A FRAMEWORK FOR MANAGEMENT OF ELECTRONIC RECORDS IN SUPPORT OF E-GOVERNMENT IN KENYA

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SUMMARY

Effective management of electronic records (MER) facilitates implementation of e-government. While studies have been carried out on management of records in Kenya, none of these studies has focused on MER in support of e-government implementation in Kenya. To address the knowledge gap, the current study sought to establish the current state regarding MER in support of e-government in Kenya.

The study investigated how MER supported e-government in Kenya with a view to develop a best-practice framework for MER in support of e-government. The specific objectives of the study were to: ascertain current status of MER in government ministries in Kenya; determine the current level of e-government utilization; establish the effectiveness of existing practices for MER in supporting e-government; identify challenges faced by ministries in MER that could impact on implementation of e-government; propose recommendations that could improve MER in ministries to support e-government effectiveness and develop a framework for MER in support of e-government.

The theoretical framework was the European Commission's (2001) Model Requirements for Electronic Records Management (MoReq) and the United Nation's (2001) five-stage e-government maturity model.

The study was anchored on the interpretive research paradigm and adopted qualitative research methodology using phenomenological design. The study sample consisted of 52 respondents drawn from eighteen government ministries, the Kenya ICT Authority (ICTA), the Kenya National Archives and Documentation Service (KNADS) and five e-

government service areas. Maximum variation sampling technique was used. Data was collected through face-face interviews and analysed using thematic analysis.

The findings established that: the general status of MER in government ministries is inadequately positioned to support e-government; utilization of e-government in Kenya had grown significantly and more ministries were adopting e-government services; although some initiatives have been undertaken to enhance MER, the existing practices for MER require improvement to ensure they adequately support e-government; there exists several challenges in the MER that impact on implementation of e-government. The study concluded that the current practices for managing electronic records in support of e-government implementation were not adequate.

Recommendations and a best-practise framework for managing electronic records in support of e-government have been provided. Suggestions for further research are provided.

Keywords: Kenya; records management; electronic records; management of electronic records; electronic records management; e-government; e-government maturity.

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Last but not least are my friends Chris Oloo and Nelson Lagat who ran with line editing, copy editing and proofreading of this thesis.

DEDICATION

To my wife Winnie Chepkoech Masai and my little angel Sammy Liam Kibet Ambira

DECLARATION

I declare that the research study, **a framework for management of electronic records in support of e-government in Kenya,** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

30.11.2016

SIGNATURE **DATE**

Cleophas Mutundu Ambira

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ABBREVIATIONS

CAK - Communication Authority of Kenya

CLIC - Community Learning Information Centre

CMS - Content Management System

CRD - Civil Registration Department

DEG - Directorate of e-government

DFID - Department of International Development (UK)

EDMS - Electronic Document Management System

EDRMS - Electronic Document Records Management System

EGDI - UN's e-government development index

ERM - Electronic Records Management

ERMS - Electronic Records Management System

ESARBICA - East and South African Branch of International Council on Archives

GHRIS – Government Human Resource Information System

GOK - Government of Kenya

GUMS - Government Unified Messaging System

HELB - Higher Education Loans Board

ICA - International Council of Archives

ICT - Information Communication Technology

ICTA - ICT Authority

IFMIS - Integrated Financial Management System

IPPD – Integrated Payroll and Personnel Database

IRMS - Integrated Records Management System

IRMT - International Records Management Trust

ISACA - Information Systems Audit and Control Association

ISO - International Standards Organisation

JISC – Joint Information Systems Committee

KARMA - Kenya Association of Records Managers and Archivists

KEBS - Kenya Bureau of Standards

KNA - Kenya News Agency

KNADS - Kenya National Archives and Documentation Services

KNEC - Kenya National Examination Council

KODI - Kenya Open Data Initiative

KRA - Kenya Revenue Authority

KS - Kenya Standard

KUCCPS - Kenya Universities and Colleges Central Placement Service

MER - Management of Electronic Records

NAA - National Archives of Australia

NARA - National Archives and Records Administration

NARS - National Archives and Records Service

NASCIO - National Association of State Chief Information Officers

NHIF - National Health Insurance Fund

NOFBI -National Fibre Optic Infrastructure

NSDI - National Spatial Data Infrastructure

NSSF - National Social Security Fund

OAIS - Open archival information system

OCLC - Online Computer Library Centre

ODP - Open Data Portal

OECD - Organisation for Economic Cooperation and Development

PS - Principal Secretary

RAM - Records and Archives Management

RM - Records Management

RMO - Records Management Officer

SUNY - State University New York

TIMS - Transport Integrated Management System

UN - United Nations

UNDP - United Nations Development Programme

UNESCO - United Nations Education Social and Cultural Organisation

USAID - United States Agency for International Development

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.0 INTRODUCTION

This chapter presents the introduction and background to the study. It presents the background to the statement of the problem, the purpose of the study, objectives, research questions and assumptions. The chapter also presents the justification and significance of the study as well as the study's originality, scope, limitations, ethical considerations and outline of the thesis.

1.1 RECORDS AND RECORDS MANAGEMENT

This section discusses the concepts of records and records management to help contextualise the study. Management of electronic records is a subset of records management. An understanding of the meaning of records and records management is therefore important to provide a baseline understanding of the subject of the research.

1.1.1 Record

An understanding of records management starts with appreciating what a record is. According to Natasha (2014), the term record is defined in at least ninety ISO standards. Many other agencies and authors have also provided definitions for the term record. Among the various definitions of records are:

- A record is information created, received, and maintained as evidence and information by an organization or person, in pursuance of legal obligations or in the transaction of business (ISO 15489:2001).

- A record is a document, data, set of data that is *created* or *received* in the course of an organization's business that is maintained as evidence of an organization's activity (Ohio State University 2011).

- "Records" include all books, papers, maps, photographs, machine readable materials, or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United States Government under Federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government or because of the informational value of data in them *(*National Archives and Records Administration (NARA) 2007*).*

- A record is a document made or received in the course of activity as an instrument or byproduct of such activity and kept for further action or reference (Duranti 2014). According to Duranti (2014), this definition has been agreed upon since more than a century ago.

- A record is all information created, sent and received in the course of carrying out the business of your agency. Records have many formats, including paper and

> electronic. Records provide proof of what happened, when it happened and who made decisions. Not all records are of equal importance or need to be kept (National Archives of Australia 2014).

Duranti (2014) points out that a record is only a record if it is made or received and kept in the usual and ordinary course of business. It essentially records a business activity.

According to Williams (2013), records have always had a range of meanings. When records are created, it is generally for a specific purpose or function but, having been created, they develop the capacity to be used and perceived in a multitude of ways and to carry a multitude of meanings. The assertion by Williams (2013) concurs with Duranti's (2014) view that evidence is not a fact, but a relationship between a fact to be proven and the fact that proves it. Therefore, the meaning and value of the record will vary depending on the evidence being sort and the extent to which the record provides the evidence.

Williams (2013) further points out that there are two ways of defining a record-the exclusive and inclusive ways. The exclusive definition is broadly the product of national archives, academics and standards organizations. It offers a strict and exclusive interpretation and is based on the need for records to provide authentic, reliable and auditable evidence of activities and events. Further, Williams (2013) notes that the inclusive definition, which is supported predominantly by professional associations, provides a broader categorization of records and archives. It recognizes that in practice

organizations generate and depend on large amounts of information and data for the efficient and accountable management of their affairs.

The Association of Records Managers and Archivists (ARMA) (2008) defines a records as “any recorded information, regardless of medium or characteristics, made or received and retained by an organization in pursuance of legal obligations or in the transaction of business– and the non-record information that support and document those practices”.

On their part, the Society of American Archivists (2012) states that a record

> “connotes documents, rather than artifacts or published materials, although collections of records may contain artifacts and books. To the extent that records are defined in terms of their function rather than their characteristics, the definition is stretched to include many materials not normally understood to be a record; an artifact may function as a record, even though it falls outside the vernacular understanding of the definition”.

The central theme in these definitions and many others that have been provided by different authors (National Archives of Scotland 2013; Yeo 2007) is that records are created to provide evidence or information on a transaction to support business activities.

McKemmish (2005) points out that

> “records have multiple purposes in terms of their value to an individual, organization or society. They are vehicles of communication and interaction,

> facilitators of decision making, enablers of continuity, consistency and effectiveness in human action, memory stores, repositories of experience and evidence of rights and obligations. On a darker note, they can also be instruments of repression and abuse of power".

The definition of a record has been improved over time to include the three key attributes of content, context and structure. The ICA Committee on Electronic Records defines a record as "recorded information produced or received in the initiation, conduct or completion of an institutional or individual activity and that comprises content, context and structure sufficient to provide evidence of the activity" (Joint Information Systems Committee (JISC) 2007).

According to the Society of American Archivists (2015) and International Records Management Trust (IRMT) (2009a) content refers to the information or data being communicated by the records. It is what the record says. Context refers to the circumstances surrounding the record, under which the record was created, which provides the relationship between the record and the organization. Structure, on the other hand, refers to the physical characteristics and how the record is organized, including the layout and flow of information and other physical attributes that may distinguish it from others.

An understanding these three concepts in records management is significant because it reminds records managers to ensure that the records they manage can at all times reveal these three key attributes. The National Archives and Records Administration – NARA (2005) opines that, for records to remain authentic, complete and reliable, and

fixed over the retention period, they must maintain the content, context and structure. These qualities make records unique to other sources of information and inform the way in which they should be managed.

1.1.2 Records Management

The Information and Records Management Society of the United Kingdom holds that records management is all about an organisation's control and utilisation of its information assets and views it as part of information management. The IRMS defines these assets as all the various records and information resources held by an organisation, which include information held in paper, electronic and other media as well as staff knowledge relating to their employment within the organisation (Information and Records Management Society (IRMS) 2011).

Various institutions and authors provide definitions of records management that could serve as working definitions (IRMT 2009a; NARA 2007; ISO 2001). However, as Duranti (2014) would point out, the wordings may be different but the substance remains consistent.

Traditional definitions of records management tended to restrict themselves to the efficiency, effectiveness and economy of systematic administration of records from creation to use, storage and final disposition (Marywood University 2014; US Environmental Protection Agency 2014; Microsoft 2008).

Recent definitions of records management pay attention to the significance of records management to enterprise success especially on good governance, including corporate governance. For example, the ISO 15489-1:2001 Standard defines records management as a field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records, including processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records.

The ISO 15489 definition, although capturing the primary role of records management in ensuring effective and efficient systems for managing information, introduces the idea of records management seeking to document and provide evidence of transactions and activities, as a key motivation for professional records management. It is this definition that has lately been accepted by many authorities to denote the significance of records management to organizations and governments progress particularly with regard to good governance (Ministry of Technology, Innovation & Citizens Service of British Columbia 2014; National Archives of UK 2010; World Bank 2013; ARMA International 2012; IRMT 2009a).

The definition offered by the ISO 15489-2001 Standard and as emphasised by other authors above, is particularly significant to this study because of two reasons. Firstly, it captures the critical role of professionalism in records management to the extent that it provides a systematic and professional way of managing an organisation's information, through well-organised and administered processes and systems. Secondly, the definition demonstrates the role of records management in helping organisations realise

their missions and visions. It emphasises the role of records management in documenting business transactions and activities of organisations and governments, as a good governance practice, which is the focus of the present study within the e-government context. This definition shows records management as an end in itself, by ensuring systems and processes for records management are effective. It also shows records management as a means to an end, by ensuring it enhances provision of records and information that capture business transactions and activities to enhance good governance.

Besides the above definitions, records management has also been defined from managerial, lifecycle and accountability perspectives. The managerial perspective, advanced by NARA (2007) sees records management as the planning, controlling, directing, organizing, training, promoting and other managerial activities involved in records creation, maintenance and use, and disposition in order to achieve adequate and proper documentation of the policies and transactions of the (organization) and effective and economical management of operations (NARA 2007).

The lifecycle perspective views records management as the systematic control of an organization's records, throughout their life cycle, in order to meet operational business needs, statutory and fiscal requirements and community expectations (National Archives of Scotland 2013). This perspective sees records management as necessary to ensure that information can be accessed easily when needed throughout the records lifecycle and destroyed when not needed. This perspective is also keen on identification and protection of vital and historically important records. It also considers records

management as a compliance issue intended to fulfill legal requirements around retention and disposition of information. It could be argued that the lifecycle perspective is an emphasis on efficiency, effectiveness and economy of records management systems and processes as instituted by records managers.

The accountability definition emphasizes the value of records management as evidence of transactions and activities in organizations to foster good governance. This definition has been advanced by amongst others Ngoepe and Ngulube (2013), World Bank (2013), Mat-Isa (2009), Kemoni and Ngulube (2008), Tough (2007), Shepherd and Yeo (2006) and Willis (2005). This perspective links records management to the business processes and operations of organizations and sees records management as a critical success factor for good governance-whether in the public or private sectors. This perspective views records management within the organizational setting with emphasis on records management as drivers for transparency, accountability and good governance. The IRMT (2012) asserts that professionally managed records provide the clearest, most durable evidence of any government's policies, operations, decisions and activities. The records are essential to protecting people's rights and interests and holding officials accountable for their actions.

1.1.2.1 Benefits Of Records Management

The ISO 15489-1:2001 Standard states that a systematic approach to management of records is essential for organizations and society to protect and preserve records as evidence of transactions.

Records management is essential for public accountability, fighting corruption, enhancing civil and human rights entitlements, fostering rule of law, development of institutions and society, resource management and enhancing global economic stability (World Bank 2013).

Records management is a corporate function that has the potential to support corporate governance if its principles are appropriately implemented. Without proper records management, transparency, accountability and efficiency in the public service would be heavily compromised. Records are the known tools for demonstration of transparency and accountability as well as for manifestation of corruption and other irregularities public sector (Ngoepe & Ngulube 2013; Kemoni 2007; Kemoni, Ngulube & Stilwell 2007)

Proper records management is essential in supporting open government, protection of human rights, freedom of information and fighting of corruption (National Archives of Australia 2014; McKemmish 2013; National Archives of Scotland 2013; Okello-Obura 2013; White House 2012; Shepherd, Stevenson & Flinn 2010; Wallace & Hedstrom 2009; Kenosi 2008; Commonwealth Human Rights Initiative 2007; Sebina 2006; Glover et al 2006).

With regard to freedom of information, the National Archives of Scotland (2013) states that

> "any freedom of information legislation is only as good as the quality of the records to which it provided access. Such rights are of little use if reliable records

are not created in the first place, if they cannot be found when needed or if the arrangements for their eventual archiving or destruction are inadequate".

Records management plays a significant role in enhancing prudent use of resources hence preventing mismanagement, fraud, corruption and embezzlement. The World Bank (2015) states that without proper recrods management, fraud cannot be proven, meaningful audits cannot be carried out and government actions are not open to review.

Effective records managaement underpins open governance because the governmanet information is well managed and available for access by citizens (IRMT 2015).

A further discussion on the benefits of records management in facilitating good governance, including electronic records, including sample case studies is given in chapter three on literature review.

1.2 ELECTRONIC RECORDS

Many authors define electronic records, also referred to as electronic records, as computer-based or digital records (Kamatula 2010; Kemoni 2009; Mnjama & Wamukoya 2007; Wamukoya & Mutula 2005a; Kemoni & Wamukoya 2000).

However, this definition does not necessarily reflect the true meaning of the word electronic. The term electronic would loosely refer to devices that require electricity to function i.e. electronic devices. Electronic technologies essentially go beyond the digital

technology which is the technology on which computers function. It also includes analogue technology. Electronic records essentially refer to all records created by use of electronic technologies. This includes both analogue records like video cassettes and digital records like email records, which are basically computer-based records (Wissor 2005). Indeed in an archival repository, for instance, one would find both analogue and digital records that require to be preserved and utilized by help of electronic means.

An understanding of this distinction is important in records management research to enable proper contextualization and clarity especially when the two terms, electronic records and digital records, are involved. In the context of this study, electronic records means and implies the digital records, created, used and maintained by and through computer and computer/digital technologies because these are the records that are usable on the e-government platforms.

The National Archives of Australia (2014) defines digital records as

> "records created, communicated and maintained by means of computer technology. They may be 'born digital' (created using computer technology) or they may have been converted into digital form from their original format (e.g. scans of paper documents)".

Table 1.1 provides types of digital records as offered by the National Archives of Australia.

Table 1.1: Types of Digital Records

Documents created using office applications:	Records in online and web-based environments:	Records generated by business information systems:	Digital communications systems
• word-processed documents • spreadsheets • presentations • desktop-published documents	• intranets • extranets • public websites • records of online transactions	1. databases 2. geospatial data systems 3. human resources systems 4. financial systems 5. workflow systems 6. client management systems 7. customer relationship management systems 8. systems developed in-house 9. content management systems	• Email • SMS (short messaging services) • MMS (multimedia messaging services) • EDI (electronic data interchange) • electronic document exchange (electronic fax) • voice mail • instant messaging • multimedia communications (eg video conferencing and teleconferencing

Source: National Archives of Australia, http://www.naa.gov.au

1.2.1 Distinguishing Management of Electronic Records (MER) and Electronic Records Management (ERM)

In describing the management of electronic records, it is important to clarify between two terms that tend to cause confusion within the records management fraternity – electronic records management (ERM) and management of electronic records (MER).

Whereas these two concepts have been used interchangeably, Loringer (2010) provides a critical distinction between the two terms. Electronic records management refers to the use of electronic capabilities to manage records. That is to say, managing

records electronically, regardless of whether the records are in electronic or paper formats. It is a broader concept that includes automation of paper records management processes as well as management of digital records through ICTs. On the other hand, management of electronic records is a specialized segment of electronic records management that focuses purely on management of digital records as defined above. It therefore follows that electronic records management is a broader concept that subsumes management of electronic records as a subset.

Some literature sources on records management have used the term electronic records management when the authors are in actual sense discussing management of electronic records or have used both terms interchangeably (Kamatula 2010; IRMT 2009a; Nengomasha 2008; Moloi & Mutula 2007; Wamukoya & Mutula 2005a).

The present study is concerned with the management of electronic records as they exist within the e-government platforms and not general electronic records management. The researcher, therefore, deliberately uses the term management of electronic records and not electronic records management to create this distinction and provide focus for the study.

The emergence of electronic records has raised fundamental issues in records management theory and practice. According to Technology Excellence in Government (2000), there is probably no business process that generates more interaction between IT interests and functional managers than management of electronic records, “it might be the area of government that has attracted the most automation and yet remains the least automated”.

Management of electronic records faces challenges such as: technological obsolescence; technological dependence; increased risk of lost data and records; risks to reliability and authenticity; loss of security and privacy; increased costs; decentralisation of information; the increased need for information technology specialists (Kamatula 2010; Ngoepe, Mokoena & Ngulube 2010; Nengomasha & Ngulube 2010; IRMT 2009a; Gautam 2007; Tale & Alefaio 2005; Giovana & Timothy 2002; Patterson & Sprehe 2002; Ngulube 2001).

According to Patterson and Sprehe (2002), these challenges arise because many information technology systems design in many organisations and governments neglect electronic records management components. Consequently, organisations end up with ICT systems that are generating huge volumes of electronic records but providing inadequate mechanisms for managing and protecting the records. In some instances, organizations run both paper and electronic records systems in parallel due to lack of confidence in the electronic records systems (Pennock 2007; Hollier 2001).

1.3 E-GOVERNMENT

Definitions of e-government have been offered over the years by many institutions and authors across the world. Whereas none has been declared universally acceptable, all the definitions build consensus on e-government as the broad use of ICTs in government.

According to World Bank (2006), e-government refers to the use by government agencies of information and communication technologies that have the ability to transform relations with citizens, businesses and other arms of government, as per the World Bank definition.

The United Nations Department of Economic and Social Affairs (2014) defines e-government as the use and application of information technologies in public administration to streamline and integrate workflows and processes, to effectively manage data and information, to enhance public service delivery as well as to expand communication channels for engagement and empowerment of people.

In the past, some definitions tended to restrict e-government to Internet-enabled services only (Palvia & Sharma 2006; Gil-Garcia & Martinez-Moyano 2007; World Bank 2007; Geiselhart, Griffins & FitzGerald, 2003; UN 2002; McClure 2001). However, this restriction has been challenged in recent years leading to a growing consensus that e-government goes beyond just Internet-based or web-based services to the broader utilization of ICTs within government to support government operations, facilitate interactions between governments and their citizens, as well as deliver government services to the citizens (Abankwah 2010; Ngulube 2007; Gilmore & D'Souza 2006; United Nations Economic & Social Council 2006).

Authors writing during the advent of Internet were justified to restrict e-government definition to Internet-enabled services since the Internet was the primary mode of distributed access at the time. But with the advent of mobile computing this can justifiably be expanded in present times to accommodate the newer technologies.

Nonetheless, this consensus however affirms that distributed access to and dissemination of information through ICTs – whether Internet, mobile computing or other web-enabled capabilities – is the cornerstone of e-government (Ngulube 2010; Yong & Koon 2005; Basu 2004; Oliver & Saunders 2004).

The researcher notes that only with distributed/remote access to information does e-government achieve its purpose of existence, which is to enable citizen participation in governance through access to information and sustained interaction with the government. It would therefore mean that mere deployment of ICTs in government business processes without enabling communication with citizens will not constitute e-government. It could be just described as automation.

The significant theme underlying all these definitions is that e-government involves the computerization of existing manual (paper-based) procedures that result in new ways of transacting business, new approaches to listening to citizens and other communities, new approaches to delivering services to the citizens and in the context of the present study, new ways of organizing, managing, delivering and exchanging information.

Further, e-government is a specialized, technology-driven approach to governance. Whereas governance focuses on the larger picture of good governance and generally adequate service delivery as enabled by technologies, e-government focuses on outputs of particular solutions or service elements (Pillora 2011; Meehan 2003).

E-government is expected to allow for less corruption, provide increased transparency, afford greater convenience, improve revenue and optimize operational costs in

government businesses (Kamatula 2010; Kazmi 2010; Sharma 2006; Kroukamp 2005; Sharma 2004; Sharma & Gupta 2003).

According to IRMT (2011b), the objectives of e-government initiatives are to: exploit web-based technologies in order to improve services to citizens; facilitate the dissemination and availability of information (primarily via the web); establish a consistent 'look and feel' for government services offered through the web; achieve economies of scale through the joint delivery of like or similar services supported by multiple organizations.

E-government presents a number of benefits to governments including improved services to citizens, improved services to businesses and increase in government efficiency (World Bank 2004). The Organisation for Economic Cooperation and Development (OECD,2003) points out that the benefits of e-government include: improved services through better understanding of users' requirements; assisting a government's economic policy objectives by promoting productivity gains inherent in ICT and e-commerce; improving transparency and accuracy; facilitating information sharing between government and customers; information and ideas sharing between all government agencies; building trust between government and citizens. These benefits are also underscored by European Commission (2016), Waiswa and Okello-Obura (2014), White House (2014, 2012), Alshehri and Drew (2010), Barman (2009), Brown (2007) and UNESCO (2005). A review of e-government developments in Kenya, including objectives, initiatives and benefits, has been discussed in detail in Chapter Two on the context of the study.

1.4 BACKGROUND TO THE STATEMENT OF THE PROBLEM

The Kenyan Government has been expanding ICT-enabled services across public institutions (Jackson 2015). As a result, there is rapid generation of electronic records across all government institutions some of which are deployed for access and use through the e-government systems (IRMT 2011a).

The Government of Kenya developed a records management strategy for public institutions in 2011. There also exists the Kenya National Archives and Documentation Service Act (Cap 19) of the laws of Kenya, which is the only legislation purposefully designed for records and archives management. However, Kenya lacks a policy on management of electronic records in government. There have been several initiatives, as discussed below, that influence management of electronic records.

The Kenya Communications (Amendment) Act 2008, gives electronic records legal recognition, authorizes the use of electronic signatures and addresses the need to manage public sector electronic records to ensure that they are authentic, secure and reliable records as a basis for efficient and effective service delivery (Kenya Communications (Amendment) Act 2008 Section 83G-I). It requires the Communications Commissioner to ensure that electronic transactions are based on reliable electronic records. The Act deals at length with electronic records issues as essential to promoting e-government and e-commerce. However, it does not stipulate the requirements for capturing and managing authentic and reliable electronic records. These would include such requirements as capturing, classification, security, preservation, metadata description and retention-dispositioning of electronic records

(National Archives of Australia 2014; International Council on Archives 2008; Millar 2004).

In 2008, the Government of Kenya embarked on digitization of records in some of its ministries and agencies to increase efficiency and eliminate corruption associated with manipulation of paper documents. According to the then Kenya's Permanent Secretary for Information and Communication, Dr. Bitange Ndemo, the plan was to digitize all records and increase the number of transactions carried out online for increased efficiency in Government offices (Ugabytes 2008).. The Government also had plans to put up centres for backing up data for Government transactions. Three sites –two in Nairobi and one in Mombasa – had been identified for the centres. This project was estimated to cost about Ksh 540 million (Ugabytes 2008).

As a result of this programme, a number of Government institutions embarked on high-volume large scale digitization of their paper records to facilitate online access to information. These included the Ministry of Lands, The Government Press, The Office of Attorney General, Ministry of Immigration, Ministry of Information and Communication. Some of the institutions like the State Law Office completed the digitization process (Ministry of Immigration 2011; IRMT 2011a). A detailed discussion on the progress of these initiatives is given in Chapter Two.

An analysis of these initiatives reveals that the Government of Kenya has focused on digitization as a success factor of e-government with little attention to the wider professional issues in management of electronic records. Consequently, professional records and archives management experts have not been involved. For instance, the

Government, through the Kenya Communications (Amendment) Act 2008, gives more authority to the Communication Commission of Kenya on electronic records and overlooks the Kenya National Archives and Documentation Service (KNADS), which has the expertise and wider mandate over public records management. Even with these digitization initiatives, there is not a digitization standard or a strategy for managing records in digital form over time.

In December 2011, the Government through the Ministry of Public Service launched the Strategy for Improving Records Management in the Public Service (Government of Kenya 2011). The five-year plan was intended to ensure there was full computerization of records management and implementation of ERM by 30th December 2013. As a result, about 560 record management officers were to be posted in registries of each ministry to transform the flow of information from manual to digital. At the same time, all past correspondence -- circulars, memos or vouchers -- were to be scanned and stored electronically for easy access and retrieval. According to Dalmas Otieno, then the Minister for Public Service, the plan aimed at modernizing records management to enable the Government become more responsive to the needs of citizens and deliver services more efficiently and effectively (Allafrica 2012).

In May 2010, the Government developed a manual for management of records within the public service, which was officially launched at the same time as the records management strategy (Ministry of State for Public Service 2010). The manual provided procedures for management of records by all public service institutions, including

electronic records. This was necessitated by the need to harmonize and improve records management procedures across all Government institutions.

The Kenya Freedom of Information Bill 2012 is currently pending enactment to operationalize Article 35 of the Constitution of Kenya that grants the right of access to information. The Bill provides for a window period of three years from the enactment, for every state agency to computerize its records and information management systems in order to facilitate efficient and effective access to information. The aim is to enable state agencies to develop infrastructure for managing electronic records. The framework within which this was to be done was not provided and remains unclear (IRMT 2011a; Government of Kenya 2007).

Other ongoing e-government projects that have been rolled out by the GOK and which have been impacted by electronic records keeping are Government Unified Messaging System (GUMS), Government Data Centre, County Connectivity Project and Community Learning Information Centre (CLIC) (Directorate of e-government 2011). Detailed descriptions of these projects are presented in Chapter Two.

The management of electronic records across the government ministries is disjointed and uncoordinated with each ministry adopting its own strategy and approach (Ministry of State for Public Service Kenya 2011). This has negated the collective principle and responsibility of government ministries to work jointly towards delivering good services to the citizenry. As a result, the GOK developed an Integrated Records Management System (IRMS) for the public service to provide a single standardized system for management of records across the public service.

Inadequate management of electronic records therefore creates gaps in the quality of data used across government ministries. Whereas it would be desirable for government ministries to share cross-cutting data, this is hampered in cases where policies for information sharing and management of electronic records do not exist. The result is every ministry engaging in different activities to collect the same data, resulting into duplication of work and costly ventures for the public, gaps in data and variations in decisions made across ministries.

1.5 STATEMENT OF THE PROBLEM

Management of electronic records (MER) is the cornerstone of e-government (An, Sun & Zhang 2011; IRMT 2011a-d; US Government Accountability Office 2010; An 2009; Kulcu 2009; Nengomasha 2008; Moloi 2007; Ngulube 2007; IRMT 2003).

There have been efforts to embrace e-government in Kenya through initiatives such as open data access, development of government websites, online transactions provided on the e-citizen portal and online whistle blowing. Some of the online transactions currently active include amongst others: application of public service jobs, filing of tax returns, application of higher education loans, application of driving licenses, application of business name registration, government tender applications and application of research permits (World Bank 2012; Malakata 2011; Howard 2011; Rabah 2011; Price 2011; Google Press 2011).

Similarly, there have been efforts to improve management of electronic records in government ministries to support online delivery of government services. These include digitization of paper records in some ministries, installation of systems for managing electronic records and policy directions from government agencies like the ICT Authority (ICTA 2015; Nduati 2012; Ombati 2012; Ugabytes 2008)

However, despite these initiatives in both e-government and MER, there is yet to be developed a framework to guide management of electronic records within the e-government environment in Kenya. Lack of a clear framework for managing electronic records poses a major risk to the sustainability, stability and quality of services offered through the e-government platforms. It not only limits access to reliable and quality information but also jeopardizes general flow of services as employees have to juggle between manual record keeping systems and electronic record keeping systems to reconcile information required for management decision making. The reliability of electronic systems is eroded. Gaps in management of electronic records within e-government platform can also be negatively exploited and create loopholes for abuse through corruption, which in turn undermines government efforts of fostering transparency and accountability (Keakopa 2007; Lipchak & MacDonald 2003; Katuu 2000).

1.6 RESEARCH PURPOSE

The purpose of this study was to investigate how the current state of management of electronic records in Kenya facilitates or undermines implementation of e-government with a view to develop a best practice framework for management of electronic records in support of e-government.

1.7 OBJECTIVES OF THE STUDY

The specific objectives of the study were to:

1. Ascertain current status of management of electronic records in Government in Kenya.
2. Determine the current level of e-government utilization across government in Kenya.
3. Establish the effectiveness of existing practices for management of electronic records in supporting e-government.
4. Identify challenges faced by ministries in managing electronic records that could impact on implementation of e-government.
5. Propose recommendations that could improve management of electronic records in ministries to support e-government effectiveness.
6. Suggest a best practice framework that could be adopted by the Kenya government to enhance management of electronic records in support of e-government.

1.8 RESEARCH QUESTIONS

The study was guided by the following research questions:

1 How are electronic records currently managed within government ministries in Kenya?

2 What is the extent of e-government utilisation in government ministries in Kenya?

3 Is there a policy framework integrating management of electronic records in the e-government?

4 What systems have been implemented in government ministries to manage electronic records?

5 Do the existing practices for managing electronic records adequately support e-government services?

6 What challenges do Government ministries face in implementing systems for managing electronic records in the context of e-government?

7 Are there any challenges faced by the Government of Kenya in implementing e-government that could be attributed to management of electronic records?

8 What actions need to be taken to ensure management of electronic records sufficiently support e-government initiatives?

1.9 ASSUMPTIONS OF THE STUDY

The study was based on the following assumptions:

- Although the government of Kenya has developed initiatives to enhance management of electronic records, these initiatives are not adequate in addressing management of electronic records in support of e-government.

- Although the Governmnet of Kenya has rolled out e-government services to enhance delivery of public services to citizens, the systems for supporting these e-government services do not adequately integrate management of electronic records as a critical success factor.

1.10 JUSTIFICATION OF THE STUDY

Studies have revealed that MER plays a central role in the success of e-government (An, Sun & Zhang 2011; IRMT 2011a-d; Ngulube 2010; An 2009; Feng, An, Liu & Dawson 2009; Mokhtar & Yusof 2009; An 2009; Nengomasha 2008; Ngulube 2007; Mnjama & Wamukoya 2007; Moloi 2006; Wamukoya & Mutula 2005a; National Archives and Records Administration (NARA) 2001).

Empirical studies on MER and e-government are therefore essential to enable public policy makers to gain adequate understanding of MER in the context of e-government. This is important to ensure that efforts to implement MER and strengthen e-government are backed by adequate research that provides strategic thinking, technical knowledge, and frameworks for MER and best practices from other countries across the globe.

