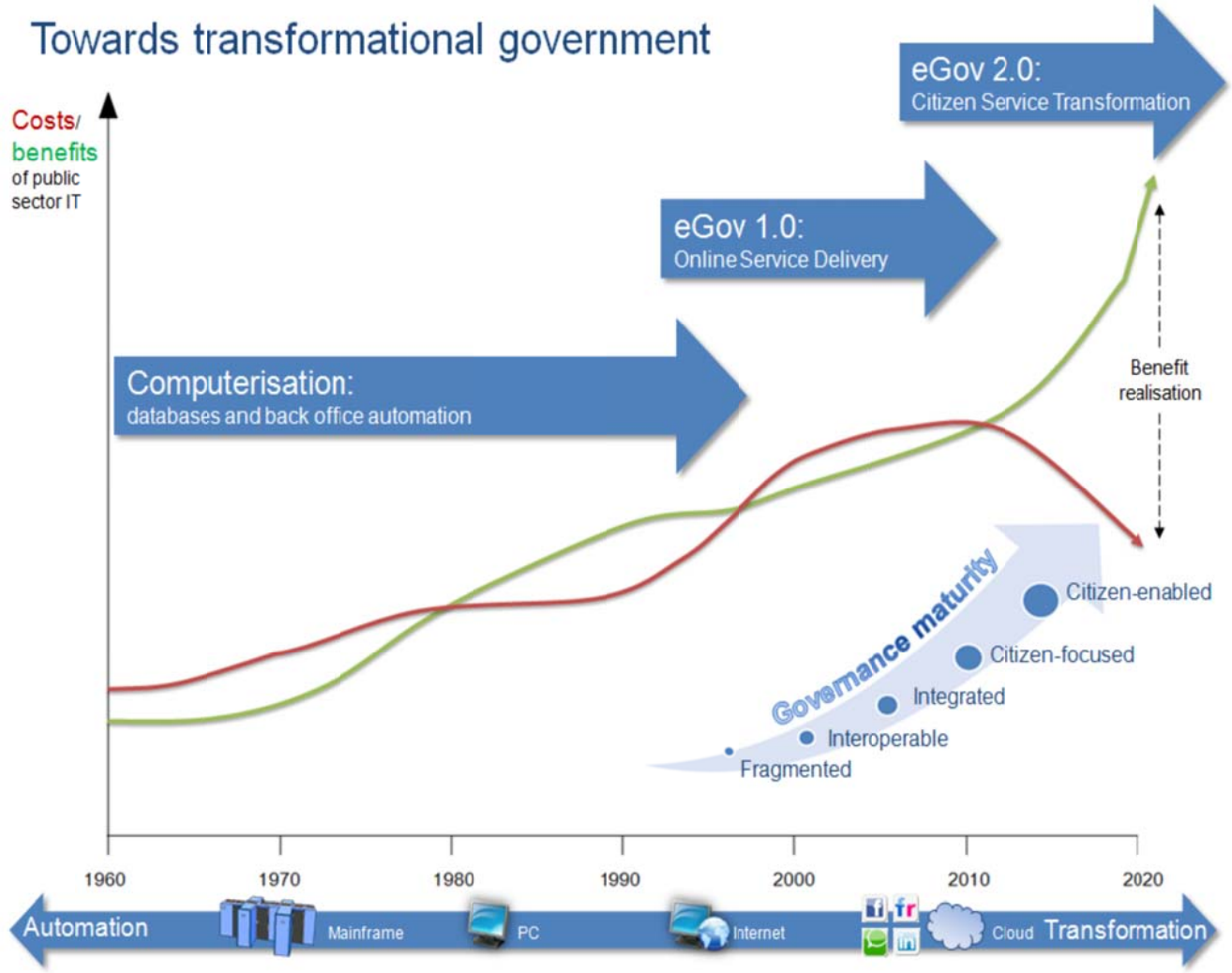

Figure 2.3. The transformation of citizen service delivery (Source: CS Transform, 2010)

Figure 2.4 summaries the benefits of e-government to an economy. It categorises the benefits of e-government in terms of internal (inter and intra-agency benefits), external (customer focus towards improving services, enhancing citizen particiaption and redefining communities) and external (with a focus on contribution to broader economic development).

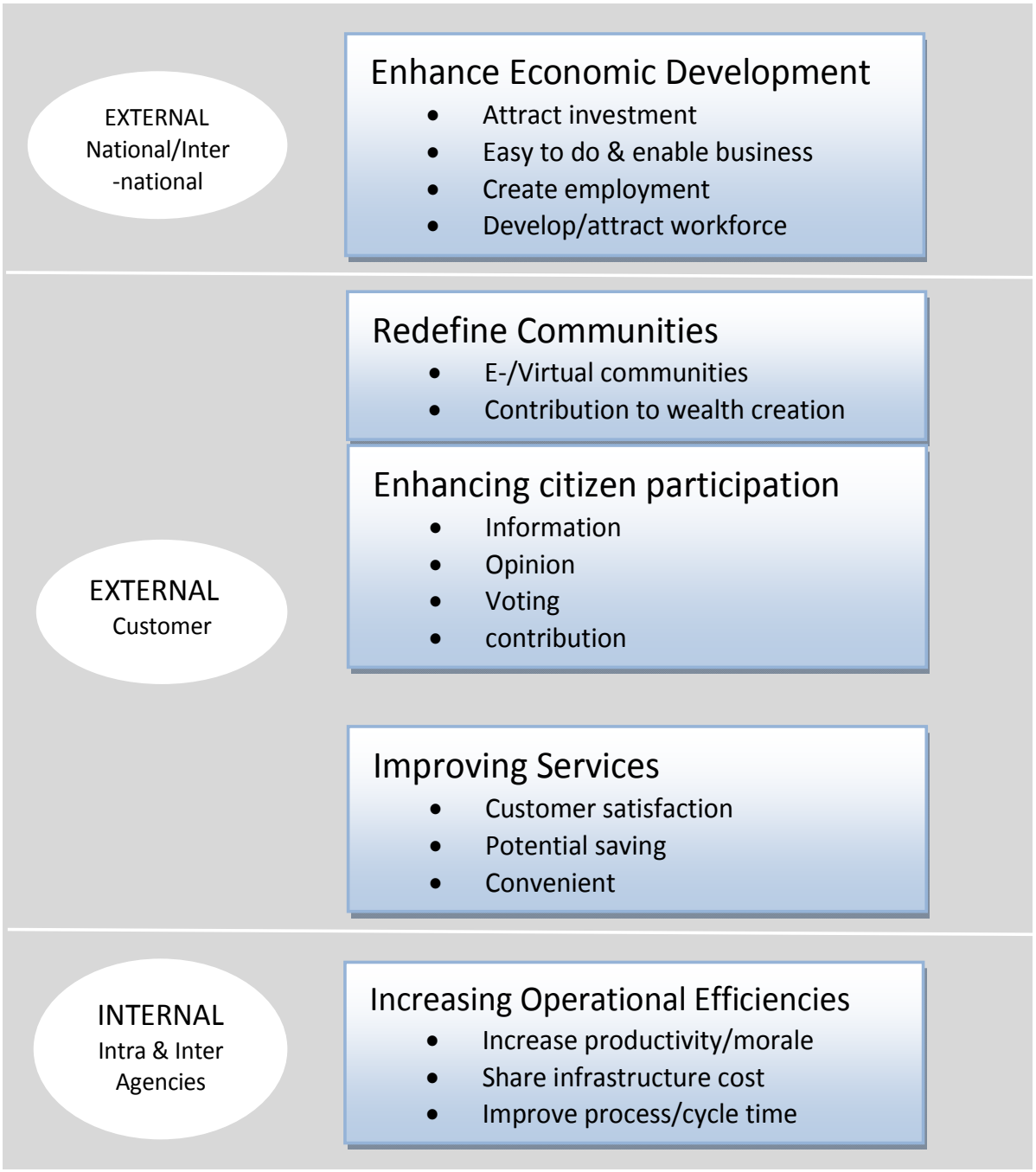

Figure 2.4: Benefits of E-Government (Source: MICT, 2010)

Internal Benefits – these are intra and inter-agency benefits. This category, G2G, is the focus of this study. According to Ndou (2004), a key assumption inscribed in the e-government paradigm is that the power of ICTs will lead the public sector to achieve operational efficiency, cost reduction, improved quality of services, and learning. G2G

collaboration involves sharing information and conducting electronic reciprocal activities within and between government agencies. Lee (Forthcoming) reiterates Ndou's assertion that the main aim for intra and inter-agency information sharing is to improve government efficiency by saving transaction costs and streamlining back offices, increasing the speed of transactions, reducing the number of personnel necessary to complete a task, and improving the consistency of outcomes.

External (Customer) - One of the major goals of transformational government is to presents an agenda of a citizen-centric public service design and an increased uptake of shared services to release efficiencies. Communities are being re-defined, citizen participation is being enhanced through e-participation and citizens enjoy benefits of improved service delivery.

External (National and International) – ICTs are now being applied effectively by national governments to stimulate social and economic development. Findings of e-government studies in Ghana by Schuppan (2009), reveal that e-government has the capacity to facilitate trade, increase inland revenue and improvements in general levels of economic development. From Figure 2.4, economic development manisfets itself when a country can attract investment, easy to do and enable business, create employment and can attract and retain workforce.

2.3 SELECTED E-GOVERNMENT EXAMPLES IN AFRICA

While ICTs have become the agents for a change agenda within governments globally, there is absence of meaningfully coordinated efforts at government level in Zimbabwe to transform government service delivery through e-government. It is intented that by citing successful e-government developments in other African countries, the Zimbabwe Government cam learn from counterparts with similar socio-economic environments and even some with political instability. In Zimbabwe, the private sector experienced explosive growth in Internet usage and rapid development of e-Commerce since late 90s. This created a serious problem in the government as people started demanding

better service from their government. The growing pressure on the public sector to serve citizens electronically 'forced' the government to implement ICT-based systems in several departments and ministries. However, the execution of ICT-based projects in government was done in a piece-meal approach without any policy or strategy.

This study cites other countries in Africa with similar socio-economic background as Zimbabwe, where e-government has been systematically implemented with the aim of improving public service delivery, as a basis to argue for the implementation of a whole-of-government approach to e-government. Though it is essentially an imported concept based on imported designs (Heeks, 2002), e-government has significant footprints in Africa. According to the web measure index from the UN's worldwide e-government Readiness Reports of 2005 and 2008, a lot of African countries are statistically registered as emerging economies that are implementing e-government.

South Africa - The South African Government launched phase one of its "people first" Internet gateway, giving individuals, organisations and foreigners a single entry point to government services and information, organised according to user needs rather than government structures.
(http://www.southafrica.info/public_services/citizens/services_gov/sagovtonline.htm).
The South African Revenue Service (SARS) is often cited as the most successful example of a transactional e-government service. The implementation of a tax return e-filing system by SARS has benefited many tax payers since 2006.

Egypt - The Egyptian Government is already providing extensive information about cabinet meetings online as well as extensive online public services on their website, http://www.egypt.gov.eg/english/ (Schuppan, 2009). The Ministry of Education of Egypt, whose site is http://knowledge.moe.gov.eg/arabic/, has significantly improved its website by making it more interactive. Citizens can receive information via e-mail, download registration forms, and educational videos as well as listening to audio clips.

Mauritus - The Government of Mauritius is a major success story in e-government implementation in Africa where a plethora of e-forms are provided online. The e-forms portal is a repository of all downloadable forms by each ministry and departments in Mauritius.

Kenya – the Kenyan Government continues to work towards realizing its commitment to online service through its dedicated 'Directorate of e-Government', whose website is http://www.egovernment.go.ke. Kenya's example shows how even countries with constrained resources can make solid progress in e-government.

Others - The United Nations' e-Government Survey Report (2008) cites many other examples in Africa where the modernisation of governments through e-government is taking place. The report mentions the following: the Ministry of Finance in Rwanda (http://www.minecofin.gov.rw), provides downloads of statistical information in English and French languages; the Ministries of Labour and Social Welfare of Angola (available at http://www.mapess.gv.ao/), received high marks (80 per cent) from the United Nations' e-Government Survey for the enhanced stage, by providing their citizens with a one-stop shop website, news section and archived information; the Ministry of Finance of Morocco whose site is http://www.finances.gov.ma, allows its citizens to create accounts online, download financial statistics and retrieve archived information; the Ministry of Finance of Lesotho (available at http://www.finance.gov.ls), permits its citizens to download forms and access financial statistics, retrieve archival information and also offers a news section and an online feedback mechanism that allows citizens to ask questions or make a suggestion; the national portal of Burkina Faso (www.primature.gov.bf), is the only African portal which allows for online consultation; the Ministry of Finance of Cape Verde (athttp://www.minfin.cv), has created a one-stop shop, with downloadable financial forms and statistics, and access to the ministry's database and archived information.

The next section locates the study within an information system (IS) domain. Other discourses on e-government take place within public administration discipline, but this

study lies within the IS because it recognises the interplay between technology and people

2.4 POSITIONING THE STUDY WITHIN THE INFORMATION SYSTEMS DOMAIN

An information system (IS) is defined by Avison and Fitzgerald (2003) as:

> *"The effective design, delivery, use and impact of information [and communication] technologies in organizations and society"*

In the same vein, Swanson (1994:1,072) defines IS innovation as an organisation's application of information technology to make its processes more efficient and effective. Most contemporary IS research however, content that the two definitions do not capture the excitement of the discipline (Avison et al, 2003) so they therefore suffer from the common problem of IT determinism and optimism because they privilege IT as the unquestioned agent of IS innovation (Wiredu, 2012). A definition of IS which captures the framework within which this study finds its analytical home is provided by McDonald (2005:145):

> *"Information Systems (IS) is an active, interventionist discipline that mobilises information and knowledge so people can effectively take knowledgeable, informed actions in their organisational and social setting. It is concerned with understanding and formalising areas of human activity and developing IT-based systems that responsibly intervene in those areas for the benefit of all stakeholders".*

McDonald's definition of IS resonates well with Lee's argument presented in the beginning of the chapter:

> *"Research in the Information Systems field examines more than just the technological system, or just the social system, or even the two systems side by side; in addition, it investigates the phenomena that emerge when the two interact" Lee (2001:iii).*

In the backdrop of Lee and McDonald's definitions of IS, this study locates the e-government innovation within the IS domain. The development of the e-government artefact is both technical and social. Contemporary IS researchers have advocated for the socio-technical concept in systems development (Heeks, 2002; Walsham, 2007, Avgerou, 2010). The socio-technical school is inspired by systems thinking where the human and the machine, the social and the technical, are bound together in an entirety (Wicander, 2011). The construction of knowledge in this study is guided by the socio-technical approach to systems design and implementation.

Much recently, research has seen use of theoretical and philosophical lenses in order to understand the e-government phenomenon. One of the most widely used IS theory which has been successfully applied on e-government research is the Actor Network Theory (ANT). According to Walsham (2000), an increasing number of IS researchers are making explicit use of ANT in their work. Walsham's observation is also subscribed to by Hanseth et al (2004) who argue that:

> *" … if ANT is supposed to make a significant contribution to IS research, it should help us theorize the IT artifact, or in Lee's terms: help us get a better understanding of the interaction between the social and the technical system. And the good news is, then, that it is exactly this borderline between the social and the technical that ANT has been developed to help us analyse and understand".*

ANT places emphasis on the associations that exist and are created between the technology and its surrounding actors, that is, actors that are both technical and social. ANT is premised on the view that what appears to be social is partly technical and what appears to be technical is partly social. Stanforth (2007), through the application of ANT to an e-government application in Sri Lanka, argued that information system innovation is a contingent outcome that is determined not by the properties of the technology but by the result of contested interests of actors linked together in complex networks. The

theories have provided a good framework to position e-government discourses within the field of information systems.

Other social constructivism perspectives which have however not been widely considered in the e-government literature are Social Construction of Technology (SCOT) and Systems Theory. The former is predicated on the view that technology development is a process in which multiple groups negotiate over the design of an artefact and that each of these different social groups has a specific interpretation of the artefact and will see and construct quite different objects (Klein and Kleinman, 2002). The latter's basic tenets are captured by Hughes (1987, 2001: 51):

> *"Technological systems contain messy, complex, problem-solving components. They are both constructed and society shaping. Among the components in technological systems are physical artefacts, such as turbo generators, transformers, and transmission lines in electric light and power systems. Technological systems also include organisations, such as manufacturing firms, utility companies, and investment banks, and they incorporate components usually labelled as scientific, such as books, articles, and university teaching and research programs. Legislative artefacts, such as regulatory laws, can also be part technological systems. Because they are socially constructed and adapted in order to function in systems, natural resources, such as coal mines, also qualify as system artefacts"*

Literature is also replete with technology adoption theories' application to e-government, especially those examining the determinants of information technology acceptance and utilization among users. Diffusion of Innovations Theory (DOI) forms one of the primary theoretical foundations on the adoption and diffusion of an innovation applied to e-government. DOI is defined by Rogers (1962) as the process by which an innovation is communicated through certain channels over time among the members of a social system. An innovation is an idea, behaviour, or object that is perceived as new by its audience (Robinson, 2009). According to Rogers (1995), the core assumption of

diffusion research centres on the conditions which increase or decrease the likelihood that a new idea, product, or practice will be adopted by members of a given culture.

According to Agarwal et al (1999), the Technology Acceptance Model (TAM) seems to be the most widely used by IS researchers, perhaps because of its parsimony and the wealth of recent empirical support. The relevance of the TAM for e-government has been emphasized in recent literature (Karavasilis et al, 2010; Suki, 2010; Venkatesh, 2000; Bailey et al, 1983; Lucas et al, 1999; Dabholkar, 2002; Bruner et al, 2005). TAM posits that perceived usefulness and perceived ease of use of IT are major determinants of its usage (Davis, 1989). TAM is premised on the view that perceived ease of use and usefulness can predict attitudes toward adopting a technology. Perceived usefulness and perceived ease of use of a technology combine to create an attitude about the technology, influencing decisions of whether to adopt the technology or not.

Table 2.3 gives a summary of selected IS theories that have been applied to e-government research

Theory of IS	**Title**	**Reference**
Delone and McLean IS success model	A research on the appraisal framework of e-government project success	Hu et al (2005)
	Evaluating leadership, IT quality, and net benefits in an e-government environment	Prybutok (2008)
	Assessing e-government system success: a validation of the DeLone and McLean model of information systems success	Wang and Leao (2007)
Diffusion of innovations theory	Profiling the Adopters of E-Government Information and Services The Influence of Psychological Characteristics, Civic Mindedness, and Information Channels	Dimitrova and Chen (2006)
	Diffusion of E-government innovations in the	Korteland,

	Dutch public sector: The case of digital community policing	Bekkers (2007)
Technology Acceptance Model	Understanding citizen's continuance intention to use e-government website: A composite view of technology acceptance model and computer self-efficacy	Wangpipatwong et al (2008)
	Barriers and benefits in the adoption of e-government	Gilbert (2004)
	Perceived usefulness, personal experiences, risk perception and trust as determinants of adoption of e-government services in The Netherlands	Horst (2007)
Unified theory of acceptance and use of technology	The Use of the UTAUT Model in the Adoption of E-government Services in Kuwait	AlAwadhi and Morris (2008)
	Adoption and use of e-government services: the case of Romania	Colesca and Dobrica (2009)
Adaptive Structuration Theory	Enacting state websites: A mixed method study exploring e-government success in multi-organizational settings	Gil-Garcia (2006)
	Collaborative e-Government: impediments and benefits of information-sharing projects in the public sector	Gil-Garcia (2007)
	E-government policy and health information systems implementation in Andhra Pradesh, India: need for articulation of linkages between the macro and the micro	Madon et al (2007)
	Bridging theory and practice in e-government: A set of guidelines for architectural design	Meneklis et al (2010)

Table 2.3: Selected IS theories applied to e-government research

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2.5 INFORMATION SHARING WITHIN E-GOVERNMENT CONTEXT

According to Makedon et al (2003), e-government principles are based on the assumption that different government agencies are willing to cooperate and share information and data through a network infrastructure. Wiredu (2012) contends that ICT integration can best be explained through the institutional- or macro-level analysis (e.g. Irani et al., 2005; O'Donnell et al., 2003, Bellamy and Taylor, 1998) of e-government. While literature reports some degree of success in the developed world, there is a lack of empirical research on information sharing practices of government agencies in developing countries.

Several studies have reported successes of ICT utilisation by governments to enable information sharing (Watson, 2000; Dawes, 2002; Chiang et al, 2007). IS technologies such as Electronic Data Interchange (EDI), Enterprise Resource Planning (ERP) systems, Enterprise Application Integration (EAI), Public Service Knowledge Network (PSKN) and others, have been widely utilized to facilitate information sharing. O'brien & Marakas, (2007) describe technologies that support information sharing between two or more organizations as inter-organizational information system (IOIS). With IOIS, resources are shared to the benefit of all participating agencies. IOISs utilise ICT-based systems to extend processes beyond an organization's legal boundaries

Although governments are complex and multidimensional in character (Ochara, 2009), information sharing and integration are being recognised as the most increasingly accepted methodologies by governments around the world, for working out problems in a broad range of programs and policy areas. Common challenges of universal concern such as disease detection and control, terrorism, immigration and border control, drug trafficking, etc, can only be addressed through information sharing arrangements. This study empirically observes that coordination and sharing of tourist information between the Ministry of Tourism (in the case of Zimbabwe) and other line ministries and departments such as the immigration, Zimbabwe council of tourism, Zimbabwe tourism

authority, etc, can best inform policy makers regarding tourism statistics or infrastructure in the country.

ICT-enabled information sharing leads to the concept of 'connected government' (also known as 'joined-up government', 'collaborative' or 'integrated' government). According to the UN e-Government Survey Report (2008) the concept of connected government is derived from the whole-of-government approach that focuses on the provision of services at the front-end supported by integration, consolidation and innovation in back-end processes and systems to achieve maximum cost savings and improved service delivery. The distinguishing characteristic of the whole-of-government approach is that government agencies and organisations share objectives across organisational boundaries, as opposed to working solely within an organisation (ibid). Lips et al (2009) claim that joining-up across organisations is a response to two problems. The first problem is a structural one relating to the bounded focus of each organisation. 'Islands' of government that are frequently unable to interoperate due to fragmentation needed to be addressed.

The second problem relate to the changing needs of citizens and business (Lips et al, 2009). The services required by citizens, business and other consumers of government services are likely to be spread across the ambit of a number of government agencies, so fragmented government institutions increasingly find it difficult to satisfy the consumer. As a result of these problems, a lot more academic work is being done on information sharing in government, and the following sub-section presents such theoretical background.

2.5.1 THEORETICAL BACKGROUND ON SHARING FOR E-GOVERNMENT

Literature reports that a number of scholars have attempted to clarify the need for information sharing in government institutions in order to gain maximum benefits of using ICTs (Bigdeli et al, 2011). According to Scholl and Klischewski (2007), information integration can be recognised as:

"the forming of a larger unit of organisational entities, temporary or permanent, for the purpose of merging processes and/or sharing information" (Bigdeli et al, 2011:2).

The two widely discussed and most influential models of information sharing in government are intra-agency information sharing by Dawes (1996) and its extension by Landsbergen & Wolken (2001). Dawes' model, presented in Figure 2.5, depicts how a sharing experience is triggered by a pressing problem suitable for an IS-based solution (Fillottrani & Estévez, 2010). The model of Dawes (1996) considered the benefits and risks of information sharing by stating that:

"Inter-agency information sharing benefits help solving organizational individual and domain-level problems by a likely growth of productivity integrated planning, policy development and organizational programs implementations".

Dawes argues that in order to achieve a successful information sharing platform an effective information sharing policy must be formulated. This policy must take into account global view of how information resources can assist government services.

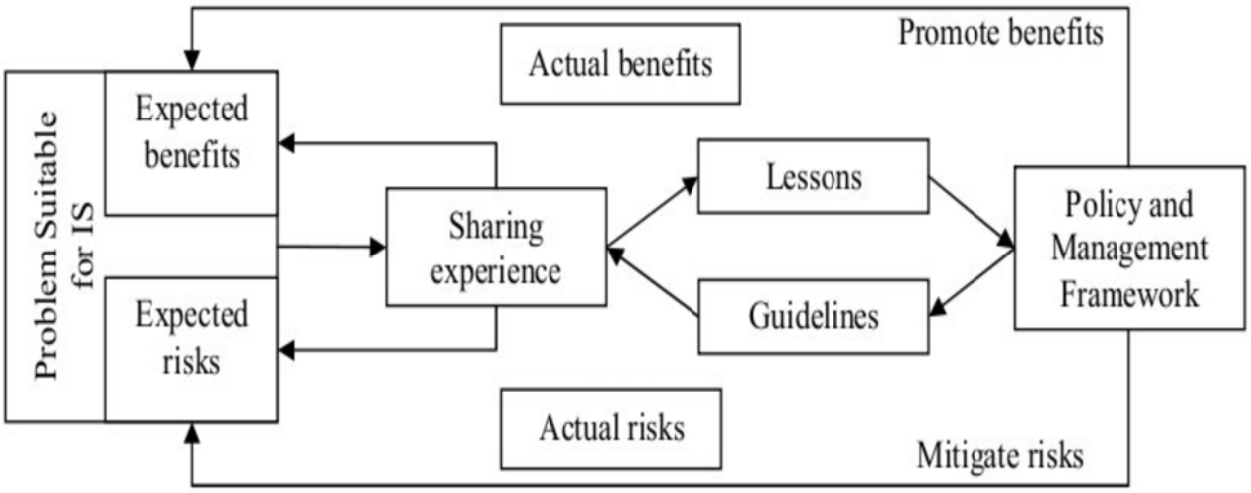


Figure 2.5: Dawes' intra-agency information sharing model (Source: Dawes ,1996)

A major criticism of Dawes's model was presented by Akbulut (2002), who argues that the model ignores aspects such as technology and it does not expand to the local level of governing. According to ibid, intra-agency information sharing must be supported by technological tools. At organisational level, the study does not explain how organizational attributes such as available skills, size of the organization contribute to information sharing. This study does not place much emphasis on Dawes' model as it ignores the influences of environmental setting and organization attributes into inter-organizational information sharing.

The second model (Figure 2.6), of Landsbergen and Wolken (2001) draws on Dawes' work but they propose an IS support. According to Fillottrani and Estévez (2010), the modified model comprises three elements:

- technical element to ensure hardware and software compatibility, availability of standard processes and the integration of best practices into such processes;
- interoperability policy architecture to include meta-data infrastructure and inter-agency contracts; and
- a clearinghouse of best practices and a formbook of contracts to support IS

To support the claim that the principal contribution of the model is the development of infrastructure to support agencies in sharing information the model identifies five IS-enabling tools:

- meta-data to identify the presence, nature and quality of information;
- laws and policies to specify timing and conditions upon which government agencies should make their information available;
- economic and budgetary mechanisms to identify IS costs and benefits;
- the extent of shared information; and
- managerial tools to provide incentives and controls for IS processes (Fillottrani & Estévez, 2010).

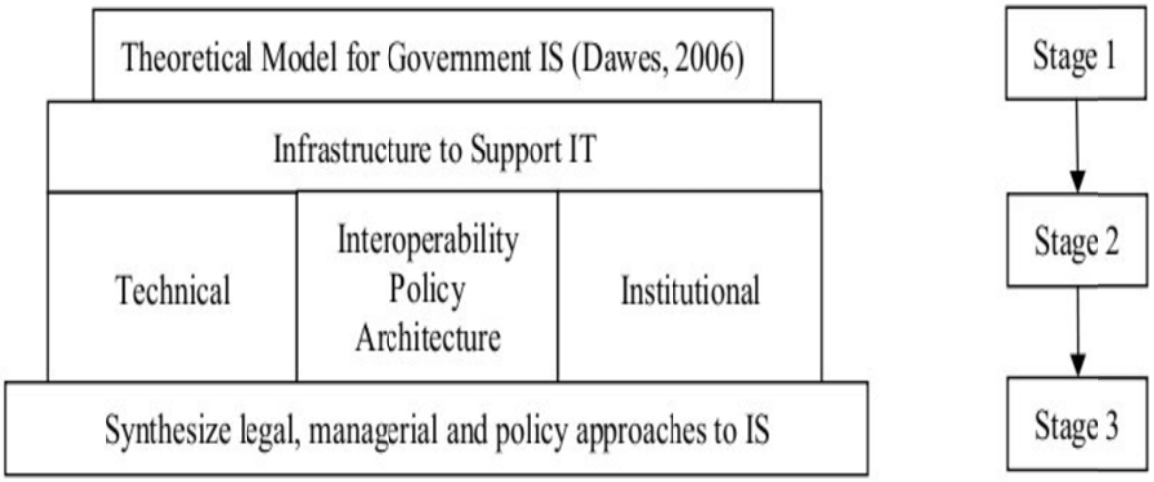


Figure 2.6: Expanded model of interagency information sharing (Source: Landsbergen and Wolken, 2001)

Incompatibility of technologies, inconsistent data definition, and organizational interest are some of the barriers to interagency information sharing according to Landsbergen & Wolken (2001). The principal contribution of the model is the development of infrastructure to support agencies in sharing information.

The relevance of the Landsbergen and Wolken model to this study lies in its recognition of technological infrastructure, interoperability, managerial and policy issues and the use of computers. This recognition was echoed by Gil-Garcia et al (2009) who suggested four interconnected social and technical factors for comprehensive understanding of the government information sharing concept as follows:

Trusted social network – key requirement is a clear definition of the responsibilities of members: exercise of authority, diversity of participating organizations and their goals, and experiences (Estevez et al, 2011).

Shared knowledge and information - refer to the flow of tacit and explicit knowledge in the form of formal documents, information relationships, messages, emails, etc (Bigdeli et al, 2011).

Integrated data - indicates the integration of data at different levels based on a standard among organisations participating in information sharing.

Interoperable technical infrastructure – explains different information systems which are able to communicate with each other and transfer information.

This study subscribes to the four factors of Gil-Garcia et al (2009) due to the complex interplay of social and technical actors in the Zimbabwe situation. These factors are adopted and conceptualised in the same domain as the nested contexts of information integration (Pardo & Tayi, 2007) presented in Figure 2.7:

1. A technology solution for information sharing and integration and collaboration typically involves development of standards, metadata, platform and application interoperability, ontologies, data quality attributes and others;

2. Organizational/ business processes represent work processes, control mechanisms and information;

3. Inter-organisational setting is the development and maintenance of collaborative relationships, common interests, negotiations and the development of commitment among participants and

4. Political and social environments indicate institutional and situational influences (including economic models) on information integration (Pardo & Tayi, 2007).

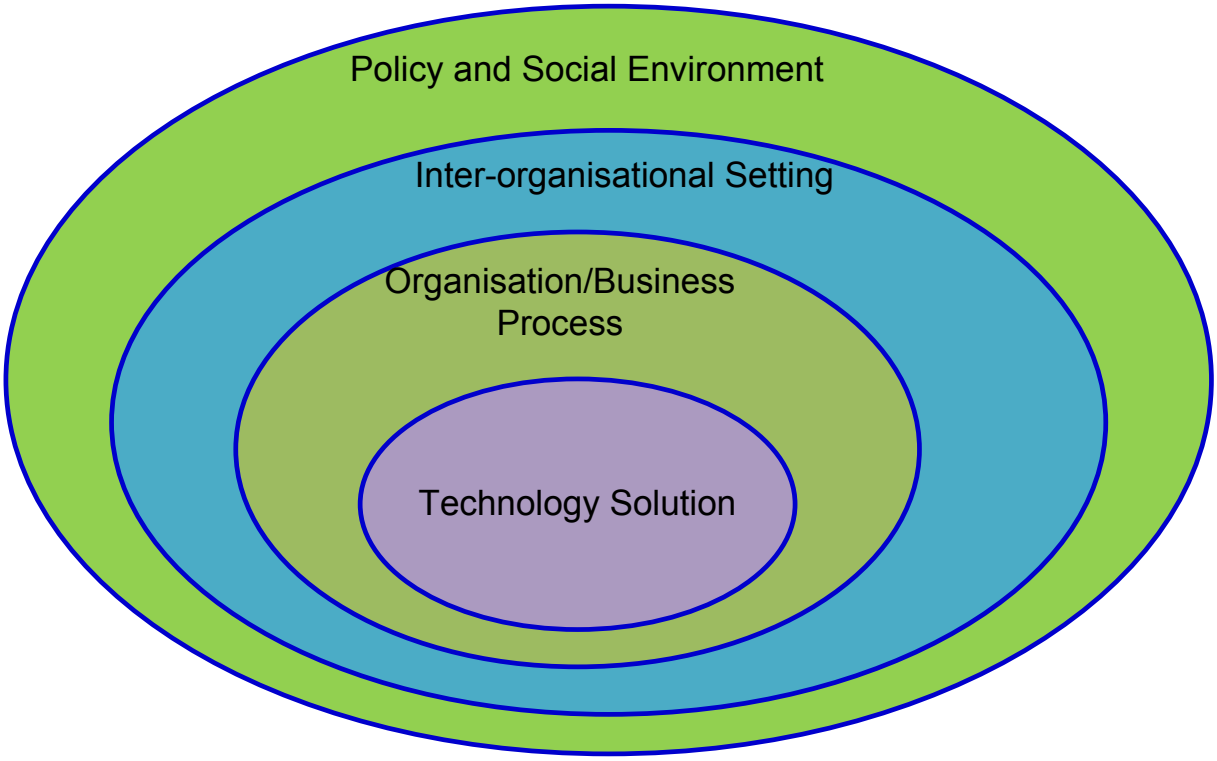


Figure 2.7: Contexts of information integration (Source: Pardo & Tayi, 2007)

2.5.2 CHALLENGES TO E-GOVERNMENT IMPLEMENTATION IN DEVELOPING COUNTRIES

In order to achieve the objective of identifying opportunities for improved information sharing across government institutions, information system designers need to first identity possible challenges they may encounter. Tedre (2011) emphasises this observation by stating that such designers in all countries face challenges that are unique to their specific sociocultural, economic, geographic, environmental, political, and technical context. The peculiarity of information sharing challenges is more evident in developing countries than developed ones. This study aims to propose recommendations towards information sharing in developing countries, solutions which do not necessarily apply to developed countries. The e-government concept in developing countries rests on socially heterogeneous cultural systems and other institutional complexities underpinned by bureaucracy. This study subscribes to empirical findings of Schuppan (2009) in the investigation of the experiences of

developing e-government in sub-Saharan Africa. The study involving projects in Ghana, Uganda and Kenya was guided by environmental conditions, the institutional and cultural administrative situation, as well as the potentials and risks of e-government. The weight of each factor is a function of prevailing conditions in each particular country context. Figure 2.8 summarizes these factors.

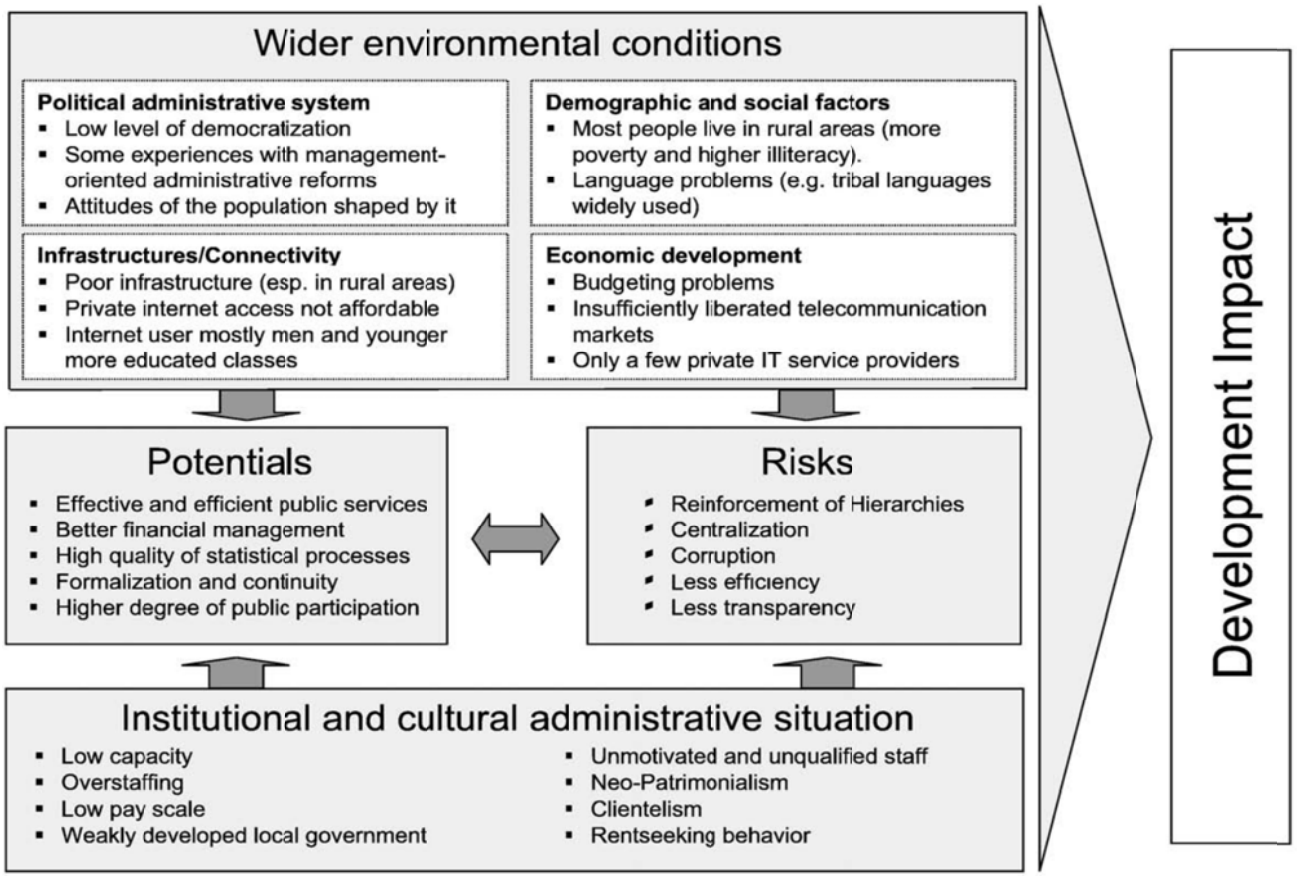


Figure 2.8: Context and characteristics of E-Government elements (Source: Schuppan, 2009)

Institutional and cultural administrative situation is the central theme to success or failure of an e-government implementation in developing countries. As indicated in Figure 2.8, Schuppan (2009) observes that developing country administrations are low perfoming often characterized by low capacity, overstaffing (and in most cases unmotivated and unqualified staff), rent-seeking attitude, etc. Zimbabwe however, boasts of the most educated and qualified citizens in sub-Saharan Africa though it has

suffered brain drain at the turn of the 21st century. While causes of such institutional shortcomings have been a subject for debate for decades, this study acknowledges claims by management theorists that employees are the most important resource in an organisation. Developers of e-government systems should therefore seek to interrogate these institutional and cultural administrative issues which are specific to a particular country. Closely tied to institutional and cultural administrative conditions, are what (ibid) refers to as eider environmental conditions. These factors relate to:

Political-administrative – considered in this study as the central theme in determining the degree of reform in Zimbabwe. The factor includes the general capabilities of a government to engender reforms necessary for effective e-government implementation. Since 2008, the political administration of the Zimbabwe government has been under three different and opposing political parties within a Global Political Agreement. The arrangement has witnessed political discord as parties' fights for control of administrative systems and consequences have not been slight.

Infrastructural and connectivity - this factor includes internet access and other basic infrastructure. Developing countries have low internet penetration rates owing to many factors ranging from poor funding to inadequate power generation and unreliable transmission and distribution capacity. However, many developing countries including Zimbabwe are experiencing high mobile phone penetration rates. With the emergence of smart phones, it is possible to access internet services from many parts of the country.

Demographic and social – this category considers age, gender, education, income distribution, language diversity and the percentage of the population living in rural areas as decisive factors in user behavior and the acceptance of online services (Schuppan, 2009).

Economic development – budgetary constraints have often been cited a major challenge to implementing e-government in developing countries (ibid). In a study on e-

government in South Africa, Maumbe et al (2008) recommend that trade-offs of developing a sophisticated e-government platform should be assessed, otherwise it "risks alienating the country's majority population that is poor, most of whom are illiterate, have no jobs, subsist on less a $1 a day, and suffer untold misery from HIV and the AIDS epidemic". Despite economic challenges that all developing countries face, significant strides have been realized in many countries with political will such as Mauritius, Rwanda, etc.

Figure 2.8 also presents on one hand, potentials of e-government and risks on the other. Shuppan (2009), claims that e-government offers improvement potential in the following areas: the general provision of public services, statistical and information processes, finance management and tax systems, public participation, and formalization. This view is echoed by Maumbe et al (2008), who contends that despite facing huge socioeconomic and political challenges, some African countries have demonstrated a serious commitment to e-government development, implying that the potentials of e-government are enormous. Schuppan (2009) also contends that there are a number of risks associated with e-government implementation in developing countries. He asserts that technology can reinforce hierarchies and centralization if not properly designed. According to (ibid), an oversimplified view of efficiency without controls could lead to increased corruption, decreased efficiency and less transparency.

The relevance of Schuppan's model to this study is underpinned by its depth in interrogating non-technical factors in e-government development. As will be discussed in Chapter Four, the GOZ introduced the Central Computing Services in 1972 and thereafter published multiple policies on ICTs but implementation has been hindered by salient factors ranging from political, economic, and demographic to infrastructural.

2.6 THE EGF4DC FRAMEWORK

The framework presented in this section draws from Landsbergen and Wolken's expanded model of interagency information sharing, Pardo and Tayi's contexts of information integration and Schuppan's context and characteristics of e-government elements, all of which were presented in section 2.5.1. The development of e-government solutions requires that each country or government confront its unique challenges. According to Rabaiah and Vandijck (2009), countries differ in one or more of the following characteristics:

- Political system
- Legal system
- Economic situation
- Available technological infrastructure
- Internet and PC penetration
- Availability of skills and human resources
- Literacy rate
- Computer literacy
- Level of poverty
- Leadership
- Ethnic diversities in terms of norms, languages…etc
- Training capacity

This study acknowledges that the IS capabilities to provide a solution to e-government information sharing challenges are very limited, owing to various technical, organizational, cultural and other barriers associated with government institutions. Further complications encountered in studies such as this involve the complex political and economic dynamics of developing countries such as Zimbabwe. Literature lacks an overarching framework which guides the development of a networked government in a developing country context. It is therefore recommended in this study, which developing information sharing platforms for the government of Zimbabwe should place a considerable amount of resources to the soft systems dimension, herein referred to as the 'Social Structure. In this context, the main recommendation is that policy makers

should understand the political contexts of government institutions and the nature and scope of government information sharing before any technical consideration is made. It follows therefore that as in e-commerce and other organizational systems, e-government is foremost a business system installed and implemented to serve the purpose of an over-arching social imperative. As in any business information system, the technical system exists solely to support the higher business system. Consequently, the technical system of an e-government implementation is subordinated to the social system that subsumes the business system. Figure 2.9 presents an EGF4DC framework.

2.6.1 THE SOCIAL STRUCTURE

This study acknowledges that conditions necessary for e-government implementation are more human-related than they are technical. E-government principles are based on the assumption that different government institutions are willing to collaborate through sharing of information. Makedon et al (2003:1) contend that:

> "… *when government agencies refuse to cooperate and share information due to conflicts among ministries, rivalry or other reasons, then novel mediation mechanisms are needed to enable information sharing and this sharing must become a duty, not an option for any government. Through negotiation, there would come agreement on the conditions of sharing, especially when the information is sensitive and distributed*".

The basis of a social structure in IS development is that an application depends entirely on the people that are directly or indirectly involved in the development. Figure 2.9 categorises the social structure in three dimensions:

- The Environmental conditions,
- Institutional situation and
- Business and other external stakeholders.

2.6.1.1 Environmental Conditions

Political System - although national politics is being considered as a contributing factor in the e-government development and adoption, very limited research has attempted to consider the influence of politics on e-government design. Designers of e-government solutions for developing countries must be obsessive about understanding a country's political system. Heeks (2003) elaborately attributes e-government failure in developing countries to political systems. He observes that while e-government systems should be designed within an environment which has a 'role culture' that values rules and logic, the political environment in developing countries has a 'power culture', which values self-interest and hidden agendas.

Zimbabwe has followed a complex political trajectory since 2000 with domestic conflicts at every turn. As revealed in Chapter One, a political global agreement (GPA) led to the formation of a Government of National Unity (GNU) setup in 2008. The GNU arrangement saw rival political parties controlling different ministries within the same government. Partisan divides have been allowed to affect crucial government reforms. Policy debates are so polarised, with leaders spending their energy on policy fights to win the public at the expense of expected progress. Suspicion and fight for dominance became the order of the day throughout government institutions. However, this study argues that it is possible to address critical challenges like e-government development and implementation even without resolving ideological differences of participating political parties (Chapter Five). According to the World Bank (2012), what is needed in today's governance systems is government management by design, built to fit these difficult times: governments that identify the most critical, solvable problems, reorganise where necessary to deliver the right solutions, and abandon the tools and approaches that no longer work.

As will be explained in Chapter Five, a vibrant e-Government and Modernisation Unit was set up under the President's Office to oversee the implementation of e-government solution. This study proposes that this unit bring together key stakeholders from different

political parties to participate in e-government strategy formulation. The stakeholders will then identify baseline political conditions which allow for information sharing, define shared needs for citizens across political parties and guide e-government innovation (UN E-Government Survey, 2012).

Demographic and Social Factors – as discussed in sub-section 2.5.2, Demographic and Social factors affect more of front end dimension of e-government than the underlying information sharing structure which the framework focuses on. According to the Reserve Bank of Zimbabwe Supplement to the January Monetary Policy Statement (2009), the urban population is about 34.7%, with a rural population estimated at 65.3%. Citizen-centric e-government development should therefore factor in such demographic imbalances.

Economic Development – the hyperinflationary environment which prevailed in Zimbabwe between 2006 and 2008 was eventually arrested after liberalisation of the economy following the established of the GNU which introduced a multi-currency system with immediate effect. The economy subsequently registered remarkable progress from 2010 and real growth of 6% was recorded in 2011. The African Development Bank (2012) report that:

> "*The excessive macro-economic imbalances experienced between 2000 and 2008 had extreme consequences for development and poverty situation in Zimbabwe. The collapse of the economy by 2008 resulted in a collapse of social services, especially in the areas of health, education, and access to water and sanitation and also increased the levels of unemployment and poverty. This has impacted adversely on the country's ability to meet the MDGs. With the support of donors, the Government has through targeted financing, improved services in education and health as well as enhanced food security*".

Developmental projects like e-government implementation are largely a function of both the economic and political situations. They therefore call for particular attention when designing e-government applications.

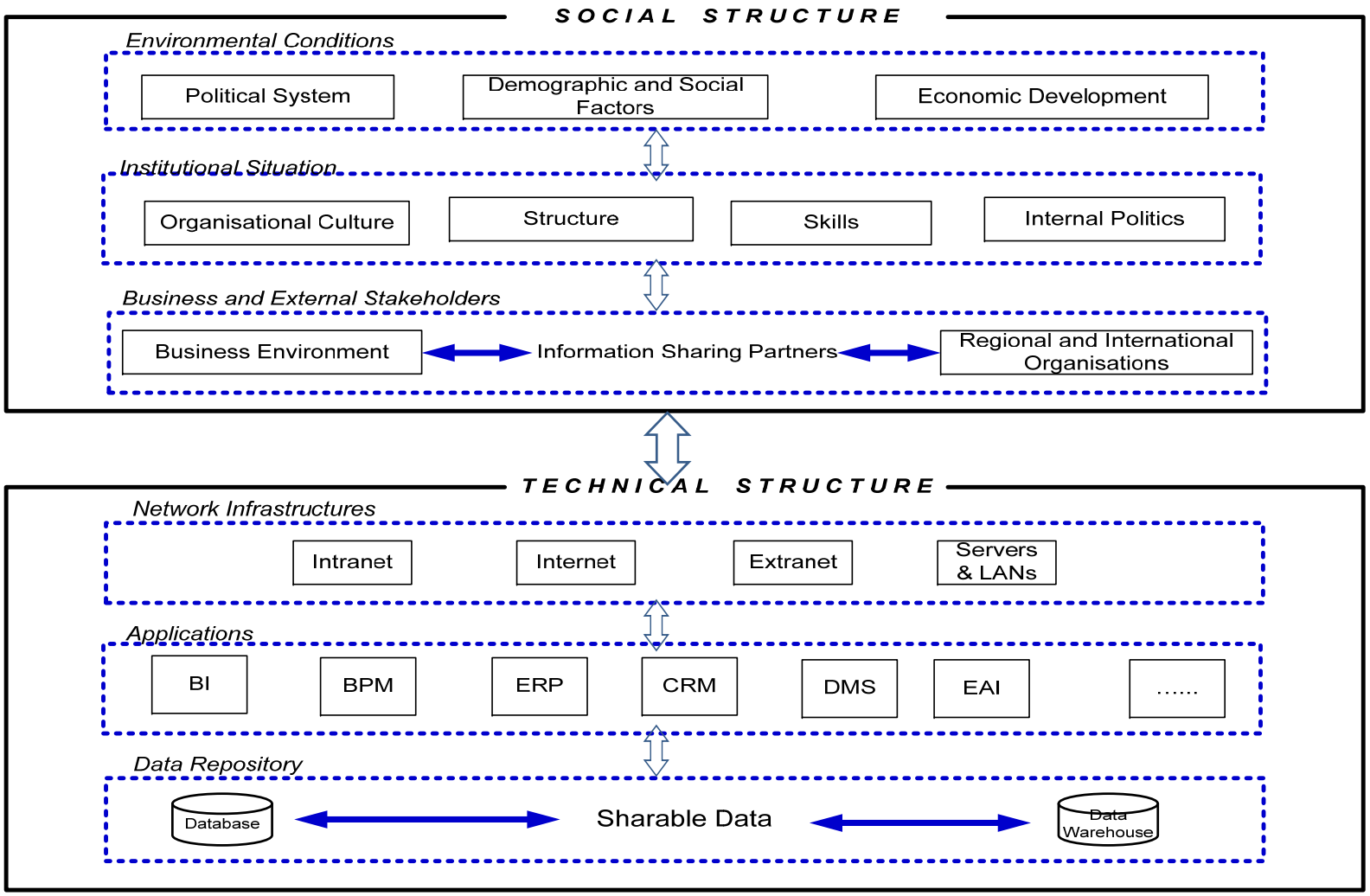


Figure 2.9: e-Government Framework for Developing Countries

2.6.1.2 Institutional Situation

Zimbabwean organisations are shaped by the political environment prevailing in the country. It is therefore pertinent for e-government designers to sketch out a vision of the ideal type of administration that would effectively promote information sharing and collaboration. An organization's culture develops to help it cope with its environment. The political divide in the country largely informs government institutions' system of knowledge, of standards for perceiving, believing, evaluating and acting (Allaire and Firsirotu, 1984). The Zanu (PF) party which seems to wield the most power by virtue of having its leader as the country's president is accused by its rival parties that it has deployed its loyalists to lead many government institutions and parastatals. Some of the key parastatals and strategic public institutions through which Zanu PF is alleged to entrench patronage include the National Railways of Zimbabwe (NRZ), Grain Marketing Board (GMB), Minerals Marketing Corporation of Zimbabwe (MMCZ), Zimbabwe Broadcasting Holdings (ZBH), Broadcasting Authority of Zimbabwe (BAZ).

Such political polarisation within institutions is often regarded as the source of corruption and high levels of inefficiency. According to Transparency International Zimbabwe (TIZ), corruption in Zimbabwe has become endemic within its political, private and civil sectors. In 2011, TIZ corruption rankings placed Zimbabwe at number 154 out of 182 countries, jointly with Kenya, Laos and Papua New Guinea. These findings also revealed that Zimbabwean citizens regarded the public sector as the most corrupt sector in the country. In this TIZ survey respondents identified the police as being most corrupt followed by political parties, parliament/legislature, public officials/civil servants and the judiciary (Hardoon and Heinrich (2011). In such cases, a core strategy of building an effective e-government which fosters information sharing is not easy to conceive. Tedre (2011:2-3) makes an observation about government institutions in Africa:

> *"… a large amount of frustration with project work in Africa comes from governmental or non-governmental institutions that function slowly or*

inefficiently (Collier, 2007; Hyden et al, 2003), that are bureaucratic or excessively complex in their procedures (Smillie, 2000), that are manipulated by political motivations (Cornago, 2008), or that are corrupt to some degree Khan, 2010; Dowen, 2008)".

Apart from organisational culture and internal politics, other determinants include structure and skills. Government organisations in Zimbabwe are largely bureaucratic, which scholars contend such structures do business in an outmoded way (Osborne et al, 1992). (ibid) asserts that in today's environment of rapid change, the old top-down bureaucratic monopolies delivering standardised services are not effective. As far as skills are concerned, human capital flight from Zimbabwe is still very high. ICT skilled personnel are leaving Zimbabwe for greener pastures elsewhere in the region and overseas resulting in an insufficient human resource base to perform activities to support ICT4D (Zungunde, 2009). (ibid) also reports that there is thus high irregularity in remuneration and high levels of dissatisfaction among ICT practitioners especially in the public service.

2.6.1.3 Business and External Stakeholders

Effective collaboration between public and private sectors is increasingly attracting attention due to ongoing development, globalization, and integration in the international economy. Government-to-Business is the online non-commercial interaction between government and the commercial business sector. The government provides significant services to business. For example, government passes laws and policies, enforces rules and regulations, provides capital and infrastructure, etc. Therefore, the quality and speed of these services which government offers make a difference to businesses' ability to perform grow and export. Technological solutions which can enable digital delivery of government services to business will contribute to continuous innovation and improvement in the public sector.

In a globalised environment, government should be equipped for the challenge of improving information sharing mechanisms in a world of international and regional trade agreements, consultative processes on migration, international donor community, financial institutions, scientific collaboration, etc. Cortada et al, (2012:1) elaborately capture the increasing need for collaboration:

> *"Powerful changes related to demographics, globalization, environmental concerns, societal relationships, social stability and technology will affect virtually every government, demanding individualized responses suited to each nation, region or locality. These nearly universal drivers will require "perpetual collaboration" that starts with intensified, multi-directional communications, and shared operational and technical standards. Beyond those core essentials, effective strategies also hinge on government commitments to facilitate efforts involving multiple agencies (within and across borders), and improve partnering with transnational organizations".*

Collective policies by different governments are also becoming common; giving way to what Oostveen (2007) refers to as 'international e-government'. According to (ibid), international e-government implies cross-national coupling of administrative systems. International e-government applications are even more complex than those within the national boundaries. One of the world's largest conservation zones, the Great Limpopo Transfrontier Park which straddles the borders of Mozambique, South Africa and Zimbabwe and joins some of the most established wildlife areas in Southern Africa into a huge conservation area of 35 000 square kilometres, is one such example. This study argues that there must emerge a theory with significant explanatory power of how governments can collaborate with such a diverse community of external organisations in a rapidly changing world.

2.6.2 DEVELOPMENT POINTS ON THE SOCIAL STRUCTURE

Existing realities are that governments collaborate with various stakeholders to enhance service delivery. Consistent with the critical realist paradigm for offering an alternative solution to a challenge, the following are development points on the social structure:

- Perform stakeholder analysis of political actors and factors. Identify aspirations and constraints from conflicting political actors and how conflict manifests.
- Identify existing demographic factors which can impact design of an effective e-government solution
- Design realistic strategies on how the modernisation process can be funded. A work-breakdown analysis is necessary with each work task depicting a sufficient funding structure pitched against national economic profile
- Perform institutional stakeholder analysis to identify opportunities and constraints arising from organisational cultures, structures and inherent politics.
- Identify information sharing requirements between government and external entities.

The development points from the social structure dimension of the framework are summarised in Figure 2.10.

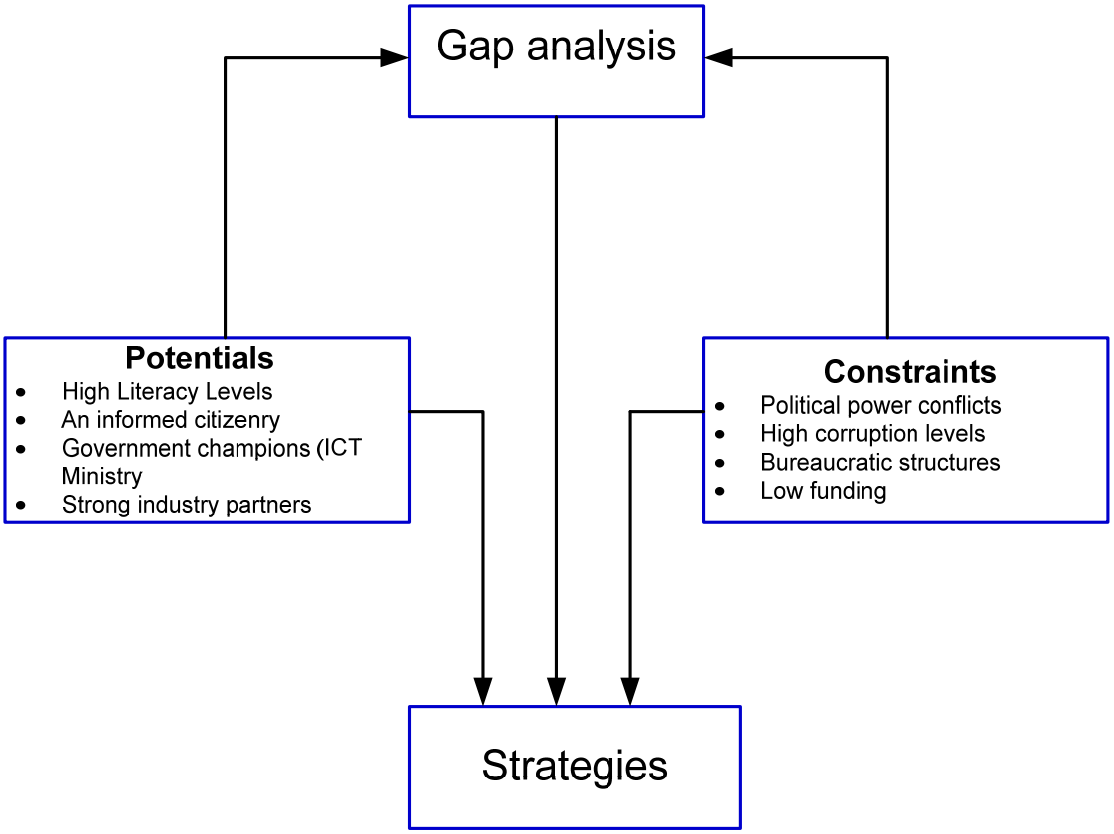


Figure 2.10: Development Points on the Social Structure

2.6.3 THE TECHNICAL STRUCTURE

The technical structure defines the processes and the infrastructure that supports them.

2.6.3.1 Network Infrastructures

Network infrastructures support and integrate the operations of information systems and applications in e-business layer across organisations offering the necessary standards and protocols through network and communication infrastructure approaches. (Ebrahim & Irani, 2005). Examples of these approaches are the intranet, extranet, and internet.

Intranet - is the generic term for a collection of private computer networks within an organization. It is internal secured business network. An intranet uses network

technologies as a tool to facilitate communication between people or work groups to improve the data sharing capability and overall knowledge base of an organization's employees. Intranets enhance resource sharing and planning process within an organisation. Each government institution should have its own internal information sharing arrangements via intranets.

Internet – being a global system of interconnected computer networks that use the standard Internet protocol suite, it allows citizen to access government information and services from any location and anytime as well as exchanging data and messages. The Internet has become the most effective business tool in the contemporary world. It is argued that the biggest benefit offered by the Internet is the provision of information, although e-Commerce has significantly improved commercial business. Another dimension where the internet has benefitted communities is the provision of a variety of services, for example job searching, online banking, buying movie tickets, hotel reservations and consultation services etc. recently, e-government have emerged to revolutionise and transform government business. The internet therefore has become the way of life.

Extranet – is a collaborative network that uses internet technology to link businesses with suppliers, customers, or other businesses that share common goals (Watson & McKeown, 1999). Connectivity between one government institution to another (G2G) and between government institutions and other organisations (G2B) can be extended via extranet connections. Extranet can also be defined as an extension of intranet, dynamic wide area networks that link company's employees, suppliers, customers, and other key business partners in electronic online environment for business communication (Ebrahim & Irani, 2005).

LANs and Servers – a Local Area Network (LAN) supplies networking capability to a group of computers in close proximity to each other such as government department or a school. A LAN is useful for sharing resources like files, printers, games or other applications and provides information exchange platform. A LAN in turn often connects

to other LANs, and to the Internet or other WAN. A local area network (LAN) server is a program (and by implication usually the computer it runs in) that "serves" the resources (files, storage, application programs, printers, and other devices) for a number of attached workstations. Most local area networks are built with relatively inexpensive hardware such as Ethernet cables, network adapters, and hubs. Wireless LAN and other more advanced LAN hardware options also exist.

2.6.3.2 Applications

The applications component of the technical structure dimension of the framework comprises various business systems. These computer systems and applications form the basis behind the need for information sharing and interoperability among different public departments and organisations. In an integrated organisational infrastructure, these applications have the ability to control and distribute information throughout the organisation. The reality however is that each government agency in Zimbabwe holds its own database(s), restricting information sharing to offline systems which are often manual. There are many business applications which government can harness to build robust G2G systems. Examples are electronic data interchange (EDI), knowledge management systems, etc. Some of the more ones are explained as follows:

Business Intelligence (BI) – according Grimes (2012), BI consists of practices and software that enable the collection, analysis, and presentation of data to support business decision making. In government, the term ‘business’ has a very broad meaning, covering government operations and mission support, as well as non-government, public- and private-sector needs. In private sector, ‘business’ concerns itself with sales, marketing, and profitability, government BI focuses on mission support, program performance management, policy, and public welfare (Figure 2.11).

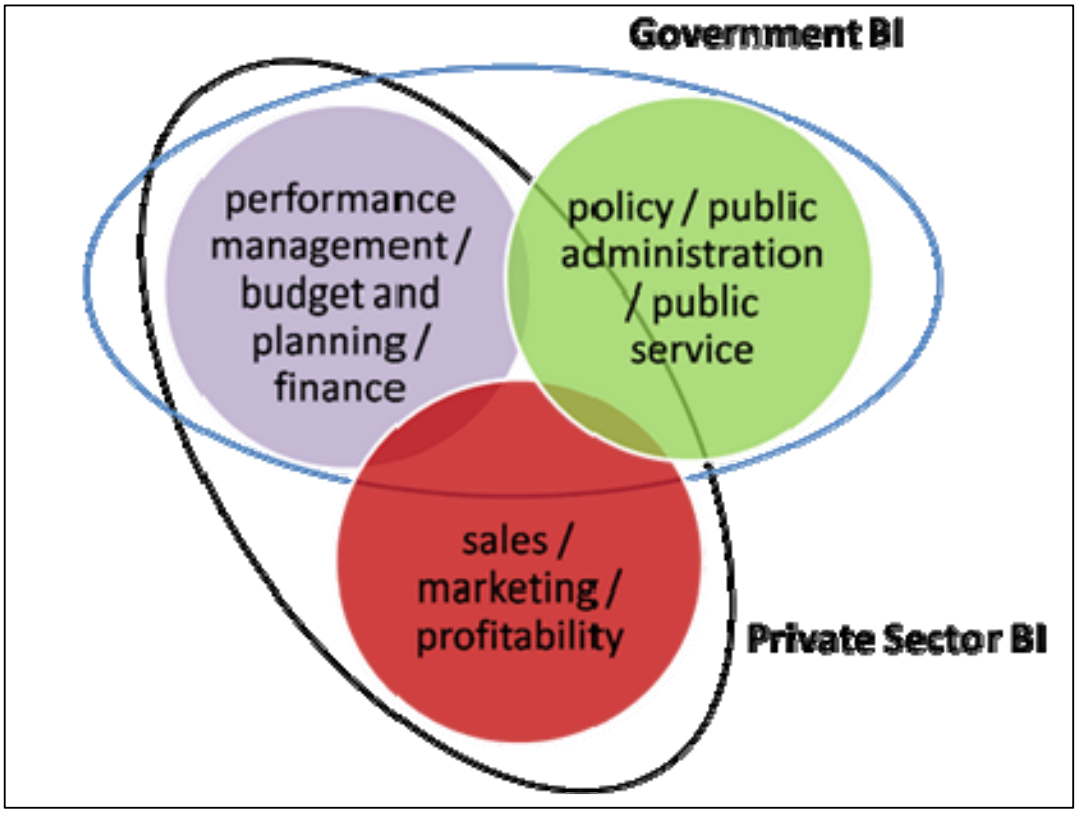


Figure 2.11: Government and private sector business analysis concerns (Source: Grimes, 2012)

Business Process Management (BPM) – the CIO describes BPM as the first technology that promotes ongoing collaboration between IT and business users to jointly build applications that effectively integrate people, process and information. BPM gives an organization a platform to define, execute, manage and refine processes that involve human interaction, such as placing orders in procurement, working with multiple applications, etc (Cooper and Patterson, 2007).

Enterprise Resource Planning (ERP) – are systems that integrate internal and external management information across an entire organization. The central characteristic of all ERP systems is a shared database that supports multiple functions used by different business units. ERP software consists of many enterprise software modules that are individually purchased, based on what best meets the specific needs

and technical capabilities of the organization. A study on ERPs by Seddon (2005), suggests that ERP systems provide benefits such as improved information visibility, personnel and inventory reduction, productivity improvement and new improved processes. Although the traditional applications of ERPs lie in financials, budgeting, purchasing, human resources, and payroll, benefits of ERP systems have been appreciated in many areas so much so that governments often extend their systems to various uses, such as tax and utility billing, fleet management, and permitting. ERPs support high-level decision-making and establish interactive relationships between public sector organisations and with other partners and suppliers (Ebrahim and Irani, 2005). Many government institutions in Zimbabwe have installed SAP and Oracle ERP solutions for all levels.

Customer relationship management (CRM) - is an information industry term for methodologies, software, and usually Internet capabilities that help an enterprise manage customer relationships in an organized way. CRM has evolved into a customer-centric philosophy that must permeate an entire organization. There are three key elements to a successful CRM initiative: people, process, and technology. CRM harnesses information from all data sources within an organization (and where appropriate, from outside the organization) to give one, holistic view of each customer in real time. The CRM concept has been adopted in government institutions. According to Accenture, more and more governments are actively seeking to promote citizen-centric government as well as more-effective relationships with business, although a tendency by many government to treat citizens and businesses as customers has been observed. Dr Peter Shergold, Secretary of the Department of Prime Minister and Cabinet of the Australian Government captures the key differences between citizens and customers:

> "*I serve citizens not customers. I do not market services to those who have the option not to buy. In delivering government programs to Australians I am also providing their rights and responsibilities, entitlements, and obligations. My responsibility is to the public not shareholders. For that profound reason public service is distinctive."* (cited in Tregear et al, 2007).

Document management system (DMS) - are systems designed to assist entire organisations seeking to manage the creation, storage, retrieval and expiry of information stored as documents. A DMS is usually also capable of keeping track of the different versions modified by different users (history tracking). It revolves around a centralised repository that is used to manage the storage of any type of information that could be of value to an organisation - and protect the same against loss. The term has some overlap with the concepts of content management systems (CMS). It is often viewed as a component of enterprise content management (ECM) systems and related to digital asset management, document imaging, workflow systems and records management systems.

Enterprise application integration (EAI) - is a business computing term for the plans, methods, and tools aimed at modernizing, consolidating, and coordinating the computer applications in an enterprise. EAI Integrates both intra and inter-organisational systems by securely incorporating functionality from disparate applications in government organisations (Ebrahim & Irani, 2005). Typically, an enterprises, especially government agencies, have existing legacy applications and databases that they want to continue using while adding or migrating to a new set of applications that exploit the Internet, e-commerce, extranet, and other new technologies.

2.6.3.3 Data Repository

Generically refers to a logical partitioning of data where multiple databases that apply to specific applications or sets of applications reside. It is a central place where data is stored and maintained. A repository can be a place where multiple databases or files are located for distribution over a network where data is directly accessible to the user without having to travel across a network. The following are the requirements for repositories: subject domain; data re-use and access; file format and data structure, and metadata.

2.7 CHAPTER SUMMARY

This chapter defined the e-government concept which is attracting a lot of attention from practitioners and academics due to its evolving nature. Instead of restricting e-government to the use of the internet to do government business, a lot of attention is now being given to both the visible web interface and the integration of systems that take place at the back office. The integration of government systems across various agencies is given even more attention because it is like roots which uphold the entire tree. This notion is pictorially depicted in Figure 2.12, where, just as the visible tip of an iceberg hides a far greater mass of ice underneath the ocean surface, so does the web-interface in an integrated environment. What takes place in the Back End is the integration and standardisation of all government systems, infrastructure and processes, referred to herein as e-administration. The integration facilitates information sharing, the concept in e-government which was also presented in this chapter.

While e-government is a much more developed concept in the developed countries, it has certainly gained visibility in developing countries, examples of which were provided in this chapter. This study is positioned within the IS domain and various IS theories which have been applied to e-government have been explained. These theories emphasise the socio-technical nature of e-government systems. The notion of the socio-technical system recognizes the interaction between people and technology in organisations.

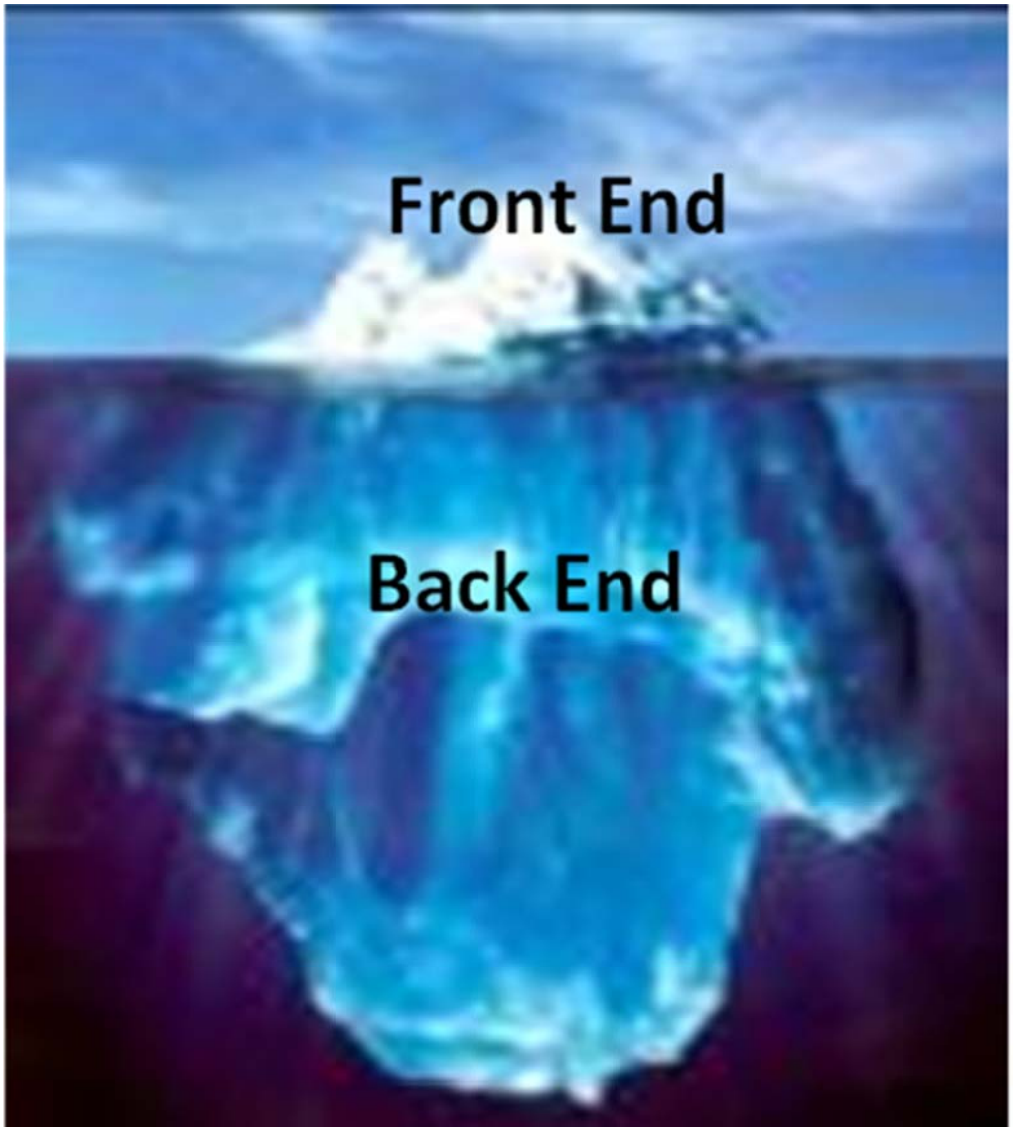


Figure 2.12: Front and Back-End of e-government solution (Source: MICT, 2010)

This chapter described the three models which unpacked the critical factors underpinning design of e-government in developing countries. The three models are: Landsbergen and Wolken's expanded model of interagency information sharing, Pardo and Tayi's contexts of information integration and Schuppan's context and characteristics of e-government elements. These three models form the theoretical basis which led to model development in Figure 2.9. The EGF4DC framework explains the two superstructures which define e-government development. These are the social

and the technical dimensions. Both require considerable attention in designing systems within a social environment.

The next chapter presents philosophical underpinnings and the research methodology adopted in this study.

CHAPTER THREE

PHILOSOPHICAL PARADIGMS, FRAMEWORKS & METHODS

"What social reality is held to be also is that which we seek to explain"

– Archer.

3.1 INTRODUCTION

This chapter presents the basic building blocks in social science research as well as a detailed argumentation for critical realism as the philosophical approach underpinning this study. The positivist, interpretivist and critical realist paradigms are presented and aligned with their ontological, epistemological and methodological concerns. This chapter also presents the research design including description of theoretical analyses and justification.

The structure of this chapter is presented in Figure 3.1 which also shows the building blocks of research.

The chapter proceeds as follows: the next subsection presents the first two blocks in Figure 3.1, which are ontology and epistemology as well as the associated philosophical underpinnings. The rationale for selecting critical realism as the underpinning paradigm of this study is also presented in this section. The subsection that follows presents the research design and methodology. The last two blocks, methods and sources, are presented in the last subsection.

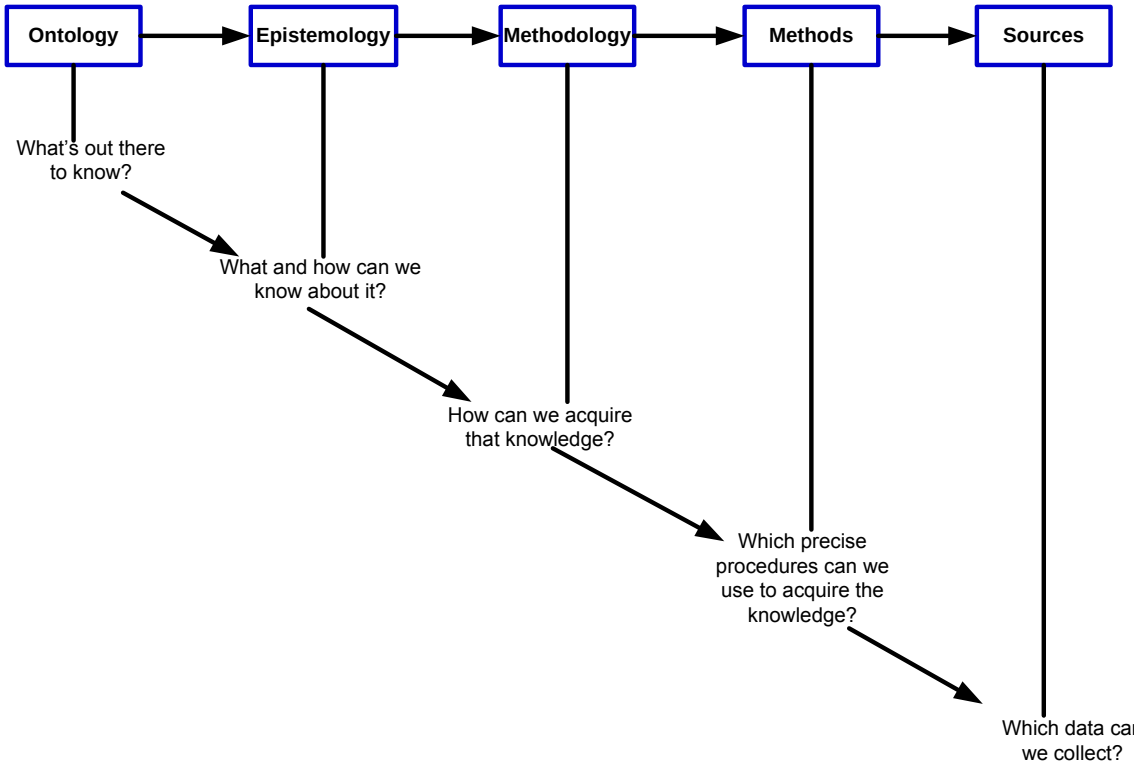


Figure 3.1: Interrelationships between the building blocks of research (Adapted from Hay (2002:64). Source: Grix, 2004)

3.2 ONTOLOGY, EPISTEMOLOGY AND PARADIGMS

In simple terms, one's view of reality and being is called ontology and the view of how one acquires knowledge is termed epistemology. The main concerns of philosophers relate to ontology, epistemology, and methodology (Guba and Lincoln, 1989) as well as methods and sources (Hay, 2002). These concerns are referred to in Figure 3.1 as the building blocks of research (ibid).

Grix (2004) argue that ontology is the starting point of all research after which one's epistemological and methodological positions logically follow. According to Blaike (as cited in Grix, 2004:59), ontological positions or claims are that:

"… which are made about the nature of social reality, claims about what exists, what it looks like, what units make it up and how these units interact with each other. In short, ontological assumptions are concerned with what we believe constitute social reality", (Blaike, 2000:8).

Ontology therefore is the philosophy of existence and the assumptions and beliefs that we hold about the nature of being and existence. The ontological questions pertaining to the kinds of things that exist within society are guiding principles underpinning any enquiry.

Epistemology is generally understood as the theory of knowledge and the assumptions and beliefs that we have about the nature of knowledge about what exists. Blaike (cited in Grix, 2004), asserts that epistemological claims are those claims about "how what is assumed to exist can be known" (Blaike, 2000:8). According to Danermark et al (2002), an epistemological issue is concerned with the examination of the conditions, possibilities, nature and limits of human knowledge and therefore which criteria need to be met to construct and evaluate knowledge. The information sharing phenomenon in this study is investigated with the underlying epistemological concerns articulated by Danermark et al (2002).

3.2.1 RESEARCH PARADIGMS

Social science researchers, including information systems scholars, operate according to a variety of paradigms. "Paradigm" is a term that was first coined by Thomas Kuhn in his book, titled "The structure of Scientific Revolutions" in 1972. By "paradigm" Kuhn referred to an overall theoretical research framework. The definition of the term was refined over the years by various researchers and philosophers. Bodgan & Biklen (as cited in Mackenzie and Knipe, 2001:2) define a paradigm as:

".. a loose collection of logically related assumptions, concepts or propositions that orient thinking and research."

A more elaborate definition which is adopted in this study was given by Guba and Lincoln (1989:107) as:

> *"… a set of basic beliefs (or metaphysics) that deals with ultimates or first principles. It represents a worldview that defines, for its holder, the nature of the "world," the individual's place in it, and the range of possible relationships to that world and its parts".*

Paradigmatic positions should underpin scholarly work because they directly inform the researcher's choice of research questions, methodology and intentions (Grix, 2004:57). Dobson (2002) claims that philosophy can provide the potential for emancipation from domination by one's social or academic grouping:

> *"The confidence provided by understanding different philosophical positions provides the researcher and the practitioner with the power to argue for different research approaches and allows one confidently to choose one's own sphere of activity",* (Dobson, 2002).

Several surveys of information systems literature (Mingers, 2004; Walsham, 1995; Olikowski and Baroudi, 1991) demonstrate the dominance of positivist and social constructivist philosophies for many years. However, with the emergence of contemporary trans-paradigmatism in information systems research, critical realism is gaining space as a fundamental research philosophy. While other philosophical assumptions in IS research are not preferred in this research, it is however deemed necessary to give their overview leading to the argumentation which positions this research within the critical realist paradigm. The following subsections present a brief overview of research paradigms,

3.2.1.1 Positivist Paradigm

Positivist studies, according to Olikowski and Baroudi (1991), explain the studies which are premised on the existence of a priori fixed relationships within phenomena which

are typically investigated with structured instrumentation. Such studies, sometimes called positivist-empiricist (Ryan, 2004) serve primarily to test theory, in an attempt to increase predictive understanding of phenomena (Olikowski and Baroudi,1991). Positivists therefore believe that reality is stable and can be observed and described from an objective viewpoint (Levin, 1988). Citing Lincoln and Guba (1985:36) Olikowski and Baroudi indicated the following as precepts informing study of natural phenomena:

- The phenomenon of interest is single, tangible and fragmentable, and there is a unique, best description of any chosen aspect of the phenomenon
- The researcher and the object of inquiry are independent, and there is a sharp demarcation between observation reports and theory statements
- Nomothetic statements, i.e., law-like generalizations independent of time or context, are possible, implying that scientific concepts are precise, having fixed and invariant meanings
- There exist real, uni-directional cause-effect relationships that are capable of being identified and tested via hypothetic-deductive logic and analysis
- Inquiry is value-free.

A positivist ontology of social systems states that social realities (like organizations, societies, teams) have an existence which is separate from the people in them (Greener, 2008).

A positivist epistemological position advocates the application of natural science methodology to the study of social reality (Bryman and Bell, 2009). Positivist researchers believe that they can reach a full understanding based on experiment and observation. Concepts and knowledge are held to be the product of straightforward experience, interpreted through rational deduction (Ryan, 2004). In IS research, among other claims, Guba and Lincoln (1985) assert that the phenomenon under study is single, tangible and fragmentable, and there exists a unique, best description of any chosen aspect of the phenomenon. Table 3.1 presents a summary of positivist ontological and epistemological assumptions.

Ontological Assumptions	Epistemological Assumptions
• Reality is external to the researcher and represented by objects in space • Objects have meaning independently of any consciousness of them • Reality can be captured by our senses and predicted.	• The methodology of the natural sciences should be employed to study social reality (Bryman, as cited in Grix, 2004:64). • Truth can be attained because knowledge rests on a set of firm, unquestionable, indisputable truths from which our beliefs may be deduced (Hughes and Sharrock, as cited in Grix, 2004:64) • Knowledge is generated deductively from a theory or hypothesis. • Knowledge is objective.

Table 3.1: Positivist Ontology and Epistemology (Source: Mack, 2010)

3.2.1.2 Interpretivist Paradigm

This paradigm supports the notion that reality is constructed by subjective perception and meaning is therefore socially constructed. Interpretivist studies explain that reality can be fully understood only through the subjective interpretation and intervention in the same. Interpretivist ontology, according to Orlokiwski and Baroudi (1991), is predicated on the view that reality is a social product and hence incapable of being understood independent of the social actors (including the researchers) that construct and make sense of that reality. They contend that the world is "an emergent social process-as an extension of human consciousness and subjective experience" (Burrell and Morgan 1979:253). This observation of interpretivism leads to the main tenet underlying the paradigm that research can never be objectively observed from the outside rather it must be observed from inside through the direct experience of the people. Therefore, the primary role of the scientist in the interpretivist paradigm is to

> *"understand, explain, and demystify social reality through the eyes of different participants"* (Cohen et al, 2007:19 as cited in Mack, 2010).