The Kenyan public sector is rapidly embracing automation in general business activities (Nduati 2012; Ombati 2012). However, there is little automation in records management

(IRMT 2011b). There is continued generation and management of paper records due to lack of confidence in technologies for MER (IRMT 2011a). For instance, in a Ministry when the registry receives an email, it is printed, filed and transmitted in hard copy. This is despite the availability of many ICT solutions which enable emails to be acted upon and archived in softcopy. This study was therefore necessary to suggest approaches on how to manage electronic records as by-products of electronic transactions in the e-government environment.

All the legal frameworks within which records are to be managed in Kenya do not adequately provide for explicit strategy or framework for management of the electronic records. These included the Kenya Communications (Amendment) Act 2008, The Kenya National Archives and Documentation Service Act, The Kenya ICT Policy, and the draft Kenya Freedom of Information Bill, 2007. Therefore there was need for a clear and elaborate framework to ensure adequate management of electronic records to support e-Government in Kenya.

Besides the existing gaps in Government strategy on approaches to MER and e-Government in Kenya, there was also inadequate and concrete research-based literature to provide professional direction to e-government stakeholders in Kenya on MER. This study was therefore necessary to reveal current trends and best practices in MER and e-government as well as provide future directions, which would be essential in ensuring adequate integration of MER in e-government. There was also the need to clearly demonstrate how MER can be integrated within the e-government business processes that generate and use the electronic records. A study on how management

of electronic records can support e-government, would provide a baseline understanding on how to integrate MER in e-government.

1.11 SIGNIFICANCE OF THE STUDY

The significance of a study is concerned with three questions: how will the study enrich scholarly research and literature in the field, how will it improve practice and how would it affect policy (Mitchell 2012; Pajares 2007; Davis 2005; Cooper & Schindler 2003; Creswell 2003; Stuart et al 2002; Creswell 1994).

The present study's contribution to scholarly works and literature in the field resides in its findings and a framework that can be practically adopted for MER in support of e-government. Mutiti (2001) points out that most countries in Sub-Saharan Africa do not have a legal or policy framework on management of electronic records, a factor that undermines MER. The framework could also form a basis for future scholarly works on MER and capacity building efforts for records management officers across government institutions, which has been cited as a key hindrance to professional MER (Wato 2002; Bailey 2001; Mutiti 2001; Wamukoya & Kemoni 2001; Githaka 1996; Foster 1995; Khayundi 1993).

With regard to practice, the framework proposed by the study provides practical approaches for the integration of MER in e-government. Establishing the interaction points of MER in business processes will be fundamental in ascertaining technological solutions for both MER and e-government that can accommodate that integration. An

(2009) points out that integrating ERM into national informational strategic plans is an effective e-government strategy. An, Sun & Zhang (2011) further observe that studies about what comprehensive approaches are used for MER and how they are valued for e-government are significant to improvement of both MER and e-government.

With regard to the study's contribution to policy, by establishing the nexus between MER and e-government in Kenya, it is hoped that it will provide input to policy makers to consider records managers as key stakeholders in e-government. Lack of comprehensive policy frameworks on MER has been cited as a major impediment to adequate electronic records management (Iwhiwhu 2010; Kemoni 2009; Tale & Alefaio 2005; Keokopa 2002; Katundu 2001; Mutiti 2001). By providing a baseline for policy development in MER, the current study will be significant in supporting efforts towards ensuring MER in Kenya is delivered against sound policy guidelines.

1.12 ORIGINALITY OF THE STUDY

Originality in research can be described as doing something that has not been done before on the topic under investigation (Hustadt 2012). According to Cryer (2006) and Guetzkow, Lamont & Mallard (2004), there are various sources of originality in research: new approaches, studying understudied areas, new and innovative use of data, new theory, studying unexplored (original) topics, use of new methods and tools, new experiences and potentiality to be published. Originality may also include, at more discrete levels, continuing a previously original work, use of new data, providing a single original technique, testing someone's else idea, testing new experiences, conducting

new synthesis, applying new interpretations to existing materials, revealing new evidence on a known issue, adopting a cross-disciplinary in approach to a research problem (Edwards 2014).

The originality of this study stems from two aspects: original topic and understudied area. Original topic refers to where the topic of study has never been studied. Understudied area refers to where a study is being conducted in a geographic region that has been studied less on that topic. Understudied area differs from original topic because it does not refer to the subject of study but the physical geographic region or time period under which the study is being carried (Guetzkow, Lamont & Mallard 2004).

A study of literature sources in records management around the globe shows that a lot has been written on MER and e-government (Hsu, Chen & Wang 2009; Kulcu 2009; Lee & Lee 2009; Bustelo & Garcia-Morales 2008; Feng, An, Liu & Dawson 2009; Henriksen & Andersen 2008; Hussin, Satirah & Ahmad 2008). According to An (2011) and An (2009), most of these studies have been done from 2008 to present and have basically focused on MER systems, issues and challenges affecting MER.

In Africa, studies on MER in relation to e-government have been done in Botswana, Kenya, Lesotho, Namibia, South Africa, Uganda, Tanzania, Rwanda and Burundi (IRMT 2011a-c; Kalusopa 2011; Luyombya 2010; Kemoni 2009; Moloi 2009; Nengomasha 2009, 2008; Kalusopa 2008; Kemoni, Ngulube & Stilwell 2007; Moloi & Mutula 2007; Ngulube 2007; Ngulube & Tafor 2006; Wato 2006; Wamukoya & Mutula 2005a; Wamukoya & Mutula 2005b; Lefuma 2004).

In Kenya, studies have been conducted on MER in general and within the e-government environment (IRMT 2011a; Wato 2006). Several authors, Kemoni (2009), Wamukoya and Mnjama (2005) and Mutiti (2001) have written on the issues of MER in Kenya either specifically or as part of a review of MER in the Esarbica region.

All these studies in Africa and Kenya have provided useful insights into MER in Kenya. They have revealed the underlying issues in MER including the drivers and challenges. They have also made numerous recommendations to enhance MER in general and in the e-government context. However, none has specifically proposed a framework for integrating MER and e-government in Kenya.

The present study therefore advances knowledge in the field by building on what has been provided previously to propose a framework for managing electronic records in support of e-government in Kenya.

1.13 RESEARCH METHODOLOGY AND DESIGN

This section provides a brief of the research methodology adopted for the study. A detailed description of the methodology has been discussed in chapter four of this dissertation.

1.13.1 Research Methodology

Research methodology or research method refers to the approach used in conducting research (Creswell 2003). There are three types of research methodologies-quantitative research, qualitative research and mixed methods research (Ngulube 2013; Creswell 2003).

Quantitative research method is the systematic empirical investigation of observable phenomena via statistical, mathematical or numerical data or computational techniques (Earl 2012; Kelly 2011). The focus of a quantitative method is to investigate relationship between an independent variable and a dependent variable within a population, in which case both variables are known to the researcher.

Qualitative methodology, on the other hand, is concerned with subjective assessment of attitudes, opinions and behaviors of those involved in the phenomenon under investigation and seeks to study a subject from the perspectives of the respondents, to get their opinions and perceptions of the subject under research (Creswell 2013). Unlike the quantitative method, the qualitative method is meaning-centered based on attempts to interpret the opinions and impressions revealed by the respondents (Ngulube 2013; Bhattacherjee 2012; Dube & Ngulube 2012; Kelly 2011).

The mixed methods research methodology is a combination of quantitative and qualitative methods. Also referred to as the third methodological movement (Ngulube 2015; Ngulube 2013; Caruth 2013; Venkatesh, Brown & Bala 2013), this methodology is a hybrid approach that is gaining prominence in social research and is perceived to help address potential challenges that could arise from both quantitative and qualitative methods (Zhou 2014; Frels & Onwuegbuzie 2013; Ngulube 2013; Creswell 2012; Hong & Espelage 2011; Ngulube 2010).

The present study adopted the qualitative research methodology, hence can be described as a qualitative research. This methodology was suitable because the study was based on constructivist perspective to identify issues in management of electronic

records and how they impact on e-government, which were not known to the researcher.

According to Brikci and Green (2007), in situations where little is known, it is often better to start with qualitative methods (interviews, focus groups, etc.) which can then help in generating hypotheses that can then be tested through quantitative methods. For instance in the present study where the researcher has little knowledge of factors affecting management of electronic records in e-government, it would be difficult to design a quantitative approaches that would capture all the possible factors. However, qualitative approaches would help identify these factors, from the subjective opinions and impressions of respondents, which can later be subjected to quantitative assessment, if need be, to establish how the factors are for instance representative of the whole population. A detailed discussion on the suitability of qualitative methodology for the present study is provided in Chapter Four.

1.13.2 Research Design

Research design refers to a systematic plan to study a problem. It is the framework that is created to support the attempts to explore and seek answers to the research question. According to Trochim (2006), the research design refers to the overall strategy for integrating different components of the study in a coherent and logical way to effectively address the research problem. Creswell (2014b) defines research design as procedures of inquiry. According to Ngulube (2015) and Ngulube and Ngulube (2017) research design can also be referred to as research approach or research strategy.

Literature on qualitative research indicate that the most common qualitative research designs are case studies, phenomenology, grounded theory, ethnography and narrative (Ngulube 2015; Cresswell 2013). Other authors also speak of experimental, exploratory, observational, philosophical and historical designs (James & Kevin 2010; Cooper, Larry & Jeffrey 2009; Hall 2008; Shuttleworth 2008; Bachman 2007; Gall 2007). Ngulube and Ngulube (2017) also mention content analysis, hermeneutics, action research, feminist research and indigenous research as qualitative research approaches/strategies.

The present study found phenomenology design as the most appropriate design for the study. According to Creswell (2013), phenomenological research involves exploring of a phenomenon with respondents who have experienced the phenomenon. A detailed discussion on justification of the design is presented in Chapter Four.

1.14 LIMITATIONS AND DELIMITATIONS OF THE STUDY

Limitations of a research refer to the conditions or influences on the research that cannot be controlled by the researcher but which have a bearing on the results of the research especially on validity. Limitations include issues such as lack of previous research on the topic which required the researcher to do more, access to respondents, time constraints and a naturally restricting sample (Simon 2011; Pajares 2007).

Delimitations on the other hand refer to the scope or boundaries of the research which are set by the researcher for instance on the methodology adopted by the study, sampling and literature review (Creswell 2009; Baron 2008; Pajares 2007). Whereas

limitations are unpredictable by both the researcher and reader, delimitations are within the control of a researcher.

Two limitations manifested themselves in the present study. First was the challenge in accessing respondents especially access to Principal Secretaries of ministries primarily due to their busy schedules coupled with other bureaucratic constraints. The second limitation arose from self-reported data. Since data was collected through face-to-face interview discussions with respondents, some of the data could not be reliably verified independently.

With regard to delimitations, first the methodology adopted by the study was qualitative. This was because the present study sought to explore unknown underlying issues with regard to management of electronic records that impact on e-government and the researcher did not have any known factors that could be subjected to quantitative approaches. Secondly, the scope of research was restricted to electronic records and not with general records and archives management. This was necessary to maintain the focus of the study on electronic records and safeguard it from wide ranging issues in general records management. With regard to the sample, the study purposively confined itself to respondents with a central role in implementation of systems for management of electronic records and e-government. Whereas the researcher appreciates that users of e-government and electronic records include all staffs in all ministries and even the citizens, and that they all can give opinion on adequacy of the electronic records systems at play, the present study focused only on respondents who are instrumental in the design and implementation of electronic records systems and not

front-end users. Feedback from e-government consumers is wide ranging and could be explored based on factors identified out of the present study, as a potential area for further research, using quantitative approaches. Fourth, no other data collection method was used other than face-to-face interviews. This was necessary in line with the qualitative nature of the study. The fifth delimitation was on the literature. The literature reviewed was only that in the english language, from across the globe. The study did not intend to consult literature in other languages other than english.

1.15 ETHICAL CONSIDERATIONS

In the research context, ethics refer to the appropriateness of the researcher's behaviors in relation to the rights of those who become the subject of the study, either the respondents or those affected by it (Blakely 2007; Kamuka & Anderson 2007; Kelly & Yin 2007; Walliman 2005). Researchers are required to adhere to ethical guidelines and avoid any acts of misconduct in research.

Hart (2005), Dooley (2004), Mugenda and Mugenda (2003), and Saunders, Lewis and Thornhill (2003), all consider ethical concerns in research to include confidentiality, plagiarism, honesty, objectivity, respect of intellectual property, dissemination of findings, anonymity, non-discrimination, voluntary and informed consent, academic freedom, social responsibility and respect for colleagues.

The study complied with all requirements as stipulated in the UNISA Policy on Research Ethics (UNISA 2007). These include: participants informed consent (section 3.1), the

right to privacy of participants (section 4.1), the right to confidentiality by participants (section 5.4.1), research to be beneficial to society and contribute to knowledge (section 5.2.4), no plagiarism, falsification and fabrication (section 5.2.10) and honesty on the part of researcher (section 5.2.8).

The study also observed other expected ethical issues including respect for participants confidentiality, non-disclosure of any proprietary information received from institutions unless authorized, acquiring participant consent to participate, legal authority by obtaining a research permit from National Commission for Science, Technology and Innovation (see appendix), debriefing respondents prior to data collection, respect for intellectual rights and respect for respondents rights including the right to be informed, convenience and time management. Other ethical issues included integrity, honesty, non-discrimination, legality, competence, openness, objectivity, responsible publication, appropriate dissemination of findings and environmental conservation.

1.16 THESIS OUTLINE

This thesis has been organized into seven chapters.

Chapter One discusses the background to the study. The issues presented are records and records management, management of electronic records, e-government and dinstinction between MER and ERM. It has also provided the background to statement of the problem, the statement of the problem, research purpose, objectives of the study, research questions, assumptions, justification of the study, significance of the study and

originality. The chapter also presents an outline of the research design and methodology. If further discusses the limitations and delimitations of the study and the outline of the thesis.

Chapter Two, context of the study, presents an overview of management of electronic records and e-government in Kenya. It provides a brief discussion on the structure of the Government of Kenya as well as recent developments in general records management in Kenya. The chapter also discusses developments in MER in Kenya on legislative, policy, regulatory, standards and technological developments. It also discusses key MER projects in Kenya in the recent past. This chapter also discusses the status of e-government in Kenya, specifically on drivers of e-government, structure of e-government and case studies of e-government projects in Kenya.

Chapter Three focuses on literature review on management of electronic records and e-government. It provides a detailed discussion of electronic records, management of electronic records, e-government and the relationship between MER and e-government globally and in Kenya. It provides a review of previous empirical studies on management of electronic records in e-government. This chapter also presents the theoretical framework of the study.

Chapter Four provides the research design and methodology of the study. Specifically, the chapter explains the methodology, research design, the study population and sample, ethical considerations, data collection procedures, data analysis and justifications for their use as well as research quality and credibility as used in the study.

Chapter Five, data analysis and presentation, presents findings of the study. Qualitative data is presented and analyzed according to study themes as contemplated by the study objectives.

Chapter Six provides an interpretation of the results. The essence of this chapter is to discuss what the findings of the study mean to the researcher and the body of knowledge to which the research is contributing.

The final chapter, Chapter Seven, presents a summary of the research findings, conclusions, recommendations and the implications of the findings for the discipline. This chapter also presents the proposed framework for MER in support of e-government. Suggestions for further research are also provided.

Appendices have also been included as part of the thesis, which includes sample data collection tools (interview schedules, questionnaires, observation checklists), research permit and authorization letters from the various Ministries consulted.

1.17 CHAPTER SUMMARY

The primary purpose of this chapter was to lay the foundation of the study, to put the study clearly into context, to enable any consumer of the study findings and the research thesis understand what exactly the study was about. The key themes that emerged in the chapter were the benefits of records management and the importance of managing electronic records to e-government. The chapter has not only laid the focus of the study, but also revealed the relationship between MER and e-government, which will be elaborated even further in chapters two and chapter three.

CHAPTER TWO

CONTEXT OF THE STUDY

2.0 INTRODUCTION

This chapter presents the contextual environment of the study. It provides information on the structure of the Kenya government which is important because the study is based on government ministries in Kenya. It also discusses the development of MER and e-government in Kenya. It discusses some of the projects that have been rolled out across Government with regard to both MER and e-government.

2.1 THE STRUCTURE OF THE GOVERNMENT OF KENYA

The current structure of the Kenya government is as defined by the new constitution of Kenya (COK) promulgated on 27 August, 2010. The constitution provides for a presidential system of government, modeled on the USA structure with two tiers of governance system - the national and the county government systems.

In terms of functional structure, the government structure has the executive, the legislature and the judiciary. The constitution has also provided for ten constitutional commissions and independent commissions with varied mandates.

The national government structure is defined under chapter nine of the Constitution of Kenya. The executive includes the President, Deputy President and the cabinet secretaries, formerly known as Ministers (COK, Article 30).

The legislature at this level comprises of the National Assembly and the Senate. Currently, the National Assembly has 350 members, out of which 290 are elected at the constituency level and 60 nominated in accordance with the Constitution (COK, Articles 95 and 97). The Senate has 68 members: 47 elected at county levels and the rest nominated in accordance with the constitution (COK, Article 98).

The National Assembly has wider responsibilities on behalf of the people, including enactment of national legislations, allocation of and oversight over national revenue, oversight over state organs and reviewing the conduct of the national executive government (COK Article 95). The Senate, on the other hand, is responsible for representing the counties and serves to protect the interests of the counties and their governments. This is through participating in the law-making function of Parliament concerning counties, determining the allocation of national revenue among counties, oversight over county government executive officers and oversight over national executive state officers (COK Article 96).

The Kenyan Constitution provides for a minimum of fourteen and a maximum of twenty-two ministries (COK Article 152). The present government set up in 2013, eighteen national ministries to facilitate administration of the national government's functions. Each of the ministries is headed by a cabinet secretary. The ministries also have principal secretaries who are the accounting officers of each ministry. Some ministries, like the ministry of education, have more than one principal secretary. Each principal

secretary is responsible for a certain function. The functions and mandates of the current eighteen ministries are not defined by the constitution but by the Presidency which is the appointing authority and which the constitution (Article 152) bestows the authority to define the ministries within constitutional limits (Government of Kenya 2013b; Office of the President Kenya 2013; Kivuva 2012).

The present eighteen ministries include: Ministry of Interior and Coordination of National Government; Ministry of Devolution and Planning; Ministry of Defense; Ministry of Foreign Affairs; Ministry of Education, Science and Technology; The National Treasury; Ministry of Health; Ministry of Transport and Infrastructure; Ministry of Environment, Water and Natural Resources; Ministry of Land, Housing and Urban Development; Ministry of Information, Communication and Technology; Ministry of Sports, Culture and the Arts; Ministry of Labour, Social Security and Services; Ministry of Energy and Petroleum; Ministry of Agriculture, Livestock and Fisheries; Ministry of Industrialization and Enterprise Development; Ministry of Commerce, Tourism and East African Affairs; and the Ministry of Mining.

The functions and mandates of these ministries are stipulated in the Presidential Executive Order number 2 of 2013 (Office of the President Kenya 2013).

2.2 RECENT DEVELOPMENTS ON GENERAL RECORDS MANAGEMENT IN KENYA

In the years following 2010, a number of developments took place in Kenya with regard to records management in general that are worth noting and which reflect on the initiatives around MER in the country.

In October 2010, the Kenya Association of Records Managers and Archivists (KARMA) was formed-the first of its kind in Kenya. This came after several unsuccessful attempts to form a professional body for RAM professionals in the country. The aim of the association was to organize, represent and act as the professional body for persons working in or interested in records and archives management (RAM) and to govern members in all matters of professional practice. In addition, KARMA sought to bring together RAM professionals in Kenya to join hands in building the profession. It was expected that KARMA's programmes and initiatives would be critical in strengthening the records management profession in Kenya, through capacity building and partnership with public and private entities (Ambira 2013).

In March 2013, the then Head of Public Service, issued circular no. OP/CAB.1/48A dated 22 March 2013, providing guidance to public offices on management of records within the newly launched devolved system of government. One of the key directives of this circular was for the national and county governments to establish records management systems and provide resources to ensure proper creation, use, maintenance, control and disposal of public records. It also provided guidelines on how to manage records within the ongoing abolition, merger or transfer of functions, from one ministry to another or from national to county level.

2.3 DEVELOPMENTS IN MANAGEMENT OF ELECTRONIC RECORDS IN KENYA

This section provides a background update on developments in management of electronic records in Kenya. Since the study focuses on electronic records, it is important to understand the status of MER in Kenya and potential future prospects, which the study relates to e-government in subsequent sections. Section 2.2 focused on records management in general. This section focuses specifically on MER as the subject of this study.

2.3.1 Legislative, Policy and Regulatory Framework Developments on ERM

Article 35 of the new Kenyan constitution provides for the right of access to public information by citizens. Parliament is expected to finalize the enactment of the FOI Bill 2007 to enable operationalization of this constitutional requirement.

Important to note of the FOI Bill initiative is the realization that records and information management is key to its effectiveness, hence the three-year window to enable systems for records and information management to be put in place.

The Kenya Communications (Amendment) Act 2008, enacted in 2008, authorizes the use of electronic signatures in transactions. This underscores the need to manage electronic records to ensure that they are authentic, secure and reliable records as a basis for efficient and effective service delivery. The Act requires the Communications Commissioner to ensure that electronic transactions are based on reliable electronic records. The Act deals at length with electronic records issues as essential to promoting e-government and e-commerce. However, it does not stipulate requirements

for capturing and managing authentic and reliable electronic records (Kenya Law Reports 2009; Wanjiku 2009).

In 2010, the Ministry of Medical Services and the Ministry of Public Health and Sanitation, jointly published the Standards and Guidelines for Electronic Medical Records (EMR) Systems in Kenya. These standards were developed through collective engagement of players in the health industry from both private and public sectors, and also the donor community. The objective of these standards were to provide guidance for EMR system developers and implementers, as well as health facilities in Kenya that were contemplating or already using EMR systems to manage patient data. The standards intended to enhance implementation of EMR systems that support the provision of holistic health care while improving on health records management and contributing to improved quality of patient care. This required systems that could: maintain the validity, integrity and confidentiality of health information; ensure security through integrated system checks that prevent access and misuse of data; validate the accuracy of captured data; facilitate information sharing between different users. This inter-operability and data exchange is vital for the success of the health information system enterprise architecture. In relation to clinical systems, the standards sought to ensure that a patient management system should be able to share relevant patient-level data with a pharmacy or laboratory information system and vice versa. Additionally, patient management information systems should provide a degree of decision support that would help clinicians improve the quality of patient care (Ministry of Medical Services 2010).

On 16 December 2011, the Government of Kenya through the Ministry of Public Service launched a five-year strategic plan to automate public records. The underlying principle behind this strategy was to improve public service delivery to the citizens (Business Today 2011). During the launch, the then Minister for Public Service, Dalmas Otieno, observed that

> “an automated public records system assists public officers perform their duties effectively when formulating polices by making appropriate decisions and achieving greater efficiency. It will assist public sector activities to be documented and maintained with officials getting the right information at the right time and at the least cost possible" (Business Today 2011).

The thrust of this automation was to ensure that there was effective management of the growing volumes of records and information from Government ministries, improved sharing of information between government institutions and efficient records movement and tracking to eliminate corruption. The progress of this initiative is not well documented. However, interviews with various respondents in the present study revealed that little progress had been made.

2.3.2 Developments on Standards and Best Practices

With regard to application of standards and best practices in electronic records management in Kenya, the Kenya Bureau of Standards (KEBS), the local standardization body, has put in place a number of progressive standards to support

ERM from early 2000s. Between 2010 and 2013, a number of ERM specific standards have been developed or adopted by KEBS. Among these standards include: KS 2229:2010-Electronic records management systems-functional requirements; KS 2374:2012-Electronic records management systems-implementation guide; KS 2391:2013-Electronic signatures-metadata requirements; KS ISO/TS 21547:2010 Health informatics-security requirements for archiving of electronic health records-principles; KS ISO/TS 21547:2010-Health informatics-security requirements for archiving of electronic health records-Guidelines (Kenya Bureau of Standards 2014). As has been indicated in chapters five-seven, the implementation of these standards in Kenya remains very low.

2.3.3 Technological Developments

The GOK in 2011 developed an Integrated Records Management System (IRMS) for the Public Service to provide for a single standardized system for management of records across the public service (Anami 2011). This was necessitated by the realization that management of electronic records across the government ministries was disjointed and uncoordinated with each ministry adopting its own strategy and approach (Ministry of State for Public Service 2011). This disconnection across the government ministries negates the collective principle and responsibility of government ministries to jointly work towards delivering good services to the citizenry. The IRMS was therefore to be used by all ministries and departments within the public service. Under IRMS, officers were to transfer information in hard copy into the system for tracking and

workflow monitoring. For example, once a public servant receives a hard copy correspondence, the information is keyed in the system, indicating what action is to be taken or has been taken. Senior officers, including Permanent Secretaries, will then be able to monitor whether work has been done or is still pending. The Ministry of Public Service indicated during the launch of IRMS on 19th December 2011 that this initiative was intended to drive the country towards a paperless public service as envisioned in the country's economic blue print, Vision 2030 (Anami 2011).

Since 2011 there have been numerous initiatives across Government ministries and affiliate parastatals and departments to implement MER capabilities including electronic records and document management systems (Ministry of Lands 2014; Ministry of Information, Communication and Technology 2013; Kenya Revenue Authority 2014; Kenya Forestry Research Institute 2014; County Government of Uasin Gishu 2014; Cotton Development Authority 2014; Postal Corporation of Kenya 2014; The Judiciary 2013; Higher Education Loans Board 2013; Moi Teaching and Referral Hospital 2013; National Health Insurance Fund 2013; Ministry of Devolution and Planning 2013; National Cereals and Produce Board 2013; Kenya Roads Board 2013; Office of the Auditor General 2013; Kenya Maritime Authority 2013; Kenya Sugar Board 2013). There is currently no comprehensive data on the success rate of these initiatives partly because many of them are still under implementation.

In July 2011, the Government of Kenya launched the Open Data Portal (ODP) to facilitate citizen access to government information – the Online Government Data (Kenya ICT Board 2012). The portal is www.opendata.go.ke. This initiative was hailed

across the globe as a sign of Kenya's commitment towards transparency and accountability in governance, becoming the second country in Africa after Morocco and the first is Sub-Saharan Africa to adopt the Open Data Framework (Kenya Open Data 2014). The portal is intended to provide a central point where all government ministries could upload data for citizen access. The Open Data Initiative is an attempt to encourage every government agency and department to open its doors and data to the public so as to create a more transparent, participatory and collaborative government, which has been adopted progressively in the USA and United Kingdom (Institute of International and Europe Affairs, 2011). Government ministries in Kenya are required to release data to the ODP to facilitate citizens' access to the data. The significance of this to electronic records management is such that, the ministries and public offices have to implement capabilities for electronic data and records management to comply and support the ODP initiative. Among the datasets that were intended for uploading to the portal from various government entities include: fiscal data, traffic incidences per county, national and county government's expenditure, national census data, constituency development fund data, and poverty rates per county, parliamentary proceedings, geo-mapped education facilities, geo-mapped health facilities and other public service locations (www.opendata.go.ke).

There have however been concerns on the success of the ODP initiative. Analysts have reported failure of the ODP to meet its expectations as envisaged during its conception and official launch (Hargreaves 2012 & Brown 2013). Among the reasons cited for the ODP's inadequacy are reluctance of various ministries and government entities to release data, the Official Secrets Act of the Laws of Kenya that restricts the release of

public information, lack of robust electronic data and information management capabilities across many GOK entities, failures in technical capabilities of the portal like unstandardised metadata schema for describing datasets, which makes search and retrieval of data cumbersome and low qualities of available data (Mutuku & Mahihu 2014). There has also been cited the concern that many Kenyans do not know about the Kenya open data initiative and that only fourteen percent had used it as of September 2013 (Chiliswa 2014; Mutuku, Mahihu & Sharif 2014; Kapchanga 2013). Electronic records and document management would be critical in supporting the open data initiative because they would provide a reliable source of data and can be technically interfaced with the ODP to improve the richness and quality of the portal.

2.3.4 Sample Key MER Projects in Kenya

This section provides a snapshot of some of the key ERM projects in Kenya (ongoing or concluded) that have an impact on e-government. The objective of this is to reveal the levels of commitment exhibited on MER and how they underpin e-government. The projects described in this section are those whose objective was to improve public access to information and service, which is the cornerstone of e-government.

2.3.4.1 Digitization of Records at the Kenya National Archives and Documentation Service

The Kenya National Archives and Documentation Service (KNADS) embarked on the digitisation of selected archival materials in 2007 primarily to facilitate access to its archival holdings by Kenyan citizens and other researchers (Mwangi 2012 & Namande 2011). Emphasis was placed on materials that were heavily used as well as those that

were physically deteriorating. At the beginning, the digitisation programme was outsourced. However, KNADS decided to develop its own internal capacity for in-house implementation. The department procured scanners and computers to undertake the exercise. As of September 2012 over 13 million documents had been digitised (Mwangi 2012). By August 2014, there was no documented clarity on the progress of the project regarding how many documents had been digitized. According to Namande (2012) and Mwangi (2012), these materials were to be made available for online ordering through KNADS' website. Users of the materials were to download them remotely after paying the stipulated fees. In addition, to ensure efficient and effective storage and access to the digitised materials, KNADS installed top-end equipment including servers and storage area networks with adequate capacity to store and process all the materials.

The department also acquired a state-of-the-art records management system that was capable of managing both paper and electronic records. This was to serve the KNADS' records management needs as well as act as a resource where other public organisations wishing to automate their records management systems could learn on best practices (KNADS 2014).

2.3.4.2 Open Access to Public Legal Information Project

In 2011, the Kenya National Council for Law Reporting (NCLR) in conjunction with the Kenya National Assembly and The ICT Board embarked on a project to digitize and provide free online access to the historical and current records of the debates of the Kenya National Assembly and previous parliaments, and legislatures dating as far back

as 1960 to 2011, officially referred to as the Hansard. This was at a cost of about Kshs. 2 million (NCLR 2011; Google Press 2011).

The records contained information of enormous value to Kenya's social, legal and political heritage. This included the parliamentary debates capturing the transition to internal self-government to the birth of the Republic of Kenya; the declaration in 1952 of the Mau Mau as an unlawful society to the lifting of the declaration in 2003. The records are an invaluable repository of knowledge and information on Kenya's governance. Citizens can now easily search, access and cross-reference contextually relevant information on parliamentary debates on matters affecting their constituency or a matter in which they have a particular interest at the NCLR website www.kenyalaw.org and also on the Kenya Parliament's website www.parliament.go.ke.

Besides the digitization of the Hansard, in April 2011, NCLT partnered with Google to digitize all Kenya Gazettes, the official gazette of the Government printed by the Government printer and hitherto held in hardcopies. The digitized documents were made available to the public from 19 April 2014 through Google Books. The documents made available included copies of the Kenya Gazette dating back to 1906 and contains important notices such as government appointments, as well as individual notices that are required to be made public by law (Google Africa 2011; NCLR 2009).

2.3.4.3 Ministry of Lands Digitization Project

In Kenya, many communities consider land as one of the most critical resource and a leading factor of production for virtually all communities. As a result, land has been at the centre of virtually all political and ethnic conflicts since independence, including the 2007/2008 post-election violence, the worst in Kenya's history (Kwanya 2014; Njuguna & Baya 2004; Wanyumba 2004). Management of land has, therefore, been a key concern of all successive governments and the citizenry.

Following the 2007-2008 violence and subsequent mediation process managed by the Kenya National Dialogue and Reconciliation (KNDR) body, re-engineering of land management in Kenya was identified as one of the major institutional reforms required for the country (KNDR 2011; International Centre for Policy and Conflict 2009; KNDR 2008). Among the reasons cited as causes of inefficiency in land management was the poor state of land records management at the Ministry of Lands registries across the country and the Head Quarters, in particular (Ayodo 2014). Consequently, a key recommendation on land reforms as part of what was known as "agenda four" on long term issues and solution was the establishment of a transparent, decentralized, affordable and efficient GIS-based Land Information Management System and a GIS-based Land Registry at the Ministry of Lands, including all local authorities (South Consulting 2012).

In May 2007, a task force was formed to spearhead the automation of lands records following authorization by a Cabinet Standing Committee on e-Government through circular number OP/CAB/1/16A (Cabinet Office 2007).