Table 3.2 presents a summary of interpretivist ontological and epistemological assumptions

Ontological Assumptions	Epistemological Assumptions
• Reality is indirectly constructed based on individual interpretation and is subjective • People interpret and make their own meaning of events • Events are distinctive and cannot be generalized • There are multiple perspectives on one incident • Causation in social sciences is determined by interpreted meaning and symbols.	• Knowledge is gained through a strategy that "respects the differences between people and the objects of natural sciences and therefore requires the social scientist to grasp the subjective meaning of social action" (Bryman as cited in Grix, 2004:64) • Knowledge is gained inductively to create a theory • Knowledge arises from particular situations and is not reducible to simplistic interpretation • Knowledge is gained through personal experience.

Table 3.2: Interpretivist Ontology and Epistemology (Source: Mack, 2010)

3.2.1.3 Critical Realism

Critical realism has emerged as a philosophical stance in research which often combines a realist ontological perspective (theory of being) with a relativist epistemology (theory of knowledge). Since the 18th century, positivist paradigm has provided the philosophical underpinnings of mainstream scientific research. However, the shortcomings of positivism are well recognised in much of the contemporary literature, on one hand. The application of positivist precepts to research on social phenomena is problematic (Evered and Louis, 1981; Galliers and Land, 1987; Guba and Lincoln, 1985; Morgan, 1980; Morgan and Smircich, 1980; Weick, 1984) (as cited by Orlokiwski and Baroudi (1991)). On the other hand, the primary limitation to interpretive research is that it abandons the scientific procedures of verification and therefore results cannot be generalized to other situations. Further, the ontological

assumption of interpretivism is subjective rather than objective but critical realism posits that reality exists that is not contingent on human perception. The inherent gap created by positivism and intepretivism is covered by the critical realist paradigm. According to Mingers (2004), the major advantage of a critical realist approach is that it maintains reality whilst still recognizing the inherent meaningfulness of social interaction.

Critical Realist ontology

According to Bhaskar (1975), critical realism is a realist theory of science. Bhaskar asserts that critical realism is:

> *"(a) kind of ontology in which the world was seen as structured, differentiated and changing. And science was seen as a process in motion attempting to capture ever deeper and more basic strata of a reality at any moment of time unknown to us and perhaps not even empirically manifest. Structures are changing, differentiated"* (from the Baskhar interview on raggedclaws.com).

Bhaskar (1978) asserts that ontology in critical realism takes priority over epistemology, suggesting that it is the nature of the scientific object that should determine its proper epistemology. The identification of "epistemic fallacy" is a critical weapon against previously dominant traditions. **Epistemic fallacy** is elaborated by Mingers in the following statements:

> *"… reducing the ontological domain of existence to the epistemological domain of knowledge—statements about being are translated into ones about our (human) knowledge or experience of being. For the empiricist, that which cannot be experienced cannot be. For the conventionalist, limitations of our knowledge of being are taken to be limitations on being itself. In contrast, the realist asserts the primacy of ontology—the world would exist whether or not humans did"* (Mingers, 2004).

Arguing against epistemic fallacy, Bhaskar (1978:39: asserts that:

> *"knowledge follows existence, in logic and in time; and any philosophical position which explicitly or implicitly denies this has got things upside down*"

Critical realism is predicated on the manifesto to recognize the reality of the natural order and the events and discourses of the social world (Bhaskar, 1989 as cited by Carlsson, 2000). Bhaskar identifies three domains (Figure 3.2): the real, the actual, and the empirical. The events and discourses which Bhasker claims will help us understand the world are generated by the structures and mechanisms as shown in Figure 3.2 and elaborated in Table 3.3. The observable experiences (the empirical) are contained in the actual events which have been generated by mechanisms while the mechanisms that have generated the actual events (the Real) embody both the actual and the empirical. As shown in Table 3.3, the real domain consists of underlying structures and mechanisms, and relations; events and behaviour; and experiences. The real domain consists of underlying structures and mechanisms, and relations; events and behaviour; and experiences.

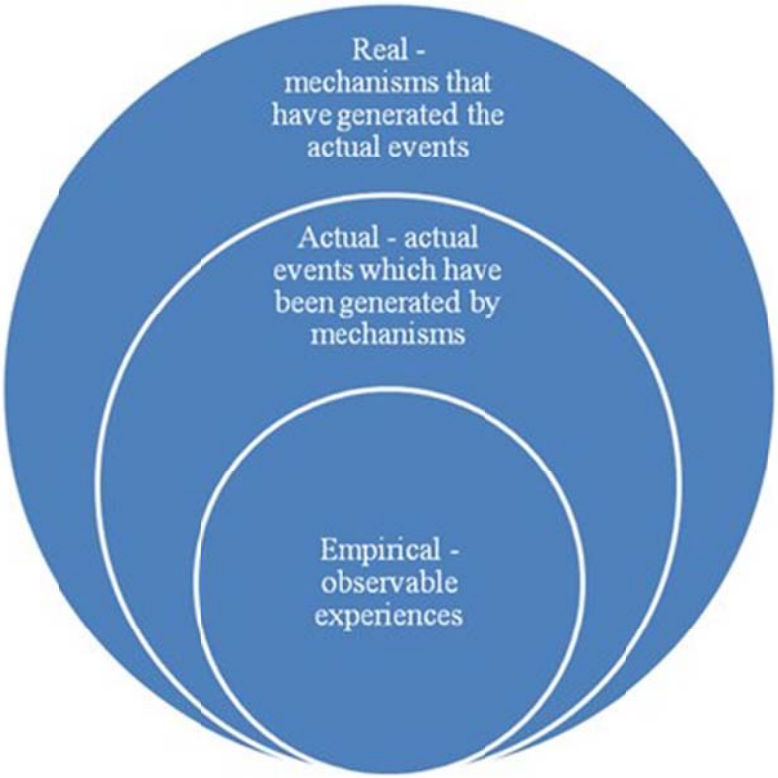


Figure 3.2: Ontological Assumptions of Critical Realism (Source: Mingers and Willcocks, 2004)

The generative mechanisms, residing in the real domain, exist independently of but capable of producing patterns of events. Relations generate behaviours in the social world. The domain of the actual consists of these events and behaviours. Hence, the actual domain is the domain in which observed events or observed patterns of events occur. The domain of the empirical consists of what we experience; hence, it is the domain of experienced events" (Carlsson, 2000). The critical realist's research therefore considers particular contexts and combinations of isolated structures, mechanisms and actual events.

	Domain of Real	Domain of Actual	Domain of Empirical
Mechanisms	X		
Events	X	X	
Experiences	X	X	X

Table 3.3: Ontological assumptions of the critical realist view of science (Bhaskar, 1978, Source: Carlsson, 2000)

Xs indicate the domain of reality in which mechanisms, events, and experiences, respectively reside, as well as the domains involved for such a residence to be possible. In summary, these ontological assumptions are well elaborated by Sayer (2000:11-12):

> *"The real is whatever exists, be it natural or social, regardless of whether it is an empirical object for us, and … the real is the realm of objects, … Whether they be physical, like minerals, or social like bureaucracies, they have certain structures and causal powers, … the actual refers to what happens if and when those powers are activated, to what they do and what eventuates when they do, such as when the bureaucracy's powers are activated and it engages in activities such as classifying and invoicing, or the previously idle person does some work".*

Critical Realist Epistemology

For knowledge to be gained, every theory of knowledge (epistemology) must presuppose the existence of a theory of what the world looks like (ontology) (Patomaki and Wight, 2000). The epistemological position of critical realism is therefore that science is composed of two dimensions: the intransitive and the transitive. The intransitive is the object of scientific inquiry and the transitive is our conceptions of that object. The relevance of knowledge is dependent on the nature, power and mechanism of the objective reality (Alvesson et al, 2000). While the intransive dimension is relatively enduring, the transitive changes under different contexts. This notion is elaborated by Danermark et al (2002:26):

"While it is evident that reality exists and is what it is, independently of our knowledge of it, it is also evident that the kind of knowledge that is produced depends on what problems we have and what questions we ask in relation to the world around us".

The fundamental epistemological tenet of critical realism is therefore that knowledge is always historically and socially located, without losing the ontological dimension. Within the social science research context, the transitive objects of science are the theories which researchers use to understand the world. The theories actually point to something external to it, a reality which is independent of the researcher. This reality which is sought to be understood and explained by the theories is the intransitive object of science. This chapter's opening quote:

"What social reality is held to be also is that which we seek to explain"

(Archer (1995: 17), is then made relevant within the critical realist paradigm.

Critical Realist Methodology

Critical realists employ a wide range of methods and their range of methodological assumptions is wider than one might expect because of their efforts to work with social theory (Olsen, 2009). The central tenet of critical realist methodology is that science is concerned with explanation, understanding and interpretation rather than discovering universal laws, predictive ability or the simple description of meanings and beliefs (Mingers, 2006). This central tenet brings methodological contribution of realism closer to interpretivism, where there is a possibility of multiple interpretations of one reality, than to empiricism.

A major methodological starting-point which is common among realists is retroduction. Retroduction is one form of transcendental realism in which researchers ask 'why things appear as they do' or 'why things are being observed as they seem to be' (Olsen, 2009). Transcendental Realism (empiricism) posits that entities and mechanisms discovered

by science exist as they are regardless of human access to them and the methodological contribution to science is through empirical experimentation. According to ibid, these questions lead to three sub-elements:

- Why do evidence and data appear to follow the patterns they do?
- Why are theories about the world sometimes wrong and what kind of bodies of evidence is used to substantiate and underpin each theory? and finally,
- How do we explain the phenomena that we are currently interested in?" (ibid)

The unpacking and interrogation of these questions is the role critical realism plays to research methodology, methods and sources. This research collects data which is analysed by concepts and theories depicting the transitive nature of knowledge in the context of information sharing in e-government.

Table 3.4 presents a summary of the ontological, epistemological concerns of positivist, interpretivist and critical realist paradigms.

	Positivistic	Interpretive	Critical Realism
Ontology	A realist ontology is premised on the view that there exists a single reality that is independent of any observer's interest in it. The reality is also understood to operate according to immutable natural laws, many of which take cause-effect form	A relativist ontology asserts that there exist multiple socially constructed realities ungoverned by laws, causal or otherwise. "Truth" is defined as the best informed (amount and quality of information) and most sophisticated (power with which the information is understood and used) construction on which there is consensus (although there may be several constructions extant that simultaneously meet the criterion)	A stratified reality independent of human consciousness, and at the same time a dimension which includes our socially determined knowledge about reality. Thus reality has an objective existence but that our knowledge of it is conceptually mediated. It is true that facts are theory-dependent, but this is not to say that they are theory-determined. Three levels of reality are: the empirical, the actual and the real.
Epistemology	A dualist objectivist epistemology asserts that it is possible for an observer to exteriorize the	A monistic subjectivist epistemology asserts that an enquirer and the enquired into are interlocked in such a	Science has two dimensions: an intransitive and transitive dimenstion. Theories and the transitive objects of

	phenomenon studied, remaining detached and distant from it (a state often called "subject-object dualism") and excluding any value consideration from influencing it.	way that the findings of an investigation are the literal creation of the enquiry process. Note that this posturer effectively destroys the classical ontological-epistemological distinction.	science and they constitute the dimension that connects science to reality. However there is no relation between science and the intransitive object; an ontological gap always exists.
Methodology	An interventionist methodology strips context of its contaminating (confounding) influences (variables) so that the enquiry can converge on truth and explain nature as it really is and really works, leading to the capability to predict and control.	A hermeneutic methodology involves a continuing dialectic of iteration, analysis, critique, reiteration, re-analysis and so on, leading to the emergence of a joint (among all the enquirers and respondents, or among etic or emic views) construction of a case.	A structural analysis approach that relies on the nature of the object to determine the possibilities we have for gaining knowledge of it. Methods must fit the object of study and the purpose of the study.

Table 3.4: Summary of Research Paradigms (Adopted from Guba & Lincoln (1989) and Danermark et al (2002) (Source: Ochara (2009))

Significance of Critical Realism in this Study

While it has often been observed that no single research methodology is intrinsically better than any other (Benbasat et al., 1987), and many researchers calling for a combination of research methods (Kaplan and Duchon, 1988), critical realist methodology can best be adopted for the problem under investigation in this study. This study investigates a social phenomenon which leads "to the production of knowledge that can result in emancipatory change" (Ochara, 2009). As stated earlier, the central tenet of critical realist methodology is that science is concerned with explanation, understanding and interpretation, the aim of the study is to understand and explain the e-government phenomenon. According to the realist philosophy, the question which a researcher seeks to answer in the world of social science, of which information systems partly lies is:

> *"What properties do societies and people possess that might make them possible objects of knowledge for us?"* (Bhaskar, 1979:17).

Many scholars assert that "information systems are fundamentally social rather than technical" (Hirschheim, 1985:1335). Morton (2006) concurs with Hirschheim and further argues that if it is accepted among systems developers that information systems are social systems, then IS can be directly situated within social sciences and critical realism provides philosophical underpinnings for such research. As explained in Chapter Two, in the context of this study, e-government is located within the broader IS domain. Heeks (2001:55) contends that:

> *"Information systems are social systems; that is to say, information systems are rooted in a context of people and of social structures and are themselves made up partly of people and social structures."*

Explanatory power is a one measure of theories in open social systems ((Bhaskar, 1979:27). Typical of the critical realist paradigm, Chapter Two of this research provides

an explanatory setting of the e-government problem which is then understood and explained through a multi-level analysis in Chapters Four, Five and Six.

A characteristic of a critical realist's view of knowledge is that it should lead to emancipatory change (Ochara, 2009). Chapter Seven of this research presents the application of the model which is a proposed solution towards the improvement of the social problem of the information sharing situation within the tourism ministry.

3.3 RESEARCH DESIGN AND METHODOLOGY

This research took place in Zimbabwe between 2009 and 2012. Data collection was done in two phases to allow factoring in of any ICT-related developments over a period of one year. This section is divided into research design and research methodology.

3.3.1 RESEARCH DESIGN

The research design is the conceptual structure within which a research is conducted. According to Creswell (2009), research design shows how all components of the research are supposed work together logically and progressionally to arrive at empirical deduction to address the highlighted problems of the research. Kumar (1996 as cited by Al-Azazi, 2008) summarized the steps (Figure 3.3) to be followed for a good research process. The process was adapted in this study and the nine steps in the process are explained in the subsections which follow.

Step 1: Formulating research problem

The following research problem, which was stated in Chapter One:

> *Government Ministries and Departments in Zimbabwe do not have a collaborative approach to information sharing in order to create an information pool from where information can be harvested and shared for the benefit of the citizens, the business community, international community and other stakeholders, as well as for fostering good governance*

was formulated with the underlying objective of understanding and explaining information sharing needs within the government of Zimbabwe. The Ministry of Tourism and Hospitality was identified as the case study of the research. The selection of the case study was borne out of the researcher's interest in tourism and the envisaged immediate benefits of e-government with the tourism sector.

Step 2: Literature Study and Research Paradigms

During this stage, the researcher conducted an extensive study of existing literature on e-government and information sharing. Different types of e-government models from both the developed and developing worlds were analysed. Socio-technical based e-government models made good reference to the study of e-government in different contexts. The literature formed secondary sources of data and it included models, theories, journals, and previous research addressing the elements affecting the intra and inter government information sharing. Literature and models reviewed are explicitly explained in Chapter Two. Critical realism was adopted as a philosophy informing the study.

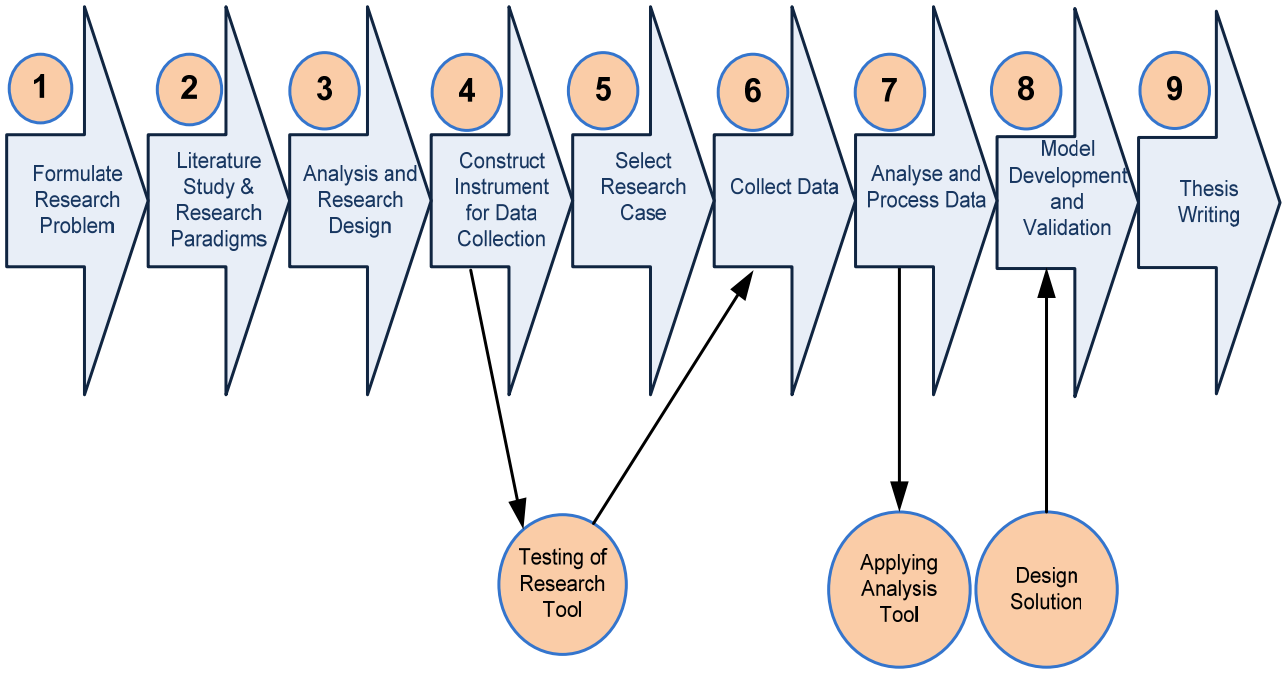


Figure 3.3: Research Process (Adapted from Kumar (1996) Source: Al-Azazi, 2008)

Step 3: Analysis and research design

The research design was carried out to spell the steps leading to the design of the recommended information sharing framework. The review of the literature informed the construction of the model, which is the proposed solution in Chapter Seven. The initial structure of the model was the output of the analysis and design phase.

Step 4: Constructing an instrument for data collection

There were three phases of data collection involving document study, interviews and questionnaires to the ICT ministry and questionnaires to the Ministry of Tourism and Hospitality. The official documents on e-government provided an insight into government's efforts towards modernizing their business. The documents and policies all demonstrate the government of Zimbabwe's knowledge and commitment towards e-government. The first dimension of the questionnaire instrument together with unstructured interviews was aimed at soliciting the current status of e-government deployment from the MICT. It is this ministry whose mandate is to provide a vehicle for all government's modernization efforts. The second dimension of the questionnaire was targeted at the case under study. The primary purpose of the second questionnaire was to examine factors which affect e-government adoption within the Ministry of Tourism and Hospitality in Zimbabwe.

Step 5: Selecting research case

The selection of the Ministry of Tourism and Hospitality as a case under study was made on two bases. First, the researcher has interest in e-tourism. He had done previous consultancy work in tourism information systems with the Zimbabwe Tourism Authority (ZTA). He then established a need for e-tourism within the sector. Secondly, the tourism industry has been previously booming in Zimbabwe, which hosts one of the natural Seven Wonders of the World – the Victoria Falls. Selecting the ministry for research was a welcome development by the ministry's administration.

Step 6: Collecting data

The questions on the questionnaires were all “knowledge questions”. These are the questions which seek to collect factual data. There was no need to select a sample for such questionnaires but one or two knowledgeable respondents could complete the questionnaires. The instruments were administered as follows:

- Questionnaires and unstructured interviews were carried out with the permanent secretary and the principal director in the ICT ministry. The aim was to collect data on the current status of the e-government deployment as well as the short and long-term goals of the government towards e-government
- The questionnaires and unstructured interviews to the tourism ministry were aimed at collecting data relating to specific status and goals of the ministry towards e-government and information sharing. The first set of questionnaires and interviews was administered in person and the second via emails. The tourism ministry was relatively new and had a staff compliment of 10 people. Four were selected to answer knowledge questions and these included the permanent secretary, one director and two principal officers.

Step 7: Processing data

The collected data from document study, interviews and questionnaires were analysed as follows:

- Data collected from documents and policies as well as interviews and questionnaires from the ICT ministry were analysed using the Integrated e-Government Assessment Framework (Chapter Four)
- The activity-driven needs analysis (ADNA) was used to analyse data obtained by interviews from the Ministry of Tourism.

Step 8: Model Development and Validation

After processing and analyzing data, a model for information sharing in the Ministry of Tourism was developed. The model clearly depicts the relevance of an electronic information sharing platform within a socio-technical environment. Information and data

are shown flowing into and out of the ministry's repository with the facilitation of analytical tools.

Validation was a continuous process throughout analysis phase. Firstly, all the collected and analysed data were bounced back to respondents to confirm correctness. One of the principal officers with the Ministry of Tourism was resident at the same university with the researcher. To confirm process validation, several meetings were held with the principal officer who would confirm or refine information sharing models depicting the current status in the tourism ministry. The answers from all the high-level officers in both the ministries of ICT and tourism confirm the strong interest and need for a standardised e-government platform with information sharing capabilities within and across entities. The final model was evaluated by the tourism ministry permanent secretary and his team to confirm its applicability and the possibility of adopting it in the future. To counter researcher bias, the tourism ministry requested an authority of the e-government from the President's Office to validate the information sharing model independently from the data collected or the practitioners' professional opinion.

Step 9: Writing research document

The research document structure is explained in Chapter One. The writing of the actual document started from the methodology to data analysis then to model development. Literature review was written last to accommodate any new work which might have been published during the research period.

3.3.2 METHODOLOGY

Simply put, research methodology is a way to systematically solve the research problem. It is the way we gain knowledge about the world or "an articulated, theoretically informed approach to the production of data" (Ellen, 1984). Methodology may also be understood as a science of studying how research is done scientifically in which the various steps are adopted by a researcher in studying the research problem along with the logic underpinning the processes.

The research takes a qualitative methodology, which implies that there is an emphasis on discovery and description. Qualitative research is an interactive way of collecting data and it is usually associated with interpretive and critical paradigms, (Saunders *et al*., 2009:151). In a qualitative study the objectives are generally focused on extracting and interpreting the meaning of experience (Bogdan & Biklen, 1998; Denzin & Lincoln, 1994; Merriam, 2001). Strauss and Corbin (1990), and Sherman and Webb (1988) classify the use of qualitative research according to three broad categories which are to understand any phenomenon about which little is yet known, to gain new perspectives on things about which much is already known and to gain more in-depth information on things that might be difficult to convey quantitatively. According to the researcher's experience with the government services in Zimbabwe, this study settles on the second category of seeking to to gain new perspectives on things about which much is known. Within the framework of a qualitative approach, the research was most suited for a case study design, focusing on the Ministry of Tourism and Hospitality. The case study research is presented in the following subsection.

3.3.2.1 Case Study Research

According to Feagin et al, (1991), case study is an ideal methodology when a holistic, in-depth investigation is needed. Yin (1984:23) defines the case study research method as:

> *"an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used".*

In this regard, the case presented in this research comprises both primary and secondary data. Primary data comes from the case itself while secondary data was sourced from documents and government policies which depict the government of Zimbabwe's efforts at computerization. A case study model, according to Yin (1994), has four applications, namely:

- to explain complex causal links in real-life interventions;
- to describe the real-life context in which the intervention has occurred;
- to describe the intervention itself; and
- to explore those situations in which the intervention being evaluated has no clear set of outcomes.

This research presents the first three to illustrate information sharing phenomenon and the conceptualization of the intervention. According to Yin (2003) a case study design should be considered when:

- the focus of the study is to answer "how" and "why" questions;
- you cannot manipulate the behaviour of those involved in the study;
- you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or
- the boundaries are not clear between the phenomenon and context.

A multiple case approach is applicable if a "replication logic" is supposed to reveal support for either theoretically similar results or contrasting results for predictable reasons (Yin, 1994). It was presumed before the commencement of this research that government departments and ministries in Zimbabwe operate within similar political, social and economic context thereby results from the case where expected to be empirically similar.

3.4 DATA COLLECTION, METHODS AND SOURCES

A direct logical linear relationship exists between methods and sources. Harding (1986) states that:

> *"A research method is a technique for (or a way of proceeding in) gathering evidence. One could reasonable argue that all-evidence gathering techniques fall into one of the following three categories: listening to (or interrogating) informants, observing behaviour, or examining historical*

traces and records. In this sense, there are only three methods of social inquiry".

The primary data sources for this research were predominantly informants who were interviewed in two stages. Officially published material in the form of government policy documents and programmes also formed part of the primary data. Secondary data sources were books, white papers, journals, etc which provided data and information on information sharing in governments and e-government in general.

This study recognizes that there are a number of data collection methods that can be applied in a case study. According to Yin (2003), sources of evidence include documentation, archival records, interviews, direct observation, participant observation as well as examination of available physical artifacts (Ochara, 2009). Figure 3.4 shows the methods which were employed in this research and Table 3.5 shows the data collection schedule.

Secondary resources*:*
The researcher studied many research papers, journals, industrial white papers, and surveys on e-government and information sharing. The underlying objective was to obtain and built a repository of documents relating to the subject under study. Many documents relating to e-government from both the developed and developing worlds were collected and studied. During the course of the research, the researcher both read and skimmed through more than 200 journals, whitepapers, conference proceedings, and books.

Primary Sources
Primary sources included documents, interviews and questionnaires. The two categories of documents were e-government policy documents and internal publications in the Ministry of Tourism. Interviews mainly supported questionnaires and they involved both structured and unstructured interview questions to both the ministries of ICT and tourism. The emailed questionnaires were sent to the tourism ministry officials.

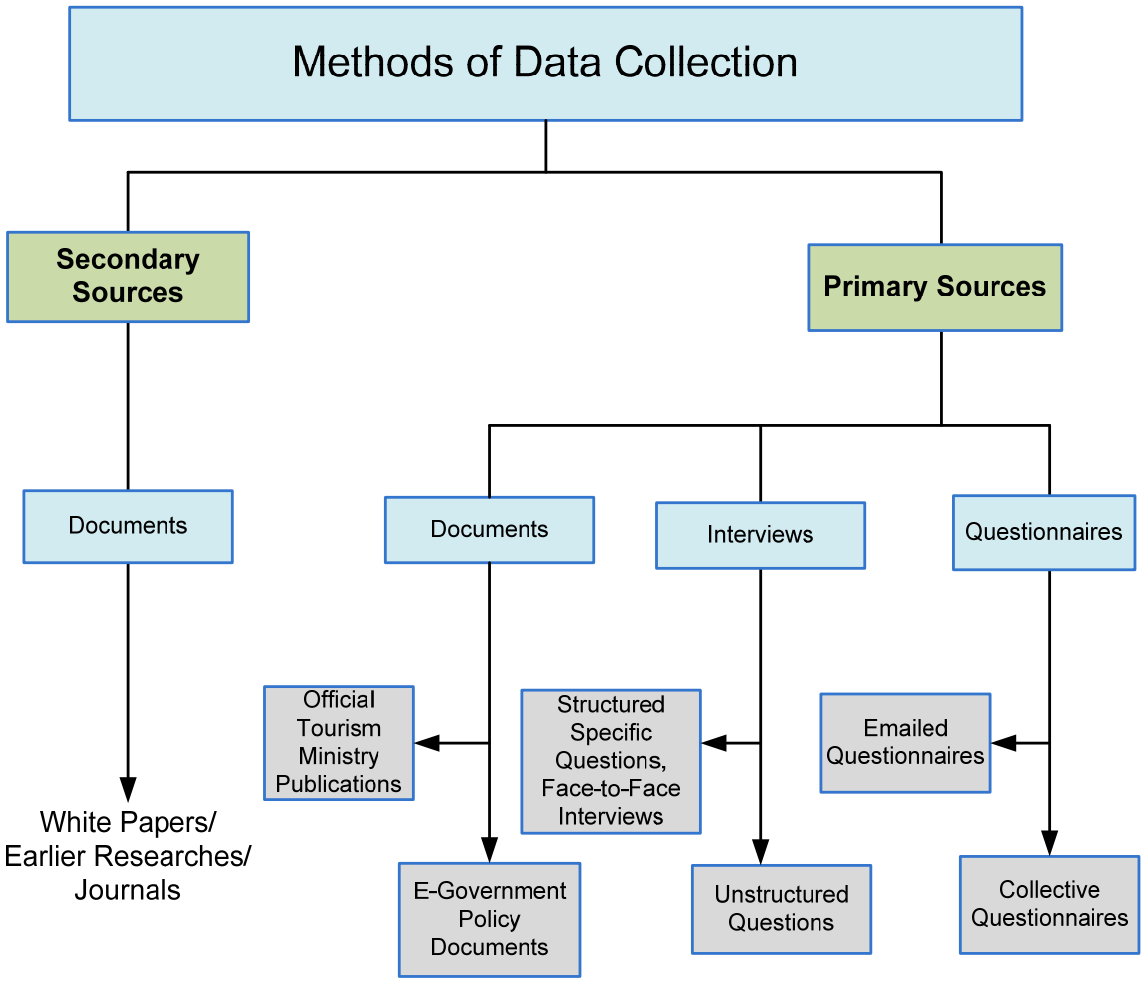


Figure 3.4: Data Collection Process (Adapted from Kumar (1996) Source: Al-Azazi, 2008)

Period	Aim	Outcome
May 2010	Collect, study and analyse government ICT policy documents	A summary of the purpose and vision of the policy documents
June to July 2010	Understand the state of e-government development in Zimbabwe, the country's ICT strategy and vision	A holistic reflection of Zimbabwe's status of ICT development
December to January 2010	Understand the state of e-government ICT development within the Minsitry of Tousrim, the case under study	A protracted view of pace of ICT deployment in ministries as reflected by the case

Table 3.5: Data Collection Schedule

Table 3.6 shows a summary of the field work. Respondents were purposively selected on the basis of their ability to answer knowledge-based questions. The ICT ministry is the driver of ICT projects within the Zimbabwe government. The permanent secretary, principal director and other directors as indicated on Table 3.6 are responsible for policy formulation in consultation with various stakeholders. The ICT ministry regularly conducts stakeholder consultative workshops to solicit expert advice from government as well as industry and commerce. Players in these workshops include the Computer Society of Zimbabwe (CSZ), Universities, Research institutions, parastatals, NGOs, Confederation of Zimbabwe Industries, Bankers Association of Zimbabwe, and various other stakeholders.

Respondent	Department/Ministry	Interview Context
Permanent Secretary	ICT Ministry	ICT strategy and policy e-government in Zimbabwe; ICTs and development
Principal Director	ICT Ministry	ICT strategy and policy e-government in Zimbabwe; ICTs and development
Director	e-Government Services (Office of the President and Cabinet)	Status of e-government projects Technical expertise
Director	Research, Infrastructure Development and Management (ICT Ministry)	Communications Infrastructure backbone that facilitates voice, data and video communication
Director	ICT Services (ICT Ministry)	Government ICT application development ICT Assistance to line ministries ICT training programs and literacy for public service employees
Permanent Secretary	Ministry of Tourism and Hospitality	ICTs and development
Principal Director	Ministry of Tourism and Hospitality	ICTs and development Competition Pressure Technology pressure
2 Officers	Ministry of Tourism and Hospitality	ICT Projects ICT Literacy within the ministry

Table 3.6 Summary of data collection activities

3.4.1 DATA ANALYSES

A long stream of theories has been applied to IS research to understand how IT systems are developed and deployed in social contexts. According to Walsham (1995, as cited by Ochara, 2009), there are three ways in which theory is involved in research which are: as an initial guide to research and data collection; as part of an iterative process of data collection and analysis; and as a final product of the research inquiry. Due to the multi-level analysis employed in this research, Walsham's first two ways of theory involvement are evident in the study. The first level of analysis (Chapter Four), employed the Integrated e-Government Assessment Framework developed by the researcher to analyze the various e-government policies and documents. The underlying objective of the Integrated e-Government Assessment Framework analysis in this context was to identify the central focus of each policy document.

The Activity-Driven Needs Analysis (ADNA) was employed to explain both the current status and goal state of information sharing within and across the tourism ministry. Chapter 6 presents the current status while the goal state is presented in Chapter Seven. The following section presents the introduction to each of the theoretical perspectives adopted in this study, the details of which will be presented in the respective chapters.

3.4.1.1 Analysis of Government Policy Documents

Part of this research finds its methodological home in qualitative document study and analysis. According to Henning (2002) through qualitative enquiry, the researcher wants to understand and to explain in argument, by using data from the evidence and literature, what the phenomenon is about.

A document study approach is an analysis of any written material which contains information of the phenomenon being studied. Documents are classified under personal and official documents. Personal documents include diaries, autobiographies, personal letters, verbal communications, photographs, video recordings etc. Official documents are more formal and structured and are maintained by large organisations such as

governmental institutions. The documents which were studied in this enquiry are government policy documents that are made available in the public domain. All the documents that provided primary data in this study were available at the former ministry of Science and Technology Development offices in Zimbabwe. Some of the policy documents under study are the National ICT Policy Framework (2006), e-Readiness Survey Report (2005) and Science and Technology Policy (2002). The e-government integrated assessment framework, against which the study maps the e-government policy documents, is presented in in the next sub-section.

Integrated e-Government Assessment Framework

The Integrated e-Government Assessment Framework (Figure: 3.5) draws from the Socio-technical system of Bostrom and Heinen (1977). The integrated e-government assessment framework takes on similar views as the socio-technical where the social sub-system incorporates three main components which cover aspects required to answer all social questions related to the e-government system. Some of the questions are:

- How can the e-government application support the aims of government, meet the employees' needs, further the aims of management and the general politics and the economy around the government?
- How can e-government meet increasing demands of citizens to access information and services?
- How can e-government promote best practices in dealing with business and other bodies like the non-governmental organisations and other governments?

On the other hand, the technical sub-system will be able to answer the following technical questions:

- What is the network configuration and specification of the e-government system?
- What are the government data sources and the network-enabled data processing applications?

- How integrated are the government websites and what is the level of maturity of these websites?
- What are the data communication devices that users employ to access e-government services?

As in e-commerce and other organizational systems, e-governemnt is foremost a business system installed and implemented to serve the purpose of an over-arching social imperative. As in any business information system, the technical sub-system exists solely to support the higher business system. Consequently, as shown on Figure 3.5, the technical sub-system is subordinated to the social sub-system that subsumes the business system.

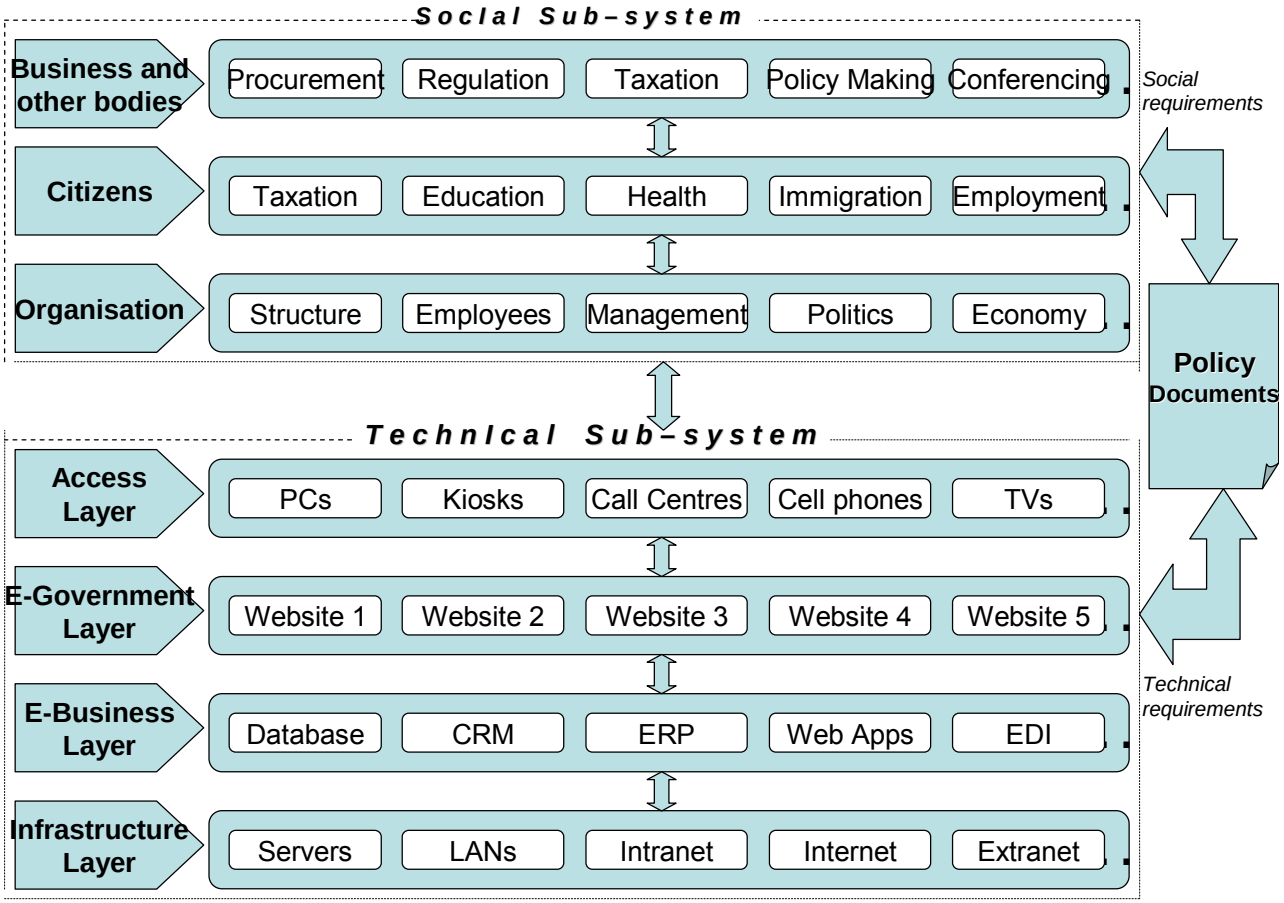


Figure 3.5: Integrated e-Government Assessment Framework

The Application of the Integrated e-Government Assessment framework provides e-Government developers with a mechanism to interrogate and ascertain the extent to which each module of each layer of the technical sub-system supports the superordinate modules in the social sub-system. This essentially requires each technical module to serve one or more modules of the social sub-system. From this, an assessment procedure of policy documents is performed and presented in Chapter Four. After the socio-technical analysis, Chapter Four also presents thematic analysis of the same e-government policies to determine to which theme each policy belongs. Thematic analysis is described in the next sub-section.

Thematic Analysis of ICT Policy Documents

Thematic analysis is a method for identifying, analysing, and reporting patterns (themes) within data (Braun and Clarke, 2006). According to Barun and Clarke (2006:82):

> *".. a theme captures something important about the data in relation to the research question and represents some level of patterned response or meaning within the data set*".

In analysing these documents, the researcher approached the data with two specific central questions as follows:

> *What is the central focus of each policy document?*
> *What is a dominant theme across all policy documents?*

Thematic analysis can be an essentialist or realist method on one hand, reporting experiences, meanings and the reality of participants, or it can be a constructionist method on another, examining the ways in which events, realities, meanings, experiences and so on are the effects of a range of discourses operating within society (Braun and Clarke, 2006). It can also be a 'contextualist' method, with a free-play between essentialism and constructionism, and characterised by theories such as critical realism (Willig, 1999). In this study, the formation of meanings is emerging from

a contextualist approach which is direly informed by the study's philosophical paradigm of critical realism. Table 3.7 presents dominant themes identified by the researcher to have emerged from the government of Zimbabwe's policy documents.

Theme	Description	Locus
Technology	The focus is on IT infrastructure, availability and compatibility	 Economic Development 
Environment	The focus is on national policies, digital divide and locating Zimbabwe within the broader global economy	
Organisation	The focus of this theme is around organizational processes that should be transformed.	
People	The focus is around relationships between citizens and government as well as skills transfer and ICT education.	

Table 3.7: Policy Documents' Dominant themes

Technology theme: includes the internal and external technologies that are relevant to the organization (Tornatzky & Fleischer, 1990) be it appropriate to provide services or to manufacture products. As stated by Tan (2010) the technology experience includes hardware and processes, software and hardware connected to the organization.

Organizational theme: comprises the characteristics and resources of the firm, including the area, degree of centralization, degree of formalization, managerial structure, human resources, amount of slack resources and relations in the organization (Tornatzky & Fleischer, 1990; Tan, 2010). To determine the organization's readiness to adapt technological innovations, Tan (2010) further asserted that cost, values and competences contribute to the way innovations are adopted as part of the organization context. Perceived organizational composition can be related to the environmental setting where the organization is operating.

Environmental theme: is the arena in which the organisation conducts and influences its consumers. According to Ebrahim et al (2004), one of the primary reasons for e-government adoption is that organisations could be driven towards it by the actions of competitors, as well as, establishes a connection with other organisations for better collaboration and the expectations of citizens and business. Many empirical studies recognized competitive pressure as an adoption driver. Tornartzky & Fleisher (1990) and Tan (2010) focused on environmental scope and composition of industry, technology support infrastructure, the economy and the regulatory framework as external environmental factors critical to the adoption of innovations in organizations.

People theme: comprises all aspects related to use of technology, education and skills transfer.

Locus: ***Economic Development***. The researcher identifies one specific locus of all the above themes as the fostering of economic development through e-government initiatives in Zimbabwe (Table 3.7). The researcher contends that in as much as there is evidence from the OECD countries that ICTs facilitate economic growth and development, principally by increasing productivity (OECD, 2004), the same outcome can be achieved in developing countries. All the e-government policies address the economic development locus at both macro and micro levels. According to Ochara (2009), the intent of e-government at the macro perspective is closely linked with larger globalisation concerns of citizen empowerment, gender empowerment, gender equity, achievement of universal access goals and more participatory governance. According to Escobar (1995), development has always been highly influenced by the economic thought and interventionist approach varying with political perspectives and measured by increases in Gross Domestic Product (GDP). The interventionist approach concerns taking action to make development occur (Macueve, 2008).