The National Land Information Management System (NLIMS) project was officially conceived in 2008 (Nyongesa 2012). The overall objective of NLIMS was to establish quality Land management and administration system that facilitates efficient and effective service delivery in line with the provisions of the Kenya Constitution- 2010, Vision 2030 and the National Land Policy which was approved in the year 2009 (Kwanya 2014 & Nyongesa 2012). This was to be achieved by converting the existing land records into digital records that would be accessed and exploited electronically while the paper records are stored in an archive. The electronic records would, therefore, be used in the day to day transactions in discharging public services, while the archive records are preserved and only used as reference records.

In 2013, the NLIMS project was taken up by the National Land Commission which commenced operations on 27th February 2013. In its progress report of January 2014, the NLC reported that the NLIMS project was on course and that the commission had identified senior staff to spearhead the project, prepared procurement documents for the hardware and software and drawn budgetary estimates (National Land Commission 2014). The project as anticipated to be a major case study of MER and ERM in Kenya and a key contributor to not only the quality of service within the Ministry of Lands, but also a case study for e-government initiatives.

2.3.4.4 State Law Office Digitization Project

The State Law Office (SLO) identified computerization of its registries as a strategic focus to improve service delivery in its 2005-2007 strategic plan (SLO 2005). During this

period, the SLO embarked on an ambitious project to digitize its paper records to improve efficiency and effectiveness in public service delivery. The objective of this project was to improve turnaround times in registration of companies and business entities. Records from 1936 to date were scanned and the data captured to allow for online search of company names and information. This project was spearheaded by SLO's e-government committee because of the impact it would have on service delivery as an e-government initiative. The project, supported by the Kenya ICT Board was finished ahead of schedule and saw about 25.5 million pages scanned and stored by May 2010 (Amollo 2011).

The project was completed by 2014 and reported to have improved the turnaround time for registration of business names from fourteen days to one day by May 2014 (Omondi 2014). The cumulative effect of this is anticipated to be an improved lead time of three days to start a business in Kenya as opposed to an average of about thirty-two days as has been the case (Omondi 2014) and most importantly improved service delivery to the citizens.

2.3.4.5 The Judiciary of Kenya Digitization Project

During the 2008 national dialogue spearheaded by the KNDR under chairmanship of Koffi Annan, reforms in the judiciary and entire justice system were pointed out as some of Kenya's institutional reforms that needed to be undertaken urgently (South Consulting 2013; Odote, Migai & Mwangi 2011; South Consulting 2011; International Commission of Jurists(ICJ) Kenya 2011; KNDR 2008). The new Constitution of 2010

re-engineered the judiciary system to align it to aspirations of Kenyans with regard to delivery of Justice.

The Kenyan Judiciary embarked on an ambitious project to automate its processes to improve the service delivery. The digitization of hardcopy records was the first step taken towards automating the Judiciary's processes (The Judiciary 2010). According to IRMT (2011a), an ICT consultant was commissioned to carry out a needs assessment with a view to determining the nature and volume of the court records to be digitized, developing a digitization strategy, and preparing an implementation plan. With the assistance of the ICT Board and the Judiciary, the consultant organized the court records for the last ten years and a total of 325,000 files were prepared for digitization. The focus was on scanning of files, and establishment of a Documents Management System.

By October 2011, about 60 million records had been digitized (The Judiciary 2012). To ensure ongoing service improvement, court judges were provided with ipads and iphones to help them capture court proceedings electronically and free them from manual recording of court proceedings which have to be digitized (The Judiciary 2013).

Overally, the records digitization project and overall automation of information management at the Judiciary is intended to make access to information easier and faster, while saving time and money for clients seeking access of various court files. The targeted end result is speedy and quality service delivery within the judiciary which is central to an effective justice system that can win everyone's confidence.

2.4 E-GOVERNMENT IN KENYA

This section presents insights on the development of e-government in Kenya. It discusses the initiation of e-government in Kenya, the catalysts for e-government in Kenya, the structure of e-government administration, strategic and future outlook, and also presents updates on e-government initiatives in Kenya. It also provides information on the milestones and challenges facing e-government roll-out in Kenya.

2.4.1 Drivers of E-government

In chapter one, the study gave a working definition of e-government as the use by government agencies of information and communication technologies that have the ability to transform relations with citizens, businesses and other arms of government (Kamatula 2010; Kazmi 2010; World Bank 2008; Ngulube 2007; Gilmore & D'Souza 2006; Sharma 2006; Kroukamp 2005; Sharma 2004; Sharma & Gupta 2003; Fang 2002). The level of e-government readiness in a country is measured by access to ICTs.

According to the United Nations e-government survey of 2014, Kenya ranked among the top 20 countries on e-government in Africa at position nine. It stood at position 119 globally out of 193 countries ranked (United Nations 2014). The UN's e-government development index (EGDI) "is a composite measure of three important dimensions of e-government, namely: provision of online services, telecommunication connectivity and

human capacity" (United Nations 2014). It scores countries on an index of 0.00-1.00. It therefore ranks countries progress on e-government based on online service advancements, best practices in e-government, ICT infrastructure and human capacity.

It groups countries into four tiers: very high EGDI (score more of 0.75-1.0: 25 countries in 2014), high EGDI (score of 0.50-0.75: 62 countries in 2014), middle EGDI (0.25-0.50: 74 countries in 2014) and low EGDI (less than 0.25: 32 countries). Kenya was among the 74 middle EGDI countries with a score of 0.3805. Details of how the scores are calculated are beyond the interest of the present study .

The need and demand for e-government in Kenya has been driven by a number of factors including popular demand for public sector reforms, pressure for transparency and accountability in government, growing trends towards e-commerce and availability of technology as seen in the growing connectivity to Internet and mobile technologies (Davies 2014; Gathungu & Mungai 2012; GOK 2007, 2003).

The introduction of e-government in Kenya was part of the public sector reform (PSRs) initiatives by the Government of Kenya (Muthaura 2010; Ntimama 2005). Public sector reforms were among the interventions intended to enhance efficiency, effectiveness, accountability and transparency. E-government was seen as a critical element of the PSR process as opposed to manual government processes. E-government was viewed as a better way of enabling citizens to access public services in easy, convenient,

transparent and cost-effective ways (Muthaura 2010; Cordella 2007; Kitaw 2006; Baptista 2005).

Public sector reforms have focused on improving the effectiveness and efficiency in public service delivery. The Kenyan administration in 2004 declared e-government implementation as one of the top priorities towards the realization of the country's national development goals and objectives for wealth and employment creation (Republic of Kenya 2004). During the launch of Kenya's e-government strategy, the then President Mwai Kibaki indicated the main objectives of implementing e-government were to enhance delivery of public services, improve information flow to citizens, promote productivity among public servants and encourage citizens' participation in governance (Njuru 2011). This commitment has also been captured in various policy documents by the Government of Kenya (Kenya ICT Authority 2014; Murungi 2007; Ministry of Education Kenya 2006; Republic of Kenya 2006; DEG 2004). Literature showed that such objectives are not uniquely Kenyan but global expectations and underlying principles driving e-government (World Bank 2012; Google Press 2011; Howard 2011; Malakata 2011; Price 2011; Rabah 2011; Welch et al., 2005; Holzer 2004; Heeks 2002; World Bank 2002; Kenny 2001).

Close to the first aforementioned factor of general public sector reforms is the increased pressure on successive Kenyan governments and institutions to enforce transparency and accountability in public services. Corruption has been a major problem in Kenya's governance system and public service delivery in general. (Anderson 2014; Wrong 2014; Warner 2013; Transparency International 2012; Institute of Economic Affairs

2000). Lack of accountability and transparency undermines justice and fairness, gives rise to cynicism and mistrust of government and weakens government's institutions and structures. Njuru (2011) contends that the opening up of the society through e-government could strengthen government institutions and structures, thus, create positive social change in Kenya.

The manual systems and processes have been blamed for the thriving of corruption in Kenyan institutions because of their limitations in facilitating robust information sharing, including reporting of service delivery flaws. As a result, public entities have resorted to ICTs and e-government channels to provide mechanisms to control corruption and provide channels for enforcing transparency. Many public entities are for instance resorting to automating payment services to collect public revenue directly and reduce the risk of diversion of public funds through forged receipts, non-reporting of revenues, demand for bribes in manual processes and destruction of evidence (DFID 2013). For a long time in Kenya, there has been a problem of poor delivery of public information and services to the citizens by Kenya's successive governments (Annan 2009; Clinton 2009; Kibwana, Akivaga, Mute & Odhiambo 2001). Berman (1997) argued that the perceived inadequacy of public information and services is believed to significantly reduce citizens' trust in government and their participation in the public policy process. The e-government systems enable the elimination or reduction of human intervention hence improving accountability.

The e-commerce trend is increasingly taking root in Kenya placing huge demands on technology-driven business transactions as opposed to traditional brick and motor systems. Electronic transactions and payments are becoming favored within Kenya more than ever before. About 17 million Kenya's are registered on Safaricom, Kenya's and global leader of mobile money transfer service Mpesa, which is the world's first mobile money transfer platform (Gilpin 2014; The Economist 2014; Capital FM 2014; USAID 2011). This figure excludes statistics from other mobile money transfer services like Airtel money and Orange money. Today, virtually all payments can be made through mobile money, from payment of levies, payment of school fees to shopping in malls.

Besides the mobile money payment systems, general Internet-based transactions on interactive websites like online shopping is growing as well as the credit and debit card transaction systems predominantly supported by Visa and MasterCard (Nandwa & Abwao 2014; Kangethe 2013). As a result of these developments and citizens' growing appetite for electronic transactions, many institutions including public entities are compelled to adopt electronic transaction systems to improve quality of service and be attractive to clients. This is made even more necessary where competition for business thrives. As a result public entities like electricity supply company Kenya Power, Nairobi County Government, the Judiciary and others are adopting electronic transaction systems. For instance, Kenyan's can now apply for electricity connection online unlike five years ago when it was manual, which has seen growth in purchase of electricity and hence increased revenue for Government (Kenya Power 2014).

The fourth factor could be the growing availability of electronic and digital technologies but, more importantly, the rapid growth in connectivity of Kenyans to Internet and mobile networks. According to the April-June 2015 quartely subsector statistics on Internet connectivity in Kenya released by the Communication Authority of Kenya (CAK), Internet penetration in Kenya as of June 2015 was at 68.84% (29.6 million) of Kenya's population. Mobile money transfer subscription stood at 27.7 million subscribers. Mobile phone subscribers stood at 36.1 million subscribers, constituting 83.95% of the population. With regard to broadband Internet connectivity, which is key in electronic and online transactions, mobile broadband connectivity stood at 5.32 million (CAK 2015; Kemibaro 2014). In addition, mobile data Internet subscriptions, which are increasingly taking root in the country stood at 19.9million people.

These statistics reveal that the ground and environment for e-government is ripe in Kenya. With over 50% of population on Internet and Mobile connectivity, it would imply that the majority of the population are able and ready to tap into the power of these platforms to transact. They are expectant of the Government and its affiliate institutions to harness the power of these technologies to serve them better. This connectivity also affords Government and other public entities an easier, convenient and cost-effective channels to reach the citizens regardless of geographic spread to improve service delivery. It is noteworthy that the relationship between Internet and mobile telephone connectivity is inextricable in that 99% of Internet usage was driven by mobile connectivity (Kemibaro 2014). This would also explain why there is an increasing adoption of mobile-based transactions, including payment systems, to enhance service

delivery and mitigate on corruption, through sealing leakages that would materialize in physical transactions.

2.4.2 Structure of E-government in Kenya

The Government of Kenya established the e-government programme in June 2004 (Directorate of E-Government 2011). The objectives of the e-government strategy in Kenya are to: improve collaboration between government agencies through reduction of effort duplication and enhance efficiency and effectiveness of resource utilization; improve Kenya's competitiveness by providing timely information and delivery of government services; reduce transaction costs for the government, citizens and the private sector through the provision of products and services electronically; and provide a forum for citizens' participation in government activities (Directorate of e-Government 2011).

At inception, the e-government programme in Kenya was administered by the Directorate of e-Government (DEG) which was headed by the ICT Secretary at the Presidency and Cabinet Affairs Office, Office of the President. At the time DEG was mandated to provide leadership, facilitation and coordination of e-government services across ministries and accounting units. The primary function of the e-government structure was to develop, coordinate and define ways that allow electronic and information technology business strategies to assist the government to operate more effectively and efficiently in delivering services to citizens.

In the year 2013, the Directorate of e-Government, together with the Kenya ICT Board and Government Information Technology Services (GITS) were all merged into the

Kenya ICT Authority, a move the government had said was to consolidate all IT functions under the Ministry of ICT, under legal notice 183 of 16 August 2013 (Government of Kenya 2013a). The Kenya ICT Board was formed in 2007 to sell the country as a profitable technology investment destination and grow investment in the industry. GITS on the other hand fell under Treasury control, with budgets for tasks such as assisting government agencies to entrench ICT in their processes and the hosting of ministry websites. E-government is therefore currently administered under the ICTA whose functions are captured under Kenya Legal Notice 183 Section 4 as to:

a) Set and enforce ICT standards & guidelines for human resource, infrastructure, processes, systems and technology for the public office and public service and;

b) Deploy and manage all ICT staff in the public service;

c) Facilitate and regulate the design, implementation and use of ICTs in the public service;

d) Promote ICT literacy and capacity;

e) Promote e-government services;

f) Facilitate optimal electronic, electronic form, electronic record and equipment use in the public service;

g) Promote ICT innovation and enterprise;

h) Facilitate the establishment, development and maintenance of secure ICT infrastructure and systems; and

i) Supervise the design, development and implementation of critical ICT Projects across the public service.

In April 2014, the Kenya ICT Authority launched the Kenya National ICT master plan for the period 2013/14-2017/18. The Masterplan replaced the Kenya E-government Strategy developed in 2011. The Masterplan states Kenya's e-government vision as to provide "one-stop, non-stop e-government services by simplifying government processes and embracing technology neutral operating environments across the entire public sector that support and facilitate inter- agency collaboration in service delivery". The master plan intends to achieve the following by 2017/2018: increased public value of e-government services with 50% of adults accessing at least one e-service; eight out of ten users being 'very satisfied' with the quality of government's electronic services; enhanced digital presence and economic competitiveness using ICT, thereby improving the e-government ranking and ease of doing business rank internationally by at least 15 places by 2017 (Kenya ICT Authority 2014).

This is perhaps one of most progressive and ambitious strategies and commitment to e-government so far, in addition to the e-government strategy that was developed in 2011. The above initiatives denote the Government's commitment towards technology driven service delivery, which is the core of e-government.

Section 5.1 of the ICT Masterplan discusses the driving forces, deired outcomes and strategies for e-government. In order to achieve the desired e-government outcomes

described above, the Masterplan provides the following as the Government's strategies for achieving the e-government desires:

- Strategy S1: Simplify and automate integrated end-to-end e-government processes.
- Strategy S2: Leverage on e-government services to create a strategic competitive advantage for Kenya to help boost growth of the private sector.
- Strategy S3: Promote e-government as the service channel of choice.

2.4.3 E-government Projects in Kenya: Case Studies

The defunct Directorate of E-government (DEG) in the 2011 E-government Strategy had indicated the following seven as its core e-government projects: citizens' portal, shared services, county connectivity project, government data centre, government unified messaging system (GUMS), interactive voice response system (IVRS), community learning information centres (CLIC) (Directorate of e-government Kenya 2011).

The ICTA revised the above seven initiatives to the following eleven "government digital services": National Fibre Optic Infrastructure (NOFBI); Kenya News Agency (KNA) digitisation; Transport Integrated Management System (TIMS); GUMs, Kenya Open Data Initiative (KODI); County Connectivity Project; Smart County Project; Civil Registration Department (CRD) digitisation; Integrated Financial Managemeny System (IFMIS); Kenet Bandwidth Support; Government Core Communication Network (Kenya ICTA 2015). Even though this revision seemingly leaves out IVRS, government data

centre, shared services and CLIC, these services are still embedded within the eleven areas. For instance KODI takes care of government shared data while shared services is now structured as a broad component to drive e-government spanning several segments. There is in actual fact a directorate of Shared Services within the ICTA structure (Kenya ICTA 2015).

A further analysis of these eleven also reveals that they span infrastructural and electronic data management aspects. The KNA digitisation, TIMS, KODI, CRD digitisation, IFMIS and Kenet bandwidth support have direct relationship to management of electronic records/data for their effectiveness.

The ICT masterplan prioritises three end-to-end e-government services for three services “that are regularly used by majority of the Kenyan population and or businesses” to be fully operational by 2017. These services are:

- Universal civil registration system and the associated huduma services.
- Company registry system and the associated huduma services.
- National land information management system, relying on a National Spatial Data Infrastructure (NSDI) and the associated huduma services.

2.4.3.1 The E-citizen Portal

The e-citizen portal provides the Government's primary gateway for e-government services. The portal is an effort to consolidate all central government services (excluding parastatals) into one acess point for citizens. The focus of the portal is to pull all e-services from various ministries onto one convenient access point.

The e-citizen portal avails a one stop access to a range of information resources and online services from various government agencies. The objective of the portal is to provide an easy-to-reach and access to government services and information by citizens. It is intended to enable Kenyan citizens living anywhere to seek information on things that would normally require them to visit a government office. The portal acts as a platform to connect all services and information offered by various government bodies in order to make them easily accessible and available to the citizen. The services that are currently available on the e-citizen portal, are as indicated in Table 2.1.

Table 2.1: E-government Services on e-citizen portal in Kenya

Service Provider	Service Provided
Registrar of Companies	• Business name search • Business registration
Registrar of Marriages	• Notice of Marriage • Solemnization of marriage • Commissioning of affidavits • Isuuance of registrar's certificate • Issuance of marriage certificate
National Transport and Safety Authority (NTSA)	• Provisional Driving License • Interim Driving License • Driving Class Endorsement • Driving License Information

	Corrections • Driving Test Booking • Driving License Renewal (1 Year) • Duplicate Driving License
Ministry of Lands	• Official Search (Nairobi Blocks) • Application for official copy • Land Rent Clearance Certificate
Department of Immigration	• Passport application for Adults • Passport Application for Children • Application for Kenyan Visa
Civil Registration Services	• Birth Certificate • Late Birth Certificate • Death Certificate

Source*:* https://www.ecitizen.go.ke/service.html (Accessed 24 August 2015)

2.4.3.2 E-procurement Service

In 2014, the government launched the e-procurement service through the Integrated Financial Management Information System (IFMIS) platform, called IFMIS Electronic Procurement. The objective of this was to enable government procurement go online to enhance transparency, fairness, competitive and cost effective procurement. This was to include a Kenya Supplier portal to enable suppliers track their purchase or service orders and be fully compliant with government requirements (Karanja & Ng'ang'a 2014; Mutegi 2014; Selfano, Adero & Chumba 2014). The e-procurement service is a major e-government service in Kenya because of its deliberate purpose to improve efficiency, transparency and accountability in government and public procurement through elimination of manual processes that are time consuming and prone to manipulation (IFMIS 2015). It provides a platform where suppliers to public institutions interact with the buyers, eliminating the previous manual procurement processes.

2.4.3.3 Online Reporting of Corruption

In 2009, The Kenya Anti-Corruption Commission (now the Ethics and Anti-Corruption Commission-EACC) set up the Anonymous Whistleblower system to facilitate online reporting of corruption by citizens. The system provides for a confidential online platform through which Kenyan citizens can report all forms of corruption activities to enable the EACC take appropriate action (EACC 2015; Schultz, Osore & Vennen 2010).

2.4.3.4 iTax System

In 2013, the Kenya Revenue Authority (KRA) rolled out an online tax system called iTax for managing KRA transactions. iTax is a web-enabled and secure application system that provides a fully-integrated and automated solution for administration of domestic taxes. Internet based PIN registration, returns filings, payment registration to allow for tax payments and status inquiries with real-time monitoring of accounts.

The system also allows for: tax compliance certificate (TCC) verirification; withholding tax verification; checking of tax application status; verification of withholding VAT agents; viewing of taxpayers accounts; application for tax refunds; application for waivers and writeoffs(KRA 2013). A major impact of this service was the abolition of manual filing of tax returns, requiring all taxpayers to file their returns, monthly and annually, through iTax.

2.4.3.5 Integrated Customs Management System

The KRA acquired a new integrated Customs management system in 2015 to modernize and improve the efficiency of KRA's customs management. The system was

intended to reduce the time taken to clear imports and exports by at least 60%. Other gains of the system include the ability to pre-lodge 80% of customs documents, a linkage to the National Single Window System to reduce complexity for traders in obtaining official approvals and streamlining of processes between Kenya and other revenue authorities in the region (Mureithi 2015).

2.4.3.6 Online Passport Application

In April 2015, the Kenya Government through the Directorate of Immigration rolled out an online platform for application of passports. The objective was to shorten the period taken to apply for passports to not more than ten days for new holders and not more than 5 days for existing passport holders (Mutegi 2015). The system has been integrated with mobile technologies to enable mobile-based tracking of the passport applications. This saves the applicants the resources and time spent previously on physical visits to immigration offices to check on their applications status.

2.4.3.7 Other E-Government Services

In addition to e-citizen portal and e-procurement, other e-government services have been rolled out by various public institutions in the country. These include: public service job applications and status tracking; national examination results confirmation and registration; Higher Education Loans Board (HELB) loan repayment tracking; tracking status of national identity card; Kenya National Examination Council (KNEC) examination registration and results services; online application for degree and diploma courses through the Kenya Universities and Colleges Central Placement Service (Directorate of e-Government 2012).

2.5 CHAPTER SUMMARY

This chapter has endeavored to provide the context of this study. It has provided a detailed description of the recent developments in records management in Kenya. It has also presented an outlook on the management of electronic records, which is the fulcrum of this study. The chapter has also provided a contextual outlook of the e-government environment in Kenya, including its drivers and existing initiatives.

CHAPTER THREE

LITERATURE REVIEW

3.0 INTRODUCTION

This chapter provides a detailed review of literature on management of electronic records and e-government. The chapter starts by discussing the significance of literature review in research. It provides the theoretical framework underpinning the study by discussing e-government models and models in management of electronic records. It discusses in detail the concept of management of electronic records and how it relates to e-government. The chapter also presents a review of case studies from four countries that have made strides in enhancing management of electronic records in support of e-government. The chapter has avoided detailed discussions on e-government to remain focused on the main subject of the study.

In view of the study objectives and the need to focus the review of literature on the subject under investigation, this chapter is therefore structured around the following themes: the study's theoretical framework, an overview discussion of the concept of management of electronic records including key terms, functional requirements and challenges; challenges of managing electronic records in Kenya; the relationship between electronic records and e-government; case studies on management of electronic records for e-government.

3.1 LITERATURE REVIEW IN RESEARCH

Literature review refers to an analysis of existing literature on the subject of research. It is a review of what other authors, experts and authorities have written or said about the topic of research (McMillan & Schumacher 2006; Burton & Bartlett 2005; Boote & Beile 2005). The literature being reviewed can be primary or secondary sources of information both published and unpublished.

According to Mathipa (2015), Creswell (2014a), Creswell (2014b), Denicolo and Becker (2012), Creswell (2009), and Marshall and Rossman (2006), reviewing literature has several benefits in research, which include amongst others:

- Help the researcher examine the research problem from more than one angle as well as to anticipate the type of audience his/her study is out to address.
- Provides a background to the study.
- Preparing and orientating the researcher on ongoing debates, opinions and views taking place in the field of study.
- Documenting how a study adds to existing literature in the field of study and the relationship between the present research and past researches in the field.
- Convincing readers that a researcher is familiar with previous works done in the area of study.

- Build readers confidence in the research work by demonstrating that the research has reviewed what has been done before and is not duplicating ideas or advancing far-fetched arguments.
- Helps the researcher know what exists on the subject and help refocus the research direction.
- Helps find useful examples and models that can enrich the research being undertaken.
- Have the benefit of knowing how other researchers have conducted their studies.
- Provide a basis for understanding the importance of a study.
- Compare the results of the study with previous findings.

According to Creswell (2014a, b) and Creswell (2009) a good literature review follows a series of steps which include: identifying key terms; locating the literature; evaluating and selecting the literature review; organizing the literature; and writing the literature review.

In the present research, the key terms that underpinned the literature review were: records management, management of electronic records and e-government. The study identified a number of literature sources, including journal articles, books, institutional websites, newspapers, online periodicals, previous studies, statutory and legal documents, international and nation standards, blogs, online social networking professional groups, oral interviews, official memos and letters, academic works (thesis/dissertations). The researcher evaluated the credibility of the literature sources based on the authority of the author and how current the source is, limiting to sources

not more than ten years old except for statutory, legal and regulatory documents, as well as government/official directives e.g. circulars.

3.2 LITERATURE REVIEW MAPPING

Literature review mapping is establishing a conceptual map of topics and ideas and showing their relationships to allow a researcher to show the connections between the key concepts within the literature review (California State University 2008). According to Machi and McEvoy (2008) and Kamler and Thomson (2006) mapping of literature is a predominant strategy used in guiding literature reviews in doctoral researches. It is a diagrammatic or graphic representation of the relationship between key concepts underpinning the literature review, showing the flow and relationships that informed a researcher's decisions in reviewing the literature. Mapping helps to focus the literature review to ensure the study remains aligned to the key issues under investigation.

According to Machi and McEvoy (2008), there are two main approaches to mapping literature review: use the core ideas underpinning the study or mapping by authors, which means identifying key experts in the field under investigation to provide the conceptual map.

The present study's literature review map was based on the key ideas that described the research topic. Figure 3.1 provides a graphical representation of the conceptual map of the literature review of the present study.

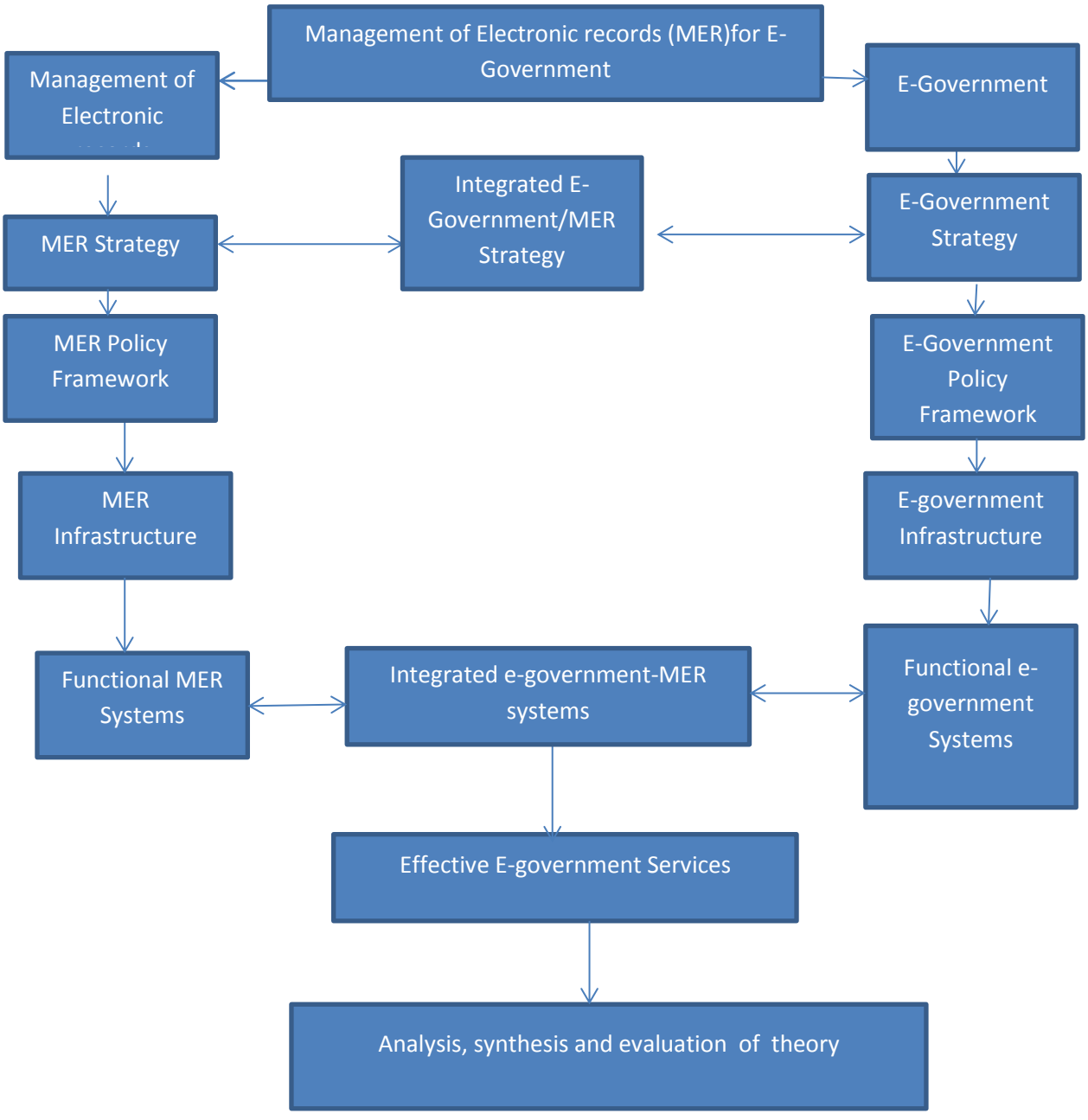

Fig. 3.1. Literature review map

3.3 THEORETICAL FRAMEWORK

This section provides a discussion of the theoretical frameworks that underpinned the present study.

A number of authors present definitions of the word theory both from a scientific or general viewpoint (Eagleton 2008; Johnathan 2005; Kothari 2004; Stoner *et al*. 2003; Mugenda & Mugenda 1999). The thrust of their definitions is that a theory is a set of hypotheses, assumptions or propositions, logically or mathematically linked, offered as an explanation in general terms for a wide variety of connected natural observable phenomena.

In common usage, the word theory is often used to signify a conjecture, an opinion or speculation that explains a group of observed facts in a particular field (Eagleton 2008; Nonaka 2005). A theory makes generalizations about observations and consists of an interrelated, coherent set of ideas and models.

In research, theories help researchers to draw conclusions, develop the body of knowledge and even generate more advanced and improved theories (Eagleton 2008; Johnathan 2005; Kothari 2004; Stoner *et al*. 2003; Cozby 2001). Ocholla and Roux (2011) note that a theory serves as a lens through which a researcher examines a particular aspect of his or her subject field. Redish (2004) describes a theory in research as a shared language and assumptions that can both guide and allow us to compare different approaches and ways of thinking. It is therefore important that every research has some theoretical inclination within the subject of study, against which the researcher can build his thinking and draw conclusions. In scientific research, Kemoni

(2008) says that theories serve four purposes: description, explanation, prediction and control.

Cleland (2006) indicates that a theory can be a mathematical or logical explanation or a testable model of the manner of interaction of a set of natural phenomena. Therefore, models can be used to explain theories.

A model is a simplified representation of a real situation including the main features of the real situation it represents (Kemoni 2007). It is a description of phenomena abstracted from the complex and detailed real situation.

According to Alasuutari (1996) and Grant and Osanloo (2014), theoretical frameworks provide a general viewpoint in which a case can be assessed. They provide the structures and visions for studies. Grant and Osanloo (2014) state that theoretical frameworks can be used in quantitative, qualitative and even mixed methods researches to structure all spects of the research.

The present study triangulated the Model Requirements for Management of Electronic Records (MoReq) model (on the MER component) and the United Nations five-stage e-government maturity model (on the e-government component) as the theoretical frameworks of the study. All aspects of the models were used to guide the study hence the theoretical framework.

In the present study, the theoretical framework was essential in structuring the literature review, the research questions, data collection, data analysis and the interpretation of the findings as well as in constructing the recommendations. Issues on e-government in

the study were visioned along the the five stages of the UN Model, whereas those on MER were interrogated in line with provisions of the Moreq model with regard to MER, as discussed in sections 3.3.1 and 3.3.2 below.

3.3.1. The MoReq Model

The MoReq (Model Requirements for Management of Electronic Records) was developed in 2001 by the European Commission. The model focuses purely on the functional requirements for management of electronic records by an electronic records management system (European Commission 2001). The requirements embodied in the MoReq specification should, if implemented, result in a system, which will manage electronic records with the desired levels of confidence and integrity, by combining both the advantages of electronic ways of working with classical records management theory. Examples of this pragmatic approach include the incorporation of requirements for document management, workflow, metadata and other related technologies. Intentionally, the specification addresses only the capabilities required for the management of electronic records by computer software. Among the specifications given by the model are: classification schemes for electronic records, controls and security, capturing of electronic records, retention and disposal, searching and retrieval, metadata requirements and other non-functional requirements like ease of use, encryption, electronic signatures amongst others (Lappin 2011; Cain 2002).