3.4.1.2 Activity-Driven Needs Analysis (ADNA)

ADNA is an information systems development (ISD) model that aims at exploring work activities in order to understand the information needs and to seek direction for possible realistic solutions (Luukkonen et al, 2010). Typical of the critical realist paradigm, ADNA presents the explanatory platform for the realities of the existing world (Dobson, 2001) which points to emancipatory knowledge (Ochara, 2009) for purposeful change. The application and operationalization of ADNA to this research is presented in Chapter Six. The meanings of actions and events presented by ADNA are interpreted within a critical realist epistemology. In order to fully understand the need for an e-government framework appropriate for the Ministry of Tourism and Hospitality, ADNA elaborately presented a model of the current state of information sharing. The tenets of ADNA are consistent with the aim of data analysis in Chapter Six which is the precise description of the current state of the information sharing arrangements within and across the Ministry of Tourism. ADNA provides a possible realistic design of the goal state in Chapter Seven.

Before a detailed description of ADNA, it is important to point out that there are a number of other theories and models which could have been adopted in this research to analyse data. The following are brief descriptions of the theories over which ADNA was preferred.

Actor-Network Theory (ANT): ANT was developed by scholars including Bruno Latour, Michel Callon and John Law from the study of science and technology. It has made a significant contribution to IS research by theorizing the IT artifact to gain a better understanding of the interaction between the social and the technical system (Hanseth et al, 2004). According to (ibid), ANT is premised on the concept of actor network, which is a network where elements of any kind may be included: humans, technological artifacts, organisations, institutions, etc. ANT claims that any actor, whether person, object, or organisation is equally important to a social network. While ANT provides a rich understanding of technology seen in a social context, it is not understood how it could contribute in explaining the degree to which technology is enabling information

sharing within and across the Ministry of Tourism. The focus for ANT is not consistent with the aim of the research as it explicitly points to conceptualizing technology as one of the "actors" in the actor-networks, whereas the study seeks to understand and explain the current human-technology interaction in order to design a desired state. A more pertinent drawback for employing ANT in this study stems from the inability of ANT to operate on various levels of analysis which are the individual, group, organisational and societal. ANT operates at the work-activity or group level only while the study's main level of focus is the organisational.

Activity Theory: According to Kuutti (1996), Activity Theory is a philosophical and cross-disciplinary framework for studying different forms of human practices as development processes, with both individual and social levels interlinked at the same time. It is a socio-cultural theory which provides a theoretical base for analyzing, understanding, and describing cooperative purposeful human activity (Hedegaard et al, 1999). Grounded in the work of Vygotsky, Rubinshtein, Leont'ev, Activity theory is a framework or descriptive tool for a system where people are socio-culturally embedded actors. It offers perspectives on human activity and concepts for describing that activity. Tan (2009) elaborates critical features of Activity Theory as:

1) activities are defined as basic units of analysis, that is:

Individual actions + meaningful context = Activity

2) Activities are not static. This means that activities are under continuous change or development

3) activities always contain various mediating artifacts. It implies that an asymmetry can be drawn between people and the artifacts,

4) there is unification of consciousness and activity.

Luukkonen et al (2009) contend that the utilization of activity theory in information systems development:

> *"Promotes a multi-faceted analysis of the information and its users and the dynamics between them by acknowledging an information system as a mediator of information within and between work activities".*

The inappropriateness of activity theory to this research lies in its emphasis on human practices. It is pertinent however to consider human actions but the research delves into the intervention of technologies to accelerate the current processes with accuracy and dependability.

ActAD Framework: It is closely related to activity theory in emphasising human activity as the core of design science research. Based on Engeström's (1987; 1990; 1999) and modified by Korpela et al (2002), Figure 3.6 depicts systemic components, elements, or parts which relate to each other to form work activity. The framework is composed of individual actions and collective activity intertwined in the same model emphasizing the systemic mode, generalizing tye means of coordination and communication and introducing the means of networking (Korpela et al, 2004). The ActAD framework comprises the elements of work activity as a systemic entity which includes a number of people working on a shared object in an organized way to produce a joint outcome.

The main emphasis and rationale behind modifying Engeström's work activity concept was to support socio-technical information systems development. From Figure 3.6, these elements are: Actor; Object; Outcome; Means of work; Means of cooperation, communication, and coordination; Collective actor, and Process, Input and Output. The framework is applicable to action and design science where a group, team or community of practice collaboratively works in the entire design process. Like the activity theory, ActAD framework is applicable as a means of work in individual actions and coordination and communication between actions in an activity, with emphasis on inner aspects of an activity, therefore rendering it inapplicable to this research whose focus is on work between activities at organizational level.

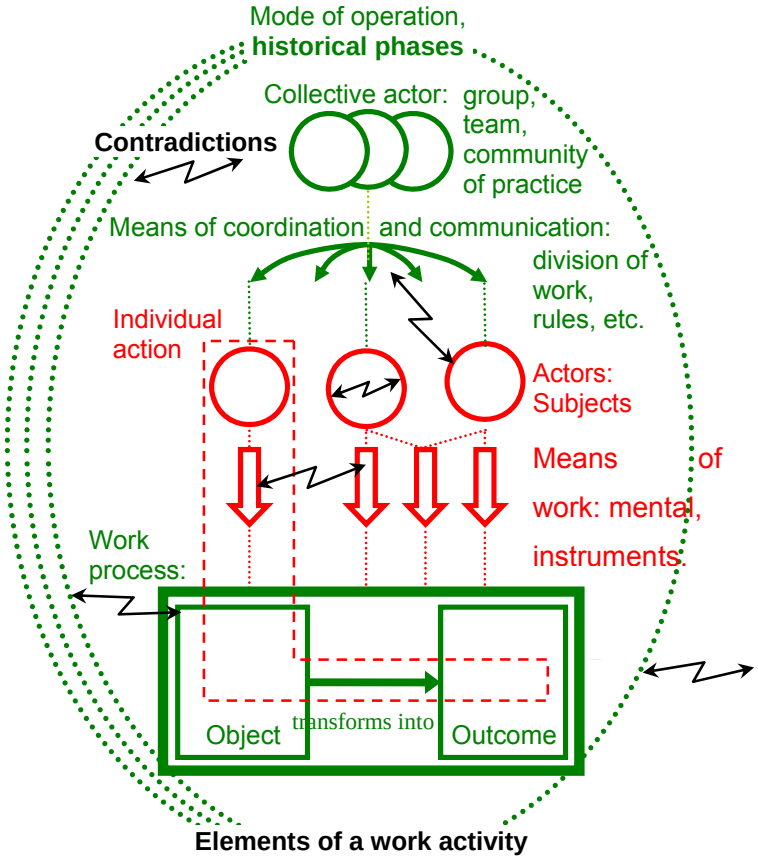


Figure 3.6: The ActAD Framework (Mursu et al, 2003; Adapted from Korpela, 2000)

Participatory Design: Participatory action research involves making critical analyses of the institutionally structured situations (projects, programmes, systems) in which people work (McTaggart, 1989). User participation is often encouraged for three reasons: to ensure that user requirements are met, to gain user commitment, and to avoid user resistance (Cavaye, 1995; Silva and Breuleux, 1994). An important tenet of this approach is that it is collaborative and the collaborating domain is widened from those most directly involved to directly involve as many as possible of those affected by the practices concerned (McTaggart, 1989). While participatory design is an appropriate approach to designing a goal state as is part of the aim of this study, it does not offer adequate analysis of the current state relating to existing systems – human-technology. A rich understanding of the present situation is always a pre-cursor to designing a new platform.

Proponents ADNA of the model emphasise the need for it on domain analysis and description and requirements elicitation. The model has three levels of analysis and descriptions, traceable with each other. The levels are: individual level (actions), group/activity level (work processes), and organizational level (network of activities) as shown on Figure 3.7. At each level the work, linked up with information system, is analysed with different fineness of detail.

The first phase of ADNA, *analysing the present state*, served as an initial guide to data collection. Analyzing actors (participants and stakeholders), object (objective, goal), means of work (mediating technologies in information sharing) and processes give ADNA some specific methodological depth in this research. Interviews were the main tool utilized to gather data about information sharing arrangements within the ministry as well as between the ministry and external entities. After gathering the data, ADNA provided a framework for problem identification within the entire information sharing chain. After analyzing the present state, ADNA underpinned the designing of the desired state of information sharing as a work activity for the ministry. Respondents were involved in designing the desired information sharing model which is presented in Chapter Seven.

ADNA is based on activity-driven Information Systems Development (ISD) Model which was developed with action research and case studies in several practical ISD projects, hosted by different healthcare organizations in Finland (Korpela et al, 2008). ADNA is empirically grounded in the work of Korpela, Mursu, Luukkonen, de la Harpe, Soriyan, Toivanen, Saranto and others between 2004 and 2011 in healthcare projects in Finland, Nigeria, China, South Africa and Mozambique. The Activity Driven (AD) approach to ISD has been developed for almost two decades in Finland (Korpela et al, 2004). The basic concepts originate from Activity Theory (Hedegaard et al, 1999) and the Activity Analysis and Development (ActAD) framework (Korpela et al, 2004).

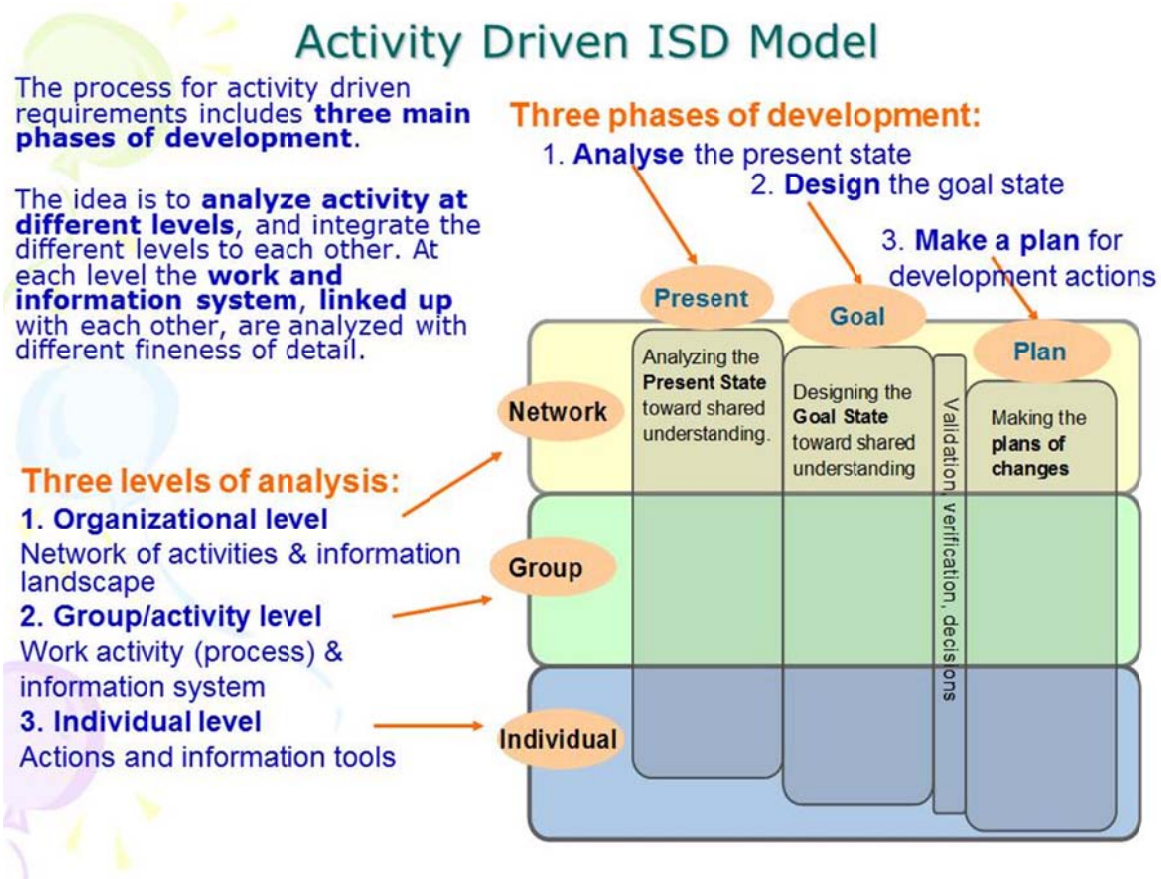


Figure 3.7: Activity Driven ISD Model (Source: Mursu, et al, 2007)

The three phases of development in Figure 3.7 are performed iteratively as shown in Figure 3.8.

Phase 1: Analyse the present state

The aim of this phase is to achieve a mutual understanding of the present state and developing points in it. Modelling and documenting the present state of the activity makes the current situation visible and readily understood. By examining present practices systemically, we can point out the weaknesses and shortcomings in them and the likely causes of the problems. Understanding the causes guides us towards possible solutions. As shown in Figure 3.8, the methods include interviews, guided tours, workshops, literature review, etc. The result is the general picture of target activity in its context, which are organisations and stakeholders as well as descriptions of work

processes and required information. In this research, data validation was conducted through exchange of emails containing aggregated and analysed data.

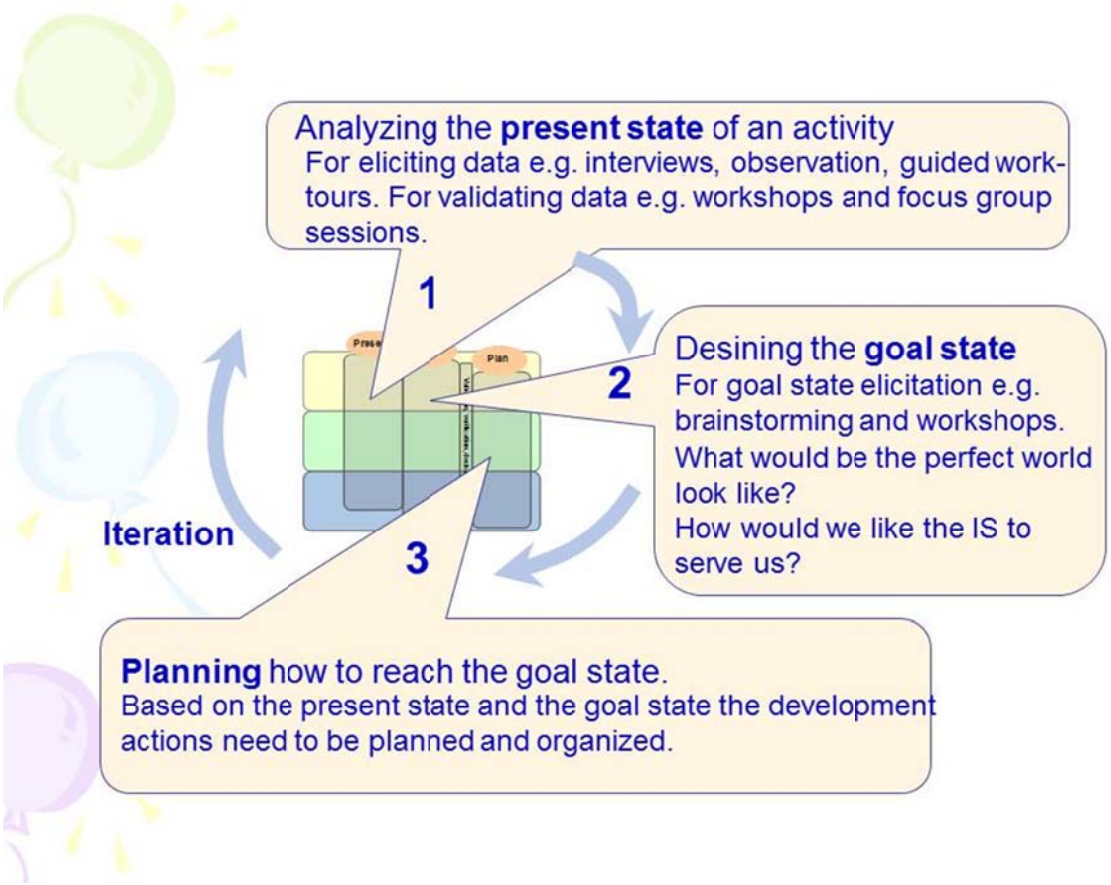


Figure 3.8: Phases of Activity Driven ISD Model (Adapted from Mursu et al, 2007)

Phase 2: Define the goal state

The aim in this phase is to achieve mutual understanding of the goal state and developing points in it. Brainstorming and workshops are the main methods as both IS developers and stakeholders come together. The questions which should be answered include the following:

- What would be the perfect world look like?
- How would we like the IS to serve us?
- How should the whole activity be arranged?
- What are the changing points?
- Where do the canges affect?

The result is the description of the goal state in the form of overview, processes, scenarios and user interfaces, system functions, the limiting factors as long and short term goals.

Phase 3: Planning how to reach the goal state

This phase is based on coalescing the goal state and development actions which need to be planned and organized. To make the path and strategy from the present to the goal state clear, both long and short-term plans are needed. These plans should answer questions such as:

- What acquisitions should be made?
- What kind of training is needed and for whom, and how should it be arranged?
- What other resources are needed?

This phase is outside the context of this study as the researcher's goal is to design a proposed solution based on the data gathered and analysed.

Phase One of ADNA, which is the analysis of the present state towards shared understanding, is taking place at both the societal and organisation levels (Figure 3.9). As shown in Figure 3.9, four integrative levels of have been identified in IS development (Korpela et al, 2004). These levels are: the individual, group/activity, organisational and societal, all of which operate at both intra and inter-viewpoint units of analysis. Brief descriptions of the levels are as follows:

Individual – this is naturally a single person whose intra-individual unit of analysis is inherent in their mind. Inter-individual analysis deals with relations between different individuals.

Group or Activity level – the intra-viewpoint analysis at group level explains a group of people who are related to each other in a systemic way (Korpela et al, 2004). A systemic way in the context of this research means collective human, social and technological processes which form a work activity. The group/activity level at the inter-

viewpoint unit of analysis refers to inter-activity work between activities or sets of activities. This is where the outcome of one activity is used in another activity.

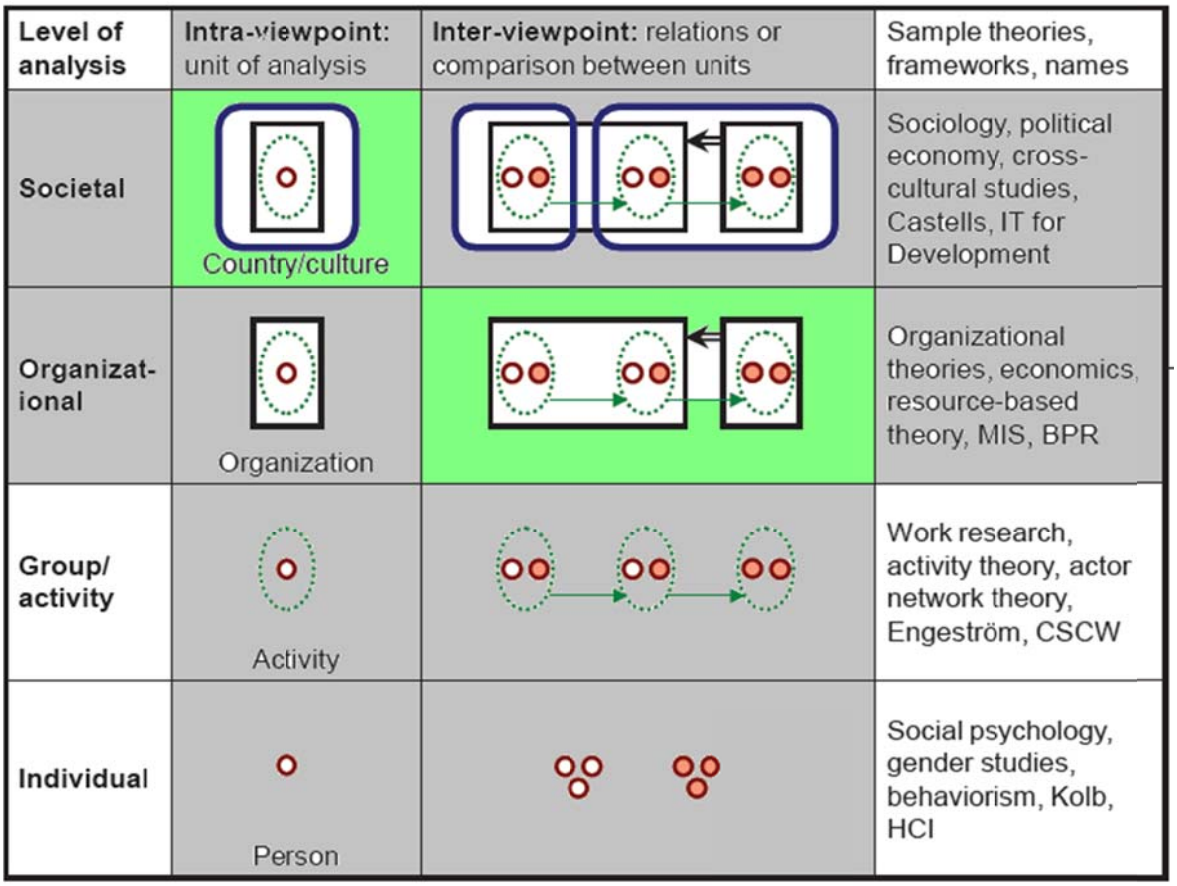


Figure 3.9: 2 X 4 Integrated Levels of Analysis (Source: Korpela et al, 2001)

Organisational level – the intra-viewpoint unit of analysis is the organisation itself. This is where organisational activities are analysed, a common example would be the business and IS alignments (Korpela et al, 2004). The inter-viewpoint at organisational level involves activities across organisations.

Societal level – the intra-viewpoint unit of analysis at societal level is the entire society which can be a political or cultural entity. This is where a particular society's information system is analysed within the societal context. The inter-societal cell of the matrix would then compare different societies or examine what information sharing activities are promoted among them.

Chapters Four and Five present the societal level of analysis where national ICT documents are analysed and the Zimbabwe's e-government status is discussed with ICT ministry respectively. Chapter Six presents the organisation level of analysis involves analysing information sharing activities between the Ministry of Tourism and hospitability and other agencies. Figure 3.9 shows that these two levels, societal and organisational, are analysed at the intra-viewpoint and inter-viewpoint units of analysis respectively. Both rows and both columns are shaded in grey while the intersections are in green. It is these two intersections which form the thrust of this study towards understanding and explaining the e-government phenomenon in Zimbabwe. The first intersection, between the society level and the intra-viewpoint unit of analysis indicates the whole society which is Zimbabwe. The second intersection, which is one between the organisational level and the inter- viewpoint unit of analysis indicate ministries and agencies that engage in the e-government activity of information sharing.

3.5 CHAPTER SUMMARY

This chapter presented the philosophical paradigms, frameworks and methods which guided this study. A summary of theoretical underpinnings is presented in Table 3.8.

Decision	**Choice**
Epistemological and Ontological assumptions	Critical Realism
Domain	e-government platform as a means to foster information sharing
Theoretical Bases for Data Gathering and Analysis	Activity-Driven Needs Analysis

Table 3.8: Summary of theoretical underpinnings (Adapted from Ochara, 2009)

Figure 3.10 presents a summary of the research methodology adopted in this study.

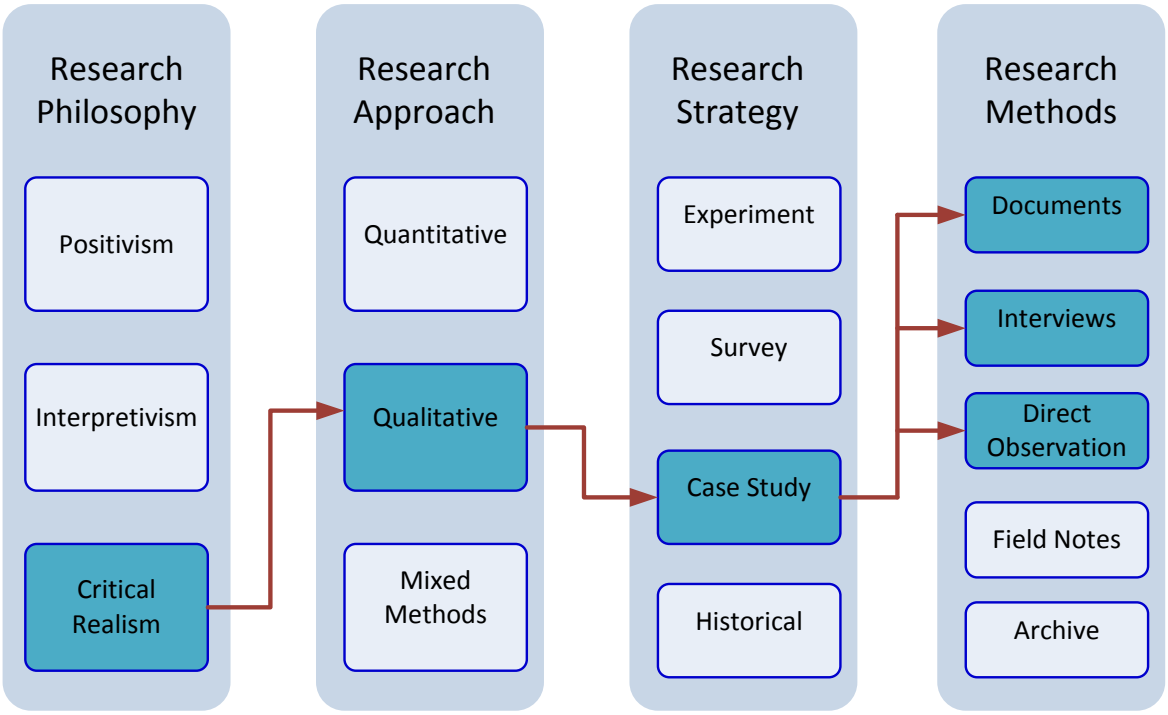


Figure 3.10: Summary of Research Methodology Adopted

The next chapter is one of the three chapters on data analysis. Chapter Four focuses on analysing data from Zimbabwe's ICT policy documents.

CHAPTER FOUR

QUALITATIVE ANALYSIS OF GOVERNMENT'S ICT POLICY DOCUMENTS

"Opinion is that exercise of the human will which helps us to make a decision without information."

- John Erskine

4.1 INTRODUCTION

This chapter is the first of two chapters which present the societal level of analysis under the intra-viewpoint unit of analysis. Figure 4.1, depicts the intersection of the societal level of analysis and the intra-viewpoint unit of analysis. Construction of the next chapter is also premised on the same intersection; hence it shall also make reference to Figure 4.1. It is also indicated on Figure 4.1 that the theories or frameworks at societal level relate to socio-political, economy, or ICTs for development. The analysis in this chapter is predicated on the view indicated in Chapter Two that ICT documents were deemed to provide an insight into developmental programs towards fostering economic development.

The purpose of this chapter is to seek meanings of the e-government artifact from the policy documents. The chapter is organised as follows: The next section presents the some of the policies and programmes that were initiated by the government of Zimbabwe. The second section presents a thematic analysis of the government policy documents, leading to a critical narrative analysis of the same in the third section. The tensions which emerge from the analysis of the policy documents are discussed in the fourth section before the chapter ends with a summary.

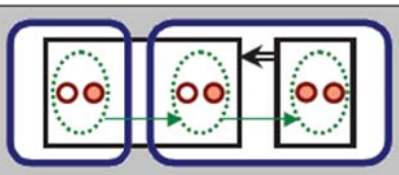
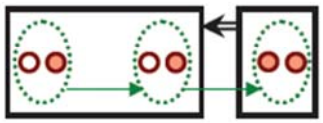
Level of analysis	Intra-viewpoint: unit of analysis	Inter-viewpoint: relations or comparison between units	Sample theories, frameworks, names
Societal	 Country/culture		Sociology, political economy, cross-cultural studies, Castells, IT for Development
Organizat-ional	 Organization		Organizational theories, economics, resource-based theory, MIS, BPR
Group/ activity	 Activity		Work research, activity theory, actor network theory, Engeström, CSCW
Individual	 Person		Social psychology, gender studies, behaviorism, Kolb, HCI

Figure 4.1: Societal Level of Analysis X Intra-viewpoint Unit of Analysis (Adapted from Korpela et al, 2001)

4.2 POLICY DOCUMENTS

The Government of Zimbabwe is acutely aware of the critical role that science and technology plays in socio-economic development. This is clearly demonstrated by the e-government policy documents which were passed over the years. The documents are presented in the following sub-sections.

4.2.1 STRATEGIC PLAN (2010)

Termed the 'visionary Strategic Plan of the Ministry of ICT', the strategic Plan was crafted to provide a roadmap of e-government implementation. The action plans contained in the document were geared toward operations, procedures, and processes.

Using the ABCDE model (Figure 4.2), the strategic plan attempted to answer critical questions:

- Where are we?
- Where do we want to be?
- How will we do it?
- How are we doing?

A baseline was created from the ICT Ministry's organizational profile and inputs solicited through workshops from various key stakeholders from the ICT sector in Zimbabwe.

As will be discussed in the third section of this chapter, the above are generic questions which do not address the specifics of a politically polarised context as Zimbabwe. The success of the plans therefore hangs in the balance as the gap between paper-based plans and their practical implementations remains wide.

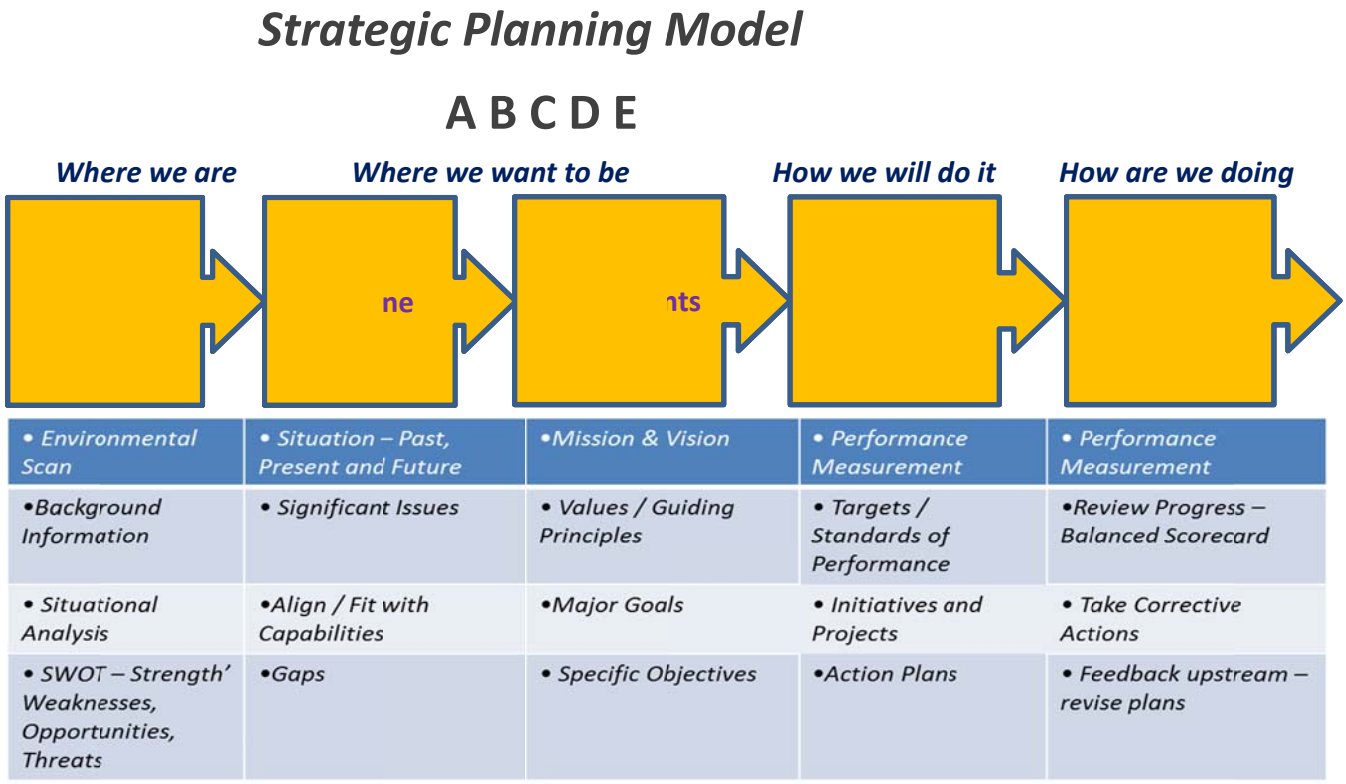


Figure 4.2: The ABCDE Strategic Planning Model (Source: MICT, 2011)

4.2.2 THE NATIONAL ICT POLICY FRAMEWORK (2006)

A National ICT Policy Framework was developed in Zimbabwe in 2006 whose purpose was the requisite guidance and direction to the formulation and implementation of ICT strategies and programmes in and across all sectors of the economy. It was crafted under the following vision:

> *"to transform Zimbabwe into a knowledge-based society by the year 2020",*

and the mission statement:

> *"to accelerate the development and application of ICTs in support of sustainable socio-economic growth and development in Zimbabwe".*

The objectives of the National ICTs Policy Framework were:

(i) To ensure provision and maintenance of infrastructural facilities necessary for ICTs development,

(ii) To promote of systematic, relevant and sustainable development of ICTs,

(iii) To embark on extensive educational and training programmes to provide adequate supply of qualified ICTs personnel and knowledge workers in all sectors,

(iv) To establish institutional mechanisms and procedures for determining sectoral application priorities and

(v) To encourage the development and use of, and ensure equitable access to benefits offered by ICTs across gender, youths, the disabled and the elderly (National ICT Policy Framework, 2006:15).

It is the researcher's observation that this well-documented ICT Policy Framework could be a significant starting point towards coordinated efforts at adopting e-government. The framework, together with the e-readiness survey, informed the construction of the strategic plan.

4.2.3 NATIONAL E-READINESS SURVEY REPORT (2005)

The Government of Zimbabwe in conjunction with the National Economic Consultative Forum (NECF) and with support from the United Nations Development Programme (UNDP) commissioned an e-Readiness Survey whose purpose was to assess the country's readiness to become a knowledge society. The National e-Readiness Survey indicated that there was a lot of work to be done in terms of preparing Zimbabwe for e-business, for out of a score of 4, the country scored only 1.4 (National e-Readiness Survey, 2005). With respect to e-Government, the following were the findings of the e-Readiness Survey:

(i) Government possesses an immense potential for e-Government through its wide area network and application systems such as SAP software, civil service payroll, national registration system and pensions processing;

(ii) Most of the online communication is G2B and G2C, but there is no citizen-to-government (C2G) online communication;

(iii) The institutional mechanisms for ICT were not well-defined and coordinated and

(iv) There was no integrated government policy framework for the development of e-Government.

The findings indicate some progress on ICT-based efforts by the government but in an uncoordinated manner due to the absence of an all-embracing ICT strategy. Many rural areas of Zimbabwe do not have electricity making it impossible to introduce ICT-based services. The e-readiness survey served as an elaborate input to the strategic plan which was to articulate a roadmap towards addressing the shortcomings.

4.2.4 OTHER POLICIES AND PROGRAMMES

The Zimbabwe Government has established various policies and programmes over the years, suggesting that there is willingness by the government to adopt ICTs as drivers of the knowledge economy. As early as 1999, the Nziramasanga Education Commission Report recommended the introduction and mainstreaming of computer-based teaching and learning in the pedagogy of the Zimbabwe's education system - schools, colleges, universities and other institutions of higher learning (National ICT PolicyFramework,

2006:14). Three years later, the Science and Technology Policy (2002) was launched. It recognised the ICT sector as a key enabler of national development and accordingly directed that Zimbabwe develop a framework to guide its development and use (National ICT Policy Framework, 2006:14). Following the Science and Technology Policy was the National Economic Recovery Programme (NERP) (2004 – 2006) in 2003 which was launched by the President of Zimbabwe, R G Mugabe. NERP's thrust was the potential of science and technology in general and ICTs in particular to foster national economic competitiveness and in the process increase export market penetrability. The Industrialisation Policy of 2004 recognised and advocated for the development and use of ICTs in the manufacturing sector in general and to undergird the national export strategy in particular. ICTs are identified as indispensable in effectively marketing industrial products both on the domestic and export markets (National ICT Policy Framework, 2006:14). Of importance is to underscore that Zimbabwe is a signatory to the WSIS Declaration of Principles and Plan of Action (2003) which strongly recommended the adoption and utilisation of ICTs to meet the agreed developmental goals. The WSIS in Tunis (2005) made particular reference to speed development of ICTs in order for Africa to participate fully in global markets. Economic development and growth being the locus of these policies and programmes, the Zimbabwe Millennium Development Goals (MDGs) of 2005 recognised the role of ICTs as tools that add value and contribute significantly to the achievement of the MDGs by 2015 (National ICT Policy Framework, 2006:15). After the formation of the inclusive government (GNU), a socio-economic blueprint named Short Term Emergency Recovery Plan (STERP), was passed to ensure political stability and good governance, social protection and the promotion of macro-economic stabilisation. Among other reforms, STERP mentions a new ICT Bill to reform the telecommunication sector along the lines of the SADC model.

Thematic analysis and narrative critical analysis of the above documents will be discussed in the next sections of this chapter. Table 4.1 shows a summary of the policy documents discussed above.

Policy	Brief Description	Year Implemented
Strategic Plan	To provide a roadmap leading to transforming Zimbabwe into an ICT hub with a vibrant sustained economic structure.	2010
Short Term Emergency Recovery Plan (STERP)	A socio-economic blue-print which recommends the introduction of a bill to reform the telecommunication sector along the lines of the SADC model	2009
National ICT Policy Framework	To provide guidelines for national ICT implementations	2006
National e-Readiness Survey	To assess the degree of the country's e-Readiness towards becoming an information society	2005
Zimbabwe Millennium Developed Goals (MDGs)	A report recognising ICT as a player in meeting UN's MDGs	2005
National Economic Recovery Programme (NERP)	Economic Turnaround Strategy using Science and Technology	2004-2006
Industrialisation Policy	To embrace ICTs in the manufacturing sector to boost export	2004
WSIS Declaration and Plan of Action	Recommends that governments create policy environments that facilitate the development and utilisation of ICTs	2003
Science and Technology Policy	To promote and harness Science and Technology for national development	2002
Nziramasanga Education Commission Report	Recommended the introduction of ICT teaching and learning in schools	1999

Table 4.1: Policy Documents Summary

4.3 THEMATIC ANALYSIS OF GOVERNMENT ICT POLICY DOCUMENTS

As discussed in chapter three, thematic analysis was used to analyse data from the government policy documents. Thematic analysis is a method for identifying, analysing, and reporting patterns (themes) within data (Braun and Clarke, 2006). According Barun and Clarke (2006:82):

> "*A theme captures something important about the data in relation to the research question and represents some level of patterned response or meaning within the data set."*

In analysing these documents, the researcher approached the data with two specific central questions as follows:

> *What is the central focus of each policy document?*
> *What is a dominant theme across all policy documents?*

Thematic analysis can be an essentialist or realist method on one hand, reporting experiences, meanings and the reality of participants, or it can be a constructionist method on another, examining the ways in which events, realities, meanings, experiences and so on are the effects of a range of discourses operating within society (Braun and Clarke, 2006). It can also be a 'contextualist' method, with a free-play between essentialism and constructionism, and characterised by theories such as critical realism (Willig, 1999). In this study, the formation of meanings is emerging from a contextualist approach which is direly informed by the study's philosophical paradigm of critical realism. In this chapter, dominant themes which have emerged from the GOZ policy documents discussed in Chapter Three (Table 3.7), are applied.

The technology theme includes the internal and external technologies that are relevant to the organization (Tornatzky & Fleischer, 1990) be it appropriate to provide services or to manufacture products. As stated by Tan (2010) the technology experience includes hardware and processes, software and hardware connected to the organization. The organizational context comprises the characteristics and resources of the firm, including the area, degree of centralization, degree of formalization, managerial structure, human resources, amount of slack resources and relations in the organization (Tornatzky & Fleischer, 1990; Tan, 2010). To determine the organization's readiness to adapt technological innovations, Tan (2010) further asserted that cost, values and competences contribute to the way innovations are adopted as part of the organization

context. Perceived organizational composition can be related to the environmental setting where the organization is operating. Environmental theme is the arena in which the organisation conducts and influences its consumers. According to Ebrahim et al (2004), one of the primary reasons for e-government adoption is that organisations could be driven towards it by the actions of competitors, as well as, establishes a connection with other organisations for better collaboration and the expectations of citizens and business. Many empirical studies recognized competitive pressure as an adoption driver. Tornartzky & Fleischer (1990) and Tan (2010) focused on environmental scope and composition of industry, technology support infrastructure, the economy and the regulatory framework as external environmental factors critical to the adoption of innovations in organizations. The people theme comprises all aspects related to use of technology, education and skills transfer.

The researcher identifies one specific locus of all the themes as the fostering of *economic development* through e-government initiatives in Zimbabwe. The researcher contends that in as much as there is evidence from the OECD countries that ICTs facilitate economic growth and development, principally by increasing productivity (OECD, 2004), the same outcome can be achieved in developing countries. All the e-government policies address the economic development locus at both macro and micro levels. According to Ochara (2009), the intent of e-government at the macro perspective is closely linked with larger globalisation concerns of citizen empowerment, gender empowerment, gender equity, achievement of universal access goals and more participatory governance. According to Escobar (1995), development has always been highly influenced by the economic thought and interventionist approach varying with political perspectives and measured by increases in Gross Domestic Product (GDP). The interventionist approach concerns taking action to make development occur (Macueve, 2008). Table 4.2 explains extracts from selected policy documents and pitches them against each theme around the locus of economic development.