The MoReq model is particularly relevant to this study and is the model of choice for the study because of its dedicated focus to the management of electronic records. The model also provides a rich combination of the advantages of electronic ways of working

with classical records management theory. MoReq provides clear indications on how MER would fit at every stage of e-government service delivery. The model does not only provide principles but also technical guidance on practical implementation of systems for managing electronic records, which is central to the present study.

Other models in MER that were reviewed included the ICA Model on Requirements for Electronic records Systems and the State University of New York ERM Models. However, the two models were not considered suitable to form a theoretical framework because of their narrow focus on only the principles of MER. Unlike the MoReq model, they do not offer comprehensive guidelines on the technical management of electronic records and the integration of systems for MER into electronic business operations.

3.3.2. The United Nations Five-Stage E-government Model

In 2001, the United Nations proposed a five-stage model (United Nations 2001) for assessing e-government maturity. The model provides the following five stages of e-government development (Karokola, Kowalski & Yngstrum 2012; Karokola & Yngstrum 2009):

Emerging web presence – this is the initial stage where government websites provide mostly basic and limited static information with less options for citizens.

Enhanced web presence – this is the second stage where there are improvements of government websites in-terms of providing dynamic, specialized and regularly updated information. Among

the website features include search facilities, on-line help and site maps.

Interactive web presence – users and service providers are connected to government portals (websites). Interaction becomes more sophisticated than in the former stage. Services such as search facilities and accessibility of various forms are enhanced.

*Transactional web presenc*e – this stage allows two-way interactions between the citizen and the government. At this level, users can conduct complete online transactions including buying and selling activities.

Seamless/Networked web presence – this is the most sophisticated level of e-government service delivery, where all services and functions across all government levels are integrated. At this level, citizens can access any kind of services from a central location at any given time.

The present study considered the UN 5-stage model relevant to the present research because of elaborate description of the e-government development cycle. It provides a more elaborate view of e-government development compared to other models reviewed as discussed below. The model views e-government in context of service delivery, which is the spirit of the present study, and not just mere delivery of information as the Deloitte and Touche model.

Other e-government maturity models that were reviewed and considered inadequate for theoretical framework included: the E-government Four-Stage Model by Karen Layne and Jungwoo Lee of University of Nevada Las Vegas, College of Urban Affairs (Layne & Lee 2001); Gartner's E-Government Maturity Model (Al-Khatib 2009; Savic 2006; Karokola & Yngtrum 2002; Baum & Maio 2000); West's Four-Stage Model (Darrel West 2000); Deloitte and Touche's Six Stage Model (Deloitte & Touche 2001). The models were considered inadequate because despite most of them having only four steps, they do not directly capture service delivery as a principal objective of e-government as does the UN five-stage model. Similarly the Deloite and Touche's six-stage model, besides having six stages of e-government maturity, focuses more on information management and access to information than service delivery.

The MoReq and UN 5-Stage Models complement each other in the sense that their combined analysis provides an indication on how management of electronic records plays at every stage of e-government development. They also offer a basis to assess e-government maturity and determine how to integrate electronic records systems at each level of e-government. They also demonstrate that at every level of e-government maturity, regardless of number of stages contemplated, management of electronic records is central to the success of e-government since every stage involves information creation, management and dissemination.

3.4 MANAGEMENT OF ELECTRONIC RECORDS

In Chapter One, a discussion of the difference between electronic records management (ERM) and management of electronic records (MER) was provided. This section focuses and expands on the MER to present fundamental concepts underpinning MER.

3.4.1 Key Concepts

This section presents a discussion of key concepts in management of electronic records.

3.4.1.1 Electronic Records

Section 1.2.1 has provided a comprehensive definition of a record generally regardless of media or format. Section 1.3 has defined what an electronic record is from a records management viewpoint.

The *Merriam-Webster Dictionary (2015)* states that by electronic, it means “operating through the use of many small electrical parts (such as microchips and transistors), produced by use of electronic equipment or operating by means of a computer”. The *Business Dictionary (2014)*, indicates that by ‘electronic’, it means ‘device or technology associated with or employing low voltage current and solid state integrated circuits or components, usually for transmission and/or processing of analog or digital data”. The *Oxford Dictionary* (2015), also points to the same definition that electronic refers to “a device having or operating with components such as microchips and transistors that control and direct electric currents, for example an electronic calculator”.

Understanding the word electronic is significant to understanding what would constitute an electronic record. It would therefore imply that an electronic record in its simplest form, and regardless of records management science, is a record generated, managed and utilized using an electronic device or electronic mechanism.

In records management, many authors take electronic record to refer to computer-based or computer-generated records (Kamatula 2010; IRMT 2009a; Kemoni 2009; Mnjama & Wamukoya 2007; Wamukoya & Mutula 2005a; National Archives of Australia 2004; Kemoni & Wamukoya 2000).

However, as evident in the definitions above, the term electronic is wider than just computer-based. The *Business Dictionary* (2015) defines electronic record as "information captured through electronic means and which may or may not have a paper record to back it up". This thinking is also shared by Wissor (2005).

This would imply that records on media such as microfilms, microfiche, video tapes, gramophones, compact disks, computer hard drives, flash memories and emails are all electronic, because they are produced and managed by means of electronic equipment. But the technical architecture of the equipment of the media differs significantly. Microfilms, microfiche, video tapes, audio tapes are all analogue electronic techniques while computer hard drives, compact disks and flash memories operate on digital capabilities. The discussion on the technical distinction between analogue and digital is a subject of electronics and hence beyond the scope of the present study. However it is well described by Diffen (2014), Woodford (2014) and Giaretta (2011).

The reference to electronic record as computer-based is not wrong, but may not be very accurate since there are electronic records which are not computer-based. It is therefore accurate to say that electronic is a broader term that covers both analogue and digital. Electronic records therefore combines both analogue records and digital records based on the two corresponding electronic techniques.

This distinction is fundamental to the present study because of two reasons. First, it affords records managers the necessary differentiation of the two terms which are essential in management of electronic records. Secondly, e-government relies on computer-based technologies, which are digital, hence, the discussion on electronic records in the context of e-government would ideally be focusing on digital records. Whereas all digital records are electronic records, not all electronic records are digital records. However, digital records are what apply in e-government.

3.4.1.2 Digital Records

Digital records, from discussion in section 3.3.1.1, refer to records generated, managed, accessed and used by means of computers and computer systems i.e. (digital technologies). Presently, digital technologies have expanded from only traditional computer systems to include mobile technologies, which in themselves also heavily rely on computers as their backbones.

The National Archives of Australia (2015) defines digital records as

> “records created, communicated and maintained by means of computer technology. They may be 'born digital' (created using computer technology) or they may have been converted into digital form from their original format (e.g. scans of paper documents)”.

Bennington (2008) defines digital records as “records created, communicated and maintained by means of electronic or computer equipment”, but the use of word electronic in this definition creates the disconnection discussed in the preceding section 3.3.1.1. Table 1.1 provides a comprehensive list of examples of digital records.

Garietta (2011) emphasizes that it is important for information managers to understand the science behind “digital things” to be able to achieve proper digital preservation of information. That science is the highly technical configurations of digital bits on how data flows within the computer systems and media, which is a specialization of electronics and mechatronics and beyond the scope of the present study.

Digital records are of two forms: records that have originated directly from a digital source (also referred to as born digitals) and those that have originated from analogue media and have been converted to digital through reformatting, for instance scanned documents (Erway 2010; Lance 2009; Mahesh & Mittal 2008; Danner 2004; Lazinger 2004).

The above descriptions notwithstanding, the present study has adopted the use of “electronic records” as opposed to “digital records”, even though e-government is anchored on digital records. This is because approaching the study from the electronic

records perspective gives an elaborate and holistic view of the issues at hand. In addition, professional discourse and general discussions on electronic records management, including standards and best practices that have been developed, are done on the bigger picture of electronic records rather than on the narrower topic of digital records. Thirdly, both analogue and digital records are complementary and/or supplementary and tend to transition from either format to the other in the course of business dealings, for instance, through transfer of microfilm records to computer storage or transfer of digital records to microfilm. This presents a need for capability to manage the records in either format at any one time.

3.4.2 Key Drivers in Management of Electronic Records

Authors and experts have identified several issues as being key to the success and effectiveness of management of electronic records (National Archives of Australia (NAA) 2015; Asogwa 2012; Iwhiwhu 2010; NASCIO 2007). Some of these include:

- **Types of electronic records** – The types of electronic records being managed as indicated in Table 1.1 is essential in ensuring the right technologies and policies are put in place. In evaluating the type of records, both the technical aspect (e.g. email, intranet or database records) and the functional aspect (administrative, legal, financial etc) should be considered.

- **Purpose of electronic records** - This driver seeks to answer the question, why are the records being managed? Is it to facilitate access or for preservation? Whichever reason that informs the management, the technologies to be employed should be those that support realization of that objective (NAA 2015).

- **Technology** - Digital technology changes rapidly resulting in rapid technological obsolescence. OCLC (2014) reported that technological obsolescence is the single greatest threat to successfully managing digital assets. Technology expires faster than the records. Many a time, the value of the records outlives the age of the technology posing challenges on how to provide access to the records and information beyond the lifespan of the technology. Therefore, the choice of the technology for managing electronic records must consider the risks of obsolescence and how to enable long-term access to the records for business use and compliance requirements.

- **Accessibility** - Because records are kept to provide information to support business functions, they are only useful if they can be accessed. Effective management of electronic records requires that the systems for providing access to records, whether online or offline should be adequate and reflect the needs and scope of the users.

- **Security** - Security of records is fundamental in safeguarding the confidentiality and integrity of the organization. Electronic records, and digital records in particular, can quickly and easily be updated, deleted, changed, moved and copied (NAA 2015). The choice of security strategies to be employed would depend on the types of electronic records, their use and the ICT architecture in use (Resource Centre for Cyber Forensics-India 2015; Giaretta 2011; International Council of Archives (ICA) 2008).

- **Search and retrieval -** According to National Archives of Australia (2015) and the International Standards Organisation (2011b) capturing and maintaining information that describes records (metadata) is essential to describing the content and context of the record and ensures records can be searched effectively allowing for information reuse. Accessibility and usability of electronic records is, to a large extent, made possible by the metadata standards in use, which gives users reliable capabilities to search and retrieve the records.

- **Storage and preservation -** This involves determining where and how the electronic records will be stored. It includes the media to be used and depends on the types of records, purpose or function of the records, security levels required, users of the records, volumes of the records, compliance requirements, cost implications and technology being used. Storage and preservation are complementary with each other. The level of preservation required determines the kind of storage to be used and how the storage is done would determine whether preservation objectives are realized or not (New York State Archives 2015; Barnes & Mayberry 2014).

3.4.3 Business Justification for Management of Electronic records

Various factors influence the demand by businesses for adequate management of electronic records. These are factors that emanate from the organization's circumstances that demand the need to invest in robust management of electronic

information which have a direct bearing on electronic records. Among the drivers include:

- Increasing demand for compliance – compliance to regulatory and legal frameworks is a critical issue for any organization. In management of electronic records, just as in general records management, compliance manifests in two forms: compliance with regulations that demand records to be managed and compliance to other business regulations, which can be proved by the records kept (Association for Information and Image Management 2015).
- Effectiveness in business operations-this is measured by amongst other things, turnaround times on various business transactions. Access to information has a vital and significant input to business turnaround time. Electronic records management helps in ensuring faster access to information hence improved effectiveness of business processes (Utah State Archives 2008). The need for effective processes has resulted to demand for convenience in access to service, where consumers want access to service in a convenient manner with less hustle. This has resulted to an increase in online and mobile transactions, which are anchored on electronic records. In principle, ICTs speeds up access to and retrieval of information which improves business effectiveness (IRMT 2009a).
- Demand for efficiency – this refers to cost saving (Business Dictionary 2015). Efficiency in business operations has become a major focus in organization with increasing competition, cost of doing business and inflation (Coleman 2015). Costs associated with information management may arise from: storage of

information, access to information, security of information, litigation arising from weak information, strategic plunders due to inadequate or wrong information, wrong decisions due to incomplete information, reputational risks arising from service delays occasioned by lack of access to information and information leakages amongst others (Iron Mountain 2014; IRMT 2009a).

E-government is one such approach or strategy that has been motivated by the need for more effecient ways of delivering government services to citizens at less costs and more conveniently (UNDP 2013; Komba & Ngulube 2011; Park 2010; Wang & Liao 2008).

- Business continuity- the need for business continuity in the event of disasters or transitions requires robust mechanism of managing information and availability of information over time. Electronic records have an advantage of remote storage and remote access that provide better security and faster, convenient accessibility, when available, compared to paper records.
- Increased use of technology- organizations are increasingly automating most business processes resulting to generation of electronic records that need to be managed for administrative, informational, legal and evidential purposes.
- Electronic information vulnerability – electronic records also pose a security concern given their sense of vulnerability to technologically-driven security threats. Issues like hacking, cracking, eavesdropping, social engineering, malware, computer viruses, phishing and cyber espionage among others (Greitzer 2014; Ernest & Young 2013; Sanchez 2010), pose challenges to the

management of information placing huge demands for more secure electronic records and information systems.

3.4.4 Requirements for Management of Electronic records

There have been attempts globally by several international agencies, to develop standards and best practices for managing electronic records. These agencies include the International Standards Organisation-ISO (2011a), National Archives of Australia (2011), DLM Forum (2011), IRMT (2009a-d), International Council of Archives (2008) and The National Archives of UK (2006).

These requirements are an attempt to provide standard guidelines for enhancing best practice, professionalism and effectiveness of systems deployed in managing electronic records. The requirements stipulate what would be the acceptable capabilities for systems used for managing electronic records in electronic environments.

A literature search across these entities reveal that the requirements presented by all the institutions are identical in substance, which confirms a sense of consensus across these entities on what would constitute fundamental requirements for the successful management of electronic records. The origin of these requirements is not clearly indicated in literature but what emerges is that the institutions tend to borrow from each other, make modifications and remain unanimous on the general requirements.

The ICA refers to its version as principles and functional requirements for records in electronic office environments (ICA 2008). The ISO adopted the ICA version and made this the ISO 16175 standard titled the same way. The National Archives of UK refers to

their version as “Requirements for Electronic Records Management Systems”. The International Records Management Trust (IRMT) has also developed guidelines under its Training in Electronic Records Management (TERM) project (IRMT 2009a-f). The National Archives of Australia provides guidelines for “implementing an electronic document and records management system-key considerations” (National Archives of Australia 2011).

Several standards have also been developed to provide guidelines for managing electronic records. Some of these are:

- ISO 23081-1:2006 Metadata for records - Part 1: Principles.
- ISO 23081-2:2009 Managing metadata for records - Part 2: Conceptual and implementation issues.
- ISO 23081-3:2011 Managing metadata for records - Part 3: Self-assessment method.
- DoD 5015.2-STD US Department of Defense: Design Criteria Standard for Electronic Records Management Applications.
- British Standard BS 10008:2008: Evidential weight and legal admissibility of electronic information –specification.
- ISO 15836 – Information and documentation: dublin metadata element set.
- ISO/TR 18492:2005: Document Management Applications – Long term preservation of electronic document-based information.

- ISO/TR 15801:2005: Electronic Imaging – Information stored electronically – Recommendations for trustworthiness and reliability (published locally as SANS 15801:2005).
- ISO 19005-1:2005: Document management – Electronic document file format for long term preservation. Part 1: Use of PDF 1.4 (PDF/A-1) (published locally as SANS 19005-1:2006).

These requirements provide guidelines on managing the electronic records within the continum from creation to disposal. These guidelines include the following:

- **Creation and capture of Electronic records:** The ICA provides that "Electronic records management systems must capture the content, structure and context of records to ensure they are reliable and authentic representations of the business activities or transactions in which they were created or transmitted". It also requires that electronic records systems should be integrated with business applications that generate electronic records so that the records can be captured within the electronic records management systems (ICA 2008: Section 3.1). The MoReq standard requires that ERMS must capture "the content of the electronic record, including information defining its form and rendition and information defining the structure and behavior of the electronic record, retaining its structural integrity (for example, all the components of an e-mail message with attachment(s), or of a web page, with their links)".

- **Classification:** Classification refers to logical arrangement or grouping of records to facilitate description, storage, search and retrieval (ISO 15489-1, 3.5). Systems for managing electronic records must enable classification of records at all levels of aggregation (ICA 2008). Classification helps determine the relationship between records and establish hierarchies that facilitate better storage of and faster access to information. This is important in enhancing efficiency and effectiveness of business operations. The MoReq standard demands that classification of electronic records within electronic records management systems must reflect the organization's standard way of classifying information. It should not limit the number of levels that can be accommodated in a classification scheme (MoReq 3.1).

- **Description (Metadata):** ISO 15489 Standard defines metadata as, data describing the content, context and structure of records and their management through time (section 3.12). It describes the record, including its contents, context, structural components, conditions of use and security, and relationships with other records, with people and with business being transacted. Metadata also helps identify past and future events, which document actions affecting the record e.g. amendments, revisions, etc. which help in affirming the authenticity, integrity and reliability of the records and information (Archives New Zealand 2014; Minnesota State Archives 2012; Franks 2006). The MoReq standard requires that in managing electronic records, metadata definition should enable different sets of metadata elements for different types of records. Systems for managing electronic records should also permit defining metadata in different formats including alphanumeric, dates and logical data types (European Commission & DLM Forum 2008). The North Dakota Information Technology

Department (2013) and the Alberta Government Services Canada (2005) and also emphasize the need for consistency and standardization in naming and describing documents across an organization to facilitate easy access and retrieval. The United States Environmental Protection Agency (2013), proposes that the following attributes should be captured as part of metadata: office of origin; key words for search; date; author; file number/code; authorizers if any; security classification; disposition date; and version.

- **Management in the continuum:** while managing records throughout the continuum, the United States Environmental Protection Agency (2013) suggests that the systems for managing electronic records should be able to: distinguish records from non-record materials; identify the retention-disposition scheduling; allow for the disposition of records – either destruction or archiving; identify the status of records-current, semi-current or non-current. Support for various formats of electronic records including PDFs, word documents, spreadsheets, text files, etc. should be possible to enable versatility in access.

- **Access and Security:** Systems for managing electronic records should provide for possibilities of access options to electronic records, offline and online, as applicable. Access rights should be granted based on role-based profiles and responsibilities. In terms of security, the system should provide robust security capabilities to protect the records from unauthorized access, depreciation and damage. It should allow for back up of records. The ICA (2008) requires that audit trails should be captured for all actions

on the system and any changes to documents must be documented. Security levels should be enforced at all levels of system granularity – file, folder and system levels. It should also be enforced across the online data transmission lines to protect the records against online threats like eavesdropping and information hijacking (Private Technical Assistance Centre 2011; ISACA 2008; Jackson 2007). Information encryption and digital signatures are predominant capabilities for protecting information while on online transit (Cherdantseva & Hilton 2013).

- **Search and Retrieval:** The ICA states that electronic records systems should "provide a flexible range of functions that operate on the metadata related to every level of aggregation and on the contents of the records through user-defined parameters for the purpose of locating, accessing and retrieving individual records or groups of records and/or metadata" (ICA 2008). Adequate systems for managing electronic records should allow users a variety of search criteria and capabilities using all metadata fields available. They allow also for search within the content of the documents. Capabilities like optical character reader and intelligent character readers are essential to enable more narrower, specific and unique searching and retrieval of records (TechTarget 2011). They should also enable free text and Boolean searches as well as query-define searches. The MoReq standard provides that the electronic records system's search facilities "should be integrated and should, to users, appear the same for all levels of the classification scheme. In other words, users should see the same interface, features and options whether searching for classes, files or records" (European Commission 2001).

- **Retention and disposition:** retention schedules define how long records should be kept in the operational system before being removed. Disposition refers to how the records will be discarded when they are removed from the active system either, destruction, transfer or archiving (California State University 2007; Government of Alberta 2004). In managing electronic records, destruction would mean deletion from hard drives or crashing of auxiliary media where applicable.

Both retention and disposition are guided by legal and regulatory requirements as well as an organization's own policies. According to MoReq model, a good system for managing electronic records "must provide a function that specifies retention schedules, automates reporting and destruction actions, and provides integrated facilities for exporting records and metadata. It should also restrict any changes on retention-disposition schedules to the system administrator" (MoReq 2001:5.1.1 & 5.1.2). Section 3.6 of ICA's functional requirements (module 2) provides detailed requirements on retention-disposition that the present study may not be able to describe here.

Retention and disposition scheduling is essential in managing of electronic records because it has an impact on efficiency and effectiveness of the records management processes. By removing unnecessary records, it optimizes on the costs that would have been incurred managing. It also reduces the volumes of records hence speeding up search, retrieval and improves access. For electronic records, in particular, removing unwanted records from the storage media creates room that allow the retrieval process to be faster since the search is narrowed. This can be seen in how fast

a computer processes the search query because the size of metadata database is equally reduced. Within the public sector, legal requirements must be given priority when defining retention-disposition schedules.

- **Electronic records preservation and archiving**

Preservation of electronic records is concerned with ensuring the electronic records remain available for use for the duration they are needed. It affects records in, active, semi-active or non-active phases. In the context of e-government, this is very important given the demands to provide information over time for compliance, accountability, administrative, informational value or even to serve litigation processes.

The primary demand in preserving electronic records is to maintain the availability and usability of the records over time as technology changes and as they remain necessary or business operations. Systems for managing electronic records should have strategies for the long-term preservation of the electronic records as guided by the retention-disposition schedule.

The National Archives of Australia (2011, 2014, 2015) observe that digital records present many preservation challenges due rapid changes in both hardware and software. As a result, systems for managing electronic records must conceptualize and provide for mechanisms of preserving the records over time, both at hardware and software levels. A reference model for an open archival information system (OAIS) was developed by the Consultative Committee for Space Data Systems in 2012 (the OAIS

Model) provides fundamental guidelines for digital preservation that could help in preserving electronic records.

A search of literature (OCLC 2015; Digital Preservation Coalition 2008; Day 2008; Evans & Carter 2008) reveals that digital preservation systems are generally separate from electronic records management systems and it would require operational interoperability for adequate records preservation to be achieved. In other words, when records are captured in the electronic record management system, they may require to be transferred into the digital repositories for long-term preservation during the disposal phase. This would imply, depending on the preservation strategy adopted, the interoperability between the electronic records system and the digital preservation environment has to exist along the software and hardware used, and the document formats supported by both.

3.4.5 Systems for Managing Electronic Records

Over the years, there have been developments in the field of electronic records that have seen development of different types of systems that can be used to manage electronic records. The main categories of software solutions are: document imaging systems; electronic document management systems; electronic records management systems; electronic document and records management systems; and digital repositories.

The difference between the systems stems from their features and capabilities as discussed herein under. An understanding of these systems is important in ensuring that records managers are capable of selecting systems that respond to and address the needs of the organization and avoid the risks of selecting a system that may not address the organization needs.

3.4.5.1 Document Imaging Systems (DIS)

Document Imaging Systems are applications dedicated to digitization/scanning of documents. DIS is a system which enables scanning of records through document scanners, indexed based on a unique value or set of values and stored on electronic storage media for access or preservation. DIS allow for some formatting after which the documents can be stored in storage media (Null 2013). Examples of such systems include Kodak Alaris.

3.4.5.2 Electronic Document Management Systems (EDMS)

An EDMS is a full featured system designed to handle the complete document lifecycle from capture (and not creation) of the records to metadata description, to approval, storage and dissemination of the document. An outstanding feature of EDMS is availability of workflows through which documents move from one action officer to another. An EDMS therefore provides for editing or commenting on documents as they move across the workflow. Many EDMS currently have capabilities for accepting

documents in different formats as well as capturing documents from various sources like scanning, emails, templates and desktop integration. EDMS allow creation of users in their databases so that every user has access rights as defined in the system. They have additional capabilities to safeguard the security of records by imposing access controls to records and technical features like encryption.

EDMS were developed to improve productivity by eliminating the time consumed in moving paper files from one action officer to another as well as help avoid the risks associated with handling of manual records. EDMS are therefore heavily process-driven. There has been a rapid development of EDMS in the last ten years across the world. Examples of EDMS include docstar, OpenKM, Globodox and opendocman.

3.4.5.3 Electronic Records Management Systems (ERMS)

ERMS unlike EDMS are purely dedicated to management of documents classified as records. A key feature of ERMS is the ability to sustain the fixity quality of records. This means that ERMS do not allow for alterations of documents once they have been captured in the system. They seek to ensure the record remains fixed and any alterations or amendments generate another version of the record, which is also captured and stored as a different record. They allow the capture, description, management, storage and dissemination of records in electronic form. ERMS are designed to observe the principles of records management as much as possible. Other key inherent features are the retention scheduling capability and metadata schema based on accepted principles. Many ERMS are designed with records management

standards in mind. A distinguishing feature of ERMS from EDRMS is their lack of inbuilt workflows. Because ERMS are not designed to allow editing of documents, the workflow capability would ordinarily not be reflective of the principle of ERMS. However, many of the ERMS available permit integration with workflow modules to provide the benefits of automated workflows. Examples of ERMS include Knowledge Repository Information System (KRIS) developed by SQL View Pty Ltd of Singapore.

3.4.5.4 Electronic Document and Records Management Systems (EDRMS)

EDRMS combine capabilities of both EDMS and ERMS. They are the most popular technologies for managing electronic records presently because they form both the benefits of operational efficiency through workflows while still providing capabilities for professional records management (Codafile 2015; New South Wales Government 2012; National Archives of Australia 2011; McMullan 2010; Joseph 2008).

The principle of EDRMS is such that when a document is still a work-in-progress, it is managed under the document managed component of the EDRMS where it moves across the workflows until it reaches the final status where the transaction has concluded and the document becomes a record of evidence of that transaction. At this stage, the document, now a record, moves to the ERMS component which ensures it remains fixed and applies retention policies on the document. In the event the record is to be called again for action, it is moved from the ERMS component to the EDMS component for action and back to ERMS for storage and retention (Queensland State Archives 2010; Navin 2009; Smith 2009). Therefore, an EDRMS provides one platform

for automation of business processes for records management and the actual management of the records.

An example of EDRMS software is the Total Records and Information Management (TRIM) developed by Hewlett Packard. Others include Live Link and e-Docs by Open Text Corporation, Objective by Objective Corporation, Documentum by EMC Corporation and FileNet by IBM.

3.4.5.5 Digital Repositories (DRs)

Digital repositories are designed to primarily provide storage of digital content. Digital repositories are like libraries with the exception that they store digital content as opposed to hard copy materials. The design of DRs is such that they accept content and permit its description and storage and provide mechanisms for searching and retrieval. They are not designed based on the records management principles like ERMS, EDMS and EDRMS but largely along library principles. They do not have workflows and do not allow any modification of documents but just for users to access and use the content. Most DRs in use have been designed on open-standard technology to allow for import and export of a wide range of content formats, just as libraries allow different type of publications, which may not be possible under limited proprietary software. Digital repositories hold publications like research reports, journal articles, dissertations, project reports and e-books (University of Cambridge 2012; University of South California 2012; Marill & Luczak 2009; Semple 2006).

Examples of digital repositories include Dspace (Duraspace 2016a), Greenstone (University of Waikato 2016), Eprints (University of Southampton 2016) and Fedora (Duraspace 2016b).

3.4.5.6 Content Management Systems (CMS)

A Content Management System is much more focused on collaboration and sharing of information. In CMS, the process is less important and as a result, documents tend not to be automatically routed on workflows. CMS are more people-driven unlike EDMS or EDRMS which are process-driven.

CMS are the software used to manage information shared on social media and other web-based content. CMS, unlike any of the preceding systems discussed, work with unstructured information. They allow for online publishing of content, which makes CMS online-based systems. TechTarget (2011) defines a CMS simply as a system "used to manage editorial content of a web-site".

For purposes of records management, it is important to note that because CMS are designed for unstructured information, they have challenges managing structured documents such as records. They are inherently intended for web-based content. They, however, have capabilities for cataloguing and indexing of content to enable searching and retrieval.

According to Boag (2009), a typical CMS should provide for creating content, editing content, deleting content, customization of content presentation, search and retrieval, user interaction, multiple web-site support, multilingual support and versioning. Most of these capabilities would not be permissible in a records management system for purposes of enforcing integrity and authenticity of the information. Examples of CMS include Joomla (Open Source Matters 2016), Moodle (Moodle 2016) and Wordpress (Wordpress 2016).

3.4.6 Challenges in Managing Electronic Records

A review of literature on managing electronic records revealed that authors on electronic records generally cite the following as the key challenges affecting management of electronic records: lack of policies and legislative frameworks on management of electronic records; technological obsolescence; costs of electronic records systems; inadequate skills, technical and knowledge among records managers; slow adoption of standards and best practices; weak institutional frameworks and commitments towards management of electronic records; lack of proper technologies for management of electronic records; long-term preservation of electronic records; exponential growth of electronic records; distorted manual records systems; security of electronic records; email management (Lappin 2013; Williams 2013; Asogwa 2012; White House 2012; Du Toit 2011; New York State Archives 2011; Ohio State University 2011; US Government Accountability Office 2010; Kemoni 2009; Keokopa 2009; Kyobe, Molai & Salie 2009; Mutula & Wamukoya 2009; NASCIO 2008; Gautam 2007; Kemoni, Ngulube & Stilwell

2007; Australian National Audit Office 2006; Chachage & Ngulube 2006; Johare 2006; Makhura 2005; National Electronic Commerce Coordinating Council-NECCC 2001).

3.4.6.1 Challenges in MER in Kenya

The challenges facing management of electronic records in Kenya are, essentially, similar to those that have been noted in other countries in Sub-Saharan Africa and other developing countries. These include: inadequate ICT infrastructures; inadequate expertise and professional capabilities on MER; weak legislative and regulatory frameworks; lack of budgetary support to fund MER projects; slow adoption of standards and best practices; the costs of technology itself. The present study does not delve into the detailed descriptions of these challenges because several authorities within the Sub-Saharan and ESARBICA regions have provided elaborate discussions of these challenges and the study did not find it fulfilling to reinvent the wheel (Kemoni & Ngulube 2013; Asogwa 2012; Kalusopa & Mampe 2012; Kalusopa & Ngulube 2012; Pumulo 2012; IRMT 2011a-d; Ngulube 2010; IRMT 2009a; Kemoni 2009; Moloi 2009; Kemoni & Ngulube 2007; Mnjama & Wamukoya 2007; Moloi & Mutula 2007; Ngulube 2007; Wato 2006; Makhura 2005; Wamukoya & Mutula 2005a; Wato 2002; Wamukoya & Kemoni 2001).

3.5 MANAGEMENT OF ELECTRONIC RECORDS FOR E-GOVERNMENT

The role of adequate management of electronic records in e-government cannot be overemphasized. Literature on the relationship between electronic records and e-government contend that proper management of electronic records is central to the success of e-government. The National Archives of UK (2006) is categorical that electronic records management is a key technology underpinning e-government. NARA (2005) also contends that records management is an important part of the infrastructure that makes e-government to work.

According to An, Sun & Zhang (2011), research has shown that good electronic records management (ERM) strengthens e-government services by supporting business continuity, security and risk management, legal compliance and accountability, evidence-based decision making and transparency, good governance and public trust, good performance and government capability building.

An (2011), IRMT (2011a), Kamatula (2010), An (2009), Kulcu (2009), Harries (2008); Nengomasha (2008), Moloi (2007), Ngulube (2007), Mnjama and Wamukoya (2006) and Wamukoya and Mutula (2005a,b) are all unanimous that the management of electronic records has become a very topical issue as most governments strive to implement e-government that results to generation of large amounts of records in electronic format. The electronic delivery of services to business and the citizens produces electronic records as evidence of individual transactions and this evidence needs to be preserved and made transparent.

According to Lipchak and Macdonald (2003), records in electronic form are becoming especially critical as developing countries embark on e-government strategies. IRMT (2011c) observes that e-government initiatives depend on the records that are generated when citizens access government services and engage with their government. IRMT further reports that around the world, governments are recognizing that records are fundamentally important to the success of ICT/ e-government and FOI initiatives. They are also recognizing that weak or poor record-keeping can have significant negative consequences that can ultimately place these initiatives at a high risk (IRMT 2011c).

Given the fact that e-government is essentially about online sharing of information, most of the information especially in a government context resides in various records generated during the course of government transactions.

IRMT (2011c) is concerned that ICT systems will fail if electronic records cannot be identified, retrieved and used, if they are stored improperly or if they cannot be linked to related paper records. Consequently, e-government initiatives will fail and citizen trust in government services will be eroded if governments are unable to find the records that underpin these services or citizens discover that the integrity, completeness and accuracy of the information in the records cannot be trusted. Services that could be trusted in a paper environment may be threatened if the same are automated and the electronic records of the transactions are unavailable, inaccessible, inaccurate, incomplete or outdated.

The central theme of all these arguments is that MER is the fulcrum of e-government. The success or failure of e-government depends on the adequacy of electronic records systems in place. Whereas the ICTs can be thought of as the engine of e-government, MER could be seen as the fuel that runs the e-government engine. Without the fuel, the engine cannot run and without the engine, the fuel cannot be utilized. Therefore, ICTs need MER in order to move e-government forward and MER requires the ICTs for it to be utilized and deliver value to government.

Therefore, well-structured MER systems and processes are critical for the functioning of e-government. Whereas ICT and MER are fundamentally different practices with different knowledge bases, e-government can only be successful if these two are well blended and aligned to realise the expected outcomes. The ICT solutions adopted for e-government must be those that serve, both the business processes and the electronic records management needs of the e-government. Similarly, MER processes in place must be able to address the business needs as well us fit within the ICT framework in place.

3.5.1 Management of Electronic records for E-government in Kenya

Little is documented on the actual relationship between the e-government and MER in Kenya. It is not clear, from literature, how adequately for instance, the existing MER systems installed in the Government ministries fit in with the e-government systems under development. Whether their procurement, installation and technical configuration is done to comply with e-government systems also running in same ministries is not

documented. On the flip side, it is also not clear in literature, whether the e-government solutions under implementation in government consider MER needs during their procurement and roll out. It is also not clear from literature, whether records management stakeholders in Kenya are involved or represented in e-government stakeholder committees.

It would appear from the documented evidence revealed in the preceding sections that there have been efforts on the part of records management stakeholders to align records management activities including MER to governance. Deliberate strives to ensure records management in general and MER in particular foster good governance, stand out as the central theme in all government directives and legislative actions that have been taken on records management. It also comes out clearly as the key driver behind several MER projects that have been undertaken or are being undertaken in Kenya. This has also been alluded to by several authors who have commented on records management in Kenya. These authors include: KNADS (2014), Mwangi (2012), Namande (2011), Kemoni (2009), Gisesa (2008), Kemoni (2007), Wato (2006), Wamukoya and Mutula (2005a), Mutiti (2002), Wato (2002), Mutiti (2001), Wamukoya and Kemoni (2001), Kemoni and Wamukoya (2000) and Musembi (1985). These authors have, however, raised fundamental challenges that face MER which hinder realization of the desire to closely align MER to governance and e-government in particular. It would, therefore, be accurate to argue that the stakeholders of records management recognize the role of records management in e-government, despite the challenges that may be affecting the effectiveness of MER to support e-government in Kenya.

On the other hand, literature on e-government in Kenya indicates that e-government stakeholders do not seem to give sufficient attention to MER as a critical success factor for e-government in Kenya (Omondi 2014; Gathungu & Mungai 2012; Directorate of e-government 2011; Njuru 2011; Odongo 2010). Policy documents on e-government described in the preceding sections like the National ICT Master Plan, E-Government Strategy of 2004 and E-Government Strategy of 2011 allude, directly and indirectly, to the value of MER on e-government. However, none of them provide clear-cut guidelines on strengthening MER capabilities for e-government.

The National ICT master plan identifies several needs influencing adoption of ICT as a driver of industry. Two needs stand out in relation to management of electronic records. First, is the need for data and information for policy and decision making in various sectors and secondly, lack of data for informal businesses and the need to formalize the operations of the sectors. (Kenya ICT Authority 2014). MER will play a central role in enabling the management, provision and preservation of quality data to meet these needs.

Most discussions by e-government experts on challenges facing e-government in Kenya provide little or no discussion on the place of electronic records in e-government (Mungai 2012; Nabafu & Maiga 2012; Gathungu & Mungai 2012; Kivuva 2011; Njuru 2011; Odongo 2010; IDRC 2008; Kamar & Ongondo 2007; Okong'o 2007; Omwoyo 2005). This is in contrast to experts in records management who have authored on e-government and records management like Namande (2011), Mutula and Wamukoya (2009), Wato (2006) and Wamukoya and Mutula (2005a-b).

The e-government projects like the GUMS, the citizens' portal and the shared services will rely heavily on the quality of records, data and information management, because these will be the source of information that will be shared on these platforms. Any gaps in MER would greatly undermine users' and citizens' confidence levels in these applications.

3.6 REVIEW OF PREVIOUS STUDIES ON MANAGEMENT OF ELECTRONIC RECORDS IN SUPPORT OF E-GOVERNMENT

This section presents a review of previous empirical studies on the management of electronic records in the context of e-government. According to Ridley (2012), Randolph (2009), Kennedy (2007), Fink (2005) and Creswell (2004), reviewing previous studies in literature review helps the researcher to understand what others have done before and avoid the risk of duplication, locate the research within the context of previous works, identify ways of interpreting previous research, resolve any conflicts that may emanate from previous studies as well as reveal any gaps in literature that may have not been filled by previous studies.

Five previous studies conducted across the globe covering countries in Europe, United States, Africa and Asia were reviewed. A critical analysis of the studies reveals that in all the studies, the term Electronic Records Management has been used to include management of electronic records.

A study was conducted in 2009 by Xiaomi An to investigate the status of electronic records management in e-government study in US, New Zealand and the United Kingdom to help support the development of ERM in China. The purpose of this study was to investigate how the US, UK and New Zealand were managing electronic records, the systems put in place and the corresponding implications on e-government. The findings were to provide lessons to the Chinese government in improving management of electronic records. Data was collected through documentary review of laws, publications, regulations and policies from the three countries, relevant to both management of electronic records and e-government. The key finding of the study was that in all the three countries, management of electronic records had been embedded in e-government strategy.

In the US, management of electronic records was considered an important infrastructure for e-government and was part of 24 initiatives under e-government (White House 2012; NARA 2006). In the UK, MER is incorporated into departmental e-business strategies as part of the business continuity plan, information risk management solutions and knowledge management initiatives in e-government strategy (Public Records Office 2008). In New Zealand, MER was found to be part of digital strategy for information and services for public in e-government strategy (An 2009). The study revealed that in all the three countries, electronic records were managed as critical national assets and resources.

The study recommended that MER is vital to effective e-government, hence there is a need to incorporate electronic records in the e-government strategy and also enhance

collaboration between e-government authorities and records management professionals to achieve the desired benefits of e-government.

In 2007 a study was conducted by Moloi and Mutula to investigate the management of electronic records in a government setting in Botswana. It involved a case study of government ministries and a survey of the respondents within government ministries. A key finding of the study was that management of electronic records was not receiving much attention in Botswana. There lacked an electronic records management policy in Botswana, which made it difficult to identify, maintain and preserve electronic records. Key recommendations included amongst others the need for the government of Botswana to among other things; benchmark the management of electronic records against the best practices available in developed countries.

The International Records Management Trust (IRMT) conducted a research in 2010-2011 to assess the status of records management in East Africa for support of e-government and freedom of information. The study covered the five East Africa countries-Kenya, Uganda, Tanzania, Rwanda and Burundi.

The aim of the study was to investigate the relationship “between records management and the current and planned directions for ICT/ e-government and FOI” and the extent to which records management is able to provide reliable evidence for governance (IRMT 2009a).

The study revealed that across the region, governments are aggressively pursuing ICT and e-government initiatives and are, to a greater or lesser extent, moving along the same general path towards building FOI regimes. It also revealed significant gaps in records management including management of electronic records in areas such as policy, capacity, and the position and strength of the records and archives authorities.

A key recommendation of the study in relation to management of electronic records was that, digital preservation plans should be developed across all the five countries to ensure the preservation of those electronic records that are required to be retained over the long-term. The study also provided country reports for each of the five countries with varied recommendations affecting each of the countries.

In 2009 a study by Kulcu (2009) was conducted to investigate what practices records management in Turkey had adopted with increase in e-government services. The study sought to assess if there had been new approaches in management of electronic records as the Turkey government moved considerably to e-government. The study covered several government agencies in Turkey and data was collected through literature reviews and interviews.

The findings indicated that Turkey was making progress in e-government adoption with several agencies having adopted e-government-based services. It also revealed that management of electronic records had been accepted as central to the success of e-government. However, the systems in place for managing electronic records were not

sufficient and the same “reliability and durability of the printed environment had not been achieved in the electronic environment” (Kulcu 2009).

The study recommended the need to develop capabilities for managing electronic records in e-government that would meet the legal and administrative requirements in relation to management of electronic records.

Mnjama and Wamukoya (2007) conducted a literature-based study on ICT, records management and e-governance to determine the challenges facing management of records in e-government environments. The study, which largely covered developing countries, revealed that while many countries had systems in place for managing paper records, there was little on management of electronic records. A major recommendation of the study was a proposal of an electronic records readiness tool to help countries especially in Africa to help assess their readiness for “adoption of electronic records in an e-government environment”. The tool provided twenty-one questions, which would form the criteria for assessing a government’s readiness to manage electronic records in support of e-government.

3.7 CASE STUDIES ON MANAGEMENT OF ELECTRONIC RECORDS AND E-GOVERNMENT

This section presents a review of case studies on management of electronic records in support of e-government to show what other countries have done with regard to improving the management of electronic records to enhance e-government. Even

though Keakopa (2009) argues that experiences from developed countries on MER "although useful in some context, may not be easily adaptable in the context of a developing country", it is important to know these experiences and assess whether they can provide some lessons for the developing economies .The case studies reviewed are for the United States of America, the United Kingdom, Australia and Malaysia.

These specific examples have been selected from literature for review because of their dedicated commitments to enhancing management of electronic records in the context of e-government within their jurisdictions, as discussed in the following sub-sections.

According to the United Nations e-government survey of 2014 (defined in section 2.4.1), Australia, USA and United Kingdom were among the 25 countries with a very high EGDI ranking at positions two, seven and eight respectively (United Nations 2014). Literature souces also indicated that the three countries have also made considerable efforts to enhance MER (Australia National Archives 2004; NARA 2001; National Archives of UK 2001).

The UN's 2014 survey places Malaysia within the high EGDI tier with a 0.6115 score placing it at position 12 in Asia and 52 globally. Literature sources showed that there are efforts to improve MER in Malaysia in view of demands for e-government (Eusoff & Yusof 2011; Saman 2011; Mokhtar & Mokhtar 2009; National Archives of Malaysia 2009).

3.7.1 United States

In 2005, the United States, through NARA, initiated the E-Government Electronic Records Management Initiative. This was one of 24 initiatives under e-government. The vision of the initiative was to “effectively manage and facilitate access to agency information in order to support and accelerate decision making and ensure accountability”.

This project was to “provide guidance on electronic records management applicable government-wide and will enable agencies to transfer electronic records to NARA in a variety of data types and formats so that they may be preserved for future use by the government and citizens” (NARA 2005).

The project cited three main goals:

1. To integrate electronic records management concepts and practices with comprehensive information management policies, processes and objectives to assure the integrity of electronic records and information.
2. To employ ERM to support interoperability, timely and effective decision making, and improved services to customers.
3. To provide the tools for agencies to access electronic records for as long as required and to transfer permanent electronic records to NARA for preservation and future use by government and citizens

The primary purpose of this initiative was to ensure adequate management of electronic records to support e-government which was “part of the President's management

agenda aimed at making it simpler for citizens to receive high-quality service from the Federal Government, while reducing the cost of delivering those services" (NARA 2015). According to NARA, this was part of the twenty-four initiatives under e-government.

3.7.2 United Kingdom

The Public Records Office (PRO) of the United Kingdom developed the e-government policy framework for electronic records management in 2001 (PRO 2001). The policy was intended to

> "provide an overall framework which describes the enabling role of electronic records management (ERM) in e-government and e-business strategies and management" and aimed at "providing guidelines for the inclusion of electronic records management considerations in the development of departmental e-business strategies" (PRO 2002).

Through the National Archives of the UK, the UK government has also developed several guidelines to support the management of electronic records across government agencies. These include among others: business requirements for managing digital information; managing digital continuity; and managing digital records without EDRMS (National Archives of UK 2004). All the guidelines have been provided online on the institution's website http://www.nationalarchives.gov.uk/.

3.7.3 Australia

Australia is one of the countries in the world that has made tremendous strides in management of electronic records. Australia, through the National Archives of Australia, has also made a significant contribution to the body of knowledge in management of electronic records on policy, practice and scholarly contributions.

In 2004, the National Archives of Australia released guidelines for managing digital records, namely, “Digital Recordkeeping: Guidelines for creating, managing and preserving digital records” (National Archives of Australia 2004). The purpose of these guidelines was to provide Australian Government Agencies with technical guidance on management of electronic records.

In 2011, the Australian Government developed the Australian Digital Transition Policy to “move Australian Government agencies to digital information and records management for efficiency purposes” (National Archives of Australia 2014). This was necessary to support e-government. The National Archives of Australia was the lead agency in implementing the policy.

A number of other guidelines have since been developed in Australia to support management of electronic records and enhance e-government efficiency. Among these include: Recordkeeping and Online Security Processes: Guidelines for Managing Commonwealth Records Created or Received Using Authentication and Encryption; Implementing an EDRMS – Key Considerations; Implementing an EDRMS – Checklist; Digital preservation: illuminating the past, guiding the future; Digitizing accumulated physical records; Australian Government Recordkeeping Metadata Standard; Australian

Government Recordkeeping Metadata Standard Implementation Guidelines; Archiving Web Resources: Guidelines for Keeping Records of Web-based Activity in the Commonwealth Government; Archiving Websites: Advice and Policy Statement

The guidelines are available publicly on the NAA website at http://www.naa.gov.au/records-management/publications/.

These efforts have also been replicated at State government levels within Australia. For instance, the Victorian Electronic Records Strategy (VERS) has been developed by Public Record Office Victoria in the Victoria State to help

> "Victorian government agencies manage, store and access their electronic records, and to ensure that Victoria's key electronic information will be identified, preserved and accessible in the future, regardless of how it was created" (Public Records Office Victoria 2015).

The government of New South Wales State has also developed a host of guidelines to support management of electronic records, available on its website at http://www.records.nsw.gov.au/recordkeeping/recordkeeping. In 2014, the Government of New Zealand State developed the "Records Management Standard for the New Zealand Public Sector" through the Archives Newland, which is the state's archival institution.

3.7.4 Malaysia

In 2001, the Malaysian Government established the Electronic Records and Information Technology Management (PRETM) spearheaded by the National Archives of Malaysia (NAM) to be responsible for implementing activities related to the government electronic records in support of e-government capacity (Shafie 2007). Some of its prime duties included the following: identifying and transferring government electronic records for permanent storage, formulating standards and guides in the management and preservations of electronic records. PRETM is also responsible for upgrading the NAM information system to make the dissemination of and access to information easier, in line with the advancement of information and communication technology.

The NAM further developed a policy on management of electronic records called “electronic records management and archives management policy: guidelines on electronic records management” in 2003 to provide specific technical guidelines to manage electronic records in government agencies to support e-government.

The Government of Malaysia through Arkib Nagara Malaysia also developed more specific guidelines addressing the management of electronic records in specific environments. These are: managing electronic records in the unstructured environment; managing electronic records in the structured environment; and managing electronic records in the web environment (Shafie 2007).

It is important to note that management of electronic records in Malaysia was identified as a key pillar to success of e-government which was introduced in 1996 (Saman 2011;

Yusof 2011; Shafie 2007). As a result, the Malaysian government initiated a host of other policy, regulatory and technical frameworks to primarily foster adequate management of electronic records to support e-government. These include a review of legislation, standards and guidelines for ICT infrastructure (Saman & Haider 2012; Aris 2010; Department of Standards Malaysia 2009; Johare, Nurusobbah & Adnan 2009; Johare 2006).

3.8 CHAPTER SUMMARY

This chapter has endeavored to provide a review of pertinent literature in the field under study. The chapter has focused on the management of electronic records and how it would impact on e-government. A discussion of the theoretical framework and how it underpins the present study has been provided. It has covered key issues on management of electronic records including a discussion of the key terms, requirements for managing electronic records, types of systems used to manage electronic records and challenges in managing electronic records. A detailed discussion on the relationship between electronic records and e-government has also been provided. The chapter has also reviewed case studies of four countries that have made progress in institutionalizing proper management of electronic records in support e-government, which may provide useful lessons for other countries.

A key gap that emerged from the literature review was lack of a framework to guide the integration of MER into e-government. The present seeks to address this gap by proposing a framework that suggests ways of integrating MER and e-government.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.0 INTRODUCTION

This chapter presents a discussion on the research methodology adopted by the study. Experts in research methodology contend that it is important for researchers, whether academic or not, to explain how they conducted their research and what informed their decisions (Ngulube 2005; Hart 2005). According to Richard (2004), the methodology section describes the rationale for the application of specific procedures or techniques used to identify, select and analyze information applied to understanding the research problem, thereby, allowing the reader to critically evaluate a study's overall validity and reliability.

This section therefore presents discussions and justifications of the research paradigm in the present study, research methodology, research design, population and sampling, data collection instruments and methods, validity and reliability of the data, data analysis and presentation and ethical considerations of the study.

4.1 RESEARCH PARADIGM

The *Merriam Webster Dictionary* (2007) defines a paradigm as a philosophical and theoretical framework of a scientific school or discipline within which theories, laws and generalizations and the experiments performed in support of them are formulated.

Taylor, Kermode and Roberts (2007) define a paradigm as “a broad view or perspective of something”.

In research, a paradigm is defined by Weaver and Olson’s (2006) as “patterns of beliefs and practices that regulate inquiry within a discipline by providing lenses, frames and processes through which an investigation is accomplished”. Mackenzie and Knipe (2006) state that a paradigm in research means “a loose collection of logically related assumptions, concepts or propositions that orient thinking and research”.

Paradigms play a significant role in research because they orient the focus and direction of a study. According to Mackenzie and Knipe (2006), without nominating a paradigm as a first step in research, there would be no basis for subsequent choices on methodology and even literature. Paradigms are thus defined by the reality of things (ontology), knowledge of that reality (epistemology) and the tools used to know that reality (methodology) (Anderson 2013).

Three paradigms have been cited as informing research in social sciences like the present study. These are the positivist (and post-positivist), interpretivist and pragmatic paradigms (Romm & Ngulube 2015; Mertens 2012; Mertens 2010; Cameron 2009; Mackenzie 2006; Johnson & Onwegbuzie 2004; Tashakkori & Teddie 2003; Creswell 2003). Other authors talk of transformative, emancipatory, critical and de-constructivist paradigms (Anderson 2013; Mackenzie & Knipe 2006).

According to Romm and Ngulube (2015), Creswell (2014b), Mackenzie and Knipe (2006) and Mertens (2010), the positivist paradigm hinges on the argument that social

settings and relationship between social phenomena are defined by some regular cause-effect relationships between the phenomena. Positivists believe in the existence of absolute truth. Consequently, positivist thinking approaches research from a predetermined theoretical standpoint explaining some linkage between social realities, and would therefore seek to confirm or dispute the relationship. For instance, a positivism researcher could hypothesize that there is a relationship between level of education and dressing style. A research would then be conducted to test this hypothesis. Therefore, positivists aim to test a theory or describe experiments. As a result, positivism is, therefore, associated with the quantitative research method (Creswell 2003).

The interpretivist paradigm, also called constructivist (Creswell 2014b; Mackenzie & Knipe 2006; Creswell 2003), and unlike the positivist paradigm, does not begin with a theory in mind. Interpretivists believe that individuals seek an understanding of the world they live in. As a result, these individuals develop subjective meanings of their experiences. These meanings are varied and multiple depending on the complexity and therefore interpretations of the people attaching the meanings. The goal in an interpretivist research is to get the participants' views and generate a theory and/or pattern of meanings. A researcher that adopts the interpretivist paradigm approaches research with an open mind, unclear what it may result in and therefore relies on the feedback from the participants to construct (constructivism) ideas that will explain and support the existence of phenomena. They have neither a hypothesis nor a theory to prove or disapprove. Interpretivist paradigm is associated with qualitative research (Romm & Ngulube 2015 ; Mertens 2005; Creswell 2003).

The pragmatic paradigm challenges the ideas advanced by both the positivist and interpretivist paradigms. The philosophy behind the pragmatic paradigm is that both the positivist and the interpretivist paradigms and their corresponding methodologies (quantitative and qualitative respectively) can be combined to provide a robust and more effective, valid and reliable way of understanding a phenomenon without denying the research the benefits of either and/or cushion the study from the adverse impacts of both (Romm & Ngulube 2015; Cameron 2009; Creswell & Garrett 2008; Johnson & Onwegbuzie 2004; Tashakkori & Teddie 2003). Pragmatic paradigm is the paradigm behind the mixed methods research (Caruth 2013; Ngulube 2012; Cresswell 2012; Ngulube 2010; Azorin & Cameron 2010; Creswell & Clark 2007).

In view of the foregoing discussions, the present study was based on the interpretive paradigm. This is justified by the fact that the present study did not have a theory in mind to put to test; hence, it could not adopt the positivist paradigm. The researcher relied on the views of the participants with regard to the effectiveness of the existing practices in managing electronic records to support e-government, to draw relationship patterns between management of electronic records and e-government and develop the proposed framework. Because of the lack of variables to subject to quantitative data and analysis, the pragmatic paradigm was also not suitable for the present study. Because little was empirically known about the present situation, it was difficult to design quantitative approaches that could capture meaningful variables that could be tested quantitatively. Instead, it was important for the researcher to collect qualitative

data which could then be synthesized and help in generating insights that could be subjcted to quantitative techniques in further researches to advance the field.

4.2 RESEARCH METHODOLOGY JUSTIFICATION

As discussed in section 4.1, there are three methods of research: quantitative, qualitative and mixed methods research. Discussions of the three methods abound in literature and have also been highlighted in Chapter One.

Research methodology should be informed by the research paradigm (Mackenzie 2006). The present study adopted a qualitative research methodology. This was informed primarily by the interpretive research paradigm, which was the paradigm of choice for the study. The interpretive paradigm is supported by qualitative research methodology (Romm & Ngulube 2015; Caruth 2013; Creswell 2012, 2007).

The quantitative method is used when investigating relationships between phenomena. It is used when a researcher wants to establish cause-effect (causal) relationships to establish how a phenomenon exerts influence on another (Chireshe 2015; Creswell 2012; Brians et al 2011; McNabb 2008; Creswell & Clark 2007; Sing 2007; Creswell 2004). In this case, there has to be variables that are related; where one depends on another i.e. independent and dependent variables. According to Ahlquist (2010), the quantitative methodology is used when a study intends to describe, predict or test a theory. Typical examples would be, for instance, investigating the relationship between poverty levels and religiosity or influence of education levels on dressing styles. In records and archives management, an example would be investigating the impact of

budgetary support on records management activities, employability of records and archives management graduates or the success rate of SharePoint in electronic records management. Data is, therefore, gathered through structured research instruments (Babbie 2010; Daniel 2010).

The qualitative research method is used where a researcher seeks to understand the phenomenon by gaining illumination of the issues in order to generate meaning or theory based on the findings. In this case, the study is not informed by predetermined variables, but the researcher gets into investigating a phenomenon with an open mind and relies on the views and feedback of participants to draw conclusions and formulate a theory (Labaree 2013; Creswell 2012; Ngulube 2012; Ngulube 2010). Hsiung (2012) opines that the qualitative methodology "is used to facilitate an epistemological transformation that legitimizes multiple voices and diverse realities in knowledge production". Because the data in qualitative research is not guided in any way, by for instance using close-ended questions, the researcher can expect varied responses that may elicit varied interpretations of reality. In this case, data is collected using unstructured instruments like face-to-face interviews. The findings of qualitative research can be subjected to further investigations quantitatively, where certain variables have been established. For instance, if during a qualitative study a researcher finds out that lack of training is impacting negatively on records management, a further research can be done to investigate what specific aspects of training could be having the most impact. In this case, variables that constitute training scope are determined and subjected to quantitative investigations. The essence in qualitative study is to construct meaning through interpreting the views (which can be subjective, objective or

both) from the participants (Ngulube 2013; Bhattacherjee 2012; Dube & Ngulube 2012; Kelly 2011; Creswell 2003).

The mixed method research (MMR) is used where there is a need to combine both qualitative and quantitative approaches to get rich data (Romm & Ngulube 2015; Cresswell 2012; Ngulube 2010). According to Ngulube (2010), MMR is used to eliminate partiality of using either quantitative or qualitative to help obtain a much more comprehensive and accurate picture as possible. Some of the studies that have utilized MMR in records and archives management are those of Marutha and Ngulube (2012) and Komba (2013). Researchers that have used MMR generally employ a combination of different types of data collection methods, where both qualitative and quantitative data is needed. The bottom-line in this method is that both quantitative and qualitative methodologies are "combined to produce a comprehensive and broad-based research" (Ngulube 2015).

There have also been quite substantial debates about the philosophy of MMR. For instance, some authors argue that a combination of close-ended questions and open-ended questions in one questionnaire or interview schedule is mixed methods research. Brannen (2005) argues that MMR could also imply using different types of investigators. Advocates of MMR, such as Romm and Ngulube (2015) and Venkatesh, Brown & Bala (2013) however, argue that combining close-ended and open-ended questions is not MMR but multi-method research. Ngulube (2015) clarifies that multi-method research is the use of different techniques under same research design.

The nature of the present study influenced the adoption of the qualitative approach because the primary purpose of the study was to seek an understanding of the existing phenomenon of managing electronic records from the participants' views and determine its effectiveness in supporting e-government. Out of the established interpretation, a framework would then be developed to improve the phenomenon.

According to Creswell (2013), the qualitative method is used when a problem needs to be explored or when there is a need for a complex and detailed understanding of an issue, and also when there is a need to empower individuals to "share their stories and hear their voices". Qualitative research is also useful when there is a need to develop theories when partial or inactive theories exist, or when quantitative techniques "simply do not fit the problem", and also when the researcher needs to understand the context under which the participants address an issue (Creswell 2013).

The purpose of the present study was to develop a framework for managing electronic records in e-government, which addresses Creswell's (2013) "need to develop theories when partial or inadequate theories exist". In doing this, there was a need to gain a deeper, detailed understanding of the problem out of which, a sound framework could be developed. For the present study, quantitative techniques did not fit the problem because the researcher did not predetermine any variables to be tested as would have been with a quantitative approach, but sought to hear from participants about how electronic records are managed in government ministries. Based on the findings, the researcher would determine, through interpretation of the views received, how the

practices of managing electronic records would impact on e-government in Kenya and consequently propose ways of improvement.

4.3 JUSTIFICATION OF RESEARCH DESIGN

Several scholars have defined what a research design is and attempted to provide distinctions between research methodology and design, which the present study finds noteworthy. According to Creswell (2014b), research designs refer to the “entire process of research from conceptualizing a problem to writing research questions onto data collection, analysis, interpretation and report writing ”. Yin (2009) views research design as “the logical sequence that connects empirical data to a study’s initial research questions” and ultimately to the research conclusions.

Creswell (2014b) further notes that research design implies the “types of inquiries” within research methodology (qualitative, quantitative and mixed methods) that provide specific directions in research. Some authors of research methods refer to research design as research strategies or strategies of inquiry (Denzin & Lincoln 2005) and others like Morse and Richards (2002) as methods. Ngulube (2015) has also used the term approach interchangeably with design.

Authors on qualitative research have suggested several types of research designs in qualitative studies. According to Creswell (2013) the most popular qualitative research designs are ethnography, narrative, case study, grounded theory and phenomenology designs. In addition to these designs by Creswell (2013), Ngulube and Ngulube (2017) also talk of content analysis as another design in qualitative studies.

Other authors cite other qualitative designs as life history, biographical, historical, heuristic, sociolinguistics, exploratory, observational, philosophical, historical, anthropological, developmental, interrelationship and even biological designs (James & Kevin 2010; Marshall & Rossman 2010; Cooper, Larry & Jeffrey 2009; Hall 2008; Shuttleworth 2008; Bachman 2007; Gall 2007; Denzin & Lincoln 2005). A detailed description of these designs is not in the interest of the present study. However, Creswell (2013) provides an elaborate discussion of narrative, ethnography, phenomenological, grounded theory and case study designs, while Ngulube and Ngulube (2017) discuss phenomenological design in detail.

4.3.1 Phenomenology Design in the Present Study

The present study found phenomenology design as the most appropriate design for the study. The *Stanford Encyclopaedia of Philosopgy* (2003) defines phenomenology as

> the study of structures of consciousness as experienced from the first-person point of view. The central structure of an experience is its intentionality, its being directed toward something, as it is an experience of or about some object. An experience is directed toward an object by virtue of its content or meaning (which represents the object) together with appropriate enabling conditions.

While ontology is the study of beings (what is) and epistemology is the study of knowledge (how we know), phenomenology is the study of how we experience. Phenomenoligical design is utilized significantly in the fields of philosophy and psychology because it relates to description of consicious experiences (Groenewald

2004; Lester 1999). The journal for phenomenological psychology for instance is dedicated to relevance of phenomenology for psychology in areas involving qualitative research methods.

Ngulube and Ngulube (2017) state that “phenomenology is a powerful way of understanding human lived experience from the participants perspective and interpretation”.

According to Groenewald (2004), in phenomenological design, the focus of the researcher is to describe a phenomena as accurately as possible, refraining from any preconceived ideas but remaining true to the facts as they manifest. Phenomenology according to Lester (1999) seeks to describe rather than explain and is based on a paradigm of personal experience and interpretation, as determined from individuals’ knowledge and subjective interpretations. The objective of a phenomenology study is therefore direct investigation and description of phenomena as consciously experienced, without theories about their causal explanations or their objective reality. The researcher later interprets these descriptions based on established philosophical assumptions and knowledge to inform recommendations for improvement. This links the phenomenological design to the interpretive research paradigm and the qualitative research method. The present study, which was based on the interpretive paradigm, was concerned with describing current practices for managing electronic records as experienced by the participants and how they feel about the effectiveness of these practices in enhancing e-government. Based on the findings as expressed by the

participants, the researcher drew recommendations to improve the practice of managing electronic records for e-government in Kenya.

Because phenomenological research collects data about the experiences of different participants around a phenomenon, they can yield rich data which lead to important recommendations in practice (Gabriella 2014; Orbe 2009; Trochim 2006). In addition, just like other qualitative designs, phenomenological design can be used as a pre-cursor to more quantitative research designs with the general overview giving some valuable pointers as to what variables are worth testing quantitatively in future.

Penner and McClement (2008) emphasise the significance of phenomenology research by indicating that it " does not aim to explain or discover causes. Instead, its goal is to clarify the meanings of phenomena from lived experiences". These lived experiences involve immediate consciousness of events prior to interpretations or reflective focus (Speziale & Carpenter 2007). The main approaches in phenomenological design are descriptive/transcendental and hermeneutic/interpretive phenomenology (Ngulube & Ngulube 2017; Finlay 2009).

Since the objective of the present study was to investigate the status of management of electronic records with respect to e-government and not to prove or disprove a hypothesis, descriptive phenomenology design was relevant because as McNabb (2008) alludes, it cannot be used to discover a definitive answer or to disprove a hypothesis but to describe a phenomenon based on participants views which can lead to credible recommendations to improve practice. Descriptive phenomenology enables

focus on the first-person account of experiences (Ngulube & Ngulube 2017). This then enables description of the realities around the phenomena as well as participants' own views.

Out of the lived experiences as expressed by participants, a phenomenological researcher would then seek to explain the phenomena and relate them to the context. It is therefore important to note that in this type of research design, the focus for the research is to first capture the lived experiences that describe the phenomena before attempting to attach meaching to the experiences. The essence is to describe and not to explain.

In the present study the focus was to describe the experiences that those responsible for managing electronic records and administering e-government services in Kenya go through with regard to management of the electronic records generated on the e-government platforms. Both e-government systems and electronic records systems are physical realities that users have to experience daily in attempt to offer government services to citizens.

Finlay (2009) advises that phenomological research therefore:

> "starts with concrete descriptions of lived situations, often first-person accounts, set down in everyday language and avoiding abstract intellectual generalizations. The researcher proceeds by reflectively analyzing these descriptions then identifying general themes about the essence of the phenomenon. Importantly, the phenomenological researcher aims to go beyond surface expressions or

explicit meanings to read between the lines so as to access implicit dimensions and intuitions".