Policy Document	Text Extract	Analysis of Text	Theme (s)
Strategic Plan	This visionary Strategic Plan of the Ministry of ICT guides and consolidates the priorities to transform Zimbabwe into a knowledge society, and pulls the entire nation around a single game plan for execution. Through this document the nation of Zimbabwe is able to solve major developmental issues at a macro level, address critical performance issues, communicate the quick wins, short, medium and long term strategies whilst creating the right balance with respect to implementation approaches and options (p 3).	Economic development is envisaged through e-government initiatives	Technology, Environment
	Strategic Plan of the Ministry of ICT is crafted to provide a roadmap leading to transforming Zimbabwe into an ICT hub with a vibrant sustained economic structure….Change Management is about managing people in a changing environment so that business changes are successful and the desired business results are realized. People resist change because of both organizational and personal reasons. However, the MICT shall give special attention to these critical organizational and personal factors that drive change with a view to proactively manage the change process. The strategic solution to Change Management is by	Institutional reforms through transformation of organizational processes as well as people issues.	Organisation, People

	implementing Sustainable Change. To produce effective results, the MICT will ensure proper alignment in all the processes of the business including the strategic, holistic, operations, people, and leadership alignment (p 4).		
National ICT Policy Framework	To ensure provision and maintenance of infrastructural facilities necessary for ICTs development….promotion of systematic, relevant and sustainable development of ICTs	ICT infrastructures are the bedrock for any e-government implementation	Technology
	The institutional mechanism for ICT are not well-defined and coordinated….there is no integrated government policy framework for the development of e-Government.	Rationalizing e-government policy to be all-inclusive and project government as one enterprise	Organisational

	To embark on extensive educational and training programmes to provide adequate supply of qualified ICTs personnel and knowledge workers in all sectors….encourage the development and use of, and ensure equitable access to benefits offered by ICTs across gender, youths, the disabled and the elderly	Improve human capacity by training ICT professionals	People
National e-Readiness Survey	The absence of a coherent ICT policy invariably inhibits coordination, harmonization, full utilization of the existing infrastructure and its capacity, and initiatives to implement ICTs by various sectors of the economy (p 14)	Technological determinism philosophy which underpins development to presence of technology	Technology
Science and Technology Policy	Like many developing countries, Zimbabwe needs to fast-track or leapfrog its Science and Technology development in order to enhance its competitiveness in this highly globalized environment.	Science and Technology is perceived as drivers of economic growth and development	Technology, Organisational
Nziramasanga Education Commission Report	.. introduction and mainstreaming of computer-based teaching and learning in the pedagogy of schools, colleges and institutions of higher learning	The integration of ICTs in curriculum at all levels of education	Technology, People

Table 4.2: Extracts from selected policy documents (Adapted from Ochara, 2009)

The technology theme is a dominant one across all policies. This conception leads to a traditional belief that introducing technology to any manual environment will translate to transformation of enterprises. The next subsection attempts to critically seek meaning from e-government philosophy revolving around technological determinism.

4.4 CRITICAL ASSESSMENT OF E-GOVERNMENT POLICY DOCUMENTS

The unique issues of information technology research and development in developing countries have been discussed in several publications (e.g. Brewer et al, 2006, Surana et al, 1998, Tedre et al, 2011). The researcher has identified two broad categories which are unique to the context of the research but remain largely unaddressed by the policy documents. The following subsections present a critique of the documents under the two categories, political and economic realism as well as technical issues.

4.4.1 POLITICAL AND ECONOMIC REALISM

The first observation the researcher makes in all documents is that they raise issues which are generic in literature that deals with development and technology in developing countries. While the Strategic Plan is comprehensive in terms of the roadmap, it is not vocal in terms of addressing the uniqueness of Zimbabwe especially on its economic and political dynamism. There are complex institutional issues which have to be overcome before any meaningful ICT project can takes off. Common bureaucratic processes in developing countries are exacerbated in Zimbabwe by clear political motivations obtaining under the Government of National Unity (GNU). The strategic plan is silent on how to deal with such a phenomenon which directly impacts on the roadmap. Evidence of the political hardball came to the fore when confusion reigned as to under which ministry the mobile operators fell between the ministry of ICT and the ministry of Information. The two ministries are controlled by opposing political parties which ironically are under one government.

The Strategic Plan and the National ICT Policy Framework were adopted at a time when Zimbabwe had already been locked in political and economic despair, but they or any other ICT policy ignores these complex dynamics. It would have been expected of any policy debate to address a plan of ICT diffusion under such levels of political and economic instability as well as extreme cycles of poverty and diseases.

Deployment of ICTs in Zimbabwe is weighed down by inadequate electricity in rural and marginalized areas as well as power cuts in all urban and semi-urban areas. Zimbabwe is currently in a state of economic and political isolation, so it is therefore very difficult to finance any electrification projects due to severe foreign currency shortage. The Rural Electrification Programme whose master plan was approved by cabinet in 1997 and funded by the African Development Bank (ADB) (Mapako and Prasad, 2004) was a noble venture until financial resources ran dry. Another factor that led to failure of the programme was its political agenda (Mhlanga, 2007) in the political chaos that proceeded by the turn of the century. There was political control on the Rural Electrification Programme which however faced a natural death due to shortage of resources. In the absence of electricity, rolling out ICT resources and programmes was out of the question. Therefore, professionals like teachers, farmers and nurses who are deployed to work in remote areas cannot access e-services like the internet or even basic email despite having elementary literacy to use the services.

While the Strategic Plan, the e-readiness survey (2005) and the National ICT Policy Framework (2006) strongly emphasise the need to close the digital divide, there is no action plan on executing this agenda. According to Mhlanga (2007), lack of action plans exposes the government to the risk of giving their critics an opportunity to regard these policies as political rhetoric since the mechanisms used in the e-readiness survey and subsequent compilation of the policy framework are a preserve of those in power. The rural electrification programme has since been abandoned by the government, making it impossible to ever consider ICT diffusion in non-electrified and marginalized areas.

It follows therefore that while the National ICT Policy Framework (2006) includes references to ICTs in education and the Nziramasanga Education Commission Report (1999) strongly recommending ICT-based education, no meaningful ICT education programmes can be implemented without electricity. Non-Governmental Organisations (NGO) initiated ICT education programmes were also unsuccessful due to lack of supporting infrastructures and utilities like electricity in remote areas. The Kubatana Trust of Zimbabwe, which includes an NGO network organisation called the NGO

Network Alliance Project (NNAP), was established to strengthen the use of e-mail and Internet among Zimbabwean NGOs and civil society organisations and to provide human rights and civic education. Initially Kubatana had a network of 240 NGOs and community service organisations which were involved in its lobbying and advocacy campaigns. Many of these NGOs were de-registered and banned from operating in Zimbabwe as they were accused by the government of meddling in political affairs. The effectiveness and thrust of Kubatana was then terribly dented and this in turn reduced the impact and success originally envisaged. World Links Zimbabwe which is part of the international network of World Links organisations which historically has been a pioneer in the promotion of education through ICTs opened its doors to Zimbabwe in 1999 but has realized very few of its dreams because of the not very conducive political environment.

4.4.2 TECHNOLOGICAL DETERMINISM VERSUS SOCIAL CONSTRUCTIVISM

According to Ndou (2004), the tendency of e-government is to focus on the use of technology towards the improvement of government and the provision of services and information through the government. This approach means that basic human needs and capabilities are rarely ever explicitly addressed (Madon, 2004), and the assumption often made is that people's well-being will be achieved if there is an improvement first in the delivery of government services (Macueve, 2008). Mhlanga (2006) makes an observation that the e-readiness survey promotes technological determinism at the expense of social constructivism. An analysis of other initiatives like the National ICT Policy Framework (2006) and other policies and programmes points to the same phenomenon of technological determinism. Technological determinism is a technology-led theory of social change whose view is that:

> *"Particular technical developments, communications technologies or media, or, most broadly, technology in general are the sole or prime antecedent causes of changes in society, and technology is seen as the*

fundamental condition underlying the pattern of social organization", (Chandler, 1995).

From this explanation, we can conclude therefore that the technological deterministic view of ICT diffusion asserts that ICTs are incrementally and fundamentally changing the working, social and personal lives of people. This claim underscores that availing ICTs to a society then becomes a panacea for development. The United Nations World Public Sector Report (UNWPR) (2003), operating on the premise of technological determinism, reports that the potential of e-government as a development tool for all citizens hinges upon three prerequisites which are:

- A minimum threshold level of technological infrastructure
- Human capital and
- E-connectivity.

Simply put, e-government readiness strategies and programmes will be able to be effective and include all people only if, at the very minimum, all have functional literacy and education, which includes knowledge of computer and Internet use; all are connected to a computer; and all have access to the Internet (UNWPS, 2003). Yet, to say that society should avail itself of the most modern technologies to solve problems is not a practical reality in Zimbabwe.

On this basis, critics of the technological determinist concept argue that technology should not just be "bolted on" to old ways of working but delivers transformational impacts for citizens and businesses. Mhlanga (2007) emphasises the need to embrace social constructivism rather than technological determinism. Social constructivism is a theory of knowledge that considers how social phenomena develop in particular social contexts. It involves looking at the ways social phenomena are created, institutionalized, and made into tradition by humans. In this regard, Mhlanga (2007) argues that ICTs should be harnessed for structural poverty reduction as well providing social services. The National ICT Policy Framework (2006) was adopted at a time when Zimbabwe had already been locked in political and economic despair, but the framework or any other

ICT policy or programme does not address a plan of ICT diffusion under such levels of political and economic instability as well as extreme cycles of poverty and diseases. In such instances, the Kenya case, reported by the OECD (2003), is an example of the social constructivism approach where ICT-assisted development was initiated to address critical issues of education, health, and poverty. The report says that the World Food Programme (WFP) in Kenya started looking to ICTs to enhance its work in famine-stricken areas with help and support from Microsoft. WFP developed a handheld device to enable its teams to gather data directly in the field and transmit the data to a central computer using wireless technology. The new system allows faster and more efficient deliveries of relief and food – literally saving lives, and giving new meaning to the term "just in time" delivery. Through such efforts, experience is proving that information technology can play a vital role in understanding development problems and implementing better solutions (OECD, 2003). All the e-government initiatives in Zimbabwe are silent on such potential of ICTs to play a role as a catalyst for rural development.

The Geneva Action Plan of WSIS (2003) covers commendable ground to bring both aspects of technological determinism as well as social constructivism. While it was agreed during WSIS (2003) that individual economies would operate within their economic strengths as they attend to these action plans, the Zimbabwe Government did not develop their own action plans to implement the resolutions not until the ICT ministry's Strategic Plan of 2010. What has since been witnessed was the distribution of computers to urban and rural primary and secondary schools by the president without accompanying action plans to operationalise the equipment.

4.5 DISCUSSION

While the GOZ is very clear on its e-government intentions, there exist some conflicts as inferred from the analysis.

Firstly, the disharmony in the inclusive government does not resonate with the intentions the government wants to achieve through its modernization efforts. As alluded to in subsection 4.4.1, ministries headed by opposing political parties work to outdo each other for political mileage. Modernisation efforts through ICTs in general and e-government in particular suffer at the hands of such political dynamism.

Secondly, Table 4.2 depicts that all themes are an embodiment of the locus of economic development. Development is understood as building the capability to remove the major sources of constraints that people suffer from. These constraints are referred to by Sen (1999) as "unfreedoms" such as famines, under nutrition, limited access to health care, education, and sanitary arrangements (Macueve, 2008). Critics of the capability of e-government initiatives to foster economic development argue that Zimbabwe's GDP is far from expanding individual "freedoms". According to Sen (1999), individual "freedoms," means access of individuals to facilities for education and health care, as well as political rights. E-government efforts can therefore yield limited success as long the citizenry is chasing after these "freedoms".

Thirdly, while the Strategic Plan does elaborately articulate a roadmap to implementing modernisation efforts, it however needs to be underscored that design (as evident in the policy documents) and reality may be inconsistent (Heeks, 2002). Zimbabwe also faces the same challenges which are common to all rural communities in developing countries. Some of the challenges are lack of basic facilities such as water, proper roads and reliable electricity supply, lack of technically skilled people, inadequate institutional arrangements, inadequate bandwidth nationally and on the gateway, etc. It is not clear in the Strategic Plan how projects leading to addressing these challenges will be financed. Despite a well formulated Strategic Plan, the following comment by Zungunde (2009:7) is a demonstration that any conclusion based on analysis of policy documents alone is not adequate:

> *"The rural areas where the majority of Zimbabweans live are still largely without substantial infrastructure. Deterioration of infrastructure is open for*

all to see on the road networks, railway lines and the telephone networks. This is a result of a compound of problems including shortages of foreign currency, high inflation and fuel shortages limiting repair and maintenance work on most infrastructures and stopping any further development. Zimbabwean industries and manufacturing sectors have been starved of electricity and are hence not producing items that would ordinarily be used to service and maintain the infrastructure. The impact of these issues has been a deterioration of the ICT sector …".

4.6 CHAPTER SUMMARY

The GOZ has passed many policy documents on ICT including a strategic plan containing the implementation roadmap. The chapter presented a thematic analysis of the policy documents which revealed that the technology theme is dominant in all texts. This brings to the fore a traditional paradigm of technological determinism, which presumes development is underpinned by deploying technology. Soft systems embracing social constructivism were not adequately addressed in earlier policies. Other themes include organisation (which institutionises development by reforming Organisations), the environment (micro and macro factors which influence ICT deployment) and people (which consider skills development and ICT use by humans).

The chapter also presented inadequacy of conclusions based on analysis of policy documents alone as there exists a wide variance between policy and practice. All e-government implementation strategies documented in the policies lack fundamentals of funding methods. Zimbabwe's economy has shrunk over the years due to lack of foreign currency, economic and political isolation, etc. Funding of ICT projects were relegated to the periphery as primary needs like education, healthcare and food take priority.

CHAPTER FIVE

CURRENT SITUATION, OPPORTUNITIES AND BARRIERS TO E-GOVERNMENT IMPLEMENTATION IN ZIMBABWE

If politics is wrong, then the other major drivers of e-government will not work

- *Wilson III*

5.1 INTRODUCTION

This chapter presents the current situation, enablers and barriers to the implementation of e-government and information sharing in Zimbabwe. To collect information about the current situation, enablers, barriers, needs and strategies by government towards e-government, unstructured interviews were conducted with ministry officials as presented in Chapter Three. The chapter is organised as follows: the next section presents the current e-government situation in Zimbabwe. The current situation is then analysed using the management stakeholder theory. The section that follows presents current opportunities for e-government development in Zimbabwe followed by the section on barriers to e-government, before the chapter ends with a summary.

5.2 OVERVIEW OF CURRENT E-GOVERNMENT SITUATION

The ICT business of the GOZ is under the MICT. While there exist in Zimbabwe many players and organisations that contribute towards the development of e-government, the MICT takes a leading role. From the MICT's Strategic Plan (2010), Table 5.1 demonstrates the leading role which MICT plays through providing the ministry's goals.

KEY RESULT AREA	GOAL
1. **ICT Governance,** e.g. policy frameworks, ICT Bill, regulatory framework, corporate governance, etc.	• Create and ensure compliance with a supportive enabling, legislative and regulatory environment • Promote the development of sector ICT policies e.g. in health and education sectors
2.**Infrastructure establishment, development and management**, e.g. connectivity, optic fibre, VSAT, wireless, wireline, VoIP, etc.	• Develop, establish and optimize a sustainable ICT infrastructure and broadband • Develop and expand cross border interconnection and access to internet backbone.
3. ICT Utilisation – e.g. advocacy, ICT training, skills, e-literacy, sustainable capacity building, languages, curricula, etc.	• Promote awareness and advocacy for ICT literacy and utilisation paying particular attention to rural areas, people living with disabilities, women, children and the aged. • Develop and nurture sustainable human capital development in ICT skills • Ensure inclusion of ICT curricula at all levels of education • Modernize current CCS based national systems (e.g Salary Service, Pensions, PFMS, etc) • Provide ICT technical assistance to all ministries and departments
4. **e-Government and e-Business** e.g. Government portal, e-Commerce frameworks, e-Learning, national payment Systems, etc.	• Develop an innovative e-Government platform, communication portals, digital archives and community information centres • Establish an e-business framework and community connectivity with e-services countrywide • Monitor capacity and ensure optimal services from ICT providers.
5. Application and services development, e.g. innovation, animation, e-development, etc.	• Promote innovative and locally developed applications and technology solutions
6. **ICT Industry, Investment and partnerships**, e.g. PPPs, innovative SMEs, tax incentives, etc.	• Create new competitive business opportunities for the growth of the ICT industry • Accelerate technology commercialization in support of small and medium enterprises • Establish ICT technoparks and incubation

	hubs
7. **Research and development**, e.g. Research, cross and multidisciplinary collaborative projects, etc.	• Promote research and development in ICT sector • Conduct status analysis and monitoring of ICTs in the country
8.**Security and quality assurance frameworks**, e.g. interoperability, quality of service, etc.	• Ensure security on the cyber environment • Ensure compliance with international best practice and standards • Promote interoperability and system integration
9.**Corporate Services**, e.g. internal ministry support requirements, resource mobilisation, etc.	• Mobilise adequate resources and materials for accomplishing the mandate

Table 5.1: MICT Key Result Areas and goals (Source: MICT Strategic Plan (2010))

For the e-government function, the Modernization Department in the Office of President and Cabinet (MDOPC) is the lead department. There are many websites of government institutions and practically all ministries have websites. There is however lack of content on websites, they are poorly designed and not well maintained. The following was the principal director's response to a question on whether there is any electronic information sharing and collaboration in Zimbabwe:

> *"In the first place, there is basically no e-government to talk about in Zimbabwe. Websites exist but I doubt if there is even one citizen of this country who opens any of those websites. There is no citizen to government (C2G) and government to business (G2B) communication, no access to interactive communications for C2C, G2C and C2G. We cannot therefore talk of electronic information sharing because there is no e-government integration within and across government agencies".*

The above indication by the principal director means that the MDOPC has an opportunity to network with all relevant stakeholders and players in the GOZ as presented in Figure 5.1. GISP is the provider of Internet services to all Government

ministries, departments and parastatals in Zimbabwe and hosts the government web portal.

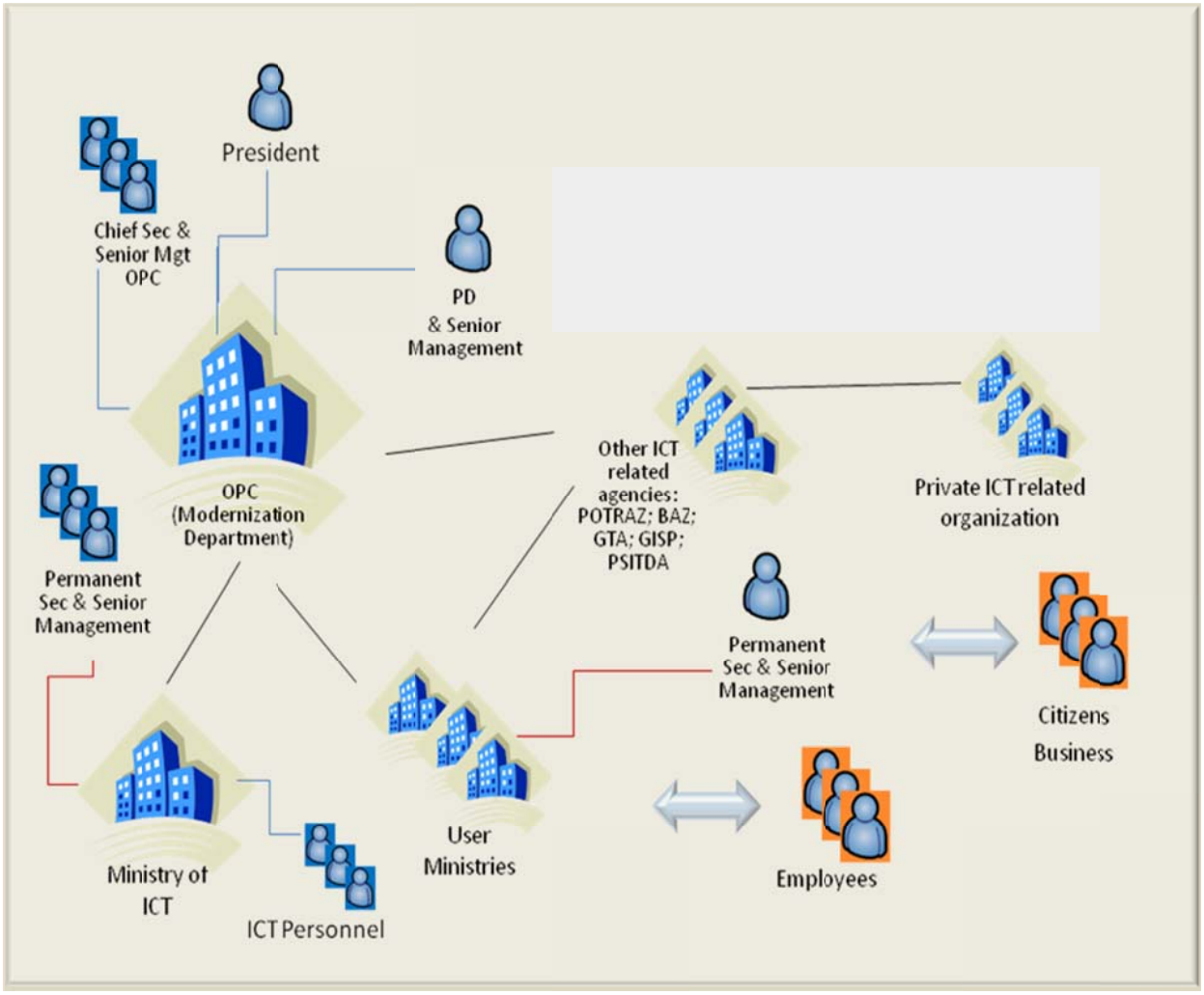


Figure 5.1: E-Government Stakeholders (Source: MICT (2010))

5.2.1 CURRENT SITUATION AND STAKEHOLDER MANAGEMENT CONCEPT

Figure 5.1 elaborately depicts e-government stakeholders in Zimbabwe. Through the lens of the stakeholder management concept, the researcher sought to investigate the operationalization of the stakeholder model of Figure 5.1 under a politically complex environment like Zimbabwe's.

According to Scholl (2001), the definition of a stakeholder comes in various forms, some of which prefer a narrow while others deliberately maintain the broadest possible scope. The most frequently cited definition is that of Freeman (1984):

> *"A stakeholder in an organization is (by its definition) any group or individual who can affect or is affected by the achievement of the organization's objective".*

Stakeholders can be classified according to Mitchell et al. (1997) based on their salience in the organisation. The salience of a stakeholder is based upon three factors: power, legitimacy and urgency. *Legitimacy* refers to the perceived validity of the stakeholder's claim to a stake; *Power* refers to the ability or capacity of a stakeholder to produce an effect and *Urgency* refers to the degree to which the stakeholder's claim demands immediate attention.

These three factors can be seen at play in Zimbabwe among feuding political parties who are participating in one government. When designers of a national project implementation like e-government, ignore such factors, then chances of a successful implementation are minimal. The underpinning idea behind this model is to distinguish more salient or prominent stakeholders, give them priority and actively communicate with them. Based on their power, legitimacy and urgency attributes, stakeholders can be classified according to Mitchell et al. (1997), in seven typological groups. As presented in Figure 5.2, these groups are definitive stakeholders, demanding stakeholders, dormant stakeholders, dependent stakeholders, dominant stakeholders, discretionary stakeholders, dangerous stakeholders, and non-stakeholders. Table 5.2 describes the stakeholder groups

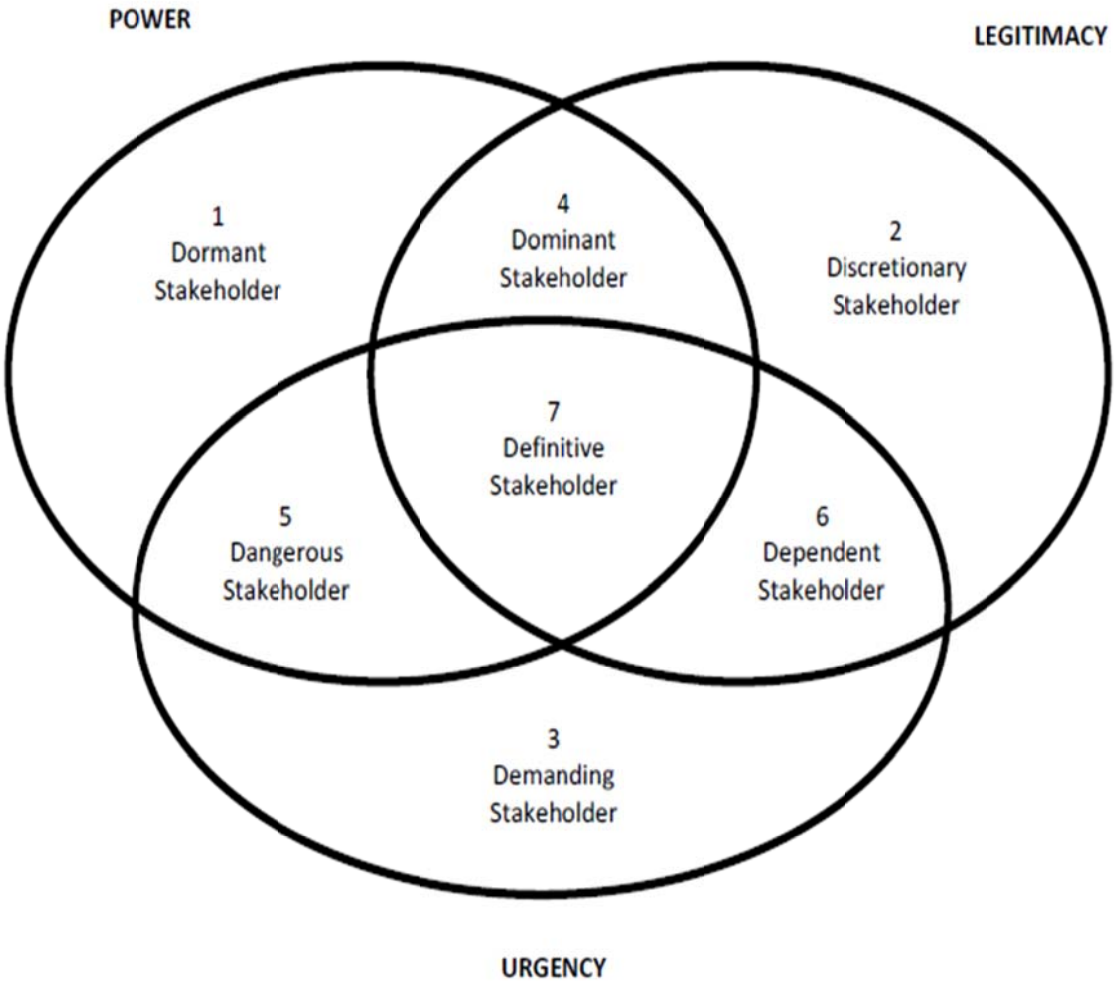


Figure 5.2: Stakeholder Types (Source: Mitchell et al, 1997)

Mitchell et al's stakeholder types support the descriptive nature of critical realism where, according to Donaldson et al (1995:66), an organization which exists as a scientific realism is seen as a:

"constellation of cooperative and competitive interests possessing intrinsic value"

Different ministries and departments aligned to rival political parties like the two MDCs on one hand and Zanu PF on the other will certainly have different interests in national projects. In addition, the parliament contains three parties that actively vie for power and

policy influence. Leaders of the two main parties have made no secret of their aversion of each other.

Stakeholder Group	Description
Dormant	These stakeholders have power to impose their will on others but they miss legitimacy and urgency. Therefore their power remains dormant.
Latent	Possess legitimate claims, but have no power to influence the organization nor urgent claims
Demanding	These stakeholders have urgent claims, but neither power nor legitimacy to enforce them
Dominant	Have both power and legitimate claims in the organization giving them strong influence in the project
Dangerous	Have power and urgency, but lack of legitimacy. They are seen as dangerous as they may resort to coercion and even violence
Dependent	lack power, but have urgent and legitimate claims
Definite	Have power, legitimacy and urgency, and therefore they need to be communicated with
Non-stakeholders	Have no power, no legitimacy and no urgency

Table 5.2: Stakeholder Groups (Source: Mitchell et al, 1997)

The stakeholder groups define power play in the business of government in Zimbabwe. Findings from interviews held with the permanent secretary, the principal director (both of MICT) and the OPC e-government director, revealed that there was no stakeholder analysis done on the model in Figure 5.1. There is therefore need to understand the influential role of the different stakeholders in the day to day business of government. As stated in Chapter Two, the president has attempted to contain the other parties by limiting their influence through political appointments and the assignment of ministerial responsibilities. Such attempts have been resisted by the other parties. These differences have led to all participating parties in the GNU to lose confidence in the

GPA. Policy differences manifest themselves in every situation including the land redistribution programme, electoral reforms, public service appointments, application of the rule of law, liberalization of the media, civil liberties, etc. In the backdrop of the above observations, this study contends that the Zimbabwe stakeholder situation should be analysed as it directly influences the design and implementation of e-government solution in Zimbabwe.

5.3 E-GOVERNMENT OPPORTUNITIES IN ZIMBABWE

The emerging imperative in all governments throughout the world is to re-think e-government development to understand how new technologies can promote development. The following sections present some opportunities which were identified by respondents at the MICT as e-government drivers.

5.3.1 INSTITUTIONAL MECHANISM

Responding to a question on institutional capacity to implement e-government, the permanent secretary, most of whose answers were read from the ZimConnect document, said:

> "*A clear institutional mechanism for ICT exists. This mechanism is through the ICT leadership provided by MICT through its Central Computing Services (CCS) as a central implementing agency and the Modernization Department located in the Office of the President and Cabinet (MDOPC) which is spearheading the e-government program".*

As stated in Chapter One, GOZ started in or about 1972 with the Central Computing Services (CCS) and interest in modernisation of government was growing steadily ever since. This interest is evidence that the government is committed to improving services through ICTs. The presence of many government institutions whose role is to promote ICTs in Zimbabwe was cited by the permanent secretary as a major institutional

breakthrough towards e-government development. Figure 5.1 shows a multiplicity of important players on the ICT landscape. These are presented in Table 5.3.

Organisation	Roles and Responsibilities
Ministry of Science and Technology	To be a facilitator for a science and technology driven economy
Government Internet Service Provider	Is the provider of Internet services to all Government ministries, departments and parastatals in Zimbabwe and hosts the Government web portal
Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ)	State ICT Sector Regulator
Powertel	Subsidiary of Zimbabwe Electricity Supply Authority that provides data telecommunications
Transmedia	National TV and radio broadcaster infrastructure provider and Internet access services
Zimbabwe Academic and Research Network (ZARNet)	Fo ICT research as well as Internet Service Provider for Government institutions

Table 5.3: GOZ's ICT Service Providers

5.3.2 EDUCATION AND LITERACY LEVELS

According to UNESCO (2006), the most common understanding of literacy is that it is a set of tangible skills – particularly the cognitive skills of reading and writing. Zimbabwe's high literacy rate of 92 per cent (UNDP, 2011) is the highest in the region. Literacy is a fundamental aspect of ICT-based projects and has direct implications on issues such as participation and transparency in e-government. Macueve (2008) argues that

development of literacy precedes economic development and not the other way around (Sen 1999). For example, Japan, South Korea, and other Asian countries had economic growth following large investments being made in literacy (Sen 1999). Opportunities for technological education abound when there is much literacy in a country. In Zimbabwe, English is the official medium of instruction from the third or fourth grade in primary school till university. English is also the language of commerce and business and the main language of communication in government. While ICT education is still low, high literacy levels as well as proficiency in English make it easier for Zimbabwe to embrace Internet and ICTs since English dominates the world of computing and the internet. On ICT literacy, the permanent secretary said:

> *"We are following world trends. Leveraging on the high literacy rate, the comprehensive plan for ICT education unveiled by the minister of ICT in 2011 and the president carries recommendations by the Nziramasanga Commission of 1999. It considers ICT literacy in primary and secondary schools as well as tertiary institutions to be essential to the development of creative human resources in the knowledge-based information society of the twenty-first century".*

5.3.3 HIGH INTERNET AND MOBILE PENETRATION

From Figure 1.3 in Chapter One, Zimbabwe had 10,914,770 active mobile subscribers and 346,211 active fixed lines in the second quarter of 2012. According to POTRAZ (2012) the mobile subscribers for Econet, NetOne and Telecel were 6,427,788, 2,484,342 and 2,002,640 respectively. These figures therefore represent 87.2 per cent mobile penetration rate in a country of 12.5 million people. According to ITU (2012), Internet users in Zimbabwe were 1,445,717 as of Dec.31, 2011. This represents 12.0% of the population, bringing Zimbabwe's internet penetration to second after South Africa in the SADC region.

Internet and mobile penetration at such rates can imply presence of a multichannel service delivery is the provision of e-services. Smartphones, interactive voice response

systems, digital television, and self-service terminals are some of the multichannel ways which can be utilised. At 87.2 per cent mobile penetration, access to internet and social media technologies using cell phones have greatly increased. There is evidence of widespread use of social media in Zimbabwe. The UN e-Government Survey (2012) report that:

> "*Social media hold much potential for generally increasing citizen usage of e-services. In some countries, social media has actively been used by citizens to keep themselves informed about government. Moreover, these media help to foster social inclusiveness by reducing the e- service usage divide among different socio-economic groups. How to effectively leverage these opportunities that social media provide is now becoming an important public service issue. This is all the more important, as social media provide new, additional avenues for the delivery of governments' information and other public services and can also amplify their impact".*

Such use also holds educational advantages, opportunities for social and civic involvement, and potentials for increases in civic equity. Such developments have therefore already created fertile ground for linking e-government strategies with sustainable development policies. E-government policy makers should therefore embrace the mobile phone opportunity as it is crucial in expanding the number of users and diversifying the channels for service delivery.

5.3.4 GOVERNMENT WIDE AREA NETOWRK

Though the issue of communications infrastructure still persists in Zimbabwe as in many other developing countries, there is availability of basic infrastructure (WAN) which extends to all provinces (Figure 5.3), but this is only for certain application systems (finance, civil service payroll, national registration systems and pension processing). The Central Computing Services director revealed that there exits 269 connected sites across ministries of Home Affairs, Finance, Economic Development, Agriculture, Social

Welfare, Education and Culture, Public works, Justice and many others. There is however no electronic information sharing or any form of inter-operability outside the control of the MICT. From Figure 5.3, the cities which are on the government WAN are Harare (HRE), Chinhoyi (CYI), Bindura (BIN), Marondera (MRA), Mutare (MRE), Gweru (GRU), Masvingo (MGO), Bulawayo (BYO) and Gwanda.

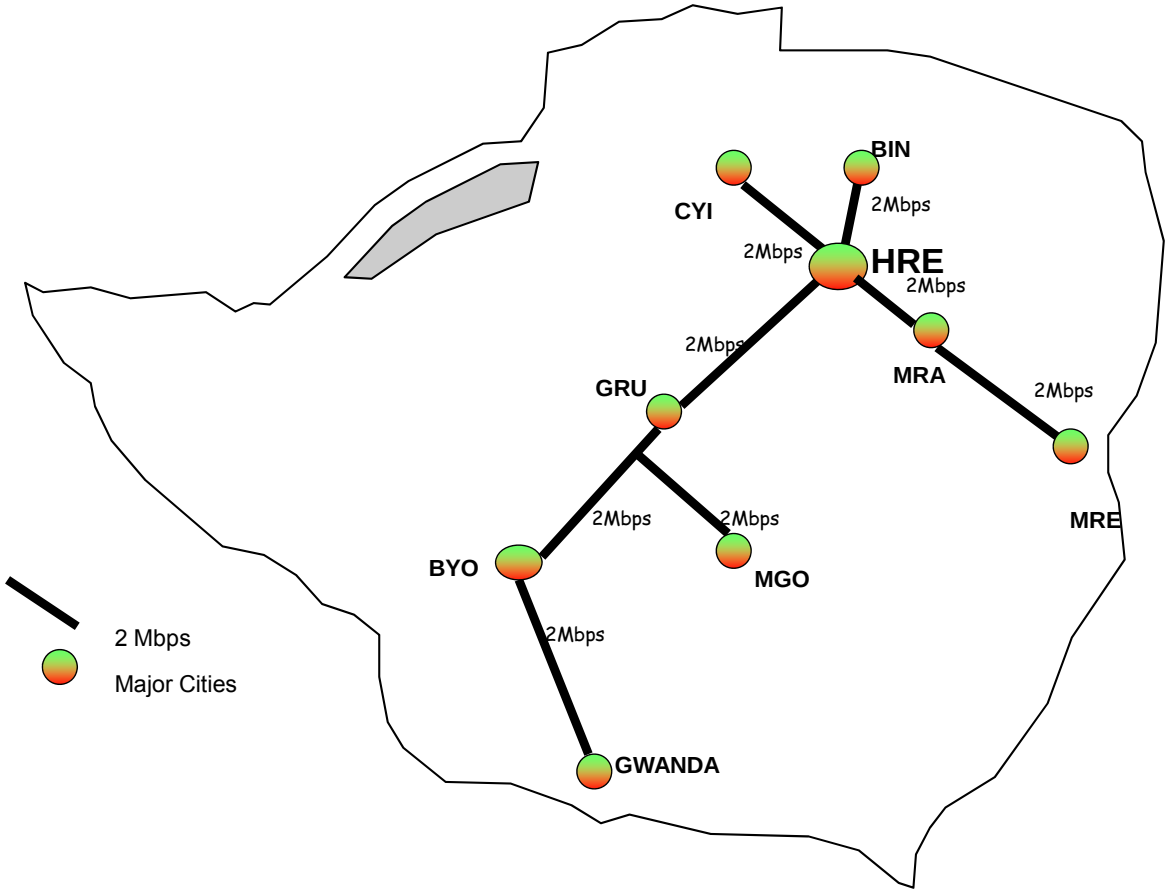


Figure 5.3: E-government PFMS Backbone (Source: CCS, 2009).

The main beneficiary of the government wide area network is the Public Financial Management System (PFMS which was developed and implemented in phases from 1999. According to Ung (2007), a specific Public Finance Management project aims to strengthen the PFMS of the country through the modernisation of State Budget management. The PFMS links the ministry of finance Treasury Department with all line

ministries and departments to enable the Treasury Department to monitor, supervise and control line ministries' spending, and get real-time financial and management accounting information.

5.4 CHALLENGES OF E-GOVERNMENT IMPLEMENTATION IN ZIMBABWE

5.4.1 POLITICAL UNCERTAINTY

Political turbulence always brings down levels of democratisation. Ndou (2004) contends that citizens lose trust in their governments whenever there is a history of dictatorship, political instability or large-scale corruption. National projects such as e-government are always a function of political regimes, leadership commitment and openness. The permanent secretary commented:

> *"We have a political cloud hovering above us. Our projects are uncertain. Elections have an effect on our operations with the most obvious one being a change of ministers. In fact, we are waiting for the change of government as you know the GNU is an interim arrangement. No major policy decisions can be made under such an arrangement. Change of government means changes in many structures of government agencies. So we are in limbo".*

Collective societal approaches to public policy challenges require political unity. Another dimension which was stated in Chapter One is that participants in the GOZ do not pull in one direction. This conflict situation has been made worse by pronouncements of the holding of general elections in 2013. Fears of violence have cast a shadow over Zimbabwe's economy as a country with a history of deadly chaos at the ballot box when election time approaches. Election season brings anxiety and fear among Zimbabweans. For many years, national elections in Zimbabwe have been synonymous with political violence, human rights abuses, deaths, torture and beatings. Disputed election outcomes have always left a trail of bitterness and retribution. After what had been termed a failed election in 2008, the country was rescued from economic ruin by a power-sharing arrangement. Political uncertainty is high in view of pending elections,

which feuding parties accuse each other of engaging in a systematic campaign of intimidation.

5.4.2 BUREAUCRATIC STRUCTURES

It is not easy to overcome existing power structures and build a culture of cooperation within the government institutions in Zimbabwe. The UN (2012) e-government survey findings show that the vertical and horizontal fragmentation, which is typical of public administration, constitutes one of the key challenges of one-stop government implementation. The survey further reveals that the fragmented and 'siloed' government structure complicates communication among persons in each silo, which might result in customer dissatisfaction. Effects of bureaucratic structures on projects in developing countries are best encapsulated by Tedre (2011:3):

> *".. rigid bureaucracy can cause a whole lot of paperwork—and the required forms are sometimes available only in one single office in the capital city. Some papers must be submitted personally. Seemingly simple decisions may require approval from multiple officials, or even from a committee that convenes four times a year, which can cause long, unexpected delays. Some officials require absolute conformance to every detail, which may lead to numerous revisions of applications or clearances*.

5.4.3 RESOURCES

The principal director admitted that the MDOPC is under-resourced to undertake an e-government initiative:

> *"The MDOPC does not have enough resources, the right structure and legal authority to move the e-government initiative. Its monitoring mechanism needs strengthening, and should include proper monitoring systems and authoritative committees.*

5.3.4 FUNDING

Although ICTs have been prominent on the developmental agenda for the GOZ for many years, the socio-economic challenges obtaining in the country have stalled development. The social dilemma highlighted in Chapter Two is posed in a question by Maumbe et al (2009:758):

> *"Is it ethical to deploy scarce public sector resources to provide online transactions when many basic needs have not been met?"*

Despite registering economic growth of 6 per cent in 2011, GOZ still faces a number of difficult economic and social challenges including a large external debt burden, insufficient formal employment, widespread hunger, incapacitated health delivery system, water supply shortages, poor sanitation facilities, energy infrastructural problems, on-going indigenization pressure, policy uncertainty etc. In light of these challenges, balancing allocation of meagre financial resources between addressing social and economic issues on one hand, and providing e-services on the other, remains a huge challenge.