According to Finlay (2009), in trying to describe and ultimately interpret the lived experiences as offered by respondents, researchers in phenomenological designs are faced with the challenge of their own subjectivity. This refers primarly to the extent to which researches bring their own experiences to the fore. Experts in phenomenological research agree that this is both a reality and a challenge that must be addressed. However, the approaches on how to address it remain a subject of debate within the phenomenological world (Finlay 2009; Finlay 2008; Giorgi 2008a,b; Halling, Leifer & Rowe 2006; Wertz 2005). Some of proposed approaches to help researchers deal with their own subjectivity include:

- Consciousness: which refers to the quality of awareness of the phenomenon by the respondents. It is the measure to which the participants are conscious of their experiences including "critical self-awareness of their own subjectivity, vested interests, predilections and assumptions and to be conscious of how these might impact on the research process and findings" (Finlay 2008; Halling, Leifer & Rowe 2006; Wertz 2005).
- Reduction: where researchers render themselves noninfluential and neutral by bracketing their previous experiences, knowledge and assumptions about the phenomena (Finlay 2009).

4.3.1.1 Bracketing Strategies in the Design

In phenomenological research design, bracketing refers to the putting aside of a researcher's own beliefs about the topic and investigation, to allow the researcher collect and analyse data from participants without being influenced by his or her own perceptions. Experts in qualitative research content that bracketing is an essential element of phenomenological research to help demonstrate credibility of the study (Chan, Fung & Chien 2013; Carpenter 2007; Parahoo 2006; Gearing 2004; Beech 1999). Bracketing helps mitigate effects of preconceptions that may taint the research process.

Bracketing impacts on the research quality in phenomenological research (Harvey 2012; Rawat 2011; Tufford & Newman 2010) because it determines the extent to which the description of phenomena and the resultant intepretations are truly representative of respondents accounts or are laced with the researcher's own perceptions and subjectivities.

In the bracketing process, the researcher acknowledges his or her previous experience, attitude and beliefs, but tries to set them aside for the duration of the study to see the object of study anew (Creswell 2013).

Authors on bracketing contend that it is naturally not easy for researchers to entirely set aside past personal experiences and knowledge of the topic under study (Harvey 2012; Rawat 2011; Tufford & Newman 2010). They nonetheless recommend that qualitative researchers have to guard against the temptation of personal prejudices or

preconceptions controlling the direction and output of the research process. Chan, Fung & Chien (2013) recognize that although bracketing is an accepted necessity in research, the actual ways of achieving it remains contentious and tricky.

Whereas phenomenologists underscore the importance of bracketing, there seems to be no defined approach on how to achieve it (Chun, Fung & Chien 2013; Giorgi 2011; Gearing 2004; Wall, Glenn, Mitchinson & Poole 2004). Tuffor and Newman (2010) state that " the processes through which bracketing takes place are poorly understood". Practical and specific suggestions within the realms of research processes seem to be non-existent for novice researchers, other than general remarks like: "tries to set them aside for the duration of the study to see the object of study a new" (Creswell 2013); "rendering oneself noninfluential and neutral as possible" (Finlay 2009); "putting aside one's own belief about the phenomenon under investigation or what one already knows about the subject prior to and throughout the phenomenological investigation" (Carpenter 2007). A study of the works of these authors does not reveal exactly what practical approaches can be tapped to put aside a researcher's knowledge or percetions.

It is important to acknowledge that the researcher in the present study had previous interactions with RMOs and respondents from KNADS on many issues around records and archives management including MER. This arose from interactions during previous academic studies, during professional engagements and also by virtue of being the Chairperson of KARMA. Therefore the researcher had some prior insights on the feelings of these participants on the issue of MER. This would therefore potent the risk

of bringing some biases to the study, which would shape data collection and even interpretation. All efforts were therefore made to ensure objectivity and avoid intrusion of these experiences into the data collection and interpretation process. The present study worked to achieve bracketing through the following ways:

- The face-face interviews provided an enabler for bracketing in the sense that the researcher picked the description of participants without creating room for own-descriptions on behalf of the respondents.

- There were no references to literature during data collection to avoid the risk of gravitating the discussions towards the literature.
- The benefit of the present researcher not being a government employee contributed to achieving bracketing because past experiences with the systems and people in either e-government or records management were not at play.
- Leading questions were avoided during the data collections to avoid influencing respondents responses.

4.4 STUDY POPULATION AND SAMPLING

This section provides a description of the population and sampling techniques adopted for the study.

4.4.1 Study Population

In research, whether quantitative or qualitative, a population refers the total of subjects that bear a common characteristic that would be of interest to the researcher, out of which the researcher extracts a small fraction, the sample, that becomes the actual respondents to the study who provide the data to the study (Banarjee & Chaundry 2010; Trochim 2006).

The population of the present study was derived from government ministries and agencies. It included the categories shown in Table 4.1.

Table 4.1: Study Population

Category/Organisation	**Population**
Principal Secretaries	22
CEO & Directors, Kenya ICT Authority	6
Director & Deputy Directors, Kenya National Archives and Documentation Service (KNADS)	3
Records Management Officers	18
Heads of ICT in Ministries	18
In-Charge, E-Government Services	12
Total	**79**

The common characteristic within this population that was of interest to the researcher is their role in either management of electronic records, e-government service delivery or both.

4.4.2 Sampling in Phenomenology

A research sample is a subset of the population, from which data is collected and generalizations made. According to Mason (2010) and Denzin and Lincoln (2005),

sampling in qualitative techniques has a profound impact on the ultimate quality of the research.

In phenomenological studies, Ngulube and Ngulube (2017) state that the “focus is on selecting only those who share the experience of the phenomenon under investigation”. This view is also shared by Creswell (2013) who contends that this enables the researcher to form a common understanding.

Purposive, snowball and maximum variation sampling techniques are the common sampling techniques in phenomenological researches (Ngulube & Ngulube 2017; Englander 2012; Mason 2010; Schumacher 2010; Martins 2008; Starks 2007 and Groenewald 2004). However, in descriptive phenomenology, as the present study, maximum variation sampling is most predorminant and commonly used (Langdridge 2007). Purposive and snowball are popular with interpretive phenomeonology (Ngulube & Ngulube 2017).

Maximum variation sampling was therefore used to identify individuals that would constitute the research sample for the study. The objective of this sampling is to obtain participants with a common experience with a phenomenon but who have some demographic variance.

The present study was interested in participants who interfaced with both MER and e-government at strategic and technical levels. These participants had a common experience with MER as well as e-government even though they may have been interfacing with the two phenomena from different roles and responsibilities

(demographic characteristics) (Ngulube & Ngulube 2017; Langdridge 2007; Hays & Singh 2012). Table 4.2 presents the present study's sample size.

Table 4.2: Sample Size

Category	Population	Sample
Principal Secretaries	22	5
CEO & Directors, Kenya ICT Authority	6	3
Director & Deputy Directors, Kenya National Archives and Documentation Service	3	3
Records Management Officers	18	18
Heads of ICT in Ministries	18	18
In-Charge, E-Government Services	12	5
Total	**79**	**52**

4.4.3 Justification of Sample Size

The question of what would constitute an ideal sample size in phenomenological has been debatable, just as is the case with most qualitative designs (Onwuegbuzie & Leech 2007; Baker & Edwards 2012). For instance Creswell (1998) suggests a sample size of five to twenty five. Morse (1994) talks of atleast six. Creswell (2013) suggests atleast three to five participants to be enough. Mason (2010) states that

> "qualitative samples must be large enough to assure that most or all of the perceptions that might be important are uncovered, but at the same time if the sample is too large data becomes repetitive and, eventually, superfluous".

According to Ngulube and Ngulube (2017), "fewer participants examined at a greater depth is the gold standard for phenomenological research". The number of participants would be determined by the nature of data required and the sampling technique to the

extent that the researcher feels the sample adequately provides a suitable representation of the phenomenon. Other authors agree that since qualitative research is more involving in data collection and hence time consuming, a manageable sample size is recommended, unlike in quantitative research (Englander 2012; Gill et al 2008).

The present study, therefore, considered the sample size of fifty two as appropriate to provide the best and accurate representation of the phenomena under investigation, without duplication of data. The present study's sample size was not predertermined and emerged naturally out of the need to achieve maximum variation across government ministries and other entities involved in MER and e-government.

It is noteworthy that the sample size of Principal Secretaries and In-Charge, E-government services were a fraction of actual populations. The principal secretaries sampled were those whose ministries had e-government services running. Not all ministries within the government had deployed e-government services.

With regard to officers in-charge of e-government services, those selected out of the 12 service areas were those whose services were considered to be sensitive, demand robust governance capabilities, are considerably advanced in terms of interactions with citizens (from the theoretical framework viewpoint) and target a wider mass, hence receive considerable amounts of electronic records which need to be managed.

4.5 DATA COLLECTION INSTRUMENTS

The most common sources of data collection in qualitative research are interviews, observations, and review of documents (Locke, Silverman & Spirduso 2010; Creswell 2009b and Gill et al 2008). Starks (2007) says that qualitative research frequently relies on interviews.

In phenomenological research, Creswell (2013) states that data collection consists of in-depth and multiple interviews with participants. Other methods like observation and document review are hampered by their inability to get the participants' views, leaving so much to the researcher's interpretations, which is contrary to the spirit of phenomenology research. The aim of phenomenology is to achieve pure self-explanation without inference from the researcher, something that may not be well achieved using observation and document reviews.

The face-to-face interviews, therefore, were deemed most suitable for the present research. Because the study was interested in subjective views of those involved in MER and e-government (Chan, Fung & Chien 2013; Englander 2012 and Munhall 2007), interviews provided the most appropriate means of engaging the participants to get a more detailed and in-depth description of the phenomenon.

Interview schedules were designed for each of the six categories of respondents (see appendix 1-6). Because of the distinctive roles of respondents, it was necessary to have interview questions that reflected on each category's role and not generic ones to cut across. For instance, whereas records management officers could respond confidently on matters to do with MER, they could not do the same regarding issues on ICT

infrastructure. The reverse would be true for ICT officers, who could not confidently describe professional issues regarding MER. Principal secretaries could give a strategic view on e-government and electronic records, but could not discuss technical issues regarding e-government and electronic records. Therefore, there was need to vary the interview schedules for each category, including the type of questions and length.

4.6 DATA INTEGRITY, ACCURACY AND CREDIBILITY

In qualitative research, the integrity, accuracy and credibility of the data is a major source of strength for the research. This reflects what is predorminantly known as validity in quantitative studies. Creswell (2003) advises that in qualitative research though, validity “does not carry the same connotations as it does in quantitative studies nor is it a companion of reliability” as it has been predorminantly known in quantitative studies (Bapir 2012; Shenton 2004).

Ngulube and Ngulube (2017) state that in qualitative research the quality is determined through transferability (degree to which findings are applicable/transferable), dependability (ability for findings to be repeated if inquiry is replicated under same conditions), accuracy (if data reflects reality), replicability (ability of another party to follow decisions made by researcher to reach the researcher’s conclusions) and credibility (whether findings are believable).

Creswell (2003) recommends eight strategies for ensuring the quality of research findings in qualitative studies. These are: triangulating different data sources; taking

back the research report to participants for their views on the findings (member-checking); rich, thick description where readers are “transported” to the setting to share experiences; clarification of any biases the researcher may bring to the study; presenting any discrepant information; spending prolonged time in the field; using peer debriefing; and use of an external auditor who is new to the researcher. The essence of these strategies is to provide some form of verification processes for the findings to enhance the study’s trustworthiness. The present study utilized some of these strategies as follows:

- Discrepant or varying opinions from participants have been reported in the findings to represent the varied perspectives. For examples findings from ICTA, ICT officers and RMOs contained some varying opinions which were captured.

- The researcher spent over eight months in the field engaging participants, which provided an indepth understanding of the phenomenon. In some cases the researcher was taken into live demonstration of the e-government systems which provided a rich understanding of the phenomenon.

- Peer debriefing was harnessed through the research supervisors who provided critique of the study and its findings.

- Two external auditors who were not known to the researcher were engaged to study the final research report and advise on its communicability as well as the accuracy and logic of the findings as had been captured. Comments from these auditors were considered and where necessary adopted.

- A member-checking guide was developed and shared with ten of the participants from across the categories, except principal secretaries, indicating a summary of findings and recommendations (see appendix 11). The participants were requested to confirm and comment whether the findings were representative of the situation. All the ten responded confirming the findings as captured were reflective of their views.

- The interview schedules contained open-ended questions “to give the participant an opportunity to set the research agenda” (Ngulube & Ngulube 2017) and avoid possible presumptions and biases by the researcher.

4.7 PRE-TESTING OF THE RESEARCH INSTRUMENTS

Caspar and Peytchera (2011) state that pre-testing involves a series of activities designed to evaluate a survey instrument’s capacity to collect the desired data, the capabilities of the selected mode of data collection and the overall adequacy of the field procedures. Pre-testing takes place before the actual data collection. According to the Australia Bureau of Statistics (2001), pre-testing helps in identifying non-sample errors and suggests ways of improving them. Examples of such non-sample errors are the respondents’ biases which arise from interpretations of the questions or the interviewer’s effects arising from the interviewer's inability to consistently deliver the questions.

Pre-testing seeks to establish issues such as: do the respondents understand the questions being asked, are questions understood the same way, are respondents willing to answer the questions, is the terminology understood by all, do the questions ask what the researcher thinks they are asking (Goerman 2006; Hansen & Couper 2004; Reeve & Masse 2004; Collins 2003 and Snijkers 2002).

Therefore, the key purpose of pre-testing the research instruments is to identify potential problems in data collection and find possible solutions prior to data collection, hence improving the credibility of the data collected.

The techniques proposed for pre-testing are literature review, expert review, focus groups, interviewer debriefing, observational interviews, cognitive interviews and behavior coding (Australia Bureau of Statistics 2001; Rothgeb, Willis & Forsyth 2001). The present study utilized expert review to pre-test the research instruments.

It is recommended that pre-testing is done under circumstances that are as similar as possible to actual data collection and with a population as similar as possible to those that will be involved in data collection (Blanke & Simone 2009; Blanke & Gauckler 2008).

The pre-testing of the interview schedules was conducted between 8 October and 20 November 2014. A total of eleven potential respondents, including scholars and practitioners in the fields of records and archives management, knowledge

management, library management, information technology and communication, were approached for the pre-test. Table 4.3 shows the distribution of the pretest sample.

Table 4.3: Research Pretest Sample

Institution	Pre-test respondents
Kenya National Archives and Documentation Service	2
Moi University, School of Information Science	3
Technical University	1
Kenya Police Sacco	1
Kenya Methodist University	2
Kenya Women Finance Trust	1
Central Bank of Kenya	1
Total	**11**

All the eleven (100%) respondents that were approached for the pre-test agreed to participate in the pre-test.

A pre-test checklist (see appendix 3) was prepared, capturing eleven questions against which the respondents were requested to assess the instruments. The checklist was given to the respondents together with the interview schedules. Some of the aspects the respondents were to evaluate included the legibility of the font size used, presence of typographical errors, ambiguity of the interview questions, appropriateness of the language used, whether the interview questions adequately covered the study objectives, the clarity of the instructions given and the logical flow of the questions. The researcher also provided the respondents with the study objectives to aid them in evaluating the interview schedules.

Four respondents were provided with the pre-test checklist, the study objectives and the interview schedules in hardcopy whereas the rest were provided through emails. The researcher contacted each of the respondents personally, either physically or through telephone, before delivery of the pre-test instruments. All the eleven (100%) target respondents provided feedback.

With regard to whether the font size used was sufficient, all respondents (100%) felt the font was sufficient and legible. Eight (73%) respondents were able to identify typographical errors on the schedules while six (54%) identified misspelt words on the instruments.

On whether the words used on the instruments were appropriate, seven (64%) respondents felt some words needed review while the other four (36%) felt the words were in order. For instance, one respondent remarked, “revise the word e-government maturity to a simple language. Remember these are mostly political appointees”. Another respondent suggested the statement, “if yes, please explain” on some of the questions should be amended to just state, “please explain” and remove the “if yes” part.

Regarding ambiguity of questions, eight (73%) of the respondents suggested some questions were ambiguous. Table 4.4 shows some of the verbatim comments from the respondents.

Table 4.4: Sample verbatim pretest comments on ambiguity of questions

Respondent 1	"This question should come after question 3. It is also not very clear what you are asking"
Respondent 2	"What does this mean? It's rather ambiguous. I'd also replace entity with agency" "A bit ambiguous as well. I am struggling to figure out what you mean. Please revise".
Respondent 3	"Specify the challenges. If related to question 10 then make it clear"

In relation to whether the questions adequately covered the study objectives, seven respondents (64%) noted the questions adequately covered the objectives while four (36%) suggested a review of either some of the questions or the objectives. For instance, one observed on the objectives,

> "…they look very broad and not easily measurable. The use of 'and' splits them into two making them double barreled. You could think of merging and revising some to achieve at least 4-5…"

Another respondent remarked on one schedule,

> "The questions have not clearly established the link between e-government and electronic records. This is the whole essence of the input from top management. Do they understand that there is a connection between the two? This needs to come out if the findings are to be of use".

About the logical flow of questions, five respondents (45%) suggested deletion, merging, interchanging or rearranging of some questions. For instance, one respondent remarked, "you need to be systematic so that you deal first with e-government issues

then move to electronic records. At the moment you are mixing this up". All respondents were comfortable with the number of questions. However, from the responses received about the flow of questions, suggestions, for instance, to delete or merge some questions would affect the number of questions.

All respondents (100%) noted the layout of the interview schedules was clear. With regard to general comments on the interview schedules, three respondents (18%) opined that by targeting all ministries, the scope of the study may be very wide. They suggested a narrow-down to fewer ministries. One respondent asked, "by the way, are government officers really keen on e-government?"

In view of the comments received from of the pre-test exercise, consultations were made with the supervisor and improvements made to the instruments. Final interview schedules were then prepared. In general, the pre-testing revealed that the interview schedules provided sufficient confidence for data collection, except for the minor improvements and alignments that needed to be made and proceed to data collection. Table 4.5 provides a synopsis of comments and corresponding actions.

Table 4.5: Pre-test comments and remedial actions

On Interview Schedule For…	Pre-test respondent's comment	Action
Principal Secretaries (*Question: what is the current state of e-government readiness?)*	How is the readiness measured? I think respondents will most likely be at a loss on what you exactly mean.	Question was refined to read: How would you describe your ministry's readiness/preparedness for e-government implementation in terms of the following: ICT Infrastructure; policy and regulatory framework; human resources
KNADS respondents (Question: What are the future plans for development in management of electronic records in government entities in Kenya?)	Question unclear, Rephrase to read: what are the envisaged developments in as far as electronic records management in the country is concerned.	The suggested rephrase was adopted.
KNADS respondents (Entire schedule	The subject of e-government is not adequately addressed in this schedule. You need to ask stand-alone questions on e-government first, then ask questions that provide the link between the two. It appears that in this schedule you are simply tagging questions on e-government to those on electronic records. This creates confusion.	E-government questions were not incorporated because the role of KNADS is on records management and may not be able to give in-depth description of e-government. However, questions relating to role of KNADS in e-government through MER were retained.
ICTA respondents (Question: What are the government's future action plans for integration of e-government in public service in Kenya)	Have you asked about the current plans?	A question was added to ask about current plans: "What are the ongoing e-government projects/initiatives in the government?"
Records Management Officers	I am not sure I understand what this means.	Refined to read: Are there issues in management of

(Question: What issues in management of electronic records may inhibit the progress of e-government initiatives in your ministry?)		electronic records (technical and organizational) that impact negatively on the success of e-government in your ministry?
ICT Officers (Question: What is the technical and professional capacity of your unit to support management of electronic records in the ministry?)	Rephrase for clarity	This was left as is for explanation to the respondents during interviews
Heads of e-government services (Question: What triggered the establishment of this (e-government) service?)	I am assuming that you already know that these agencies have e-government services	This was left as is. The idea is to understand the objectives/rationale of the e-government service.

4.8 DATA COLLECTION PROCEDURES

In order to enable data collection, the following actions were taken:

- A research permit was applied from National Commission for Science and Technology and Innovation (NACOSTI) and granted (see appendix 7).
- A research assistant was identified to help in follow-ups on research permit processing and booking of appointments with respondents (appendix 9).
- Official letters were dispatched to Principal Secretaries (PS) of all ministries requesting for permission to interview the target officers (see appendix 8).

- To facilitate ease of access and contact to RMOs, a list of RMOs from all ministries was obtained from the Ministry of Sports, Culture and the Arts with their contacts (appendix 10). This was useful in accessing RMOs for appointments once official permission had been granted from the PS offices. The RMOs also provided assistance in reaching the ICT officers in their respective ministries.

The research authorization from the NACOSTI was issued on 4th July 2014. This was then followed by the pre-testing of data collection instruments and subsequent discussions and actions on the pre-test recommendations.

Data collection took eight months, from November 2014 up to June 2015. The initial permit expired on 31 December 2014 and a renewal was sought and granted on 4 February 2015 (appendix 7).

At the start of data collection, the researcher made appointments with Records Management Officers (RMOs) and engaged them on the appointed dates. A list of RMOs in government ministries was obtained from the RM Secretariat at the Ministry of Sports, Culture and the Arts headquarters. Appointments were made by phone, email and in person during KARMA meetings. The RMOs could then introduce the researcher to the other targeted officers like the ICT Officers.

However, in several cases other officers other than the RMOs were reluctant to indulge the researcher without formal permission from the Principal Secretaries. In one ministry for instance, the ICT Officer required a go-ahead from the ICT Authority. This

underscored the need for formal requests, which were made to the Principal Secretaries explaining the nature of study, providing a list of target respondents and seeking permission to interview the targeted individuals (appendix 8).

Approvals were obtained from 17 ministries which gave the green light to engage the targeted individuals. One ministry, the Ministry of Defense, declined to grant approval, citing “sensitive nature of information” held at the ministry.

Where telephone contacts for respondents were available, appointments were secured for the interviews. Emails were not considered effective in securing appointments with respondents due to probable delays. In the absence of telephone contacts, the researcher visited each of the targeted respondents in person to schedule interviews. Some respondents granted the interview on the spot while others scheduled alternative dates.

Appointments were also secured with the Directors of KNADS and ICT Authority, all of whom the researcher made personal visits to their officers to schedule appointments.

4.8.1 Challenges in Data Collection

During data collection two major challenges were faced. One was reluctance by predominantly ICT officers to grant an interview without permission from their Principal Secretaries despite the researcher having the research permit from NACOSTI. In one case, for instance, a director of training, who received the letter to the PS seeking authority to interview Ministry officers, demanded the research proposal before granting clearance. This required explanation from the researcher that the research proposal had

already been submitted to NACOSTI as required by Government regulations. These experiences, therefore, resulted to a prolonged time overhead as permissions were sought from Principal Secretaries. This problem was, however, not experienced with the RMOs. This could be attributed to the fact that the RMOs easily understood the purpose of the study. In addition, most of the RMOs were known to the researcher through their working relationships in KARMA. Equally, the problem was not experienced with the Directors of KNADS and ICT Authority.

The second challenge was limited availability of some respondents due to their busy schedules especially the Principal Secretaries. For instance, in the case of ICTA, having not been able to access the Chief Executive Officer for a while, a decision was made to refer the researcher to the Director of Shared Services . In the case of National Treasury, even though there was official confirmation that the office of PS would advice the researcher when to meet the PS, it emerged later that this was not possible due to the busy schedule of the PS.

4.9 DATA ANALYSIS AND PRESENTATION

Qualitative researches tend to generate extensive amount of data even though few sources are consulted (Ngulube 2015). It is therefore important for the analysis of the data to be carefully done to extract meaning and sense to the study.

Leech and Onwuegbuzie (2007) described seven commonly used techniques for analysing qualitative data as: method of constant comparison; keywords-in-context;

word count; classical content analysis; domain analysis; taxonomic analysis; and componential analysis. On the other hand, Dawson (2009) suggests four approaches to qualitative data analysis: thematic analysis; comparative analysis; content analysis; and discourse analysis. Madill and Gough (2008) talk of discursive, thematic, structured and instrumental methods of qualitative data analysis.

The present study utilized thematic analysis to analyze the data. According to Burnard et al(2008), there are two main approaches to analysis of qualitative data. These are deductive and inductive approaches. In the deductive approach, the researcher has a predetermined framework to help in the data analysis; the researcher imposes his/her own theory or framework in the analysis. This is possible because the researcher is aware of probable responses and is prepared for analysis beforehand.

In the inductive approach, there is no pre-determined structure and the researcher uses the data collected to derive the structure of analysis. The inductive approach is most popular with qualitative studies, including phenomenological studies. Thematic analysis is an inductive approach and is more predominant and common in qualitative studies (Burnard et al 2008; Lathlean 2006 and Ritchie, Spencer & O'Connor 2003). Anderson (2010) concurs that thematic analysis is most appropriate when data is collected through interviews, like in the present study. Clarke and Braun (2013) state that thematic analysis is a method of identifying themes and patterns of meaning across the data collected.

According to Madill and Gough (2008) as cited by Ngulube (2015), thematic analysis is utilized in interpretative phenomenological research and is considered the foundational approach to qualitative data analysis (Braun & Clarke 2006; Williamson et al. 2013).

In the present study, data collected was content analyzed through data reduction (Luyombya 2010), editing and categorization into research themes in line with the research objectives. The research themes were developed in line with the research questions. This approach is underscored by Ngulube (2015) who opines that thematic analysis process starts with specific data that is then transformed into categories and themes.

Data presentation has been done according to the research themes derived from the research objectives and research questions. The London School of Economics and Political Science (2014) advises that since qualitative analysis is done according to themes so should the reporting. Thematic presentation is also recommended by a number of authors on qualitative research (Anderson 2010; Burnard et al 2008; Lathlean 2006; Spencer, Ritchie & O'Connor 2004). Fundamental to the nature of the study is the capture of the participants' voices in presenting data where verbatim and substantive quotations have been extracted and presented to reveal participants opinions. This is essential in not only enhancing reliability of the data, but also demonstrating the in-depth understanding of the phenomenon under investigation which is central to the study. Verbatim quotations also enhance the ethical standing of the study to eliminate the risk of fabricating findings (Kemoni 2007).

Where practical, tables, figures and charts have been used to provide a summarized capture of the data to enable easy presentation and understanding of the data by the audience.

4.10 ETHICAL CONSIDERATIONS

According to Halai (2006), sound research is a moral and ethical endeavor and should be concerned with ensuring that the interests of those participating in a study are not harmed as a result of research being done. In qualitative research, Miller et al (2012) observes that “ethical questions in research relationship, the use of data, and the interpretive and analytical processes have all become more significant as the landscape of qualitative research continues to change”. Creswell (2013) also states that during the process of planning and designing a qualitative study, researchers need to consider what ethical issues might surface and plan how to address them. According to Stevens (2013), ethical considerations are significant to qualitative research because the unstructured nature of interactions between a researcher and the participants can be “more intrusive”, personal and highly interactive.

Creswell (2012) recommends that ethical considerations be assessed at the various stages of research: prior to research, at the beginning of research, during data collection, during data analysis and in publishing the research findings.

Prior to conducting a study, Creswell (2012) and Lincoln (2009) advise that permissions to conduct research must be sought. In addition, the researcher should also examine

professional standards and regulations that may impact on the study. The present study obtained research authorisation from the National Commission for Science, Technology and Innovation which is the body that authorizes research to be conducted in Kenya. A research permit was issued to the researcher on 4 July 2014 expiring on 31 December 2014 (appendix 7). However, because the researcher had not covered all respondents by 31 December 2014, a renewal of the permit was sought and granted on 4 February 2015 to expire on 30th June 2015 (appendix 7). The researcher also examined the UNISA Policy on Research Ethics (UNISA 2007) to ensure compliance with the policy requirements. These include: participants informed consent (section 3.1), the right to privacy of participants (section 4.1), the right to confidentiality by participants (section 5.4.1), research to be beneficial to society and contribute to knowledge (section 5.2.4), no plagiarism, falsification and fabrication (section 5.2.10), and honesty on the part of the researcher (section 5.2.8).

At the beginning of data collection, Lincoln (2009) recommends that the researcher should disclose the purpose of the research. Cresswell (2013) states that disclosing the purpose of a study is important in securing voluntary participation by respondents and also to avoid placing respondents under undue stress. In the present study, the researcher secured participation by the targeted respondents by first declaring the purpose of the study, then securing appointments with them for the actual data collection interview sessions. Appointments were secured either through personal visits or through telephone conversations.

During the actual data collection, American Psychological Association (APA) (2010) and Halai (2006) suggest that participants should not be deceived. Informed consent should be obtained from respondents and there should be as minimal disruptions to participants' lives as possible. By securing appointments, the researcher ensured that he did not interrupt the respondents' schedules with requests for interviews, especially in view of the fact that all respondents were government officials with full-time jobs. At the start of every interview session, the researcher explained the purpose of the study and the nature of information required.

When analyzing and reporting research findings, Creswell (2012), Lincoln (2009) and Mertens and Ginsberg (2009) caution against disclosing information that would harm participants and/or constitute plagiarism. They also advise on respect for the privacy of participants. The present study has maintained the identities of all participants as confidential, as well as endeavored not to disclose respondents' privacy. The research report was subjected to anti-plagiarism software *Turnitin.*

Creswell (2013, 2012) and APA (2010) also consider the publication of research findings. They opine that it is important to share a research study with stakeholders, including the participants, potential industry beneficiaries and professional colleagues. In the present study, the researcher has consented to unlimited provision of the research report to any interested parties through the University's channels both in hard copy and electronic formats. The study shall be available on UNISA's digital repository.

4.11 EVALUATION OF RESEARCH METHODOLOGY

It is important to evaluate the methodology adopted for a research to determine if it worked well towards achieving the objectives of the study. Evaluating the efficacy of the methodology, including limitations, any pain points and success factors, also helps to suggest areas for future modifications when conducting related studies, hence inform the choices made by subsequent researchers (Ngulube 2005).

The present study was purely qualitative anchored on the intepretivist paradigm. The descriptive phenomenological research design was adopted as the design of choice for the study.

As Creswell (2013) puts it, the qualitative method is used when there is a need for a complex and detailed understanding of an issue, when there is a need to hear the stories and voices of the participants, when there is a need to develop theories where partial or inactive theories exist, when quantitative techniques “simply do not fit the problem”, and when the researcher needs to understand the context in which participants address an issue.

This is the scenario that pertained to the present study. The suitability of qualitative methodology was based on a number of factors. First, the focus of the study was to gain an in-depth view of the prevailing situation with regard to the management of electronic records in the context of e-government. Secondly, the study was intended to develop a framework to support MER in support of e-government. There was also the need to engage the respondents deeply, given their central role in both e-government and

management of electronic records to gain a more accurate presentation of the phenomenon. Fourthly, the present study did not have any preconceived variables that it intended to test through quantitative techniques. This, therefore, made the quantitative and/or mixed methods approach untenable.

The maximum variation sampling used for the study helped obtain a rich source of data for the study to help the researcher gain an in-depth understanding of the MER and e-government delivery in Government. The nature of the study required the researcher to engage participants who could provide the best information to achieve the objectives of the study, which was better achieved with maximum variation sampling.

The face-to-face interview techniques worked sufficiently well for the study. First, they provided a platform for the researcher to engage the respondents deeply to help gain an in-depth understanding as required in phenomenological research. Secondly, the interviews eliminated the potential errors that could come with tools like questionnaires and observations by enabling the researcher to clarify any unclear responses. Interviewing also enabled the researcher to clarify any issues that would raise ethical concerns in the entire research process, such as personally discussing with respondents the purpose of research and clarifying any questions that were not clear. This enhanced the quality of the research findings. Opportunities to engage the participants one-on-one also created a ground to establish relationships with participants that could be tapped in future in disseminating the findings of the study and advancing professional practices in MER and e-government.

The study faced challenges in executing the adopted methodology, especially during data collection. It took eight months to collect the data from the respondents, despite the relatively small sample size of the respondents. It, however, cannot be stated with certainty whether this would have been different if alternative methodologies were used. Nonetheless, the challenges did not impair the spirit of the study, especially with regard to the ultimate quality of data collected outweighing the challenges.

4.12 CHAPTER SUMMARY

This fourth chapter has endeavored to not only describe the research methodology adopted for the present study, but also justified the methodology, including the rationale for all actions taken or not taken in conducting the study (Hart 2005; Ngulube 2005; Richards 2004). The key theme that manifested from the chapter is the significance of any researcher to explain the rationale, logic and significance of the research methodology adopted in achieving the objectives of the research.

The chapter has also discussed the research paradigm, research methodology and research design and justified why the study was purely qualitative. The chapter has explained the study population, sampling, data collection, data analysis, data presentation and ethical considerations. It has also provided an overall evaluation of the methodology and the researcher's view of the methodology's effectiveness in achieving the study objectives.

CHAPTER FIVE

DATA PRESENTATION

5.0 INTRODUCTION

This chapter presents interview findings of the study using thematic analysis approach (Anderson 2010; Burnard et al 2008; Lathlean 2006 and Ritchie, Spencer & O'Connor 2004). Data collected has been content analyzed through data reduction (Luyombya 2010) edited and categorized into research themes in line with the study objectives, which were to:

i. Ascertain current status of management of electronic records in Government in Kenya including the capacity of Government ministries to manage electronic records in support of e-government.
ii. Determine the current level of e-government utilization across government in Kenya.
iii. Establish the effectiveness of existing practices for management of electronic records in supporting e-government.
iv. Identify challenges faced by ministries in managing electronic records that could impact on implementation of e-government.
v. Propose recommendations that could improve management of electronic records in ministries to support e-government effectiveness.
vi. Suggest a best practice framework that could be adopted by the Kenya government to enhance management of electronic records in support of e-government.

Under each theme derived from the study objectives, data under each category of respondents is reported. Informants' responses are in some instances reported as captured from the interview notes.

5.1 CHARACTERISTICS OF RESPONDENTS AND RESPONSE RATE

This section presents a description of the characteristics of respondents and the interview response rate.

5.1.1 Characteristics of Respondents

Respondents were drawn from six categories (see Chapter Four) namely Principal Secretaries, KNADS, ICT Authority officers, Records Management Officers, ICT Officers and Officers in-charge of e-government services.

5.1.2 Response Rate

A total of 46 respondents were interviewed against a target of 52 as indicated in Table 5.1.

Table 5.1: Interview response rate (n=46)

Category	Target	Response	Response Rate
Principal Secretaries	5	2	40%
Director & Deputy Directors, Kenya National Archives and Documentation Service	3	3	100%
CEO & Directors, ICT Authority	3	3	100%
Records Management Officers	18	17	94.44%
Ministry ICT Officers	18	16	88.89%
Heads of E-Government Services	5	5	100%
Totals	**52**	**46**	**88.46%**

5.2 CURRENT STATUS OF MER IN GOVERNMENT MINISTRIES IN KENYA AND THE CAPACITY OF GOVERNMENT MINISTRIES IN KENYA TO MANAGE ELECTRONIC RECORDS

The first objective of the study was to ascertain the current status of MER in government ministries in Kenya and the capacity of the ministries to manage electronic records. Interview findings are presented in the discussion that follows.

5.2.1 Data From Principal Secretaries

Question one on the PSs interview schedule inquired about the mandate of the ministries. The mandates for the two ministries were cited as follows:

> Ministry of Energy – “responsible for management of all energy resources in Kenya through the various agencies in the energy sector”.

Ministry of Culture, Sports and the Arts – “development of sports and the arts as industries for wealth and employment creation. Also incharge of development and preservation of cultural aspects as well as management of youth affairs”.

Question seven for PSs asked on whether their ministries created electronic records. The two respondents indicated that there were different forms of electronic records managed in the ministries by different officers. One respondent observed that the predorminant electronic records were emails. There were also different types of records created by individual staff on their personal computers but which were not properly managed. The other respondent indicated that besides email, the ministry also had electronic personnel records created on the Integrated Payroll and Personnel Database (IPPD) and the Government Human Resource Information System (GHRIS) managed by the HR department. The respondents were probed on digitization of manual records. Both respondents reported not to have any electronic records arising from backlog digitization.

On the question of policies for MER (question 8) both respondents indicated that their ministries did not have any policies in place to guide MER. However, in one case, the respondent reported that the records officers reference the records management procedures manual developed by DPM.

Question 9 sought views from the PSs on the success factors that enhanced the management of electronic records. The success factors identified by the two respondents were as indicated in Table 5.2.

Table 5.2: Success factors for MER in ministries

Respondent 1	• "IPPD and GHRIS systems" • "Good ICT infrastructure" • "Dedicated records management unit" • "ICT Authority support"
Respondent 2	• " Access to computers by staff". • "ICT office which provides technical support". • "Skills among staff"

5.2.2 Data From Kenya National Archives Respondents

The study sought the views of respondents from KNADS on the current status of MER in government ministries in Kenya and the capacity of government ministries in Kenya to manage electronic records.

Questions to KNADS officials on this objective were structured along the following themes: KNADs involvement in MER in government; capacity of government ministries to manage records; availability and adequacy of legal and regulatory framework to guide MER in government ministries; standards and best practices for managing electronic records and KNADs involvement in electronic records projects conducted by government ministries; future projections/plans for management of electronic records in government.

5.2.2.1 KNADS Involvement in MER in Government

Question one on the KNADS informants interview schedule sought to establish to what extent KNADS was involved in the MER across government. The three respondents reported that KNADS is marginally involved depending on the ministry or public institution involved.

One respondent noted:

> "We are not involved in the EDRMS initiatives in the parastatals. Mostly we hear about the projects after implementation. However some of them have sought our guidance in digitization of records for instance the ministry of mining, ICT authority, and ministry of Lands. The involvement is largely dependent on knowledge of the RMO coordinating the project"

Other comments reported verbatim are as in Table 5.3.

Table 5.3: KNADS Involvement in MER in Ministries

Respondent	Comment
Respondent 1	"legally we should be involved but most do not bother to consult"
Respondent 2	"I can recall the ministry of lands came to consult us and a few other mainstream ministries. Also several parastatals have come for our advice. But many others do not consult us"
Respondent 3	"Some ministries have records management committees in which KNADS has a representative. However from my experience, we are involved only at procurement stage and not during implementation"

Question six inquired from the informants if KNADS was involved in projects implemented in government and the extent of involvement. The informants cited the following as areas KNADS has provided assistance:

- "Development of terms of reference (TORs) for tendering".
- "Recruiting of vendors"
- "Appraisal of manual records before digitisation".
- "Design of process flow for digitisation".

- “Quality assurance of the digitisation exercise”.

Question seven asked the informants to name some of the MER projects KNADS had had an input and KNADS’ role in them. The projects cited by the respondents were as captured in Table 5.4.

Table 5.4: MER Projects With KNADS Involvement

Project	**KNADS Role**
Ministry of lands	“Advisory on records digitization quality assurance”
Ministry of Wildlife	“Installation of EDMS”
Ministry of mining	“Advisory on EDMS implementation”

5.2.2.2 Capacity on MER in Government Ministries

Question two sought to establish if Government ministries had adequate capacity to manage electronic records. All the three respondents opined that the capacity was significantly low. One respondent noted:

> “I do not think they have capacity to manage electronic records. Yes they have ICTs in place but most people can only deal with MS-Office applications. The capabilities on electronic records is low and almost nill in some ministries”

In addition, one respondent expressed concern that even the training of records managers from colleges and universities is inadequate in the sense that graduates with training in records and archives management had consistently shown low skill levels in management of electronic records. One respondent also observed:

"Many of the RMOs who are to lead RM activities lack skills in management of electronic records. It therefore becomes difficult for them to lead a credible and well thought-out work on electronic records.

5.2.2.3 Legal and Regulatory Framework For MER in Government

Question three sought to establish if there was a legal and regulatory framework that guided MER in Government. Two respondents reported that a few ministries had started the process of developing records management policies which were to cover electronic records prior to the present government. The ministries cited as having embarked on developing policies at the time were Ministries of Foreign Affairs, East Africa Community, Lands, Home Affairs, Tourism and Transport. However, other than the Ministry of Foreign Affairs which completed the process, the respondents indicated that they were not sure how far the others reached with the initiative. In addition, it was also not clear from the respondents the status on implementation of the policy for Ministry of Foreign Affairs. Besides, following the coming to power of the current government, the ministries were restructured, which seemed to have left the work of policies development in jeopardy. For example the ministries of Tourism and East Africa then, were merged into one ministry of Commerce, Tourism and East Africa.

Question four inquired from the respondents if they thought the legal/regulatory framework adequately cater for MER. All the three respondents noted that all the policies and procedures on management of electronic records were inadequate. Some of the areas that had gaps in the policies were cited by respondents as: preservation

strategies; email-management; metadata; harmonized file plans; and integration of electronic records systems with business applications. Remarks from the respondents on this question were:

> "Cap 19 is not explicit of electronic records but it talks of records in all formats. This is the rider we use to accommodate electronic records in our work".
>
> " the policies largely relate to manual records, even though they have some elements of electronic records. They are not explicit on electronic records".
>
> "The RMOs have also been moved recently across ministries following the restructuring of Government from 42 ministries to current 18. As a result some left the work they had started on developing policies as they moved to their new stations".

5.2.2.4 Standards and Best Practices in MER in Government

The fifth question sought to determine if there were any standards and best practices adopted across government for MER. The respondents acknowledged existence of several standards on electronic records from ISO and locally from KEBS but reported none had been adopted. It was further indicated that even the ISO 15489 had not been adopted in government or any single ministry. One respondent noted: "we had procedural manuals rolled out by DPM. There was also a system to be implemented but

it never took off". The system referred to was the IRMS. In reference to the standardization and IRMS one other respondent observed:

> "We thought the IRMS was supposed to create standard records management practices across the ministries. This has however not worked. Its ownership is unclear and in any case its design and functionalities were inferior. We were not consulted on IRMS development"

One respondent further noted, in regard to IRMS, that some ministries have already disregarded IRMS and gone for other systems.

All the respondents were further probed on whether KNADS itself had attempted to embed any ISO or KEBS standards on records management internally or in other government instruments. Only one respondent of the three, explained knowledge of attempts by KNADS to domesticate ISO 15489 (2001) internally and also in ministries. However these attempts had not been actualized due to lack of policy guideline on the same. The respondent further noted that, "on the question of enforcing standards and best practices, KNADS has simply not led the pack. We are also partly to blame on this one". However, another respondent raised a different concern:

> "There are several bodies in government dealing with ICT. For instance, ICTA, Ministry of ICT, Government Information Technology Services (GITS) and others. Today, ICTA claims it is the one to develop any standard to do with ICT".

It appeared from this comment that the respondent was not yet aware that GITS was no longer in existence and that its functions had been taken up by ICTA.

5.2.2.5 Future Plans on MER by KNADS

Question nine sought to find out if there any specific plans by KNADS for developing MER within government other than the current focus on archival management. The respondents indicated that there was a policy paper on MER pending approval by the Cabinet which has been presented by KNADS' parent ministry of Sports, Culture and the Arts. It was also reported that KNADS was planning to focus on increased sensitisation and training of public institutions on electronic records management through the records officers. Another initiative in the pipeline was the establishment of digital repositories at KNADS and the ministries to support management of digital records.

5.2.3 Data From ICT Authority Respondents

Discussions with respondents from ICTA focused on the status of e-government and the relationship between e-government and management of electronic records as presented in sections 5.4.3 and 5.5.3. However, it was also necessary to establish from the respondents their view on current status of electronic records.

Question one sought to establish the mandate of ICTA. Typical responses were as follows:

- "ICTA is incharge of ICT resources for government both hardware and software".

- “ICTA was formed to take over the mandates of GITS, Directorate of E-government and ICT Board”.
- “We are responsible for automation of government services through deployment and management of ICT resources including e-government”.

Question twelve sought to ascertain if ICTA considered MER as a critical success factor for e-government. One officer responded in the affirmative while the other two said that MER was not viewed as a success factor.

The verbatim comment made by the respondent who reported in the affirmative was as follows:

> “Yes we value the role of electronic records in e-government. It is part of shared services and specifically shared data component. I know little has been done so far, but it is an area of focus in future”.

The two respondents who were of the view that MER was not viewed as a success factor made the following comments:

> “No. I really don’t think so. In fact it is now unfashionable to talk about digitisation as was a while ago, even though the government has been clear on digitisation”.

> “We never viewed records management as a key driver. Our focus in e-government was on services and not processes. And in any case there has never been a strategic view on records management in this country”.

Probed further on what they thought were reasons for MER not being considered as a success factor in e-government, the two respondents remarked as follows:

> "Behind e-government is the desire to deliver services and not processes. Therefore we have been more engaged with ensuring government services are available online and not backend processes like management of electronic records".

> "Digitization and issues on electronic records are under our shared services unit. However nothing really has been put in place on this so far".

> "There has never been a strategic view on records management although electronic data is appreciated as a critical ingredient in effective e-government"

> "Management of electronic records would fall under the shared data component of e-government. However work to actualize this aspect has not yet commenced. The focus is to get the citizen-oriented services running first".

Question thirteen established from respondents if the existing e-government platforms accommodated MER in their development. Responses obtained were as follows:

- "Records management is generally not well structured"
- "Electronic records management is characterized by vendor-driven softwares rather than needs-driven".

- “There are a lot of silos in management of records and even electronic records. Every ministry and agencies seem to be having their own arrangement since every agency manages its own records”.
- “No clarity on retention of records”.
- “Safety and security of electronic records is not taken care of. It is left to ICT officers”
- “Some systems for electronic records have failed leading to parallel electronic records and manual systems in place. This has killed management confidence and interest in records management”.

Probed further on specific actions being taken by ICTA to improve management of electronic records as a critical success factor of e-government, the respondents gave the following responses:

- “All ministries and government agencies are required to automate their records management processes as part of requirement for achieving automated government. To this end, all Government agencies (about 350 in total) have been asked to implement EDMSs”.
- “All common data in government should be pushed to the government central data centre being established in Naivasha”.
- “Before a ministry or government agency procures an EDMS, it seeks clearance from ICTA”.

- “All emails in public sector have been merged into one domain to remove the ministry-specific domains. Strategies are in place to manage emails on public email domains”.
- “A draft records management standard has been developed by ICTA Standards Committee in conjunction with KEBS to aid in achieving harmonised MER across government”.

Probed further on whether there was any concern at ICTA that failure of close collaboration between the Authority and ministries on management of electronic records could undermine e-government, the general view of the respondents was that that was not probable at the moment:

> “The works on electronic records are essentially for internal ministries processes. They have no link with ICTA or e-government work at the moment. But yes in future we we’ll need to look at management of e-data to support e-government”.

> “We will need to do a risk analysis to see what the present state potents and possibly close any likely loopholes. For now I do not see any danger because in any case, most records in government are manual. And again e-government obtains its data directly from the citizens online”.

> “ICTA is supposed to develop standards for managing e-data. We have a unit for doing this. Once this is effected, we shall be able to obtain a harmonized approach to management of electronic records and also quality-assure digitization projects”.

5.2.4 Data From Records Management Officers

The RMOs were asked several questions regarding their role in the management of electronic records, namely:

- Length of service and academic/professional qualification
- Their mandates with regard to electronic records;
- Forms of electronic records managed;
- Policy framework in place for managing electronic records;
- Human resource capacity to manage electronic records;
- Standards and best practices in place for managing e-reocrds;
- Security and integrity of electronic records;
- Strategies and mechanisms for archiving and long-term preservation of electronic records;
- Available systems for managing electronic records;
- Involvement of RMOs in design, development and implementation of electronic records systems; and
- Challenges facing MER in their respective ministries.

5.2.4.1 RMOs' Years of Service and Academic Qualifications

Records management officers were asked on their years of service, highest academic qualifications and professional qualifications in records management. With regard to years of services as RMOs, the responses were as indicated in Table 5.5.

Table 5.5: Years of service for RMOs

Years	Frequency (n=17)
1-5 years	1
5-10 Years	1
10-15 Years	5
Above 15 years	10

On the question of highest academic qualification nine indicated they had a bachelors degree in information sciences. Four had a diploma in information sciences, while another four had masters degrees in information sciences with specialization in records and archives management.

With regard to professional qualifications in records and archives management, none of the respondents had a professional qualification specific to records and archives management. Professional qualifcations refered to programmes such as Certified Records Manager (CRM) and Certified Information Professional (CIP).

5.2.4.2 Mandates For RMOs

Question one inquired on the mandates of RMOs. All the seventeen respondents reported that their roles and those of their units were to manage all types of records of their respective ministries. All the respondents reported that they operated central registry systems that received and managed official records, predominantly correspondence, of the ministries. In addition all the respondents reported that they did not handle official email inboxes of their ministries since these were handled by either ICT units or offices of the Principal Secretaries.

Question two sought to establish if the RMOs' mandates included management of electronic records. Eleven of the seventeen RMOs replied in the affirmative while six responded in the negative. Table 5.6 summarises their views on their mandate with regard to management of electronic records.

Table 5.6: RMOs' views on their mandate

Respondent	Comment
Respondent 1	" yes we are supposed to manage electronic records, but there are none to manage at the moment"
Respondent 2	"…yes but the software is yet to be implemented"
Respondent	"in principle we are supposed to take care of all records regardless of media. But we have no system in place for electronic records proper other than emails. All the emails to the ministry come to us first then we escalate appropriately. But even then we have to print the emails, file and pass the file to action officers. We have no workflow system for this".

5.2.4.3 Forms of Electronic records Generated/Received

Question three ascertained the forms off electronic records managed by the RMOs. Eleven reported to handle email records. This was done on their email systems-whether on the ministry domain or domiciled on an external email service. One respondent noted:

> "We have created folders on Outlook to help us file each email appropriately. However we have no email archiving system. The fate of the emails depends on ICT. We also teach other users on how to manage email records".

Three RMOs indicated they are holding digitized records and were also in the process of digitizing more records. Another RMO reported that the respective ministry had a

target of 12million documents to scan in five years from the year 2013, with a projection to scan “150 million records by the year 2020”.

The RMOs were further probed if they managed any born-digital records received from the online platforms or websites other than those received as emails. All the 17 indicated they did not handle such records. One of the remark made was:

> “even those we receive as attachments to emails are stored on the email system as emails. We do not extract them and keep them under separate system”.

This implied that if the emails were lost in whichever form, the records were also lost.

5.2.4.4 Policy Framework for MER

Question four sought to determine the availability of policies and procedures for management of electronic records. All the seventeen RMOs reported absence of comprehensive policy and procedures for managing electronic records. One RMO reported availability of some policy for managing electronic records but “which does not include e-mail management”. Another respondent reported to rely on some internal guidelines like circulars that were issued on an adhoc basis to provide guidance on managing of electronic records. One other respondent clarified that the ministry had no policy but it had some procedures manual, developed on the lines of the procedures manual launched by the Ministry of State for Public Service in 2010, to help in handling “the little electronic records we receive on email and those we have scanned”. Three RMOs indicated that they were in process of developing policies for their respective ministries. Only one respondent reported to have developed internal procedures

anchored on the records management procedures developed by the Ministry of State for Public Service in 2010.

Question five sought to establish from the RMOs their views on adequacy of existing policies and procedures in supporting MER. All the seventeen RMOs felt that the policy and procedures framework were inadequate. Typical remarks made regarding this question included:

- “The national archives Act is really not supportive on electronic records. It is more concerned about archival records than current records. And you can see even the national archives itself has zero automation and is never concerned with electronic records when they come here for appraisal”.

- “There is nothing compelling in the public archives Act on electronic records. Even though it talks of all records regardless of media, but nothing beyond that. Compare it with the South African law which is progressive and you see what I mean”.

- “There are many guidelines that touch on records management. Even the company Act and the various laws that establish all parastatals under our ministry have provisions for records management. The anti-corruption law and the public procurement Act also emphasizes on the need for records. But frankly not many of us are familiar of these laws”.

5.2.4.5 Human Resource Capacity to Manage Electronic records

Question six to the RMOs inquired on the human resource capacity of their records management units to manage electronic records. Six of the RMOs were of the view that the capacity of the human resources was adequate to manage electronic records, while the other 11 felt the capacity was inadequate. The following are some of the typical comments from the respondents:

- "I have staff who have training in both records management and ICT".
- "Yes we feel we have skills that can make us run with ERM but we certainly need more advanced training".
- "We are doing badly. Skills in electronic records management are almost not there. The much most of us can do is access and read emails and general browsing and that is not ERM".
- "We are currently training on ERM in preparation for implementation of an EDMS. I believe we shall have good skill-base in the next three-six months".
- "Some people in this department went through some training at Government school. We are however not sure what the scope was and how much they can do"
- "We have embarked on piecemeal training on electronic records especially with government insisting on digitization, we have to be ready. Sadly the universities are also giving us graduates with a raw deal in electronic records".

5.2.4.6 Standards and Best Practices in Place

Question seven established from the RMOs if they had adopted any standard to guide management of electronic records. All respondents noted that they had not implemented any standard for managing electronic records. On further probing if they were familiar with the relevant standards for managing electronic records, ten out of the seventeen said they knew of the ISO 15489. One respondent of the ten also mentioned the MoReq standard while another mentioned the Dublin Core metadata standard.

Seven respondents could not name any standard. However one respondent reported:

> "We have reviewed our registry management processes to align with the ISO 9001:2008 standard since the entire organisation had to attain ISO certification"

5.2.4.7 Security and Integrity of Electronic Records

Question eight determined from the RMOs on what controls were in place for access and use of electronic records. Eleven RMOs cited use of passwords as the predorminant controls to access and use of electronic records. These were the same who had confirmed management of electronic records as part of their mandates.

Question nine sought to establish how the RMOs enhance security and integrity of the electronic records. Eight respondents said they made use of passwords to control unauthorised access and enhance security. Other strategies mentioned by the respondents were the following:

- “We also have role-based access where staff can access only that which they are supposed to. This is implemented on the EDMS that we have deployed”.
- “For us we enhance security by creating backup of all documents we have digitized on harddisks and external drives. Once we have an EDMS in place, we shall enforce better security controls”.
- “Convertion of storage media to provide compatibility with hardware and software”.
- “Use of pdf formats for storage of documents”.
- “Use of audit trails to monitor access to records”.
- “Coding of documents”.

5.2.4.8 Strategies and Mechanisms for Archiving and Long-Term Preservation of Electronic records

Question 10 was about existing strategies for longterm preservation. Only 2 of the 17 RMOs indicated that they had strategies for migration of electronic records from inferior to superior technology as and when there were changes, especially in database versions. This they reported was done in conjunction with the ICT units of their respective ministries. The other 15 RMOs did not have any strategy in place for long-term preservation of the electronic records.

Question 11 on the other hand focused on mechanisms for archiving the electronic records of enduring value. None of the respondents reported any specific strategy for digital archiving in place.

5.2.4.9 Systems for Managing Electronic records

Question 12 of the interview schedule sought views on whether ministries had installed any system for management of electronic records. Fifteen of the respondents said that they lack a system for managing electronic records. One respondent reported that the ministry was in process of implementing an EDRMS system. One other respondent reported that an EDRMS, Case360, had already been implemented and was currently being used to manage digitised documents. The system also provided workflow capabilities for distributing the documents. However, the system did not provide for management of current electronic records uploaded on online platforms by customers. Such documents were handled separately by the ICT unit.

Two respondents also noted that there was the Integrated Records Management System that was developed by the Directorate of Personnel Management (DPM) in 2011, which was once installed in the ministry but it had since collapsed and was no longer functional. Even then, the two respondents were unable to explain whether the IRMS had been designed to managed all forms of electronic records including those generated on e-government platforms.

5.2.4.10 Involvement in Design, Development and Implementation of Electronic records Systems

Question 13 sought data on RMOs' involvement in the system design, development, implementation and review of the systems implemented to manage electronic records. Only three respondents reported to be involved in the design, development and implementation of the electronic records systems while the other 14 said they were not involved.

One of the three respondents who reported to be involved further clarified that, "we are involved in the design, implementation and review of the EDMS but only for the records we digitize ourselves. We have electronic records received from our customers through the online platform which are managed by ICT and we are not involved at all".

Probed to indicate the nature of involvement, one responded said:

> "I did a work plan for the EDMS project and also provided specifications for the system for tendering"

Another stated, "I provided the functional requirements for the system and I am now user-testing each of the functions".

Two of the respondents who reported not to be involved in the systems design, development, implementation and review of the systems for managing electronic records made the following remarks:

- “Records managers have little or no say in electronic records management. Not even consultation. The role has been left to IT managers despite their little understanding of records management”.

- “I have only been involved to a very small extent when there was a crisis”.

5.2.5 Data from ICT Officers

The first question on ICT officers interview schedule sought to establish the mandate of the ICT units in the ministries. All the ICT officers indicated that they were responsible for management of and oversight on ICT resources in their respective ministries.

Questions 7, 9, 10, 11 and 12 of the interview scheduled for ICT officers focused on the state of electronic records management in their respective ministries from the ICT viewpoint. The data has been reported under the following themes:

- Systems for managing electronic records implemented in the ministries
- Stakeholders in records management automation
- Technical and professional capacity of ministries to manage electronic records
- Standards and best practice indicators for managing electronic records

5.2.5.1 Systems for Managing Electronic records Implemented in Ministries

Question seven sought data on systems implemented in the ministries for management of electronic records. One respondent indicated the ministry had an EDRMS implemented in one of the parastatals under the ministry. However, at the

parent ministry level, none of the respondents had a running system for managing electronic records in place.

Four ICT officers however reported that they were in the process of acquiring EDRMSs for their respective ministries. These were ministries of Mining, ICT, Finance and Lands. Probed on why they were not activating the IRMS, the respondents reported that the IRMS was inferior and would not meet their needs. Some of the verbatim comments made were as indicated in Table 5.7.

Table 5.7: ICT Officers Views on IRMS

Respondent	Comment
Respondent 1	"IRMS is just not well designed. It will need a redesign for it to meet our needs. But as it is, it is weak"
Respondent 2	"I frankly have no idea about the IRMS. I have asked the RMO but she also doesn't seem to know so much about it. Apparently even the owners of this IRMS are not clear. The person who initiated it has left government. And it doesn't seem to work anywhere"

The acquisition processes for the four ministries were at different stages, but none had started the actual implementation. Among the reasons cited by the respondents for implementation of these systems were:

- "The need for improved service delivery to the public"
- "Demand for transparency and accountability"
- "Increased volumes of electronic records that needed to be managed".
- "Implementation of e-government systems like cadaster for mining and IFMIS e-procurement which need electronic records systems".
- "Demand by government for digitisation of records management processes".

- “Increasing focus on general digitalization of government processes”.
- “High volumes of paper records that needed to be digitized to improve efficiency and manage storage costs”.

As a follow-up on question seven, all the respondents were further probed on the status of IRMS in their respective ministries. All the 16 respondents reported that at one point IRMS was installed in their ministry. However apart from one respondent, the rest indicated that IRMS was under the management of RM units and they did not understand what caused its failure. They also acknowledged that support for IRMS came from DPM and not from them as ICT officers.

5.2.5.2 Forms of Records Management Automation in the Ministry

Question nine established if there were any forms of records management automation in the ministries. 11 of the 16 respondents indicated they had no any form of automation in place. Five indicated they had digitization work ongoing at various levels as represented in Figure 5.1.

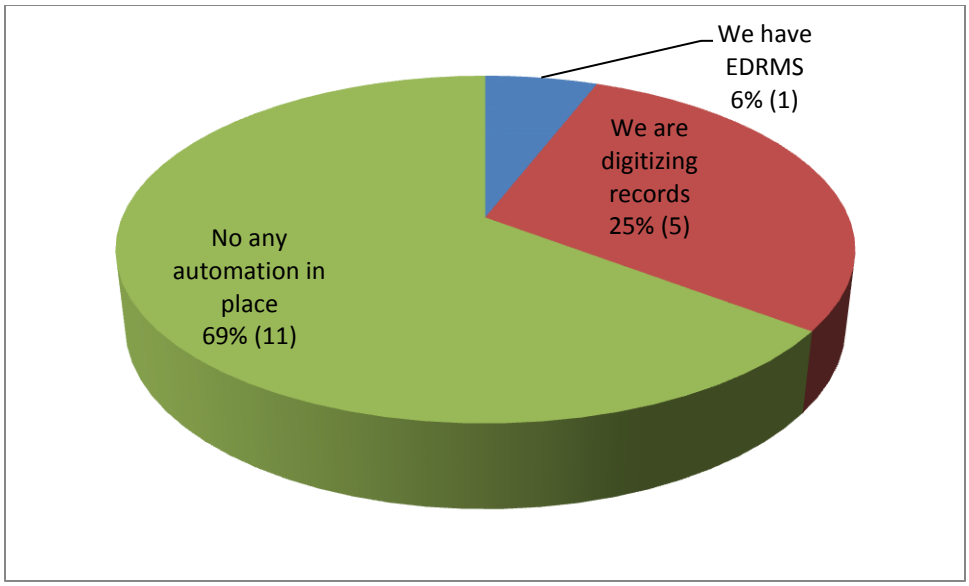

Figure 5.1: RM Automation in Ministries

Three of the five respondents who reported to be currently conducting records digitization in their ministries also indicated that they were also in the process of procuring an EDRMS to support full management of electronic records. This process was at different stages with one having progressed to the tender evaluation stage and another one still at system specification stage. One respondent who had not automated reported that the ministry was in the process of acquiring an EDRMS to improve management of electronic records.

5.2.5.3 Stakeholders in Records Management Automation Projects

Question 10 sought data on who were the stakeholders in records management automation projects.

The ten respondents who had some form of automation in place and/or were in process of acquiring EDRMS indicated that the stakeholders were records management officers and various departments who were creators and users of the records.

When probed on whether they received adequate support from the stakeholders in implementing automation initiatives, five ICT officers said that the RMOS in their ministries were supportive as seen from some of their comments in this regard:

- “The RMO is very supportive. In fact she is the one who initiated the digitization project currently underway. We only provide the infrastructure. But she works to ensure everything is well”
- “The RMO has been able to put up a case to management to secure financing for the digitisation work. She has also been educating us on how records should be managed and issues around retention which we had no idea about”
- “The specifications for the system we intend to procure has been done by the RMO. I see in some departments all they send is a request and they expect us to do everything. That has not been the case with the RMO”.

However, most of the ICT Officers felt that their RMOs were not supportive. The main concern was on the issue of skills and expertise from the RMOs that was needed in automation of records management. Typical remarks made were:

- “The RMOs claim we are not involving them, but when you ask them for some specifics on these technologies they have no idea. We end up having to do a lot

of research on our own to understand issues around electronic records management”

- “The challenge with records management is its sense of uniqueness. It is even worse on the electronic records bit. We need someone who has vast knowledge on electronic records systems to help us. Unfortunately even the RMOs and even the individual departments have no grasp. So we have to all grapple in the dark to figure a way out”.

The respondents were also probed on their view on management support towards electronic records management and whether top management lend sufficient support as critical stakeholders. Six respondents reported good management support while 10 felt there was no much support from their top management.

On further probing on top management support, those who reported good support from their top management cited the budgetary support and interest in the electronic records projects. This view was largely held by the respondents who were having some form of records management automation in place.

For those who felt there was little support and interest by their top management, typical remarks were as follows:

- “In this ministry, I think electronic records is just not a focus now. Basic processes are still not efficient and so any automation will give business processes a priority. At least registries are operating even though manual”.

- “I don’t think this issue has really been marketed well to the top management by those concerned. That is the records officers and individual departments”.
- “I think the top management will support electronic records management once they develop interest in it. For now no one has attracted their attention on that. But once those responsible for records get their buy-in, I am sure the management will support”.

5.2.5.4 Technical and Professional Capacity of Ministries to Manage electronic records

On question 11, the ICT officers were also asked on the technical and professional capacity of the ICT units to support management of electronic records. Five respondents felt they were least prepared for electronic records, eight felt they were moderately prepared while three had adequate capacity within the ministry to manage electronic records.

Those who felt they had least capacity, remarked as follows:

- “We really have no any automation in place. We have therefore never bothered to train or learn anything on management of electronic records even though we take care of Outlook which is our emails system”.
- “We will need to start from the basics to ensure we do a good job”.
- “We do not see the need to capacitate now unless we procure a system”.
- “It is the implementing unit to be prepared. Ourselves we are ready with our ICT skills. Ours is to source and provide what is requested as per user specifications”.

The eight who spoke of moderate capacity based this on the fact that they had good ICT expertise and what was lacking were skills on electronic records management. A typical remark made by one respondent in line with this was as follows:

- "We have minimal training on management of electronic records. But we are very OK on ICT capability. Even infrastructure is in place. But we will need some training on electronic records for us to support well"

The three respondents who indicated to have adequate capacity explained that they had also taken short training courses on electronic records. The trainings were necessitated by the various projects on electronic records they were working on. They also indicated they had been able to work with at least one electronic records system, namely IRMS and Case 360, which had given them technical exposure to electronic records system. One respondent remarked:

> "My experience in the installation and user testing of Case 360 EDRMS, gave me a good experience on working with EDRMS".