5.3.5 POLICY FRAMEWORK

The ICT Policy Framework which the government of Zimbabwe still uses as reference was launched in 2005. A question was then raised by the researcher if the policy framework was still relevant. The following was the permanent secretary's response:

> *"We are in the process of revising the policy framework. We also feel it has been overtaken by events. There is no integrated government policy framework for the development of e-government. A clear policy framework is needed since ICT impacts on all the other sectors. There is no policy on cyber security".*

5.3.6 INADEQUATE HUMAN RESOURCE

According to Ofsted (2002),

> *"Leaders and experts world-wide increasingly recognise human resource capacity development as potentially the most crucial constraint in the effective deployment of NICI to build sustainable information societies. Hence, preparing Africa for the information age primarily necessitates appropriate investment in its human resources".*

A survey conducted by the MICT in 2010 revealed that there is inadequate ICT manpower in certain core areas of computing. Ironically, Zimbabwe produces high quality graduates in all fields studied at universities. The country had such a pool of human resources in the region until 2000 when professionals and experts in different fields started migrating to other countries in the region and overseas in search of economic refuge. The issues of brain drain is therefore one of the main contributing factors to the problem of skills shortage. The unfavourable political and economic conditions obtaining in the country are also responsible for limited certification programs for ICT available locally. Human resources development involves a process aimed at providing continuous and proper staffing in such a manner as to ensure that appropriate skills are available within the work force when needed to meet the organisation's varying requirements and to enable the organisation to discharge its legal, statutory, and social responsibilities and that the public has its services and the society at large (Adimorah, 1993). The exodus of experts especial in the field of science and technology from Zimbabwe has left the country as only a training ground.

5.3.7 POOR ENERGY INFRASTRUCTURE

Zimbabwe experiences severe power shortages. Load-shedding for both industrial and domestic users is the order of the day. The government has once embarked on a programme of rural electrification but the progress has been sluggish owing to lack of funding. Energy generation capacity in Zimbabwe is inadequate to meet demand from the industry and domestic use. Neigbouring countries especially South Africa,

Mozambique, Namibia and also DRC have been supplying electricity to Zimbabwe to ease the energy load. However, if all power generating plants in Zimbabwe would be well resourced and funded, the country has capacity to export electricity. Existing power stations which are either generating too little power, or not at all due to economic challenges include Kariba hydropower station, Hwange Thermal Power Station, Harare Thermal Power Station, Bulawayo Thermal Power Station and Munyati Thermal Power Station. The utility company also has plans to establish new stations at Gokwe North and Batoka Gorge.

5.4 CHAPTER SUMMARY

This chapter has presented the current e-government situation from the interviews by officials in the MICT. The MICT is the ministry mandated to design and formulate policies around ICT implementations within the GOZ.

The officials indicate that a lot of work is underway to implement e-government in the public sector. Opportunities for e-government largely lie in the presence of the MICT within government structures. Dedicated efforts are made from the MICT with various initiatives already in place. Another opportunity presented itself in the high literacy rate among Zimbabweans. It is easier to introduce technology to an already literate citizenry. High internet and mobile rate penetration becomes another opportunity for the government to deploy e-government services. Smart phones and other related computer and electronic equipment are imported into Zimbabwe duty-free. This is a deliberate government initiative to promote the development of ICTs in Zimbabwe. The findings of the interviews reveal that the widespread use of cell phone technology is a major step towards modernisation of the Zimbabwean society. The presence of an active government-wide network linking major administrative centres in the country is another opportunity to implement a comprehensive information sharing platform.

Despite the above opportunities, the interviews exposed a number of challenges and barriers to implementing a robust e-government system. Political uncertainties arising

from tension obtaining in Zimbabwe, bureaucratic public institutions, lack of resources including funding and human resources, lack of electricity supply for both domestic and industrial use and generally poor energy infrastructure are some of the major challenges that were highlighted.

Figure 5.4 gives a summary of the opportunities and challenges faced by the GOZ in implementing an e-government platform. In Figure 5.4, enabling tools present means and solutions that can be used to transform the current situation, which is riddled with inefficiencies and problems, to the needed position of e-government. Enabling ICTs are like large collaborative ERPs based on online databases, collaborative CRMs, integrated databases, e-government portal and network infrastructures. The desired position or goal fosters citizen service transformation, cross-government efficiency, inter-agency transformation and government-to-business interaction.

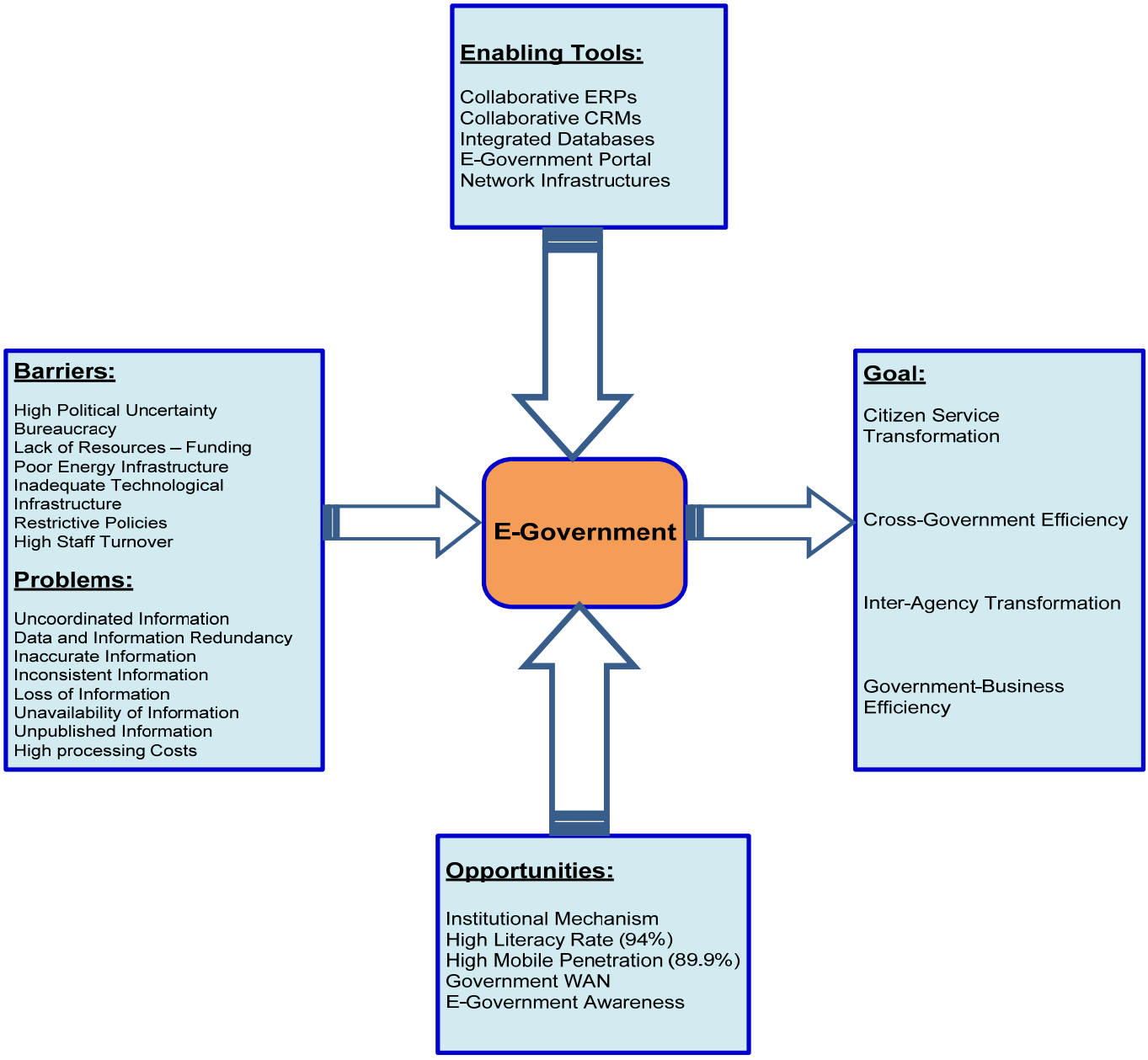


Figure 5.4: Model for e-government-enabled transformation

CHAPTER SIX

CASE DESCRIPTION AND DATA ANALYSIS: THE ACTIVITY-DRIVEN NEEDS ANALYSIS (ADNA)

Is the object of research in information systems of a technological or social nature? Is it the organization, an information system or a social system?

- Garcia & Quek

6.1 INTRODUCTION

This chapter is divided into two sections. Firstly, it introduces the case under study, which is Zimbabwe's Ministry of Tourism and Hospitality. As alluded to in Chapter One, it suffices only to refer to the ministry as the Ministry of Tourism. Secondly, the application of the ADNA to data collected from the case study.

6.2 THE CASE: MINISTRY OF TOURISM

Ministry of Tourism and Hospitality Industry was created in 2009. The aim was to better focus national attention on tourism development. The vision behind this development was to recognise the importance of the tourism industry as a leading contributor to the national economy and to support its potential to promote social and sustainable development in Zimbabwe. The idea was to develop tourism in a systematic manner, position it as a major engine of economic growth and to harness its direct and multiplier effects for employment and poverty eradication in a sustainable manner. The role of the Ministry of Tourism and Hospitality Industry is to facilitate growth of the tourism sector, at the same time ensuring compliance with the Tourism Act, Chapter 14: 20 of 1996 (Revised Version) and the implementation of the National Tourism Policy. The ministry's mission is to:

> *"seek to continuously increase the sector's contribution to the national GDP and thus enhance the quality of life of all Zimbabweans,*

particularly the urban and rural poor, by creating conditions under which the people's remarkable resources and great creative potential can be unleashed, through transforming the whole country into an intensive tourism development zone".

The following are the overall functions of the ministry:

- Administer and control Tourism Act and its Statutory Instruments to ensure sector compliance
- Develop, implement and review tourism policies and legislation in consultation with stakeholders
- Oversee the development, implementation and review of the National Tourism Master Plan and Tourism Development Strategies
- Monitor and co-ordinate policies governing the operations of the Zimbabwe Tourism Authority (ZTA)
- Co-ordinate and implement international tourism policies, programmes and protocols with regard to the United Nations World Tourism Organisation (UNWTO), World Travel and Tourism Council (WTTC) and environmental organisations and other relevant international bodies
- Co-ordinate and implement all Regional Economic Communities (RECs) blocs and tourism projects and programmes e.g. Southern African Development Community (SADC), Regional Tourism Organisation of Southern Africa (RETOSA), COMESA, East African Community (EAC) and African Union (AU)
- Co-ordinate Joint Commissions on bilateral and multilateral matters pertaining to tourism and develop Agreements, Protocols and MoUs on tourism co-operation
- Supervise, co-ordinate and liaise with Regional and Overseas Tourism Offices, and Embassies with regards to tourism development issues
- Overall supervision of the registration and grading of hotels, lodges, travel agencies, tour operators, tour guides and other Designated Tourist Facilities (DTFs) and issue licences thereof

- Overall supervision and monitoring of standards of all tourism facilities, and ensure that the tourism and Hospitality industry comply with international standards and statues
- Identify and develop tourism products and projects in the Communities and Provinces e.g. Community Based Tourism Projects (CBTs), Heritage and Historical Sites, etc.
- Oversee research and planning of the whole tourism industry in the country including the physical development of both infrastructure and superstructure related to this industry in consultation with stakeholders
- Facilitate to the production and processing of the National Tourism Statistics and keep up to date information on all trade organisations and projects for the ministry's database
- Develop a ministerial web portal, ensure effective internet access to the ministry and its branches countrywide, and facilitate the gathering of website content and its constant up-date
- Represent the ministry participation at all national and international fora on tourism issues.

The underlying fundamental of the sector is premised on the theme to unlock value of tourism to its fullest potential and position the tourism sector to be on top of economic development and transformation. To this end, the tourism sector in 2011 was guided by six growth pillars:

- Unlocking the value of tourism
- Tourism support and investment promotion
- Stakeholders coordination and cooperation
- Tourism marketing and promotion and
- Tourism regional and global competitiveness

In 2011, the World Tourism and Travel Council endorsed the Zimbabwe tourism industry as growing at an annualised rate of 8,1% after China. The ministry however aimed at cumulative growth rates of 1,64% until 2015. As at 2010, specific objectives of the ministry were as follows:

Objective 1: To increase tourism's contribution to GDP from the current 6.8% of 2010 to 15% by 2015. Hence in 2011, the target was 8,44%. The industry was aiming at growing at cumulative growth rates of 1,64%)

Objective 2: To increase tourism earnings from the current 770 million in 2010 to 1,8 billion by 2015.

Objective 3: To increase tourist arrivals from the current 2,2 million in 2010 per annum to 3,2 million per annum by 2015.

Objective 4: To increase employment from the current 300 000 to 345 000 by 2015

Objective 5: To increase sector contribution to net exports from 19% to 25% by 2015

Objective 6: To increase contribution to capital investment from 8,9% to 15% by 2015

6.3 DATA ANALYSIS

While chapters Four and Five presented the societal level of analysis under the intra-viewpoint unit of analysis, Chapter Six considers the organisational level of analysis under the inter-viewpoint unit of analysis. Figure 6.1 depicts the intersection of the organisational level of analysis and the inter-viewpoint unit of analysis (shown in green colour). As shown on Figure 6.1, the theories or frameworks at organisational level involve organisational theories, economics, resource-based theories, Management Information System theories and Business Process Re-engineering theories.

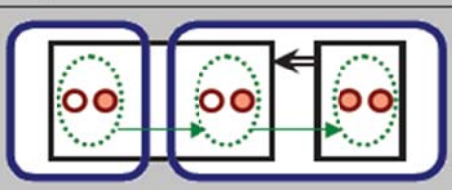
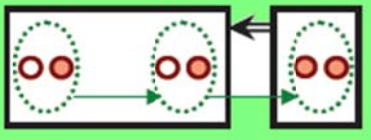
Level of analysis	Intra-viewpoint: unit of analysis	Inter-viewpoint: relations or comparison between units	Sample theories, frameworks, names
Societal	 Country/culture		Sociology, political economy, cross-cultural studies, Castells, IT for Development
Organizat-ional	 Organization		Organizational theories, economics, resource-based theory, MIS, BPR
Group/ activity	 Activity		Work research, activity theory, actor network theory, Engeström, CSCW
Individual	Person		Social psychology, gender studies, behaviorism, Kolb, HCI

Figure 6.1: Societal Level of Analysis X Intra-viewpoint Unit of Analysis (Adapted from Korpela et al, 2001)

As indicated in Chapter Three, the application of ADNA carries a focus on 2 main research themes:

1) Needs and requirements and
2) Evaluation.

The outcome is therefore constructed around the 2 themes as follows:

1) The current situation which is a description of the case (around the needs and requirements theme).
2) Evaluation of the case after the conceptual "implementation" of the recommended interventions

Drawing from ADNA, the focus of Chapter Six is the theme of Needs and Requirements, which is the organisational level. Organisational level is level 1 which shows network of activities and information landscape as shown on Figure 6.2.

Chapter Three presented the rationale for selecting the ADNA as the analysis tool to data collected in this study.

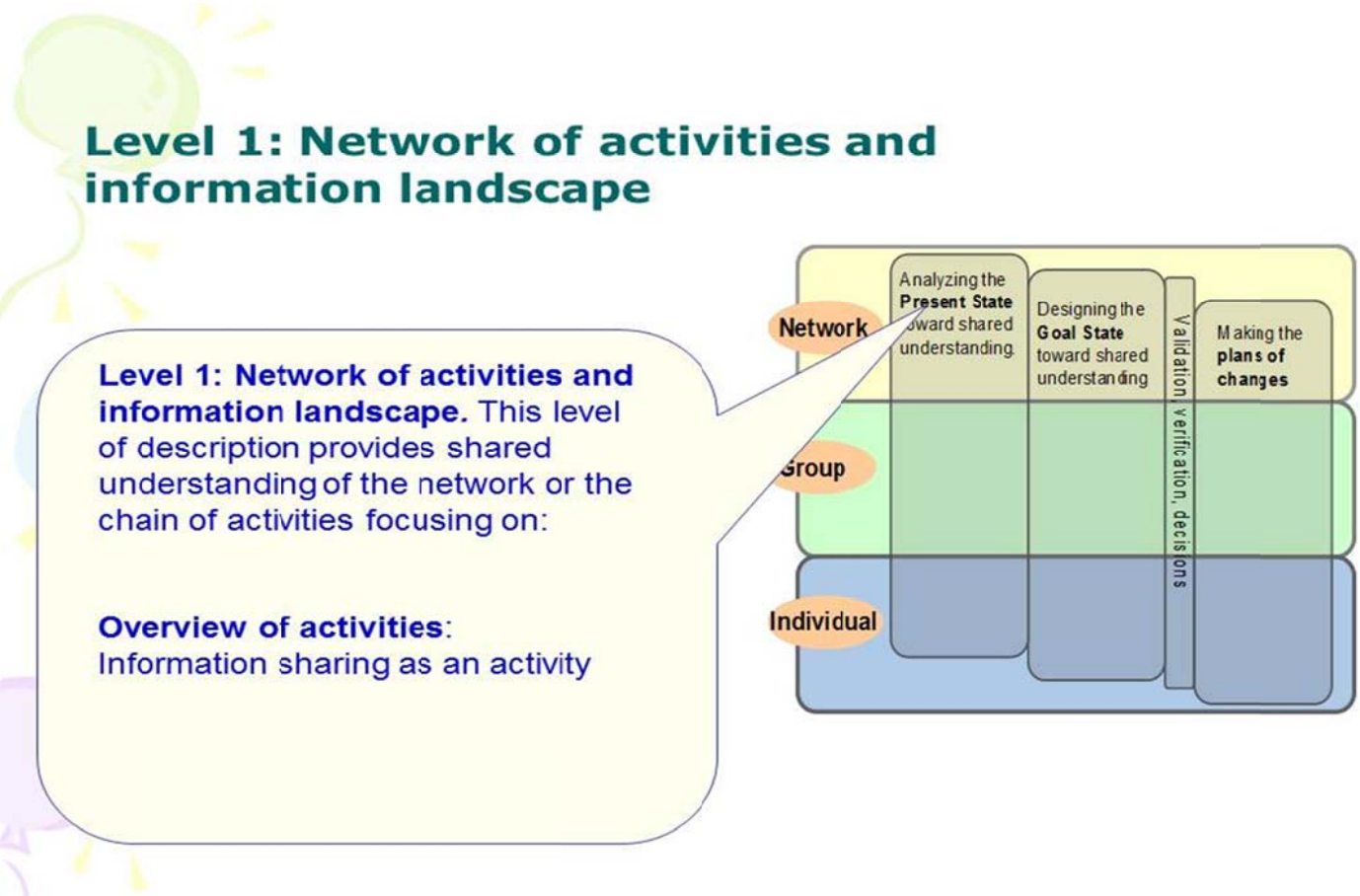


Figure 6.2 Network of Activities and Information Landscape

Also in the same section, the present state towards a shared understanding is analysed using a landscape model to capture an overview of the domain.

6.3.1 A LANDSCAPE: GOVERNMENTAL INFORMATION SHARING

The data which have been collected on information sharing is analysed to present a landscape model in Figure 6.3. The model investigates internal information sharing dynamics, inter-agency information sharing dynamics (which also includes information sharing with citizens and tourists in the case of the Ministry of Tourism) and mediating technologies. Figure 6.3 shows the information landscape for the information sharing activity at the ministry level in Zimbabwe. An information landscape refers to an overview of the information system in its context.

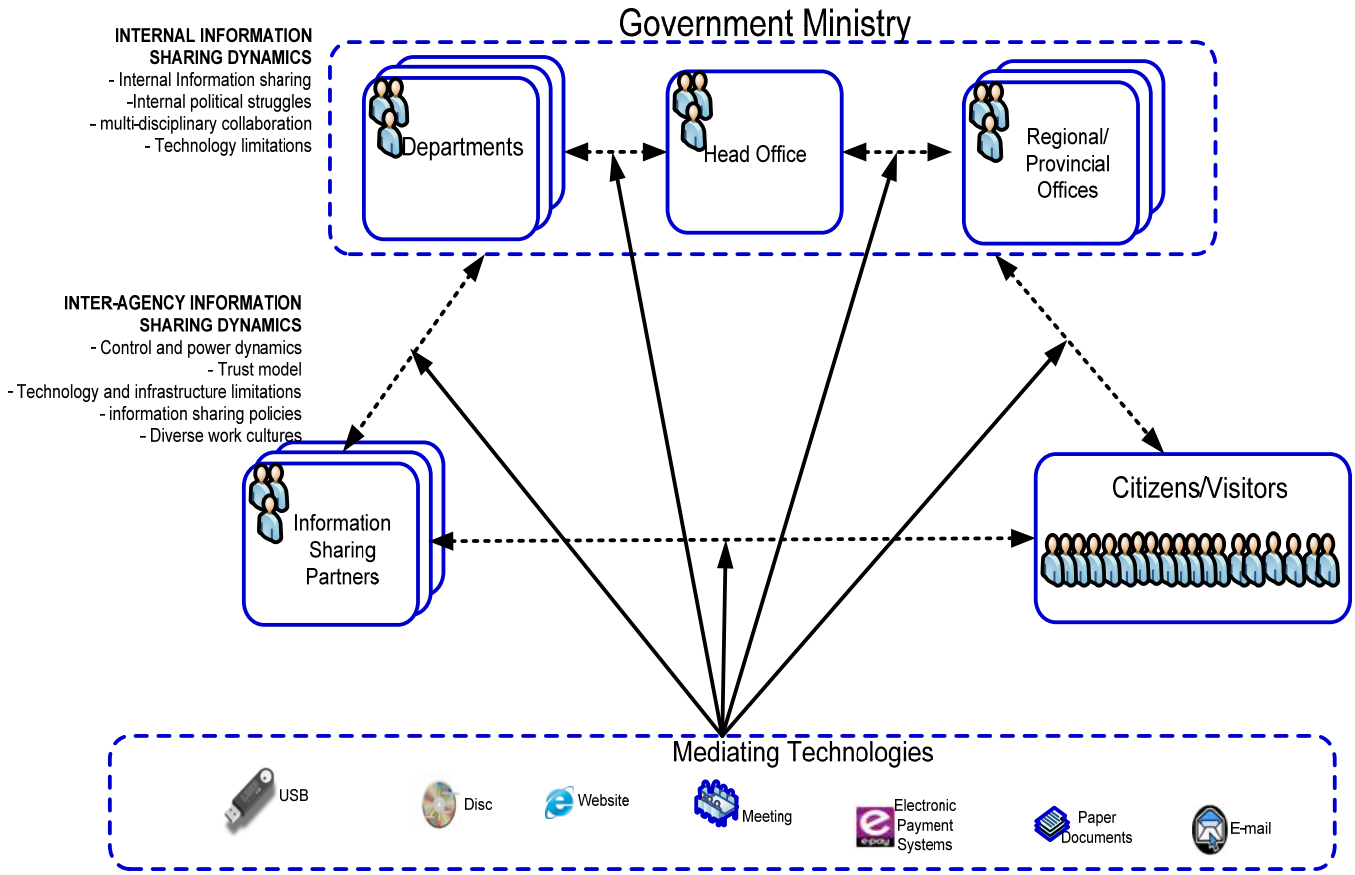


Figure 6.3: A Landscape for governmental information sharing

Intra-agency information sharing dynamics involve internal politics and competencies and willingness of individuals and teams to use available tools to share information and data within an organisation. Organisations are defined as artefacts, collectives of people who are working together for some common purpose (Baskerville and Pries-Heje,

2001). According to Ciborra (2004: 64) an organisation is a complex system of socio-technical networks. Under such a backdrop, an organisation can therefore be studied from different viewpoints. Three viewpoints are identified by Baskerville and Pries-Heje (2001) as *social systems, organisational systems or the setting for an information system*. Such a system has its own tensions leading to complex dynamics within its operations. Organisational politics play a vital role in determining the success or failure of organisational operations. According to Hoyle (1982) micropolitics as the 'dark side of organisational life,' embracing, according to (Holbeche et al, 2002):

> *"those strategies by which individuals and groups in organisational contexts seek to use their resources of power and influence to further their interests"*

Internal information sharing and multi-disciplinary collaboration can be negatively affected by internal tensions and conflicts. Holbeche et al (2002) identified the main ways in which political behaviour negatively affects the internal workings of organisations as low morale, increased competition and conflict, discouragement of knowledge sharing, lack of trust, exclusion of key people from decision-making processes, reduced faith in top management, reduced productivity, loss of valuable talent and prevention of awarding of merits.

6.3.2 INFORMATION SHARING: THE ACTIVITY

This study identifies the whole tourism cluster which lies at the centre of the Ministry of Tourism and Hospitality's interest to consist of three factors, tourism image, tourist products and tourism environment (Yuanbin et al, 2011). The primary information which is shared between the tourism ministry and their partners revolves around these three factors which are shown on Figure 6.4.

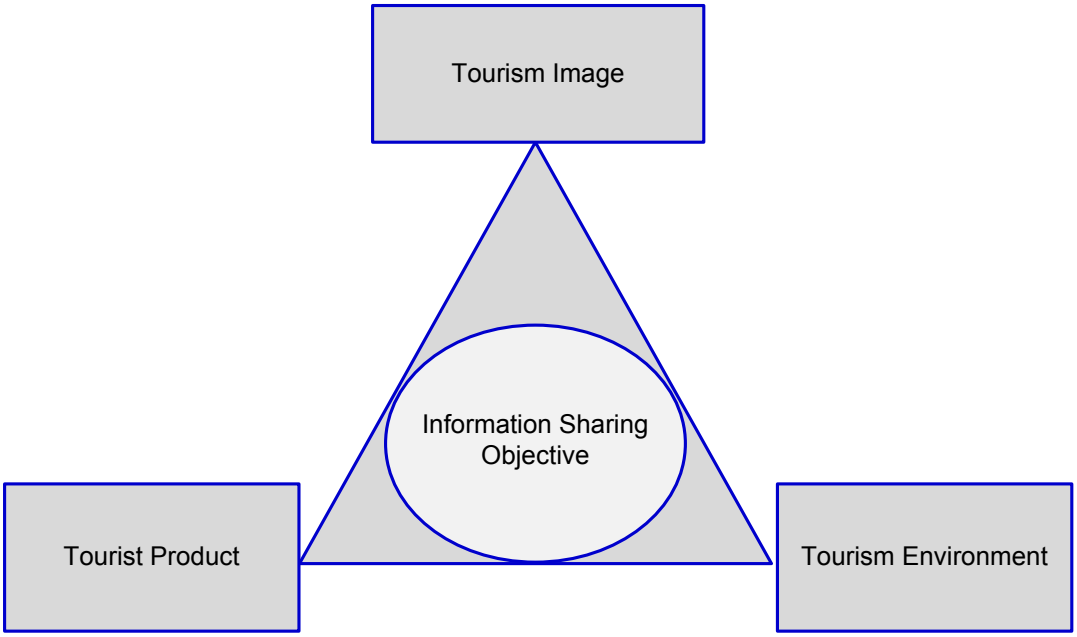


Figure 6.4: Ministry of Tourism's Information Sharing Objectives

According to Yuanbin et al (2011), tourism image attracts tourists to make decisions about visiting a destination. While marketing and branding is a prerogative of the ZTA, the ministry is ultimately the largest shareholder, making information sharing between the two entities important. Tourist product, the fundamentality of the tourism business, contains sights, tourist projects, and itineraries of tourists when they visit the country. The department of immigration is the main custodian of such information, which in turn should be shared with the tourism ministry. Tourism environment is a generalized definition, indicating the natural and social environment which is suitable for traveling, investing, working and dwelling (Yuanbin et al, 2011).

Information sharing activity	Information sharing partner	Mediating Technologies
Tourist arrival data	Department of Immigration	Paper documents
Tourist information (international and domestic tourists)	ZTA	Formal meetings, paper documents, telephone
Diplomatic information, bilateral and MOUs	Ministry of Foreign Affairs	Formal meetings, paper documents, telephone
Legal information	AG's Office	Formal meetings, paper documents
Tourism strategies and plans	Ministry of Economic Planning and Development	Formal meetings, paper documents
Financial Remittances	Ministry of Finance and RBZ	Formal meetings, paper documents
Requested tourism statistical information	Other line ministries	Formal meetings, paper documents, telephone
Tourist and travel information	The Public	Paper documents, telephone
Regional and international tourism information	Regional and International bodies	Formal meetings, paper documents, email
Registration and grading	Tourism players – Hotels, Parks and Wildlife, travel agencies, etc	Formal meetings, paper documents, telephone
Tourism development	Local Authorities	Formal meetings, paper documents, telephone
Personnel, staffing and labour information	Ministry of labour and public service	Paper documents
Regional and Overseas tourism development	Regional and overseas offices	Paper documents, telephone, email

Table 6.1: Information Sharing and mediating technologies

Table 6.1 describes the information sharing arrangements between the Ministry of Tourism and Hospitality and other departments and organizations. Paper-based procedure, telephone and meetings are the ways information is shared among government institutions in Zimbabwe. Paper-based procedure has several known inherent flaws. In the entire administrative chain, physical documents are always handled by several administrators first within the originating department and second within the receiving department. Documents may be misplaced or damaged or delivered late.

In Figure 6.5, the information flows are denoted by numbers whose explanation follows:

1 Tourist arrival data
2 Marketing strategies and Tourism Development
3 Regional and international tourism information
4 Diplomatic information, bilateral and MOUs
5 Legal and statutory information
6 Registration and grading
7 Tourism strategies and plans
8 Tourism development
9 Requested tourism information
10 Personnel, staffing and labour information
11 Tourist and travel information
12 Overseas tourism development
13 Tourism statistics, remittances and tax exemptions

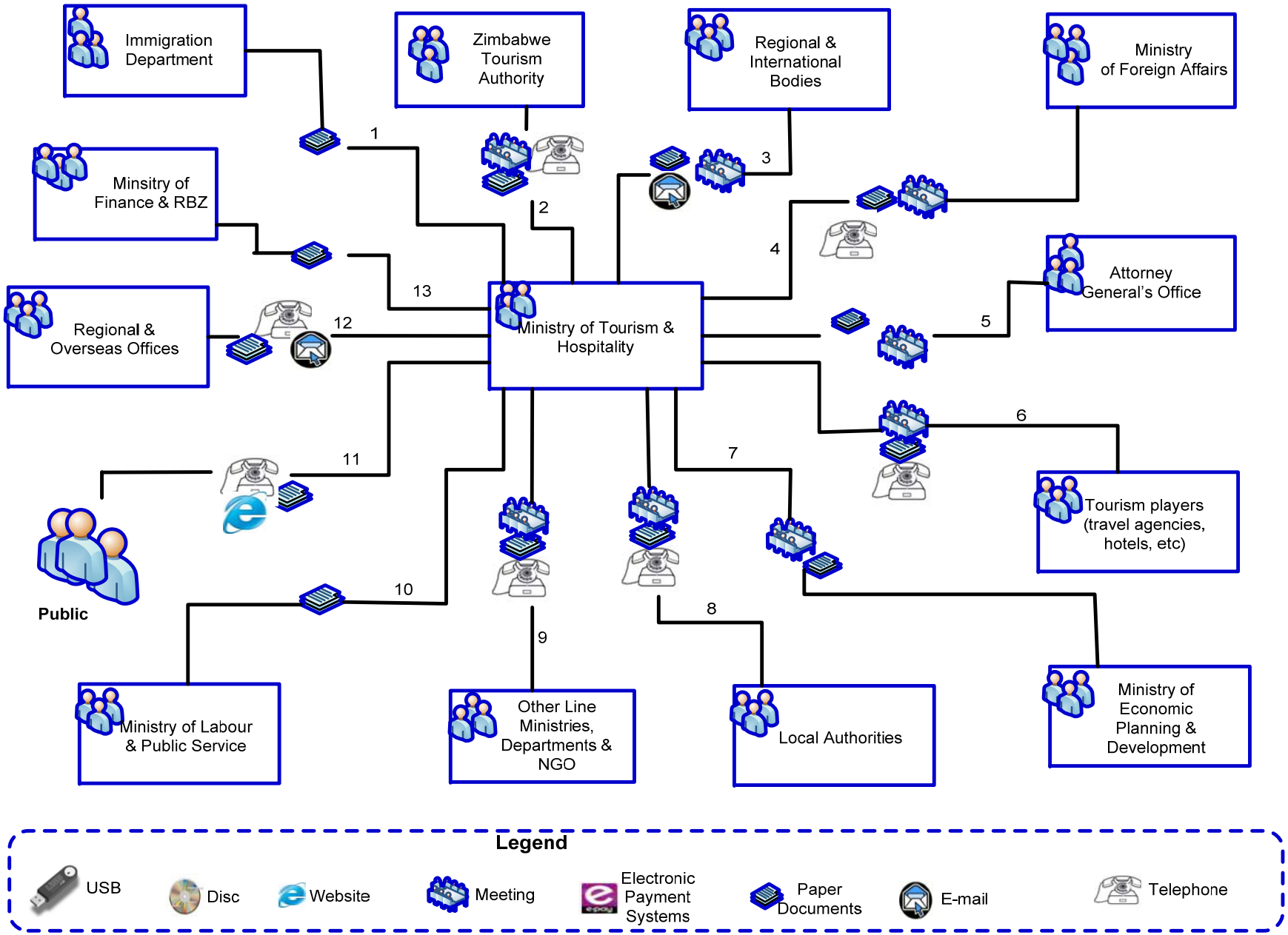


Figure 6.5: Current Inter-agency Information Sharing Model

The information flows are described in detail in the following sub sections.

Tourist arrival information

This is the information on all international visitors as it is collected and stored by the department of immigration via ports of entry. Every international visitor is treated as a tourist since tourism marketing information is then made available upon arrival in Zimbabwe. The information recorded on the immigration declaration form by the department of immigration is passed on to the Ministry of Tourism and the ZTA. The immigration declaration document records the following data items: the mode of travel, personal data, and nationality, purpose of visit and duration of stay. The declaration form is passed from the immigration department to ZTA and the Ministry of Tourism.

Information tools: paper-based immigration declaration form
Information: personal data (Name, sex, date of birth, marital status, nationality, passport number and expiry date); mode of travel (flight number, Car/bus registration number, train number, other) occupation or profession, accompanying children under 18 years, address, name and address at destination in Zimbabwe, address in country of permanent residence, purpose of visit (Business, holiday, education, transit, visiting friends and relatives); funds immediately available, criminal record.

Information system: Paper-based tourist statistics
Development points in information sharing:

- The tourism information system should be integrated with the immigration system
- Paper based immigration documents are passed to ZTA and the tourism ministry
- Paper documents come by mail so information can be delayed
- There is no use of ‘shared workspace’ functionality

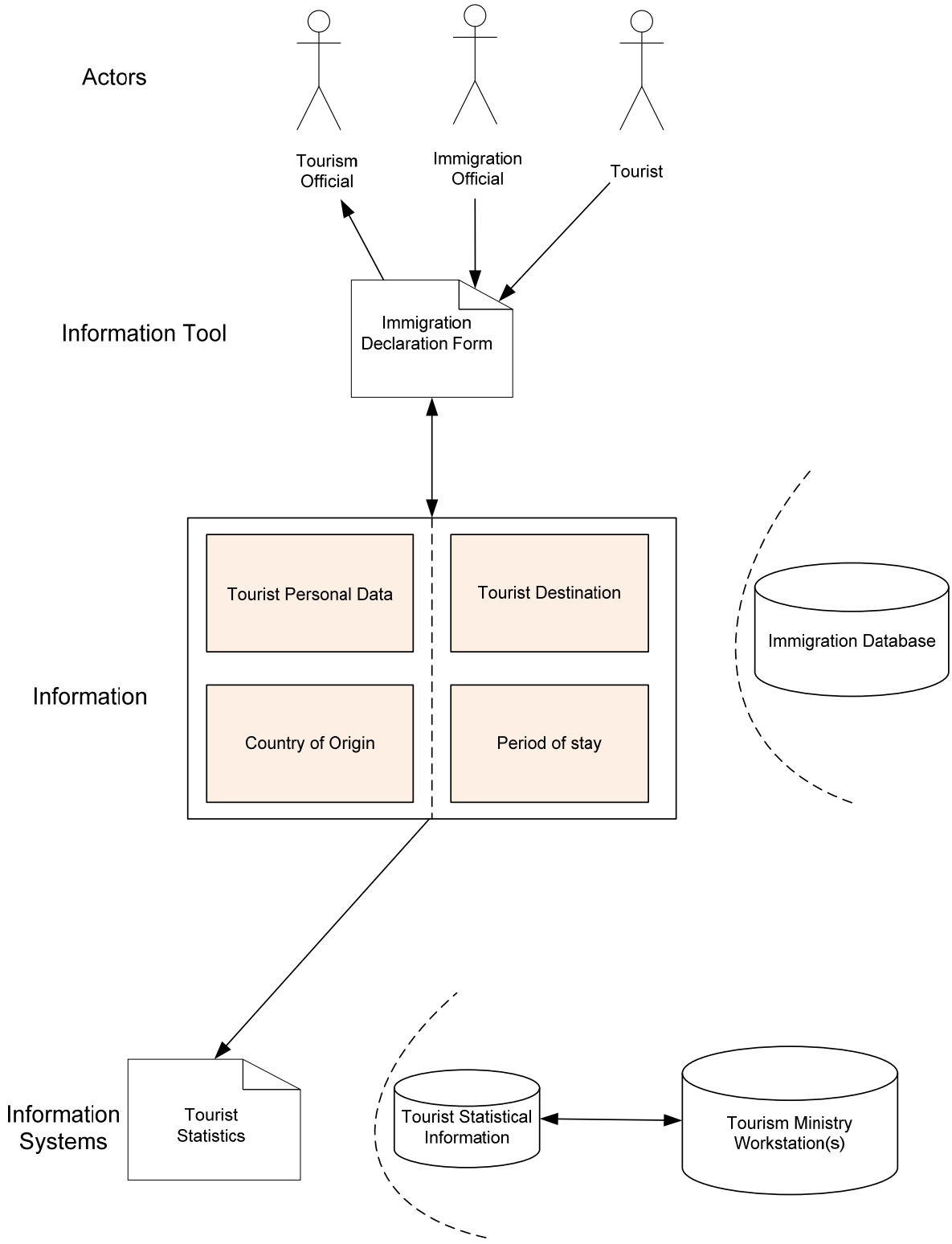


Figure 6.6: Paper-based information sharing process

Marketing strategies and Tourism Development

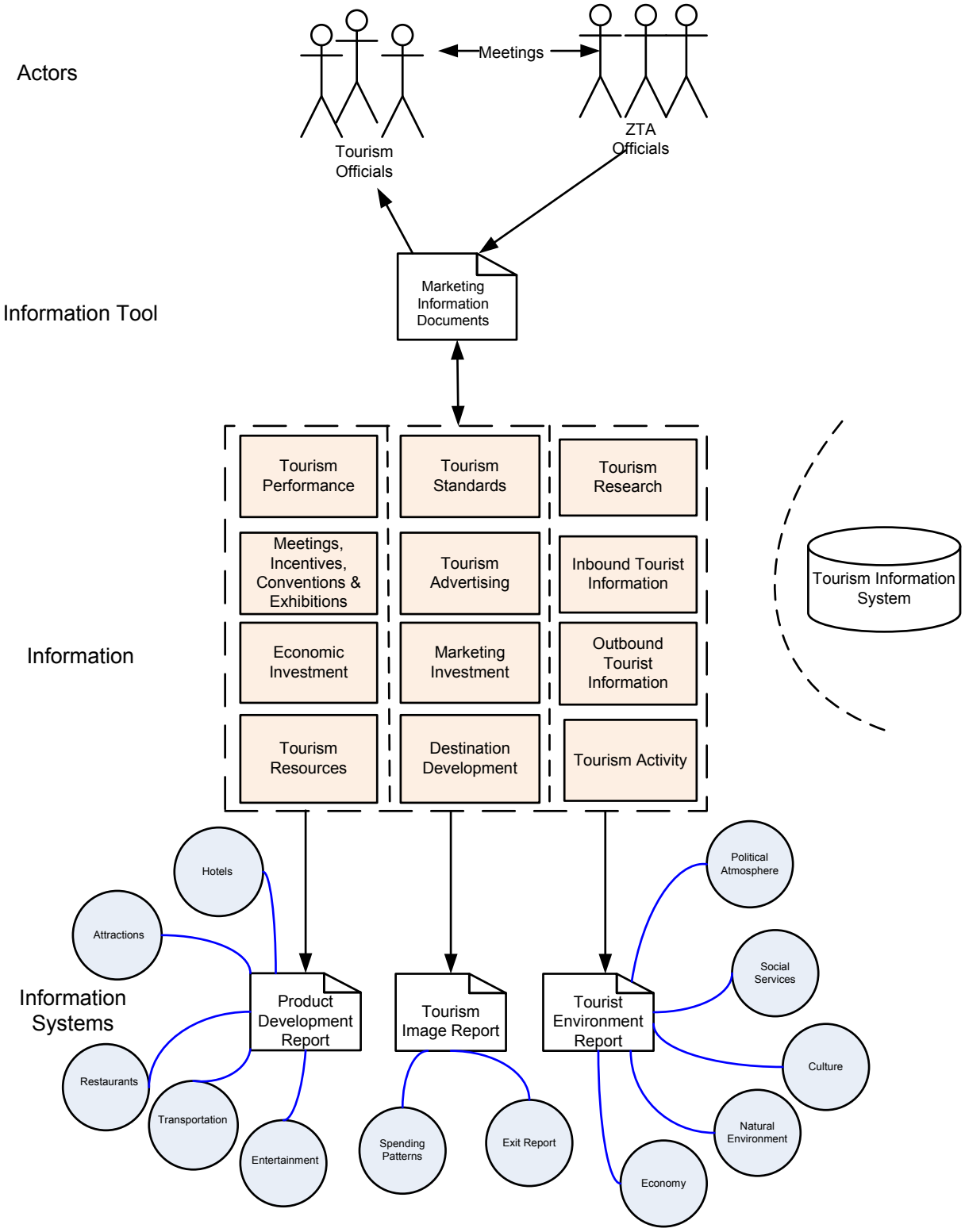


Figure 6.7: Marketing strategies and Tourism Development information

The ZTA's mission is the promotion and development of tourism industry in Zimbabwe. It is an arm of the Ministry of Tourism and Hospitality. The information sharing process involving tourism marketing strategies between the ministry and ZTA is not structured.

Information tools: formal meetings are held to inform the ministry on marketing strategies and tourism expansion programmes. Other information tools are the telephone and memorandums.

Development points: lack of computerized tourism information systems

Regional and international tourism information

Information exchanged is on developing and promoting regional and international tourism markets. It also includes information on co-ordinating and implementing international tourism policies, programmes and protocols with regard to the United National World Tourism Organisation (UNWTO) World Travel and Tourism Council (WTTC) and environmental organisations and other relevant international bodies; co-ordinating and implementing all regional economic communities (RECs) blocs and tourism projects and programmes e.g. Southern African Development Community (SADC) Regional Tourism Organisation of Southern Africa (RETOSA), COMESA, East Africa Community (EAC) and African Union (AU); facilitating and co-ordinating tourism integration in the region e.g. Transfrontier Conservation Areas (TFCAs), One Stop Border Post Concept and Economic Partnership Agreements (EPAs) and international tourism co-operation; co-ordinating joint commissions on bilateral and multilateral matters pertaining to tourism and develop Agreement, Protocols and MoUs on tourism co-operation; formulating and co-ordinating a tourism research plan on product and markets development, tourism trends and provide market intelligence for the tourism industry.

Information tools: Formal and structured meetings between the Ministry of Tourism and Hospitality and international tourism bodies are held. Meetings are normally stand-alone or held in parallel with regional and internal conferences, seminars or workshops. Documents are also exchanged on tourism statistics for ranking purposes, tourism development, policies, cooperation methods and standards, etc.

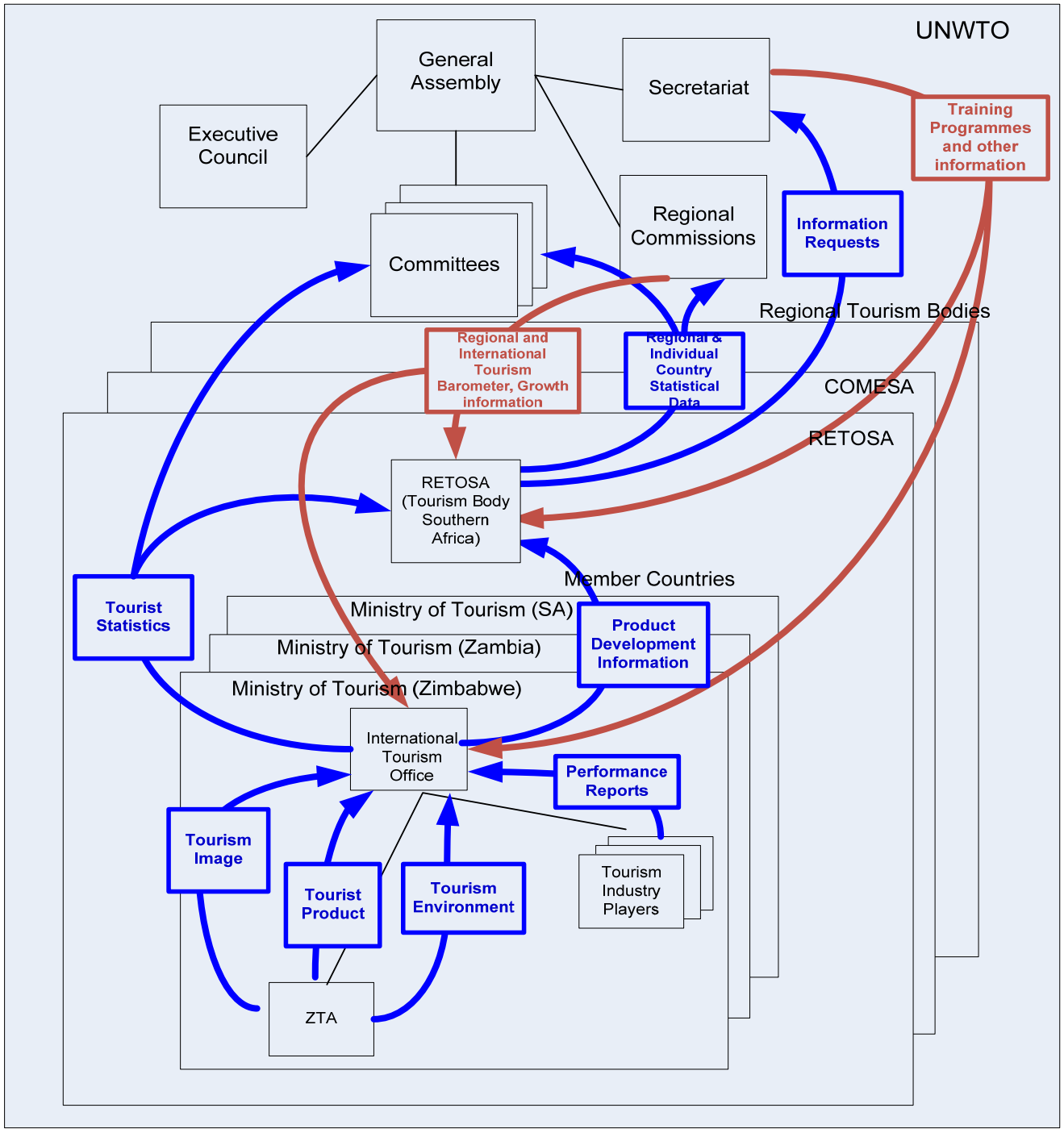


Figure 6.8: Regional and International tourism information

Diplomatic information, bilateral and MOUs

The information exchanged between the ministries of tourism and foreign affairs concerns international relations. International relations refers to the collective interactions of the international community, which includes individual nations and

states, inter-governmental organizations such as the United Nations, non-governmental organizations like Doctors Without Borders, multinational corporations, etc. The Ministry of Tourism uses embassies around the world to market the country's tourist attractions. For this purpose, the state international relations at any stage play a vital role in informing the tourism ministry about efficient marketing strategies. The Ministry of Tourism also requires information on MOUs, bilateral trade agreements, investment treaties, and bilateral integration with other countries. Special tourism marketing packages are then arranged by the Ministry of Tourism to be sent to the particular countries with which agreements would have been made.

Information Tools: formal and structured meetings

Information System: Reports in the form of paper documents are exchanged

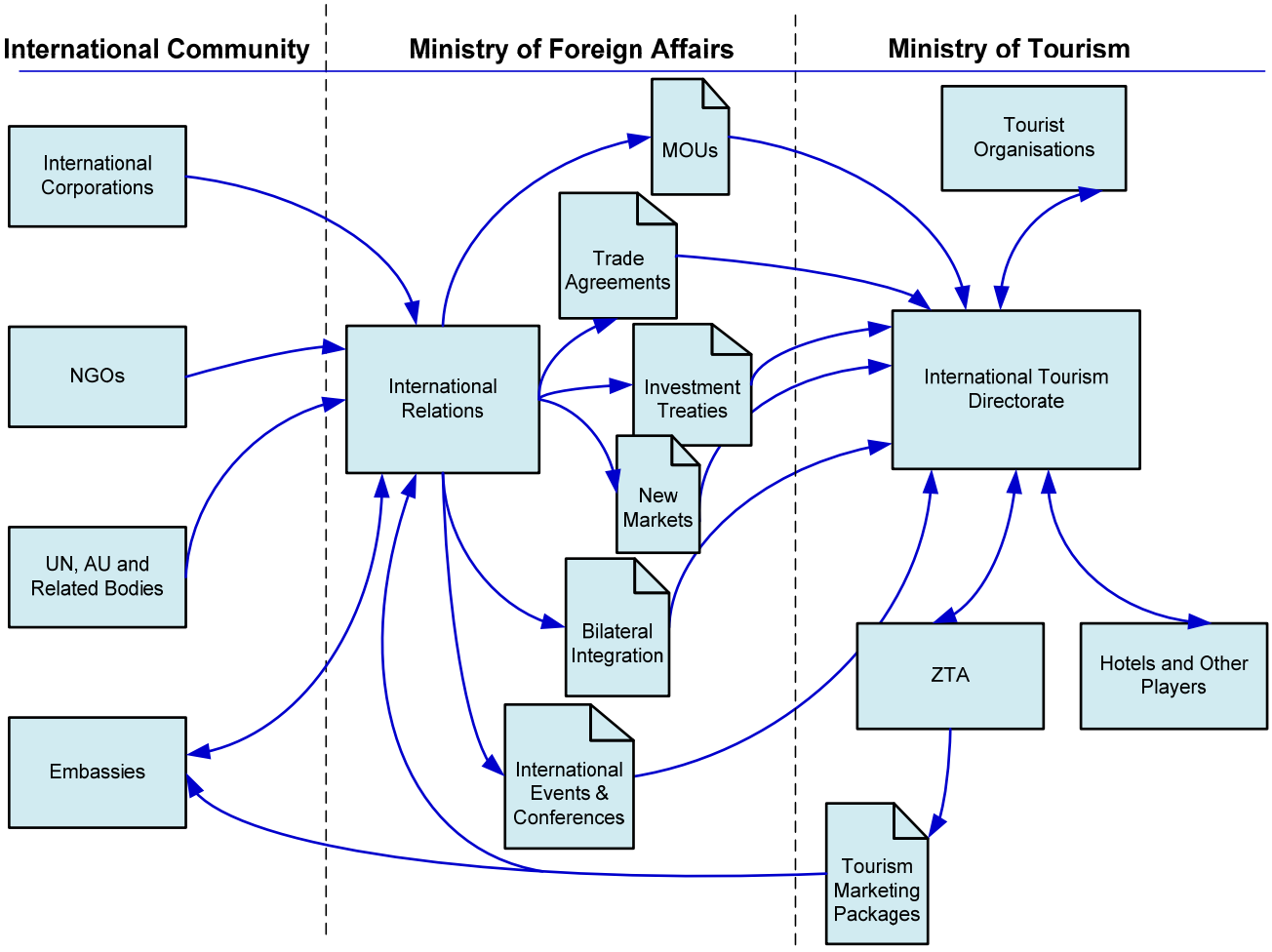


Figure 6.9: Information sharing with international communities

Legal and statutory information

Overall administration and monitoring of the implementation of the Tourism Act and its Statutory Instruments

Registration and grading

Overall supervision of the registration and grading of hotels, lodges, travel agencies, tour operators, tour guides and other Designated Tourist Facilities (DTFs) and issue licences thereof. Overall supervision and monitoring of standards of all tourism facilities, and ensure that the tourism and Hospitality industry comply with international standards and statutes.

Tourism strategies and plans

Information exchanged with the ministry of economic planning and development is for formulating, reviewing and co-ordinating tourism investment policies in the country and strategies.

Tourism development

Information requirements are for the purposes of organising and co-ordinating local authorities and communities for the development of tourism infrastructure and superstructure at district and provincial levels; identifying and developing tourism products and projects in the communities and provinces, e.g. Community Based Tourism Projects (CBTs), heritage and historical sites, etc; developing and co-ordinating national and international tourism events and other public awareness activities in the country's districts and provinces; identifying and promoting investment opportunities for the development of tourism infrastructure and superstructure in the country.

Requested tourism information

With other line ministries, any information requested about tourism promotion and marketing is exchanged

Personnel, staffing and labour information

As a government ministry, the Ministry of Tourism and Hospitality exchanges human resource information with the ministry of labour and public service

Tourist and travel information

This is the information exchanged between the Ministry of Tourism and the public. It is basically marketing information pertaining popular tourist attractions and places of interest throughout Zimbabwe including waterfalls, historical monuments, national parks, wildlife, museums, art galleries, gardens and parks. Information on the tourist attractions is provided in the form of pictures and photos, admission times, opening dates, ticket prices, location maps and contact information, etc. Advice on accommodation, travel advice and other useful information is also provided.

Overseas tourism development

Information communicated between the ministry and its overseas offices is to enable supervising, co-ordinating and liaising with regional and overseas tourism offices, and embassies with regards to tourism development issues.

Tourism statistics and remittances

As a statutory requirement, the Ministry of Tourism and Hospitality provides statistics of tourist arrivals and financial remittances to the central bank.

6.4 CHAPTER SUMMARY

The chapter presented findings of the information sharing arrangements between the Ministry of Tourism and its information sharing partners. Several barriers to effective information sharing perceived by research participants are identified as follows:

- Delay of information from the department of immigration to the Ministry of Tourism results in a huge information gap.
- The tourism management department cannot obtain feedback from tourists to make more reasonable decisions and has weak ability for handling emergency events. For example, tourist accident information must be

exchanged with urgency among relevant stakeholders including the Ministry of Tourism, national parks and wild life, diplomatic embassies, etc.

- Absence of an information communicating platform applicable for the tourists and the government. The Ministry of Tourism releases travel information to the tourists, and the tourists receive information from the network, feed their information to the government and assist the government to make decisions.
- The Ministry of Tourism does not have systems sufficiently powerful and rich to support the information needs of tourists. A major reason for this is that the different types of information are dispersed and reside on disparate repositories in different organisations like the ZTA or immigration that are not interconnected.

CHAPTER SEVEN

TOWARDS AN E-GOVERNMENT FRAMEWORK FOR DEVELOPING COUNTRIES: APPLICATION OF EGF4DC

There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things

- Niccolò Machiavelli

7.1 INTRODUCTION

This chapter presents the application of the EGF4DC which was developed in Chapter Two. Chapter Four presented a narrative analysis of the policy documents which revealed that the technology theme is dominant in all texts. Despite being the central theme of e-government implementation (Schuppan, 2009), the need for institutional assessment of government administrative systems was ignored by the policies. Peculiar to Zimbabwe, the policies never answered the question about how policies would be transformed into action under a politically charged environment as that obtaining in the country.

Chapter Five reported on the findings of interviews held with the ministry of ICT officials. With its interest towards establishing the current status of e-government development as well as future plans and actions, Chapter Five exposed little progress towards the actual implementation of the e-government agenda. Chapter Six presented the case study and applied the ADNA methodology to analyse the current status of information sharing within the Ministry of Tourism.

As stated in Chapter Three, this study finds its paradigmatic position in critical realist philosophy. The first premise of critical realism, its explanatory critique (Bhasker, 1996), was presented in Chapters Four, Five and Six. Chapter Seven therefore completes the fulfilment of the second premise of critical realism which is offering an alternative framework for the ministry of tourism. The application of proposed EGF4DC framework is guided by ADNA. Figure 3.8 in Chapter Three indicates Phase 2 as “Designing the Goal State”. Figure 7.1 summarises the construction of this chapter.

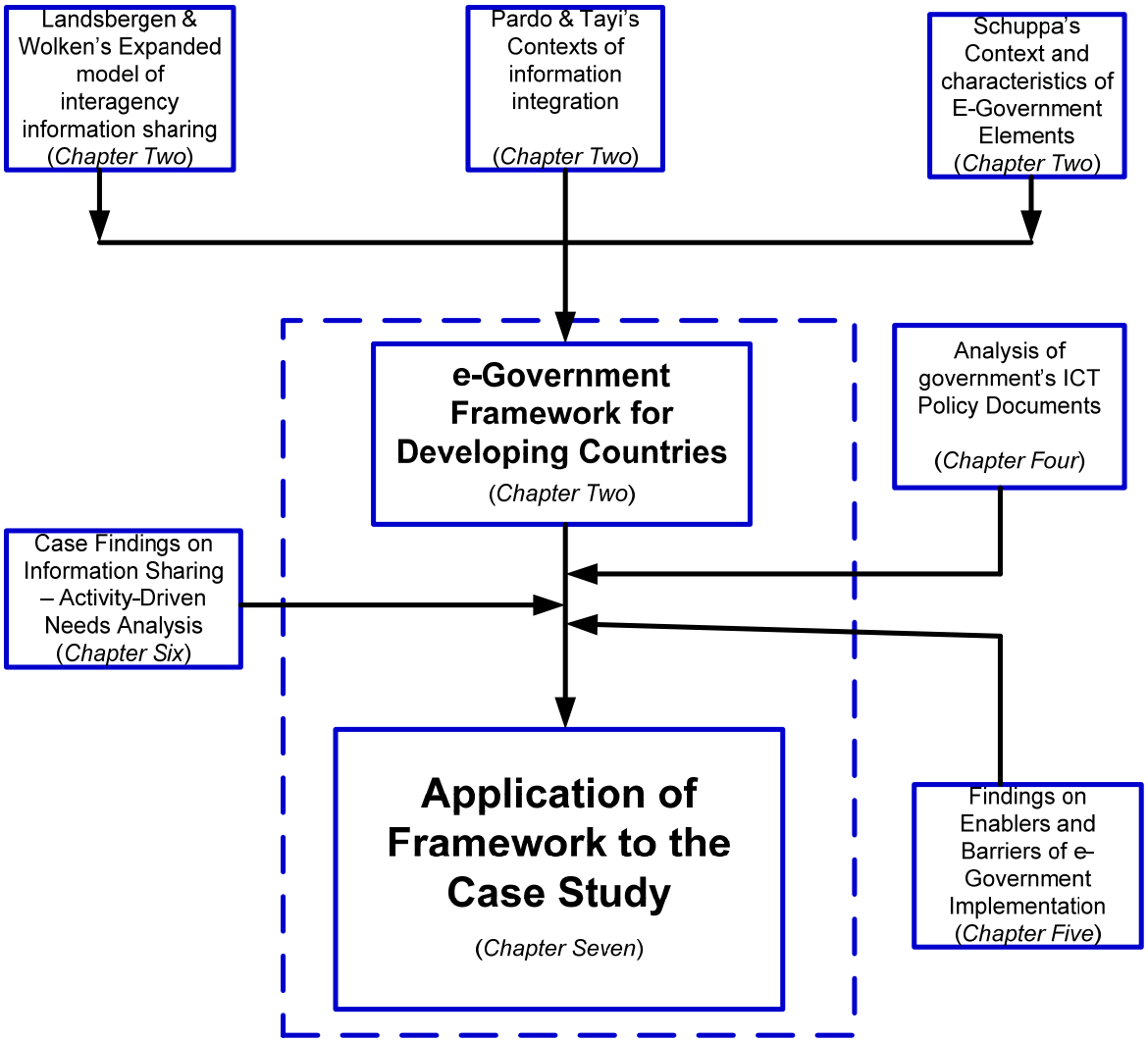


Figure 7.1: Construction of Chapter Seven

The next section re-states the need for e-government in Zimbabwe. The EGF4DC framework is adapted and applied to the Ministry of Tourism in the section that follows before the chapter ends with a summary.

7.2 RE-STATING THE NEED FOR E-GOVERNMENT AND INFORMATION SHARING IN ZIMBABWE

The imperative for government agencies to work together seamlessly for the public good, is growing louder. Throughout the world, boundaries between organisations, countries and regions are falling away as communications and transport technologies improve and trade barriers are reduced. The need for e-government in Zimbabwe has grown over the past few years. The following sub-sections present sources of this growing need.

7.2.1 E-GOVERNEMNT: A GROWING GLOBAL PHENOMENON

Tony Blair (2012) advises that systemic change is required for all governments worldwide as new technologies in communications, energy and medicine as well as new global challenges like climate change and financial crises, force them to keep pace with change. In the business world, developments in ICTs have already opened up opportunities for Africa to export products to a wider range of markets while domestic markets become more accessible to overseas suppliers. According to Tregear and Jenkins (2007), organizational functional boundaries are seen as archaic by citizens who can book a world trip, including flights, accommodation, local transport, visas, theatre tickets, and restaurant reservations, while sitting at a computer. Zimbabweans, being the most educated with the highest literacy rate in sub-Saharan Africa, are acutely aware of the capabilities of technology in service delivery. Zimbabwe also has a very high mobile penetration rate, estimated at 87% (POTRAZ, 2012). A combination of these two factors – high literacy rate and high mobile penetration – makes is sufficient to expose Zimbabweans to what other governments are doing to ease life for their citizens. Through the internet and online socialization, Zimbabweans know, for example that a government of Estonia which only got its independence from the Soviet Union in in 1991 is already availing more than 160 online services to its citizens – including unemployment benefit applications, filing for parental leave, property registration, notary services, digital medical records, prescription drug renewals, etc.

7.2.2 E-COMMERCE PRESSURE

Use of internet and related technologies in Zimbabwe has grown so fast that ICT-enabled services, especially e-commerce transactions, are widely enjoyed despite economic challenges obtaining in the country. Retailers place orders for merchandise using EDI networks or a supplier's extranet. It is also common for manufacturing plants in Zimbabwe to place orders from another plant within the company using the company's intranet. Through e-commerce technologies Zimbabweans have enjoyed the benefits of online transactions, which can be global in reach and can provide content that is both complex and rich. E-commerce technologies have given rise to various ‘market-spaces’ such that Zimbabweans

share information and market products on entertainment, sports, fashion design, health, etc. they can access news on the internet as well as information on e-government progress of other countries. This diffusion and adoption of the internet and related technologies among Zimbabweans has given rise to expectations that public services should be availed with the same effectiveness and efficiency (Ebrahim & Irani, 2005).

Just like citizens of any other country elsewhere, Zimbabweans demand public services to be accessible from the comfort of their homes or offices in the same manner they conduct e-commerce business. They want government services which should be focused around their needs to be provided in one place. They want to eliminate travel time and cost incurred when they travel long distances to reach a physical government office as well as accessing abundant government information 24 hours a day. A networked government is necessary for providing services and information from one place. It follows therefore that information sharing and collaborative infrastructure is what the government of Zimbabwe requires in order to meet the increasing demands of an educated citizenry.

7.2.3 CONSUMERIZATION OF ICT

Consumerisation of technology is referred by ZDNet as the new enterprise disruptor. The tidal wave of consumerisation of ICTs has moved into the enterprise including government institutions where it profoundly reshaping the IT landscape. D'Arcy (2011), Executive Director, Large Enterprise Marketing at Dell defines consumerisation as:

> *"the migration of consumer technology - including electronic devices, platforms, and applications – into enterprise computing environments as home technology becomes, in some instances – as capable and cost effective as its enterprise equivalents"*.

Web-based social movements and networks such as Facebook,Twitter, LinkedIn, Flickr, Flixster, Google+, Myspace, Students Circle ,Travellerspoint, WAYN, weRead, Yammer, etc have evolved societal relationships and further piling pressure on

government services to be conveniently provided on a 24x7 basis. This explosion of pervasive internet services has given many consumers new levels of access to information. With such high penetration of mobile services in Zimbabwe (see Chapter One), social computing continue to improve citizens' personal lives, and naturally people expect this technology to provide the same advantages in their work environment. As a result, a global trend can be traced in Zimbabwe where many government employees want to use consumer devices and social networking for work-related interactions (CS Transform, 2010). This observation is also made by D'Arcy (2011):

> *"As social media becomes a foundational component of work life and corporate collaboration, as new mobile devices and application platforms proliferate, and as more employees work from home, traditional corporate policies on personal computer usage, data security, and application usage are quickly becoming antiquated"*

Figure 7.2 illustrates a literal explosion in the number of mobile devices that both generate information (pictures, video, audio, etc.) and query for information. According to the ITU's Morgan Stanley Research (2011), there has been exponential growth in the number of devices in use at any one point in time from the time of mainframe computers to the age of Tablets and Androids. Figure 7.2 shows that when there was a worldwide market for a million mainframes, the market for minicomputers was closer to 10 million+ units, the early PC market was 100 million+ units, and the desktop internet market is 1 billion+ units. According to ibid, it is predicted as shown in Figure 7.2 that in the next era, mobile Internet devices including smart phones, media tablets, and internet-connected personal media players – the full market for these devices could be as high as 10 billion units.

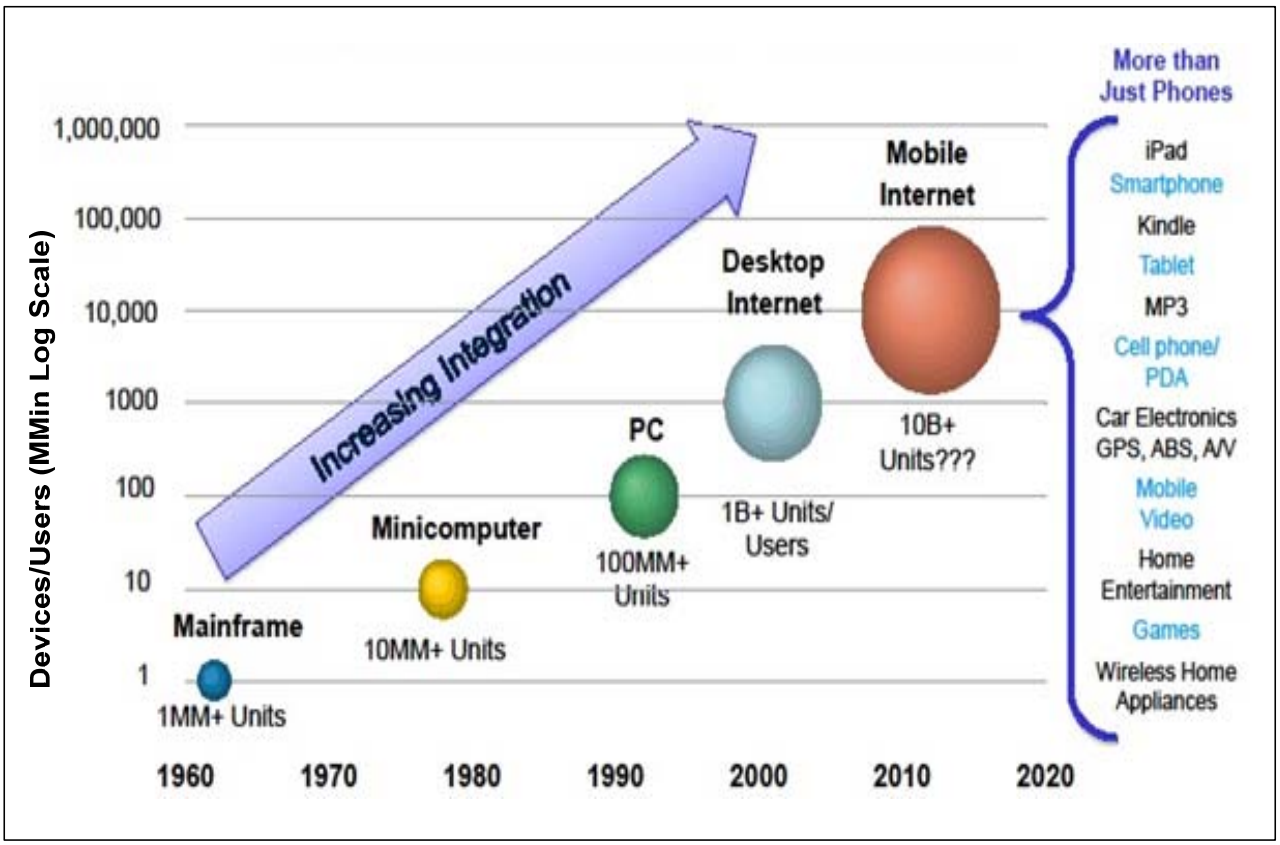


Figure 7.2: New-Computing-Cycle-Characteristics (Source: ITU, Lipacis (2011), Morgan Stanley Research

7.3 APPLICATION OF THE EGF4DC FRAMEWORK TO THE MINISTRY OF TOURISM CASE.

The second phase of the ADNA after the present state which was presented in Chapter Six, requires presenting the goal state as shown in Figure 7.3. The network of activities and communication between them at the organisation level which is identified in Phase 1 are re-organised in Phase 2 to produce a state of shared understanding of the goal state. This chapter presents the goal state in the form of a framework which would require to be translated into the physical network of activities defining the goal state.

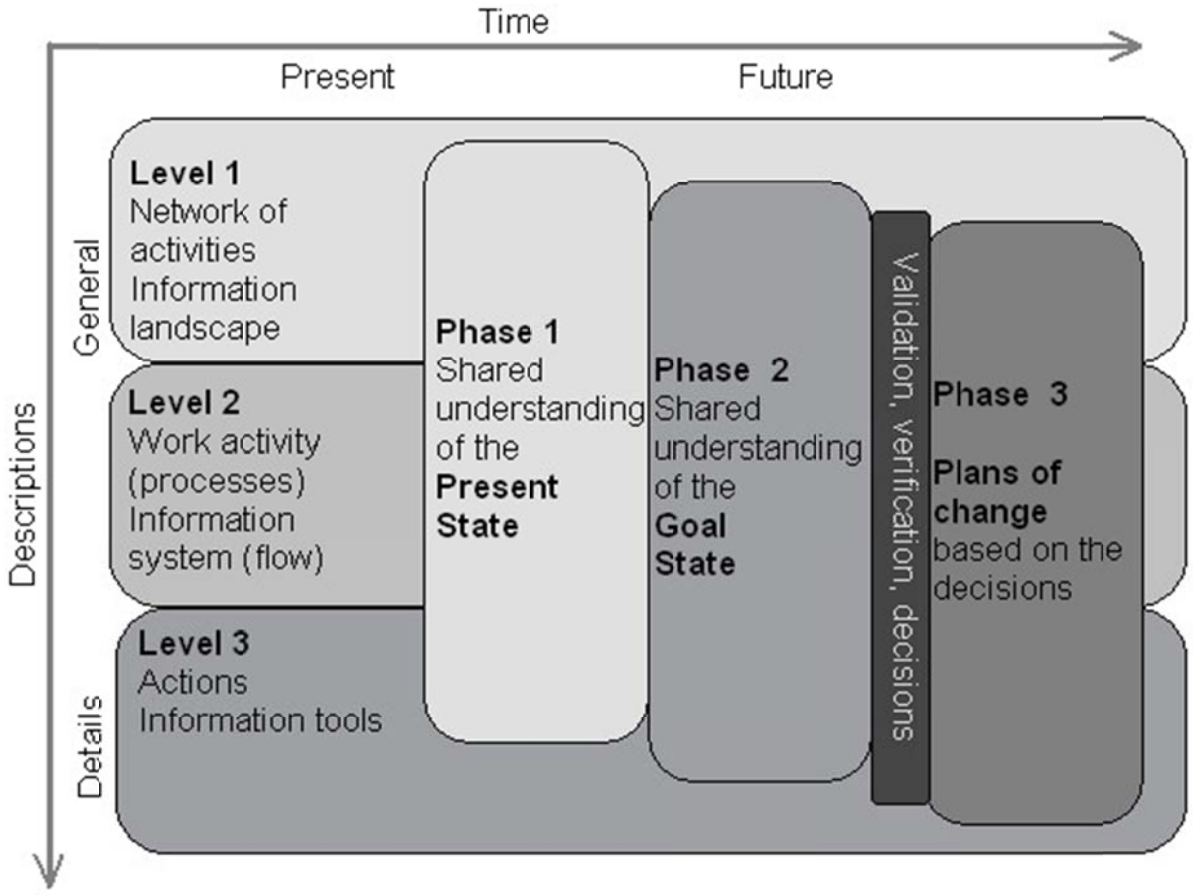


Figure 7.3: Phases of the development model (Source: Korpela et al, 2004)

This section represents the application of the EGF4DC framework for e-government adoption within the Ministry of Tourism in Zimbabwe. In order for the Ministry of Tourism and Hospitality to become more adaptable, innovative and responsive, there is need for transformation especially in the way information is being shared with other organisations and agencies.

Figure 7.4: Transformation Requirements for the Ministry of Tourism

From Figure 7.4, there are many challenges which should be addressed in order to transform the ministry and the government into modern institutions. General observations are that people have to physically avail themselves at government offices in order to get basic information, complete and submit a form or to get any other service. Delays could be avoided and costs drastically reduced if different forms could be made available online and citizens and businesses to do business with the ministry in an efficient manner. Enabling Technologies provide means and solutions that can be used to transform the current situation, which is riddled with inefficiencies and problems, to the needed position of e-government as indicated in Figure 7.4.

Central to the social structure dimension are the environmental variables of political environment and the state of the economy as well the business and external stakeholders.

7.3.1 THE SOCIAL STRUCTURE DIMENSION

The social structure dimension plays a salient role in all systems development processes. Socio-economic policies have impacted any national project in Zimbabwe especially from the turn of the century. The tourist industry in Zimbabwe experienced a rapid growth after the country gained independence in 1980. While the tourism industry performed exceptionally well in the 1990's when international tourism recorded 57.2% in 1996 of commercial services exports (Christie and Crompton, 2001), performance of the industry declined sharply from 2000 upon the emergence of political crisis. After disputed elections in March 2002, Zimbabwe has been suspended from the Commonwealth and smart sanctions have been imposed by the United States and the European Union. What followed was a dramatic plunge in international tourism to 3.3% of total exports in 2003. Tourists were citing security threats following the violent spontaneous fast-track land reform programme.

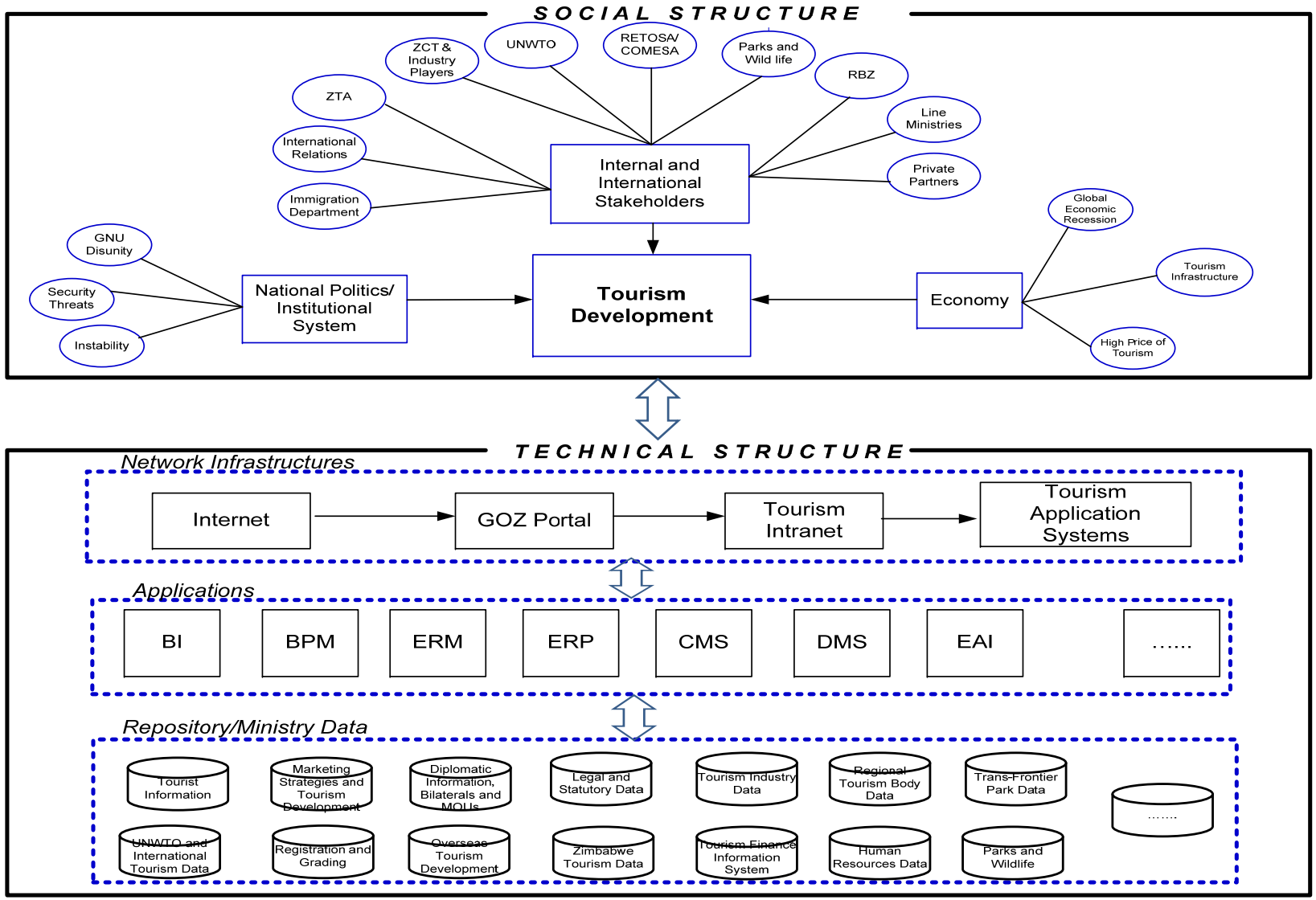


Figure 7.5: Application of the e-government framework to the case

Figure 7.6 presents a model for the design and understanding of the social dimension which should inform the design and implementation for a tourism e-government strategy.

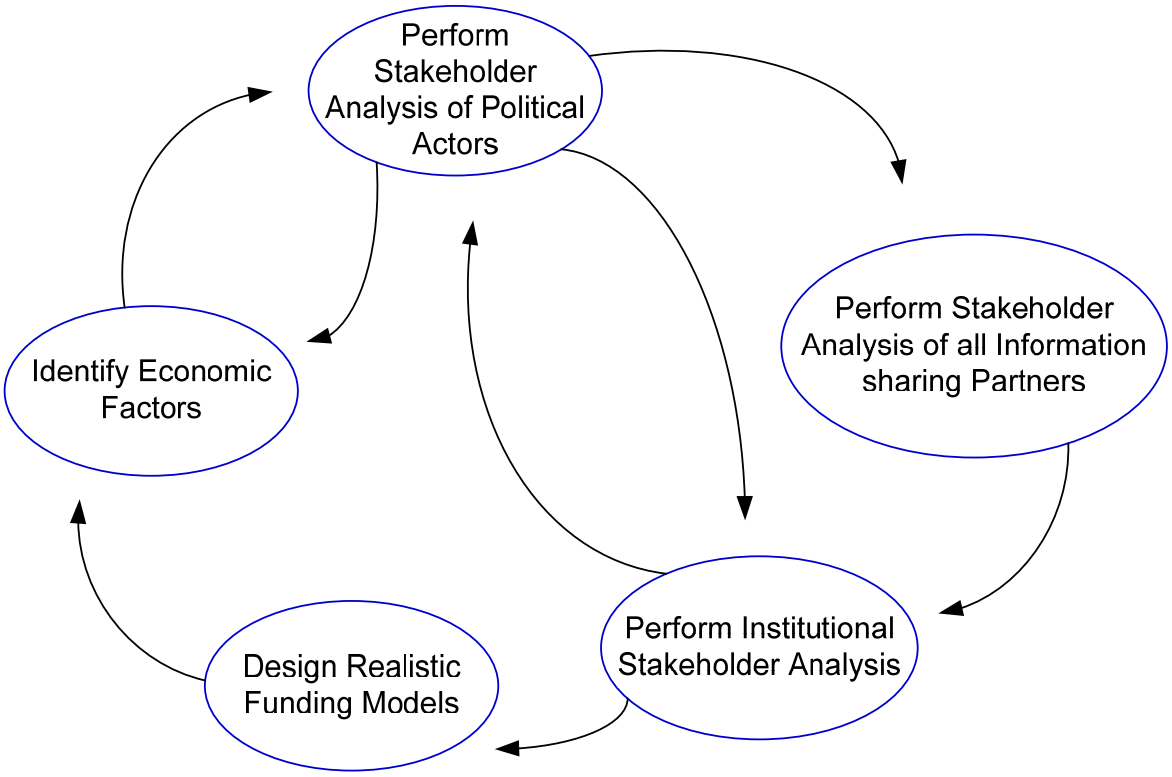


Figure 7.6: Social Structure Analysis Model

7.3.2 THE TECHNICAL STRUCTURE DIMENSION

The network infrastructure explains the interface technologies which citizens, tourists and organisations can interact with the ministry. The GOZ portal, which must be accessible to the public on the internet, must host all important links to various government services and departments. Portals act as a one stop resource for information and benefit mainly the G2C and G2B dimensions of e-government. It is reported in literature that portals reduce the costs for the government in delivering timely information to its citizens (Saldhana, 2007). The citizens will also benefit from timely and

readily available information as well as a medium to avail services. A One-Stop-Shop e-government integrated portal for the GOZ is presented in Figure 7.7. The integrated e-government portal becomes the focal point where services are delivered to citizens and businesses.

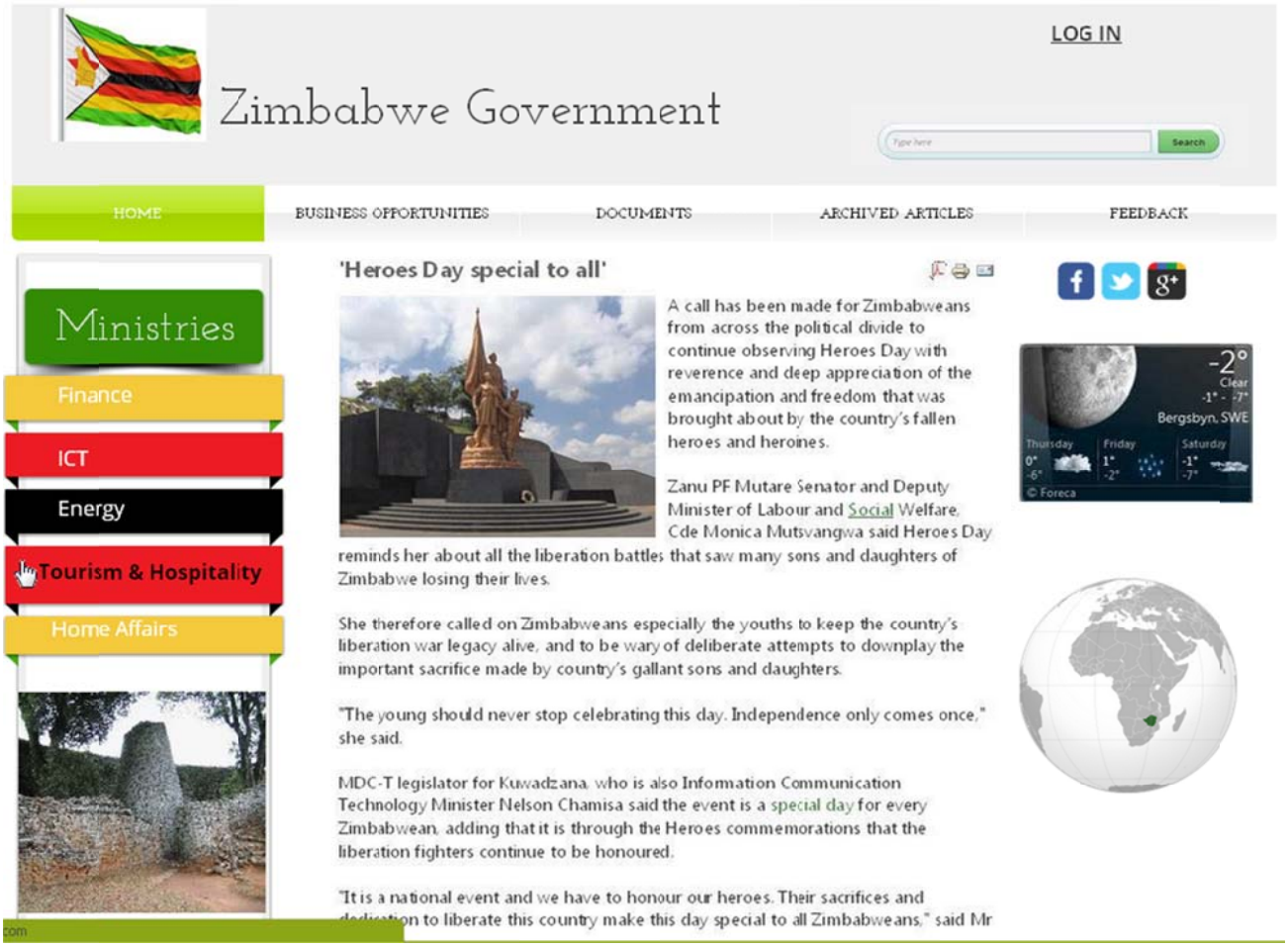


Figure 7.7: One-Stop-Shop e-Government Integrated Portal

In this age of increased expectations by citizens, the portal must have up-to-date information services. The delivery of the information services must also be multichannel including via SMS, web, phone, and social media. It is not enough for the portal to provide information services, but consultation and participation by citizens enabled by direct end-to-end integration of back-office applications. Figure 7.7 shows a selection of the "Tourism and Hospitality" link, which would open the Ministry of Tourism and Hospitality's login screen as shown in Figure 7.8. Only registered login accounts will

pass the authentication and verification process to gain access to a secure Ministry of Tourism and Hospitality's intranet, Figure 7.9.

Figure 7.8: Intranet Login Screen

Though intranets, organizations can make more information available to employees on a "pull" basis. Intranets do not only serve as powerful tools for communication within an organization, vertically and horizontally but also to upload or download information shared across agencies.

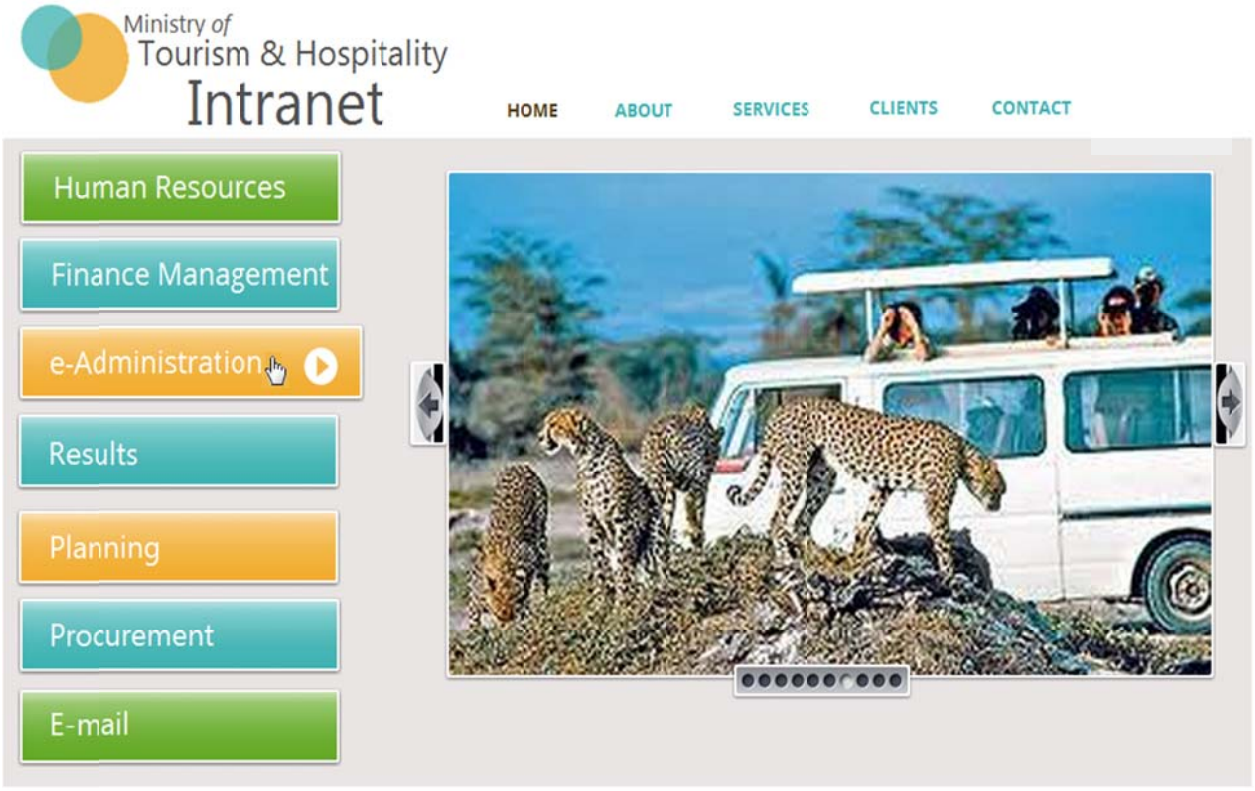


Figure 7.9: Intranet Navigation

Figure 7.9 shows a selection made on the “e-Administration” link which leads to the “e-Administrator” screen which in this example shows information which can be shared by uploading or downloading documents.

Figure 7.10 depicts an elimination of paper documents, emails or telephonic ways of sharing information. The Ministry of Tourism is expected to act as a central tourism data repository for various entities. In order therefore to achieve vital tasks of maintaining and publishing tourism related information, the ministry should possess a robust system that keeps valuable touristic data of Zimbabwe in a single secure repository. The repository must be built on open architecture that can flexibly be integrated with any legacy or future systems as well as promoting information sharing with other agencies.

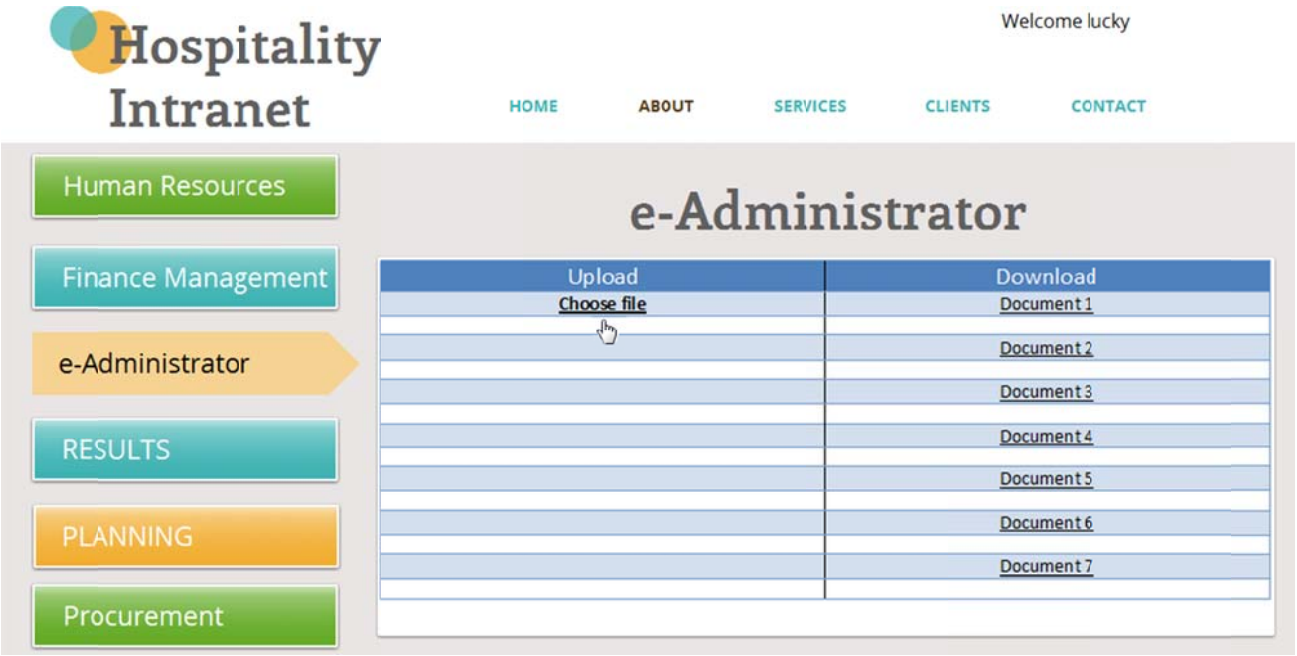


Figure 7.10: Information Sharing Though Uploads and Downloads

Data repository may also host GIS databases so that different maps, GIS data, and applications can be generated for the tourism industry. One of the major needs of tourism is to have accurate and up-to-date information in geospatial platforms on related entities which are based on its vast GIS enabled all India data repository.

7.4 CHAPTER SUMMARY

After the construction of the framework in Chapter Two, this chapter then presented the application of the EGF4DC to the research case, the Ministry of Tourism and Hospitality. The application of the EGF4DC framework to the case was based on findings of the information sharing analysis (Chapter Six).

Two structures in the framework, the social and the technical, form the foundations of the framework. Developing countries like Zimbabwe need to focus on the role of such factors as political and economic, which subsume the technology.

CHAPTER EIGHT

SUMMARY, CONTRIBUTION OF THE STUDY & CONCLUSIONS

8.1 SUMMARY

This chapter presents an overview of the research, a summary of research questions and key findings, contribution of the research, limitations and recommendations for further research. In Chapter One, it was stated that the aim of the research was to understand the e-government phenomenon and its subsequent enablement of information sharing within and between departments and other organisations in Zimbabwe. Of significance was how e-government can be developed in countries where the reality of social and political tension dictate the pace and form of national projects. The understanding of e-government development under such conditions in public sector is significant strategic phase toward reliable and effective e-government design. The research in Chapter Two, presented a literature study involving the various definitions of e-government within the IS literature. The definition which underpinned the entire study is one whose emphasis is on the internal workings and information sharing within government which Heeks (2001) referred to as e-Administration. Chapter Three then set a tone for the entire research by describing critical realism as the research's underpinning philosophy and presentation of the entire research design.

Chapters Four and Five attempted to present the state of e-government development in Zimbabwe by analysing government's ICT documents (Chapter Four) and findings from interviews with officials of the government's ICT custodian ministry. Chapter Six then delved into analysing the information sharing activities between the Ministry of Tourism and Hospitality and other agencies.

The research was channelled to explore the dynamics of e-government development in socially and politically complex environment. The research then developed a framework, EGF4DC, through adapting three models found in literature: Landsbergen and Wolken's

expanded model of interagency information sharing, Pardo and Tayi's contexts of information integration and Schuppan's context and characteristics of e-government elements. At the confluence of the three models is a government with coherent internal workings while providing seamless products and services to consumers. The concepts' thrust is interoperability of government entities which can only be facilitated by improving technological infrastructure in Zimbabwe's government organisations. The information and network architecture at one government agency should allow for flexibility and interoperability with other departments. Standard data definitions must be defined across networks to facilitate cross-transfer of information. A standardization plan should be formulated for system-wide network, data exchange, system standards, etc. As the need for a connected government emerges, then communication and integration-oriented technologies become more imperative. Replacing closed systems with open Enterprise Resource Planning (ERPs) software, Customer Relationship Managenement (CRMs) systems and integrated databases will facilitate collaboration of the whole public sector, resulting in improvement of user-focused services as well as internal and external delivery effectiveness. These large modelling systems will facilitate the processing and sharing of diverse management information such as human resources information, marketing, procurement, financial reporting, etc.

The following sub-sections present a summary of findings according to the research questions posed in Chapter One.

8.1.1 SUMMARY OF GOVERNMENT ICT POLICY DOCUMENTS FINDINGS

The policy documents discussed and analysed in Chapter Four are Strategic Plan (2010), Short Term Emergency Recovery Plan (2009), National ICT Policy Framework (2006), National e-Readiness Survey (2005), Zimbabwe Millennium Developed Goals (2005), National Economic Recovery Programme (2004 – 2006), Industrialisation Policy (2004), WSIS Declaration and Plan of Action (2003), Science and Technology Policy (2002) and the Nziramasanga Education Commission Report (1999).

The analysis of the government policy documents sought to understand the two aspects: central focus of each policy document and a dominant theme across all policy documents. The following were the main findings:

- All documents covered four dominant themes which are technology, the environment, the organisation and people. All the four themes were addressed towards fostering economic development

- Some of the policy documents are silent about the prevailing political and economic reality in Zimbabwe. While the Strategic Plan makes reference to political situation in Zimbabwe, it does not recommend a strategy to undertake e-government implementation under the environment. The policies have largely remained as mere blueprints. Political turbulence in Zimbabwe has been cited in this research as the main factor towards limiting real progress in e-government development.

- Some policies particularly the Nziramasanga Education Commission Report and the Science and Technology Policy place emphasis on technological determinism. This concept was described in Chapter Four as one where technology is believed to shape and alter basic things about behaviour and society like the way people think and act, the way they conduct interpersonal relationships, our values, and the way they learn. The researcher's finding is that a constructivist approach can lead to development of more responsive systems. This perspective, according to Postman (1995) would demand an application designer to ask the following questions when adopting any new technology:

  - What is the benefit of the technology?
  - Whom does it benefit?
  - What are we giving up in order to gain this new benefit?

It was therefore elaborated in Chapter Five that for government to enjoy the full benefit of the technologies and solutions recommended in the policy documents, a

comprehensive program of organizational and cultural change within the public sector must be developed.

8.1.2 SUMMARY OF OPPORTUNITIES AND BARRIERS TO E-GOVERNMENT IMPLEMENTATION FINDINGS

An in-depth understanding of the current status of e-government development was sought from the ministry of ICT. Figure 8.1 presents a summary of the enablers and challenges of e-government implementation as discussed in Chapter Five. While the enablers and barriers appear generic to all developing country settings, the depth and magnitude of each factor differs from one context to another. The Zimbabwean environment as explained in chapters Two, Four and Five, reveal that national politics remains the dominant factor.

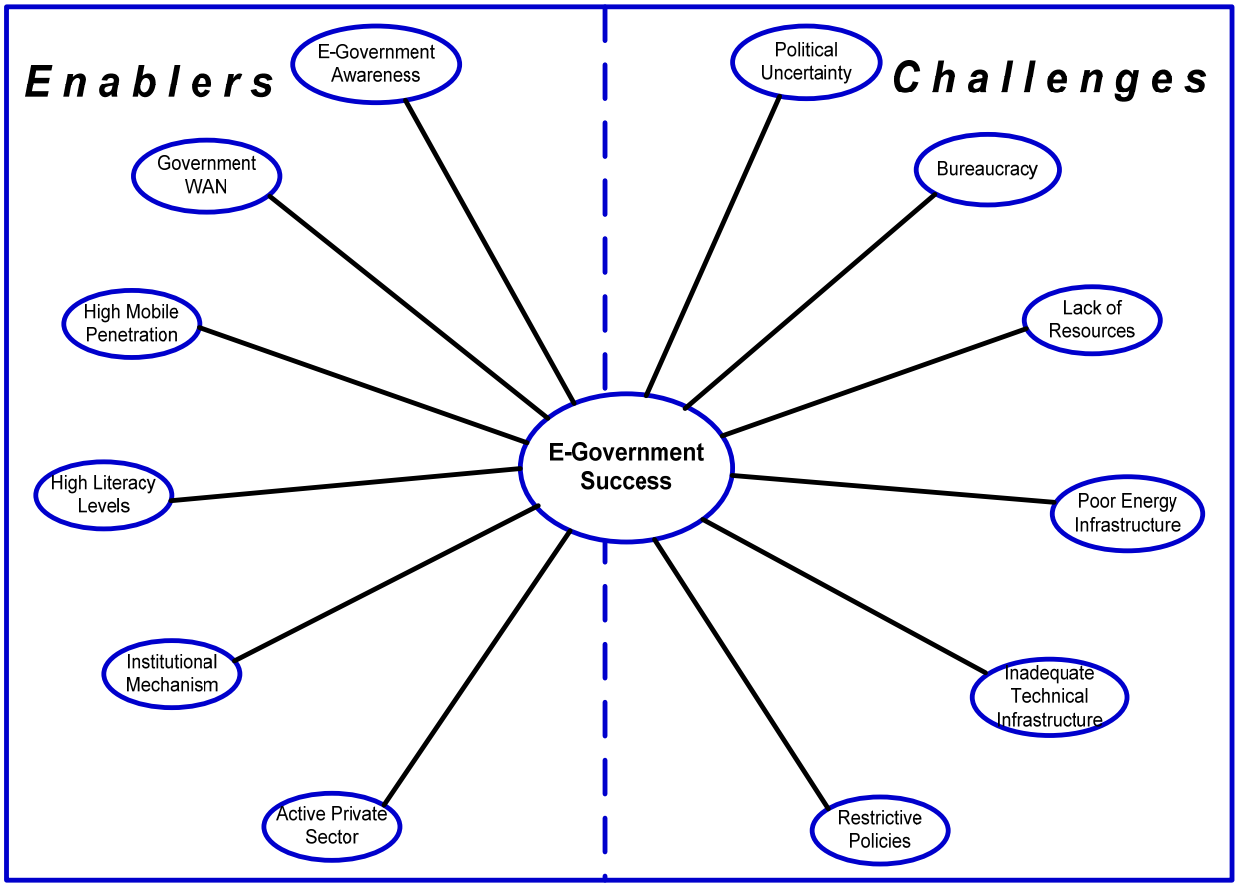


Figure 8.1: Summary of e-government enablers and challenges

It has been recommended in this study (in Chapter Five) that e-government designers have no capacity to change or influence the national politics, but can include main political stakeholders in the design of the solution. It has often been cited in literature that stakeholder engagement bears the following benefits:

- Finding solutions with a better long-term outcome for the environment and stakeholders
- Reducing objections to projects
- Promoting a sense of ownership among stakeholders
- Sharing of knowledge to best practice to the benefit of all interests

8.1.3 SUMMARY OF FINDINGS ON INFORMATION SHARING FROM THE MINISTRY OF TOURISM AND HOSPITALITY CASE

Data on e-government development with a specific focus on information sharing was collected from the ministry of Hospitality and tourism. As stated in Chapter One, some definitions restrict e-government to Internet-based applications and services only. In this study, a more modern perspective was adopted where use of all digital ICTs is included in the definition. Chapter Two emphasised that the main focus of the study is the e-administration domain of e-government. Data was collected from Ministry of Tourism and Hospitality about the ministry's information sharing arrangements with other agencies – government and non-governmental. Analysis of data was done using the ADNA methodology. The key finding is the manual information sharing technologies as shown on Figure 8.2. the most commonly used channels are paper documents and face-to-face meetings. Respondents from the Ministry of Tourism and Hospitality highlighted processing delays and bottlenecks from these delivery channels.

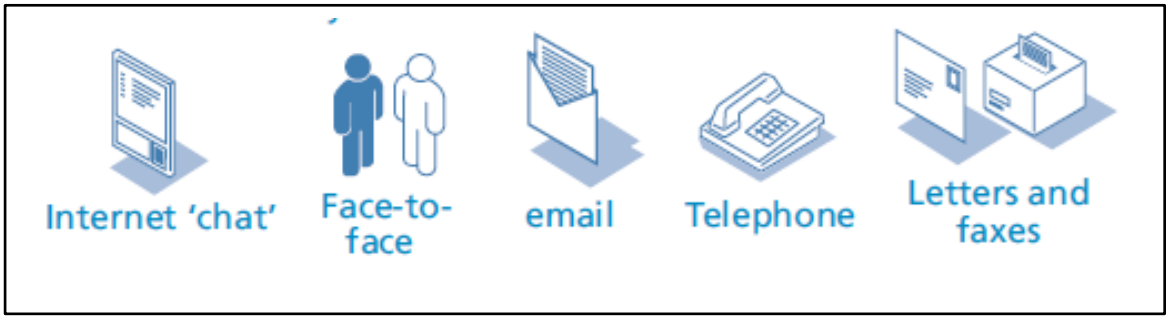


Figure 8.2: Mediated delivery channels

The ADNA analysis revealed that a set of ICTs which provide an end-to-end solution to government's technology needs must be developed. Through the ADNA, Chapter Six also presented the need for a collaborated approach showing a shift from mediated delivery channels (Figure 8.2) to self-service channels (Figure 8.3).

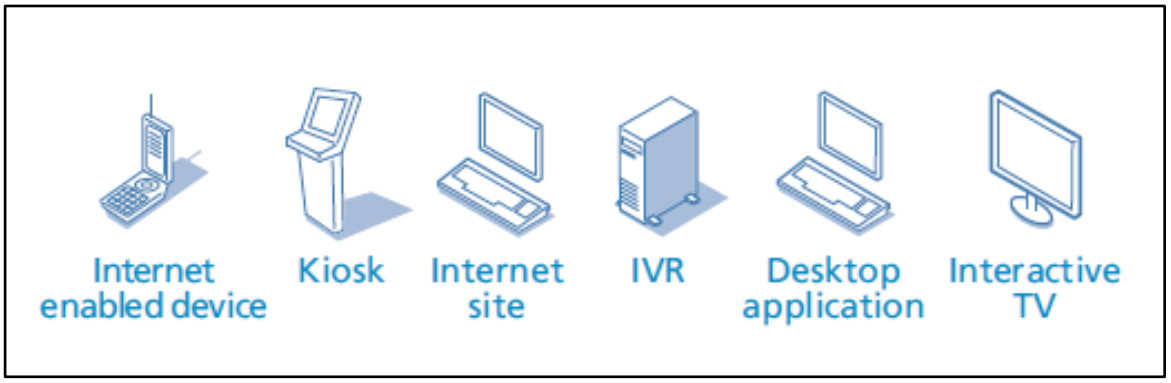


Figure 8.3: Self-Service Channels

As has been highlighted in Chapter Six, a robust e-government information sharing implementation involves an inter-operable platform where self-service channels depicted in Figure 8.3 are usable.

8.1.3 SUMMARY ON EGF4DC FRAMEWORK

The last research sub-question as presented in Chapter One related to the technological intervention which can guide development of information sharing through e-government in a developing country context. The three models presented in Chapter

Two (Landsbergen and Wolken's expanded model of interagency information sharing, Pardo and Tayi's contexts of information integration and Schuppan's context and characteristics of e-government elements) helped the researcher to understand critical factors that influence the design and development of e-government in developing countries in general. The whole thesis as presented in the framework, hinges upon striking a balance between the social and technical structures. The two structures are briefly summarised as follows:

Social Structure - The researcher's own experience as well as findings from the MICT revealed that the political factors within the social structure play a lot more role in Zimbabwe than in other developing countries. As mentioned in all chapters, competing and rival political establishments are participants in government affairs, so cooperation in many national projects does not usually yield desired results. Other factors within the social structure are the economic environment, institutional situation and external stakeholders, were identified as key determinants to e-government development.

Technical Structure - The technical factors on the framework include network infrastructures, applications and data repository. Contrary to many studies (Ndou, 2004; Heeks; 2002; Tedre, 2007) which place high emphasis on poor network infrastructures in developing countries, booming of mobile communication has been revealed in this study as a driver to increase the penetration of internet to the last mile users. The mobile communication growth phenomenon is currently being witnessed in many other countries in Africa. While, therefore, this study has focused on e-government in Zimbabwe, the general ideas and approaches explored in this study can have relevance to the design of e-Government systems in other countries of similar setting. A wider intranet system whose responsibility is to connect all the government agencies to the e-governmental portal underpinned by a database(s) of all government information is recommended.

8.2 RESEARCH CONTRIBUTION

Through this study, important contributions for researchers as well as practitioners and policymakers have been made. Oates (2006) observes the role of IS research by acknowledging that it offers several contributions to the real world. As expected of CR research, the contribution of this study will be stated from four perspectives: theoretical knowledge, methodological and practical contribution. The perspectives are highlighted in the sub-sections that follow.

8.2.1 THEORETICAL CONTRIBUTION (1): FRAMEWORK DEVELOPMENT

The EGF4DC, which is this research's original contribution to the body of knowledge, is premised on the three models presented in the literature review which depict an epistemological starting point for e-government development in developing countries with social and political tension. The models which the EGF4DC draws from are Landsbergen and Wolken's expanded model of interagency information sharing, Pardo and Tayi's contexts of information integration and Schuppan's context and characteristics of e-government elements.

The usability and success of the EGF4DC framework for developing countries is underpinned by a mind-set which recognizes the national politics among key determinants within the social structure of any national project, of which e-government development and information sharing form part. A significant contribution of the framework to e-government research is its recognition of human and other contextual factors that influence or mediate the impacts of e-government and information sharing. This resonates with current or emergent theories of e-Government which, like in stakeholder analysis, seek to ask questions like:

- Who benefits?
- How are different groups influenced?
- What are the outcomes different groups seek? and
- How are others affected?

The above questions would lead to designing the technical structure aspects of the framework because for a sustained e-government success, the social structure and technical structure need to be harmonised. This interplay between the social and technical structures can be further depicted by the emergent approach (Yildiz, 2007; Gil-Garcia, 2005; Helbig, Gil-Garcia & Ferro, 2009) which is presented in Figure 8.4

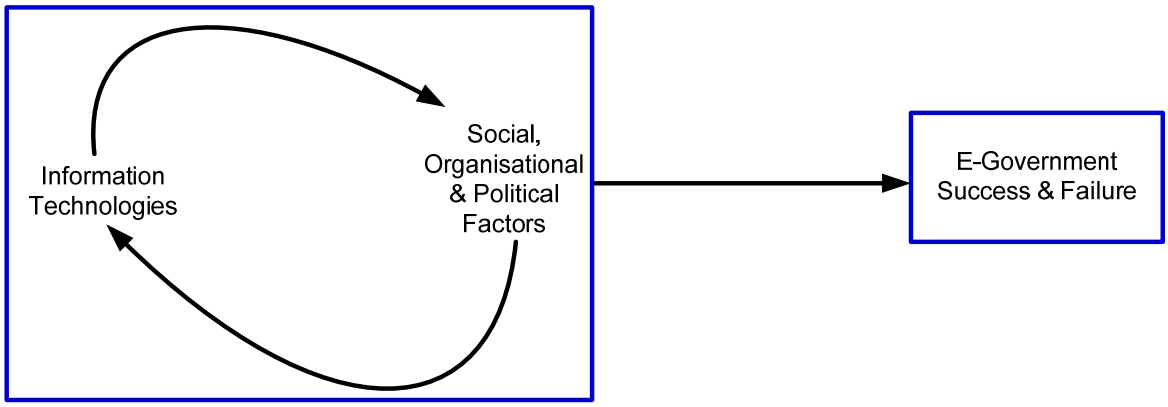


Figure 8.4: Emergent Approach (Adapted from Helbig et al, 2009)

8.2.2 THEORETICAL CONTRIBUTION (2): CRITICAL REALISM AND THE EGF4DC FRAMEWORK

The EGF4DC framework was developed in this research as a result of extensive empirical research and in-depth understanding of the behaviour of politicians in developing countries, especially in Zimbabwe as they make decisions regarding the design and execution of any national project. One of the underpinning tenets of Critical Realism is that it is applicable where natural science methods involving controlled experiments, are not easily applicable. These can be complex organizational settings where outcomes of processes like IS development are not easily predictable. According to Morton (2006), Critical Realism:

> *"… shows how an open systems ontology of social reality better explains the nature of causation in complex social interactions and accounts for the fact that outcomes are not predictable".*

In the context of this study, the EGF4DC Framework presented in Chapter Two and applied in Chapter Seven, attempts to answer Roy Bhaskar*'s* question presented in Chapter Three:

> *What properties do societies and people possess that might make them possible objects of knowledge for us?"* (Bhaskar, 1979:17).

Critical realism holds that there exists a reality, both natural and social, which is independent of human knowledge. Social factors such as politics and institutional bureaucracies have been recognised in the framework as active causal factors to e-government development and implementation in Zimbabwe.

This study therefore provides IS researchers with an overview of the philosophy of Critical Realism to show how causal explanations for IS research involving a social dimension can be developed. The EGF4DC Framework and its application to the Ministry of Tourism and Hospitality have shown that open systems ontology of social reality established by Critical Realism, explain the nature of causation in complex social interactions. In light of this contribution, the study should be of relevance to IS researchers as they seek meanings and conceptualisation of social systems from the critical realist perspective. Researchers will possess more powerful tools for explanation and prediction when e-government is theorised and incorporated into the central IS theories that guide thinking about how government works. Such theories should guide understanding the appropriation of ICTs under diverse complex organizational, institutional and social rule systems in governments especially of developing countries.

8.2.3 METHODOLOGICAL CONTRIBUTION

As stated in Chapter Three, the methodology employed in this research into e-government in Zimbabwe is empirical, with an emphasis on a qualitative approach. This research's methodological contribution rests on the methodological diversity employed in this study. The case study methodology was employed to solicit views of e-government strategists and users at the Ministry of Tourism and Hospitality. Thematic analysis was employed in Chapter Four to identify recurrent patterns in the government's ICT documents data. The application of the activity-driven needs analysis to e-government development meets the critical realist criteria of explanatory power leading to emancipatory change (Ochara, 2009). This explanatory power is underpinned by the application of ADNA, the first e-government study that used ADNA for analysis. Critical Realism sees philosophy as operating at the same level as methodological issues as philosophical considerations are an integral part of the research process. This position of CR is clarified by Archer (1995):

> *"...the nature of what exists cannot be unrelated to how it is studied…the social ontology endorsed does play a powerful regulatory role vis-à-vis the explanatory methodology for the basic reason that it conceptualises social reality in certain terms, thus identifying what there is to be explained and also ruling out explanations in terms of entities or properties which are deemed non-existent"*

This study responds to this methodological stance of CR by applying ADNA in a qualitative research approach.

8.2.4 KNOWLEDGE AND PRACTICAL CONTRIBUTION

Empirics from Chapters Five and Six form the knowledge contribution of this research. There is very limited previously detailed empirical research-based knowledge in Zimbabwe about e-government development in general and information sharing in particular. Unstructured interviews with the MICT and Ministry of Tourism and Hospitality officials revealed the state of ICTs within and information sharing the

government of Zimbabwe thereby increasing understanding of public organisational information systems. Information which was gained from Chapter Five include e-government opportunities in Zimbabwe, challenges of e-government implementation, the dominance of social and political actors in e-government projects and the vision of the MICT. In Chapter Six, the status of information sharing between the Ministry of Tourism and other agencies forms the basis of the knowledge that was gained about the ministry. Tools used to share information are traditional mediated channels like the telephone, face-to-face meeting, emails, paper documents and faxes. Other researchers an e-government development and appropriation can gain insights from this knowledge to develop models and further construct more meaningful knowledge towards e-government discourse.

It is widely accepted in contemporary research, that the job of researchers is not merely to interpret the world but to change it. The use of ADNA in IS research can assist researchers, policy makers, IS designers and practitioners, to analyse their activities and identify requirements for new systems that facilitate their work (Korpela et al, 2000). The main advantage of ADNA to practitioners lies in both its explanatory nature as well as its capability to transition to constructive mode by IS designers and implementers.

The dynamic transformation proffered by ADNA as espoused in this study leading to the framework, EGF4DC, adds value to an e-government strategy. The EGF4DC therefore provides an insight for decision makers in government with a better understanding of a matrix of factors associated with the design of a whole-of-government e-government platform. The argument posited in this study through the application of EGF4DC is that stakeholder participation improves the balance between social and technical structures in e-government projects. Typically, governmental agendas around e-government are defined by senior policy makers and politicians, so their orientation must be understood and incorporated into the design. The researcher contends that while the contributions made in this study have been inductively derived from empirical and theoretical experiences in the context of Zimbabwe, they can be practically used by practitioners, managers and politicians of other developing countries.

The researcher intends to reach his audience as follows:

- For academics and researchers - the EGF4DC and the application of ADNA to e-government research will be published in international impact journals and academic conferences. Publication work for this research to the academic community has already begun with the literature review section already published in the International Journal of Technology Diffusion (IJTD), IST-Africa conference proceedings and the International Conference on e-Government (ICEG). The more salient aspects of the research, which is the methodology and the EGF4DC will be published in international indexed journals.
- For professional practitioners – the EGF4DC will be presented at conferences targeted for professional and policy makers who do not participate in academic seminars and conferences. Publication in magazines, business reports and other periodicals will be considered for the professionals and practitioners.
- Zimbabwe government officials – while feedback sessions have been done with the MICT and Ministry of Tourism and Hospitality, the purpose was for research data validity. Eventual output of the research will be presented to a much wider audience within the Zimbabwe government with a higher persuasive tone towards adoption of the EGF4DC.

8.4 LIMITATIONS OF THE RESEARCH

Despite a list of anticipated contributions explained in previous sections, an array of limitations exists in this study. The first relates to the scope of the study, followed by out-datedness of some documents that formed empirical data, then the partial application of the analysis tool (ADNA) and finally the untested framework.

Scope - While the study considered e-government development in Zimbabwe at the national level and selected one ministry as a case study, it is probable that some ministries have a more developed e-government platform than others. The scope of the study was wide and challenging especially in the backdrop of limited e-government

research in Zimbabwe and general lack of studies in e-government within the critical realist perspective. It is recommended therefore that a cross-sectional research which is dedicated to one or two other ministries be undertaken to reveal the possible different stages of ICT adoption.

ICT Policy Documents – the study in Chapter Four exposed the status of e-government development in Zimbabwe through analysing e-government policies and documents. However, the researcher supports Ochara's claim that policy documents are historical in nature, but try to describe a phenomenon like e-government, which is always on-going and evolving (Ochara, 2009). Without diminishing the relevance of the documents on how e-government is taking form, Ochara observes that no finite conclusion can be made from such documents on the evolving e-government activities. The documents which were considered in this study were published since 1999 through to 2011. This limitation was identified during interviews with the MICT officials who pointed out that some policies like the Policy Framework were undergoing review. Further research with new and policies like the revised Policy Framework is advised as it will have the potential of presenting different findings.

Partial application of the analysis tool (ADNA) – it was explained in Chapter Three that ADNA as an analysis tool has been widely employed in healthcare information systems (Korpela et al, 2001; 2004; 2008) where it has its origins. This study has attempted to extend ADNA to e-government applications. The argument posited for such endeavour is that both e-health and e-government systems fall within the same IS domain and that most e-health systems also fall under e-government applications. While the application of ADNA in this study has revealed the current state of information sharing in a government ministry (Chapter Six) and aided in defining the EGF4DC (Chapter Seven), two shortcomings in its application to this study exist which are:

- Due to the complex scope of study concentrated on the societal (chapters Four and Five) and organisational (Chapter Six) units of analysis. This means the activities were restricted to the policy level of e-government development. ADNA and Activity Analysis tools were successfully applied at all levels

(Individual, Group, Organisation and Society) in healthcare systems. Further e-government research which applies the entire ADNA is recommended if the analysis tool will gain methodological relevance beyond healthcare systems

- As explained in Chapter Three, ADNA has three phases: (1) *the present* and (2) *the goal* and (3) *the concrete plan*. The third phase was out the context of the study as the goal was to design a proposed solution based on the data collected at both the societal and organisations levels.

The EGF4DC Framework - The EGF4DC has not been formally empirically tested or validated to confirm the anticipated benefits that it has to offer and its appropriateness to the developing countries similar to Zimbabwe.

8.5 OPPORTUNITIES FOR FURTHER RESEARCH

The limitations elaborated in the previous section form bases to extend this study by the same researcher as well as other academics and practitioners. The scope of the study has been presented as too wide and complex further research can pay attention to how individual government ministries understand e-government development and information sharing. On the same note, future studies should seek larger sample sizes to perform more complex model testing regarding deploying e-government applications to individual departments and ministries.

During the analysis of the findings, it has emerged that many challenges are faced when efforts are made towards e-government design in public enterprises in Zimbabwe. Such challenges are setting an agenda for continuing empirical work especially on how the challenges can be dealt with.

This study has set the tone for the application of ADNA analysis tool to other domains outside healthcare. As mentioned in the limitations section, the study partially applied ADNA due to the complex nature of the context. This researcher proposes to extent ADNA application in future studies to fully apply the tool to the e-government domain.

Related studies in other IS sub-domains can also benefit through the application of the ADNA tool.

On the theoretical level, further research can be conducted involving EGF4DC as it has capability to complement already existing models to advance theoretical foundations for e-government development in developing countries. There is no over-arching framework, or reference architecture available guiding e-Government development in Zimbabwe, making the EGF4DC a theoretical starting point. This research can be extended for further exploratory analysis of multistage Government to become a useful reference for developing appropriate e-Government strategies

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APPENDICES

APPENDIX A:

MINISTRY OF ICT INTERVIEW QUESTIONS

SECTION A: BACKGROUND QUESTIONS

1. Current State of e-Government: How do the general public and business community mainly interact with government today?

2. Does the Government have a formalised e-Government Strategy? If so, is the Strategy part of a larger plan for public sector reform? Is the plan publicly available?

3. Is there a centralised governance model in place in your ministry that stimulates the e-Government development process?

4. What is government's spending on e-Government/ICT projects?

5. How is the government leveraging on the expanded mobile network coverage of about 90% and such high penetration of mobile phones?

6. Are there any major e-Government, ICT or large-scale IT initiatives currently underway in any government department? What is their status?

7. Has your ministry developed any set of regulations and legislation that will enable increased levels of e-Government? For example, is there authority to take payments on line?

8. Have you developed government-wide policies that deal with web content management? Multi-channeldelivery of services? Risk management?

9. How does government manage information today – primarily paper files, desktop storage, ministry servers/database, corporate solutions etc.?

10. Is there a government wide Intranet where transactions are already taking place between ministries and departments?

11. Has your ministry developed technical standards for Data Management and Integration, Network Management, Security etc, to facilitate information sharing?

12. Have you instituted ICT/e-Government training programmes for public servants? How effective is it?

SECTION B: BARRIERS TO E-GOVERNMENT IMPLEMENTATION

Please provide your comments relating to the following categories of barriers to e-government implementation: (You can include any other barriers and your answers may not be structured as the questions appear)

1. Politics – the apparent tensions in the Government of National Unity (GNU)

2. Resistance to innovation (by all levels of government) - This covers a range of issues including: a lack of co-ordination between different public agencies/government departments, cultures, lack of learning from good practice; and failures in political and management leadership

3. Technical barriers – including inter-operability of systems, legacy systems, etc

4. Technical barriers – this relates to issues affecting adoption of eGovernment. For citizens, inadequate network / equipment access and a lack of skills limit and fragment take-up of eGovernment

5. Administrative - complex issues that can arise when developing eGovernment across departments and ministries

6. Cost barriers - The costs of developing, implementing and maintaining eGovernment.

SECTION C: OPPORTUNITIES FOR E-GOVERNMENT

This section is open to you. What do you consider as opportunities for e-government development in Zimbabwe?

APPENDIX B

MINISTRY OF TOURISM AND HOSPITALITY QUESTIONNAIRE

E-GOVERNMENT INFORMATION SHARING QUESTIONNAIRE

In preparing your response, please note that the interpretation of information sharing espoused here include shared government or private data, studies and research, shared policy development as well as the provision of regional/international services. Mediation Technologies could be manual document exchange, e-mail, intranet, internet, a shared electronic database, etc

Question 1: What information sharing arrangements does your ministry/department currently have in place?

	Description of current information sharing activity	**Who are the other information sharing partners?**	**Mediation Technologies**
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Question 2: What benefits have been achieved through your information sharing activities?

	Information sharing activity	**Benefits to the sharing community (If possible, include estimated cost savings and how benefits are measured)**
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Question 3: What information sharing arrangements is your ministry/department currently actively considering, or would like to implement, but has not yet done so?

	Description of potential information sharing activity	**Who are the other potential information sharing partners?**	**Desired mediation Technologies**
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Question 4: If you have encountered challenges or difficulties in implementing information sharing arrangements, what are they?

	Information sharing activity	Challenges
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Question 5: Any further comments?

	Comment/s
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FURTHER CONTACT

Please include the details of a key contact in your ministry/department in case we need to clarify any of the information contained in this questionnaire:

Name:	
Position:	
Ministry/Department:	
Email Address:	
Telephone	

APPENDIX C

INTERVIEW AUTHORISATION

The following two emails were exchanged between the researcher and the then Permanent Secretary in the Ministry of Tourism and Hospitality for permission to carry out field work within his ministry:

Date: Wed, 24 Nov 2010 16:23:36 +0200
Subject: Data Collection: A Request
From: ruhode@gmail.com
To: Bonvard@live.com
CC: darlymuzeza@gmail.com

Dear Dr Maunganidze,

Trusting you are well, family and work.

I will be coming to Harare on 5 December 2010 for two weeks. The purpose of my visit is to carry out the second phase of data collection towards my studies. The title of my doctoral thesis is " e-Government Implementation for Inter-Organisational Information Sharing: A Holistic Information Systems Approach for Developing Countries".

I intend to collect data from one or two ministries in addition to the data which I get from my source - Ministry of ICT. I work closely with Eng Kundishora - Permanent Secretary of the ICT ministry. I always had a passion for tourism, hence I have selected your ministry as a component of my unit of analysis.

I am hereby seeking your permission to carry out my investigation with your ministry. Whatever data I collect will be used solely for academic purposes, that is, for my thesis.

Please find attached my questionnaire which will augment unstructured but short interview session with three or four members of your ministry.

I have copied Darlington this email so that he can help me forward it to your business email if it's the one you frequently use.

Thanking you in advance.

Ephias Ruhode
Lecturer/Doctoral Researcher
Information Technology Department
Faculty of Informatics & Design
Cape Peninsula University of Technology
Email: RuhodeE@cput.ac.za

bradah maunganidze <bonvard@live.com> 12/4/10

to me

I will be out of Harare and Zim during your visit.NEVERTHELESS you can have all the access you want in my ministry through Muzeza.I gave him instructions to assist you.The family is ok.I hope yours is doing fine