5.2.5.5 Standards and Best Practice Indicators for Managing Electronic records

Question 12 obtained data on adoption of standards and/or best practice indicators by ICT officers to guide management of electronic records.

All the ICT officers reported to have no standard on management of electronic records in their ministries. This included the five respondents who either had an EDRMS or were in the process of obtaining and EDRMS. Typical remarks made by the informants in response to this question were:

- “I do not even know those electronic records standards”.
- “ We will just pick what would fit our needs regardless of standards”
- “ I have never heard any vendor talk of any standard other than Gartner”
- “No one has told me of a standard or best practice in electronic records management”
- “Are there such standards?”

The respondents however reported that they had standards and best practice indicators in place for the ICT systems and infrastructure. One such standard cited was “ICT Hardware Sanitization Policy”. One comment from a respondent was worth noting:

> “I would not worry so much about the standards because the records are unique to this ministry. We will not share with anyone else. Therefore so long as the system we get works for us, I think compliance to a standard will not be a big deal”

5.2.6 Data from Heads of E-government Services.

Data from operational e-government services was collected on five active e-government services. Officers in charge of various e-government services/platforms were involved in the study. These were drawn from IFMIS-e-procurement, higher education loans board, ministry of lands, Kenya Power company and KRA. The nature of these services is summarised in Table 5.8.

Table 5.8: E-government services sampled

Service	Product
E-procurement	Access to public procurement opportunities
Higher education loans board	Access to higher education loans by university and college students
Ministry of lands	Online search of Nairobi lands registry
Kenya power company	Online application of electricity connection
Kenya Revenue Authority	Online application for PIN certificate; online filing of tax returns.

Questions 2, 4, 6 and 7 provided data on objective one of the study regarding the state of MER.

Question two sought data on how the information shared on the e-government platforms was generated. All the five respondents cited users of the services as sources of the information uploaded on the service. Two respondents reported that besides the information generated by users, there was also information created on the services from backend data input. One respondent further reported that besides users and backend input, the service the respondent managed also obtained the data from other systems.

Probed further on the formats of data/information supported by the services, three respondents reported that their platform supported multiformats of document types. One respondent reported that the platform supported only pdf documents while one other reported that the platform accepted only open formats.

Question four sought to find out if procedures for managing information on the e-government platforms were documented. All the respondents indicated that there were

no documented procedures for managing the information on the platforms, except for system manuals.

Question five sought data on the levels of training for staff manning the e-government services. All the five respondents reported that trainings on MER were significantly low among the staff managing e-government services. However, the staffs were well trained on general ICT skills including database administration to help in management of structured data.

Question six obtained data from the Heads of e-government services on how integrity of the information shared across the e-government services was enforced. Strategies adopted were reported as follows:

- “Use of login credentials”.
- “Role-based access rights”.
- “Audit trails of activities on the information”.
- “We provide search only/read-only capacilities which restrict abilities to amend records”.
- “We have archiving module that protects records that need archiving”.
- “The users are registered hence we can track them incase of any tempering”.

Question seven sought to determine strategies that were in place for long-term preservation of information shared on the e-government services. Four of the five

respondents reported use of backups as one of the strategies adopted. One responded reported digital archiving as another strategy in addition to backups. One other respondent reported format conversation as another strategy adopted in addition to use of backups. One respondent did not mention any strategy.

5.3 LEVELS OF E-GOVERNMENT UTILIZATION IN MINISTRIES

The second objective of the study was to establish the extent of e-government utilization in the ministries. Interview findings are as reported in the following sections.

5.3.1 Data from Principal Secretaries

Questions 2-6 on the PSs interview schedules obtained data from the informants on e-government utilisation, namely: e-government integration in ministries; objectives of integrating e-government in the ministries; ministries' readiness for e-government implementation; strategic plan for e-government; and challenges facing e-government implementation.

Question two inquired on whether the ministries had integrated e-government services in their activities. The two repondents reported that their ministries had integrated e-government within the ministries' activities. One respondent named only IFMIS-e-procurement as the only e-government service that was running in the ministry. The other respondents named IPPD and GHRIS besides e-procurement as the other services that were available in the ministry. Both respondents further clarified that IFMIS e-procurement was an initiative of the National Treasury and while IPPD and GHRIS

were initiated by the Ministry of Public Service. There were no ministries-own e-government services that had been implemented by the two ministries.

Question three obtained data on the objectives of integrating e-government in the ministries' operations. Typical remarks obtained were as follows:

- "To improve efficiency in government operations".
- "To improve service delivery by government to citizens".
- "A requirement of vision 2030".
- " Some are directives from government".

Question sought to obtain views of the respondents on the readiness of the ministries to deliver e-government services in terms of ICT infrastructure, policy framework and human resource capacity.

The two DAs reported that the ICT infrastructure was inadequate. This was especially with regard to Internet connectivity and bandwidth capacity to enable online exchange of data. In addition, most computers were old and needed replacement to provide robust support.

With regard to policy and regulatory framework, both respondents reported that the policy and regulatory framework for e-government was inadequate but acknowledged that ICTA was working to improve the policy/regulatory framework. One respondent remarked:

> “When e-government started, we had the DEG which had developed very focused strategy and policy guidelines. We had started adopting this but things changed when DEG was disbanded. Today we are just waiting to get clear guidelines from ICTA. Even my ICT officers do not seem to be clear about e-government focus”.

On further probing, it emerged that the role of ICT officers, who were initially employed to champion e-government and ICT integration in ministries, was not clear since ICTA had been mandated to implement e-government. As a result, ICT officers were waiting for directions from ICTA on e-government. It also emerged that even the administration of IFMIS, IPPD, GHRIS and e-procurement systems was run centrally from the Treasury (for IFMIS), DPM (for GHRIS) and Ministry of Devolution (for IPPD). As a result, ICT officers in ministries had little input, other than train ministry staff on basic ICT skills needed to be able to utilize the systems.

On human recource capacity readiness, the two respondents reported that their ICT officers were adequately prepared for e-government. However, they were of the view that the rest of the staff in the ministries were ill-prepared and needed additional capacity building. A typical comment was the following:

> “The ICT officer and his team are well trained even thought the e-government services are manned from elsewhere. However, a good number of lower-cadre staff have weak ICT skills. Some lack even the very basic skills”.

Question five obtained data from the informants on whether there were strategic plans/framework that guided implementation of e-government in their respective ministries. Both respondents reported absence of a ministry-specific strategy or framework to guide e-government implementation. They noted that the strategy emanated from ICTA and not the ministries. In explaining this, one respondent observed:

> "Not any at the moment. E-government idea is owned by ICTA and we have to wait and hear what ICTA has for us to move. But we have our own ICT initiatives to improve our processes internally which are not e-government.

Question six was concerned with challenges facing the implementation of e-government in the ministries. The two respondents cited the following challenges:

- "Lack of adequate internal capacity to administer the services. For instance system administration for IFMIS is run from the Treasury while IPPD was administered from the IPPD centre at the Ministry of Devolution and Planning based at KICC. This implies that any system failures have to wait troubleshooting and fixing from the central control centres".
- "Lack of a solid structure/framework through which e-government is to be implemented".
- "Inadequate ICT infrastructure to support e-government rollout".
- "Low skill levels on new concepts like e-procurement".

- “Resistance to change due to transparency and accountability that e-government would bring”.

5.3.2 Data from Kenya National Archives Respondents

The study sought to determine the role of KNADS in e-government implementation in the ministries. Question 10 sought to establish if KNADS was involved or consulted by government agencies during e-government implementation.

The respondents reported in the negative. Their verbatim remarks were as captured in Table 5.9.

Table 5.9: KNADS involvement in e-government initiatives

Respondent	Comment
Respondent 1	“We are supposed to be involved but we are never involved. There are simply no any forms of consultations”
Respondent 2	“I hear of e-government projects just like anyone else”.
Respondent 3	“I have not seen KNADS involved in any of the e-government initiatives. Infact I doubt the e-government owners even know the role of KNADS”.

Probed to explain if there have been efforts from KNADS to seek involvement in e-government projects given the role of electronic records in enhancing it, the respondents indicated that KNADS had tried to voice this concern but no progress had been realised so far. One respondent said:

> “We have raised the need for KNADS to be involved in projects touching on ERM including e-government through our parent ministry. However, unless we are invited it is difficult for us to be party to e-government initiatives”.

The second respondent remarked:

> "E-government systems have no records management components. Their design has no any consideration of records management. That is why I think KNADS is never consulted because their skills are not needed considering the design of the e-government systems".

5.3.3 Data from ICT Authority Respondents

Under the second objective of the study, interviews with the ICTA respondents sourced data on the following aspects:

- Level e-government penetration in government.
- The framework of e-government implementation
- Framework for implementing e-government in Kenya.
- Level of e-government maturity.
- Existing live e-government services across Government ministries in Kenya.
- Challenges in implementing e-government.
- Future projections for e-government in government ministries.

5.3.3.1 Level of E-government Penetration in Government

Question two of the ICTA informants interview schedule sought data on the current state of e-government utilisation in government. All the three respondents from ICTA reported that there are a number of e-government services currently running, predorminant of which was the e-citizen portal. The respondents also confirmed that there were several other services running under different parastatals, county

governments and other agencies like HELB, KRA, Kenya Power, Nairobi City County, NTSA and the Directorate of Immigration, but ICTA did not have control over most of these entities since they were either semi or fully autonomous.

Probed further on whether there were any e-government services in the various ministries, the three said that there were no services dedicated to the ministries. Instead all e-government services are pulled into one platform, the e-citizen portal, as the central access point for citizens. However, different ministries and departments provide back end processing.

One informant responded as follows:

> "Even though citizens can search business names from the e-citizen portal, once they key in their data, the analysis and response to that data is done by the registrar of companies in the Attorney General office who feed the feedback data onto the portal that the citizens can then view".

5.3.3.2 Framework of E-government Implementation

Question three sought data on a framework guiding implementation of e-government in Kenya. It was established from the respondents that the e-government in Kenya had been framed around two broad focus areas of efficient government and citizen services, before the establishment of ICTA. This is what had been conceptualised under the DEG. Despite disbanding DEG, it emerged that those focus areas still remained the spirit of e-government implementation even under ICTA.

One respondent further clarified that even though government agencies initiate e-government services, for the services to be approved by ICTA and other government authorities, they had to be in line with Kenya Vision 2030, the ICT Masterplan and the present government's focus. The respondent further explained:

> "even the laptop project and digital content for schools are all within the view of the ICT masterplan and Vision 2030".

5.3.3.3 Level of E-government Maturity.

Questions four, five and six focused on e-government maturity. Question four sought data on the models/criteria used to measure e-government maturity. The three respondents reported that none of the classical e-government maturity models like those discussed in Chapter Three had been adopted.

However, the three respondents also reported that ICTA had adopted the Government Enterprise Architecture (GEA) model to guide implementation of ICT, which by extension impacted on e-government. The GEA framework was explained by one respondent to have five elements as follows:

- Infrastructure architecture-"is there the right and adequate software and hardware design to support the system being implemented".
- Information architecture - "analytical tool to mine critical data".
- Application architecture - which concerns with whether "the system supports the core function of the institution".

- Project management and governance-“what structures are in place to ensure success of the system being procured”.
- Security and compliance -“does it provide necessary security for government information and other resources”.

Besides GEA, it was also explained by one respondent that the National ICT Masterplan was the overall guide for e-government implementation.

Question five on the other hand sought data on the prevailing level of e-government maturity based on the adopted model. None of the respondents provided data on the actual level of maturity. One respondent observed:

> “I cannot tell exact level of maturity but virtually all ministries and other government agencies have websites even if static. Few of them have interactive websites while others have adopted other platforms like mobile-based transactions”.

Question six sought data on factors that explained the prevailing level of e-government maturity. The responses to this question were as follows:

- “Key ICT infrastructure is laid across the country and also when constructing other major infrastructure like roads and railways, they are constructed together with ICT connectivity infrastructure to avoid the issues of digging roads afterwards to lay fibre optics”.
- “The ICT masterplan provides guidelines on the implementation of e-government including timelines and milestones”.

- “Commitment by government and individual entities to enhance efficiency in operations has motivated developments in e-government. That is why most government institutions today have websites while some have even interactive platforms for transactions”.

5.3.3.4 Operational and Planned E-government Services in Kenya.

Questions seven and eight obtained data on existing and envisaged e-government platforms in Government.

On question seven, which related to e-government services that were operating at the time, the three respondents mentioned e-citizen portal, huduma centres and e-procurement. The statistics on actual number of e-government services were not ascertained from the respondents. Some of the projects mentioned by the respondents were:

- “IFMIS”.
- “Lands registry system”.
- “Government human resource information system”.
- “E-procurment system”.
- “Huduma centres”.

One respondent remarked:

> "All the projects you see around from Ministry of lands, NTSA, registrar of birth and deaths are within our ICTA plans".

Question eight inquired on e-government projects that were under implementation. The respondents cited the following as ongoing e-government initiatives that were at various stages of implementation:

- "County connectivity project".
- "Huduma centres"
- "Ministry of lands registry search system"
- "Kenya open data project"

5.3.3.5 Challenges Facing Implementation of E-government.

Question nine sought data on the challenges that faced implementation of e-government in Kenya. The following were the challenges identified by the three respondents:

- "Poor ICT infrastructure across the country, including total absence of telephone and Internet connectivity in some areas".
- "ICT implementation in Kenya has largely been personalized than institutionalized".
- "ICT skill levels are low across Kenya".
- "Financial constraints to enable acquisition of proper infrastructure".

- “Lack of robust policy framework to harmonise ICT systems in government institutions”.
- “Resistance to change by public officers due to openness “that come with digital governance” and also the likelihood of closing avenues for corruption by adopting electronic transactions”.

Question ten asked the respondents on how they coped with the challenges cited in question eight above. Typical responses were as follows:

- “The Government is investing in ICT infrastructure across the country to improve accessibility to ICTs”.
- “Our directorate of standards and programmes is developing various standards to provide a harmonised framework for implementing e-government”.
- “We are working with ICT officers in ministries to improve ICT skills across government officers”.
- “Enforcement of utilisation of e-government by central Government like use of e-procurement has compelled use of e-government”.
- “Training and sensitisation of both public servants and the public helps deal with resistance to change arising from e-government”.

5.3.3.6 Future Plans for E-government in Government Ministries.

Question twelve sought to determine from the respondents on what were the future plans by ICTA on e-government. One respondent was not clear on the strategic plans

while another respondent explained that the focus was to ensure all critical services as contemplated in the national ICT masterplan were availed on e-government by 2017.

One other respondent reported that the implementation of a common data framework was also reported as a key focus area. This was necessary to avoid duplication of data and ensure provision of reliable data to support e-government. The respondent noted that the setup of a robust and reliable government data centre was a key focus for ICTA. It emerged from discussions with the respondent that Kenya had only one data centre managed by the National Intelligence Service (NIS) and this was not open for access and utilization by all public institutions. ICTA was therefore working to address this gap by ensuring that the data centre that would be established holds common data that can be shared by all government ministries and agencies, as opposed to every ministry or agency generating and holding their own data.

When probed further on what would be the key drivers for e-government in future, the respondents reported the following:

- “ICT infrastructure would be key”.
- “ Staff skills and expertise”.
- “Citizen sensitisation”
- “Proper policy and regulatory framework”.

5.3.4 Data from Records Management Officers

The RMOs were asked whether they were aware of e-government services in their ministries and whether they have been involved as stakeholders in the implementation of these e-government services (questions 16 and 17).

Question 16 asked the RMOs if they were aware of e-government services running in their respective ministries. Fourteen of the RMOs indicated that they were aware of e-procurement services running in their respective ministries while three said they were not aware. Those who reported that they were aware of the services cited the following:

- “Lands management system for land searches and consents”.
- “Integrated financial management system (IFMIS)”
- “Government Human Resources Information Management System (GHRIS)”.
- “Integrated payroll and personnel database (IPPD)”.
- “E-promise”.
- “E-procurement”
- “Higher Education Loans Board”.
- “Mining licensing system called Cadaster System”.
- “Government Information Technology Services (GITS)”.
- “Power connection system”.
- “Public service job application system”.
- “Distribution Control System (DCS)”.
- “Integrated Logistics Systems (ILS)”.

Question 17 sought to find out if the RMOs are involved as stakeholders in the implementation of these e-government initiatives. All the seventeen respondents indicated they are not involved at all in e-government initiatives. Probed further on some of the reasons as to why they were not involved, typical comments that emerged were as follows:

- “E-government is a preserve of ICT officers. We are sidelined”.
- “The role has been left to IT managers. Records managers have been left to deal with physical records”.
- “Records managers have historical not been involved in any ICT initiative with assumption that they are for paper records”.
- “There is no compelling policy framework that require records managers to be involved, unlike ICT which guidelines are clear”.

5.3.5 Data from ICT Officers

The ICT officers play a central role in e-government implementation in government, in collaboration with ICTA. The engagement with these respondents therefore largely dwelt on e-government and ICT issues. Questions 2-6 of the ICT officers interview schedule focused on e-government utilisation. Respondents’ views were sought on the following themes:

- Levels of ICT integration
- E-government services in the ministry
- Their involvement in implementing e-government services.
- Status of e-government readiness in the ministry
- Challenges in implementing e-government in the ministry.

5.3.5.1 Levels of ICT Integration in Ministries

Question two was concerned with the level of ICT integration in the ministries. All the 16 respondents reported that their ministries had integrated ICTs in all functions. Typical comments made were as following:

- “Every staff in this ministry has a computer”.
- “At least everyone you see here has access to a computer. Even if one is not assigned one, he or she can log onto any since we all have access credentials on our ministry domain”.
- “I would say we are well advanced. There could be issues here and there but largely we have ICTs in every office”.
- “We not only have the PCs for everyone but we are also on e-government platforms supported from elsewhere”.
- “You can see the large number of staff that I have. That explains the amount of work we do which is because of heavy use of ICTs here that need constant support”.

5.3.5.2 E-government Services

Question three sought data from the ICT officers on the e-government services that were running in their respective ministries. The following were the services identified by the respondents:

- “IFMIS’
- “E-procurement”
- “IPPD”
- “GHRIS”
- “e-citizen”.
- “Huduma centre”.
- “Ministry service portal”.

Two respondents did not have any service running in their ministries.

Although these services were named as running in the ministries, all the respondents noted that they have no ownership over them. This was the same thinking by the two who said they have no system in place. The services were owned by other dedicated departments which were running them under the support of ICTA. One remark made confirming this view was:

"We do not have any because even IFMIS and e-procurement have their owners. My role is to ensure the connectivity is OK for users to access it. I do have admin rights on the system".

The finding on service portal was reported by one respondent, who explained that occasionally his ICT team creates a portal when the ministry wants to collect some information from the field across the country from either staff or clients. Instead of field offices and their clients sending in reports manually, they prefer to create a portal where they can upload data in electronic form. This was however not within the purview of ICTA but in-house strategies within the ministry.

5.3.5.3 Involvement in E-government Implementation

Question four sought data on the levels of involvement of ICT officers in the implementation of e-government services. Four of the 16 ICT officers indicated that they were involved in the implementation of e-government services. The other 12 said they were not involved.

The following were some of the comments of the respondents in relation to this involvement:

- "I am essentially part of ICTA as the ICT officer. I am their person on the ground. So they work with me"
- "E-government is really under ICTA. They create the platforms and provide links to access them. The only thing I can do is to ensure connectivity to the link from our end".

- “We are still waiting for guidance from ICTA on what to do on e-procurement, even though it is already running”
- “The ICTA occasionally engages us to brief us on what is happening and what we should do from here”.
- “There is minimal involvement. For instance we are only required to train staff on basic use of ICTs so that they can use the platforms. But on the actual implementation of e-government, we are not”.
- “Currently not, but in future ICTA has promised to work with us more”.

5.3.5.4 Current State of E-government Readiness

Question five sought views of the ICT officers regarding their respective ministries’ readiness for e-government in terms of ICT infrastructure, human resource and policy framework.

Regarding ICT infrastructure, thirteen felt they have adequate infrastructure while three felt the ICT infrastructure is adequate to support e-government implementation. The three respondents who felt the ICT infrastructure in place was inadequate explained their views as shown in Table 5.10.

Table 5.10: Comments by ICT officers who reported inadequate ICT infrastructure

Respondent	Comment
Respondent 1	"We have only one server in this entire ministry. This is not adequate if it were to host all data to support e-government. And in any case it is even risky to have all data in one place"
Respondent 2	"We have a challenge. Government fibre doesn't reach us. Our connectivity is by radio and this cannot support e-government"
Respondent 3	"Computers are all online and connected but always breaking down"

With regard to human capital, all respondents felt their ministries were not fully ready expert-wise to support e-government. This was attributed to the fact that e-government is coordinated by the ICTA. As a result, even though they had ICT expertise, in the event of any e-government service being rolled out, they have to be trained to be able to support it. The respondents were also of the view that the issue of skills and expertise is also hampered by the fact that there is no standardization on e-government systems. Different systems seem to have different designs and even platforms, making it tricky to provide predictive trainings in anticipation of the services.

Regarding policy framework for e-government, all respondents reported lack of knowledge for any. However, they all noted knowledge of the e-government strategy of 2011 but whose implementation status none could explain.

5.3.5.4 Challenges in E-government Implementation

Under question six, the ICT officers were asked if they faced any challenges in the implementation of e-government in their respective ministries. Fifteen of the 16 ICT officers cited lack of clear policy. Eleven of the respondents noted low ICT skill levels as another challenge while inadequate infrastructure was cited by nine respondents. Lack

of collaboration between stakeholders and system administration were also cited as other challenges by five and three respondents respectively.

The respondents were further probed to explain the challenges they had cited and why they considered them as challenges. Some of the typical comments relating to the challenge of lack of clear policy were:

- "You really can't tell what the priority on e-government is. It is also not clear how much a ministry can do and how much ICTA should. We get directions from ICTA but in case of IFMIS and e-procurement the directions are from Treasury. Meaning anyone else can come up with another initiative and also start giving us instructions. A policy would help streamline this"
- "The work around e-government has seemed to be sporadic and dependent on personalities. That is why when e-government directorate was scrapped, all the work it had started seemed to collapse. A policy would help ensure institutionalization of e-government so that there is continuity and clear focus"

When probed further on the challenge of inadequate infrastructure, two respondents remarked as follows:

- "Although we are the head office of this ministry, we are not on government fibre optic line. The fibre optic terminates about 30 metres from here. We connect through radio and this cannot support e-government effectively".

- “As you can see here, all these staffs have no computers on their desks. They are all doing manual work. So even if you introduced e-government here, unless we provide the computers and connect them, it will not work”.

A remark made by one of the three respondents who cited system administration as a challenge was:

> “For instance, e-procurement is deployed in all ministries but the administration of the system lies in the IFMIS department at the Treasury. So from here we really have no much role. Even the smallest of the errors, I have to contact IFMIS to troubleshoot and resolve”

Comments made on the challenge of lack of collaboration between ICTA and ministries were as follows:

- “Because consultations between ICTA and ministries are low, that is why today we are expected to have e-procurement running yet we have no connectivity to government fibre optic network like other ministries. Otherwise the connectivity would be a priority”.
- “Some of these systems being procured for e-government are not as good. They cannot work for all of us. We have not even tested their capacity to accommodate huge volumes of data as citizens get onto e-government in large numbers in future. May be if we had a collaborative approach between all stakeholders, we would be sure we get the best”.

One respondent of the five observed that there was also low collaboration between ministry management and ICT officers on what needs to be acquired for the ministries remarked that:

> "Sometimes the PS or CS goes out here and commits to do things that we have no capacity to do just because someone else is doing them. If they insist against our advice, I would go ahead and procure but it fails within a short-while".

Inadequate skill levels among staff were also cited as a hindrance to successful penetration of e-government. Six out of the eleven who raised this challenge noted that many staff had only basic skills on MS-Office, while others did not even have the very basics skills like turning on a computer. This challenge was especially reported on older staff who were employed before introduction of ICTs in Government and whose interest and speed of adapting to highly automated environments is limited, "yet many of them are in charge of services that need this automation". Examples of staff cited as lacking on ICT skills were records management staffs in the upcountry registries, some of which were purely manual.

Besides the concern on basic ICT skill levels, the eleven ICT officers also raised concern with technical skills on e-government technology itself. Four of them felt the training on e-government platforms was inadequate amongst the ICT staff in ministries. In their view, enhancing this skill levels would help speed adoption of e-government and save time spent training the ICT teams. But fundamentally it "would help in selecting the right systems to run e-government services" and "avoid some of the seemingly overlooked challenges". One respondent remarked,

"in fact I have never been trained on the whole concept of e-government itself, what it really is and what it should entail. May be some of the things we think are e-government are not".

5.3.5 Data from Heads of E-government Services

With regard to the level of e-government utilisation, questions one and two obtained data from heads of e-government on this objective.

Question one obtained data on the objectives of e-government services. All the five respondents cited efficiency, speed and effectiveness in service delivery as the key objectives.

Respondents from e-procurement and ministry of lands also named the need for transparency, accountability and openness as another key objective of the e-government services they ran. This was deliberately to help in fighting corruption that had characterized the services under the manual environments.

Question two inquired from the respondents on the reasons that triggered the establishment of their respective e-government services. Responses obtained were as captured below:

- "There was need to improve customer service through faster response to customer inquiries".
- "Vision 2030 identifies ours as one of the areas that need to be on e-government which triggered the establishment of the service".

- “The need to improve on productivity and speed of service delivery given our wide spread across the country”.
- “There was need to manage costs which were escalating due to manual processes given increase in paper records”.
- “The inefficiencies in land management and other malpractises which often led to conflicts triggered the government to focus on implementing the service”.

5.4 EFFECTIVENESS OF EXISTING PRACTISES FOR MANAGING ELECTRONIC RECORDS IN SUPPORTING E-GOVERNMENT

This section presents data on objective three of the study which sought to establish the effectiveness of existing practices for management of electronic records in support of e-government.

5.4.1 Data from Principal Secretaries

Questions 11, 14 and 15 sought data from PSs on objective three of the study.

On question eleven which sought data on respondents general view on how effective existing practices for MER were in supporting e-government, both respondents reported that the practices for MER were not effectively supporting e-government. The respondents noted that there were yet to be developed strategic views on how MER would be harnessed as an integral part of e-government. Both respondents expressed

concern that their respective ministries were in the first place still grappling with manual record keeping systems, which were ineffective.

Question 14 sought to determine if e-government frameworks in the ministries catered for management of electronic records as a success factor for e-government. Both respondents reported in the negative. On further probing, none of the respondents was clear on how the integration could be achieved with one commenting:

> "I think we leave that to ICTA and perhaps the ICT officers and probably records officers to guide us."

Question 15 on the other hand was to ascertain if frameworks/policies for managing electronic records had considerations for e-government. Typical remarks made in response to this were as follows:

- "We are still struggling with manual records systems. We have nothing much on electronic records. Maybe when we start work on electronic records then we shall see how to address e-government requirements".
- "No. I do not think so. We are still at very low levels on electronic records".

5.4.2 Data from KNADS Respondents

Questions 11 of the interview schedule for KNADS staff sought their views on how existing practices for managing electronic records effectively supported e-government.

All the respondents reported that existing MER practices do not support e-government. One respondent observed:

> “For now things seem to be working but as e-government grows and many Kenyans start using e-government services it will certainly be a challenge”.

One other respondent stated as follows:

> “In actual fact there is no MER practices, so even measuring effectiveness to e-government is tricky. What is happening is that the records received online, like on IFMIS, are kept in the databases of the application systems providing the e-government services. But the records are not subjected to life-cycle management processes”.

5.4.3 Data from ICT Authority Respondents

Questions 14, 16 and 17 of ICTA staff sought data on objective three of the study on effectiveness of existing MER practices in supporting e-government. The findings are presented in the sections below.

5.4.3.1 Extent to Which Existing MER Practices Supported E-government

Question 14 sought the respondents views on how MER supported e-government initiatives. One respondent felt that the practices for managing electronic records supported e-government, remarking that

> “Even if you look at the draft records management standard, it underscores the role of records management. The gazette notice that set up ICTA has mentioned electronic records management. Also ICTA requires all public institutions to automate the records management processes and implement EDMS within the purview of GEA”

Two respondents were of the views that MER did not support e-government well. Their comments were as follows:

- “We can’t quite tell what is happening. If it was everyone would be aware”.
- “Even besides MER, I have no idea where e-government is headed. We had a clear strategy before, which is now seemingly discarded”.
- “I see more of issues of hardware, connectivity of fibre optic, laptops etc but not e-government per se and electronic records”.
- “Many things like digitization are happening in isolation. May be something is happening but I really cannot see anything now compared to what had been started under DEG”.

Probed further on the reasons behind the prevailing situation as per their responses, their verbatim remarks were as follows:

> “Based on my own experience, I know the value of managing electronic records professionally, especial in the digital space. I sense as initiatives on shared data take shape, this issue would be brought in the fore”.
>
> “There is no view on what the future holds for digitization and electronic records management from ICTA perspective-at least in my personal view. But for us to succeed in the long-term, this is an area that needs attention”.
>
> “Present conditions for electronic records are not very good. There are very many silos across the public institutions. We see a lot of parallel manual and electronic systems. But we are working at ICTA to streamline this”.

"Our focus for now is to really ensure critical electronic data to support e-government, especially common data, is brought under one control centre. We have a consultant helping us look at the entire framework of managing e-data".

5.4.3.2 Involvement of ICTA in Implementation of MER Capabilities in Ministries

Question 16 inquired on whether ICTA was involved in implementation of systems for managing electronic records. One respondent reported that ICTA was involved while the other two indicated that they were not sure of the extent of ICTA's involvement in implementing systems for MER in Government.

Probed further to explain some of ways in which ICTA was involved in implementation of electronic records systems, the respondent who reported that ICTA was involved cited the following:

- "The various ICT standards and GEA framework would provide guidance even to the implementation of electronic records systems".
- "A records management standard has been developed in conjunction with KEBS to guide management of electronic records".
- "The setup of a data centre to ensure that common data used by all government agencies is centrally managed to avoid duplication of records".
- "The digitization of records, funded by the World Bank falls under ICTA's oversight".
- "All EDMS systems implemented in public institutions must be assessed and approved by ICTA".

Question 17 was to determine whether ICTA partnered with other government agencies on MER in support of e-government. Responses from the informants were as captured in Table 5.11.

Table 5.11: Comments on ICTA's partnership with government agencies on implementation of Electronic records systems

Respondent 1	"We had started working with someone from DPM on IRMS and general electronic records issues but that died with disbandment of DEG"
Respondent 2	"We work with ICT officers in ministries. Archivists have their own legislation that guides them".
Respondent 3	"We have not reached at that level yet. We are still on setting up of infrastructure and developing standards. But whenever agencies have something to do we support".

Respondent 2 in Table 5.11 was probed to clarify on whether ICT officers in ministries reported to ICTA as contemplated in the ICTA legal notice of 2013. The respondent indicated that the issue was still under review. However, ICTA did not want to manage every other aspect of ICT in government agencies but to only focus on setting cross-functional ICT infrastructure and controls. For instance if a ministry intended to procure an EDRMS, ICTA would come in only to assess whether the system met the requirements of established standards and GEA but not in the actual requirements specification, procurement and identification of the systems. This would therefore leave individual ministries with room for responding to their own unique needs around MER.

5.4.4 Data from Records Management Officers

Question 18 sought views of RMOs on whether MER was considered a critical success factor for e-government. All respondents indicated that existing practices for MER were inadequately supporting e-government. Select verbatim comments made in response to the question were as captured in Table 5.12.

Table 5.12: RMOs views on effectiveness of MER in E-government

Respondent	Comments
Respondent 1	"So far all e-government initiatives have never factored electronic records management in their plan and design".
Respondent 2	"We have no policy on ERM in place. I do not know how all the records uploaded on the e-government platform by citizens are managed. I wonder how they are to be preserved in future"
Respondent 3	"We are procuring an EDRMS for our ministry but I can't quite figure out any link between and the e-government system".
Respondent 4	"We have implemented e-procurement platform on which suppliers upload a lot of critical records. There is no mechanism to tell if those documents are genuine. Besides we do not know if the server can accommodate all the records in future. We should have also acquired an EDMS together with e-procurement to help manage the records. I foresee a crisis unless an EDMS is urgently integrated on e-procurement platform"
Respondent 5	"The e-government directorate has never bothered to engage records management experts when designing the e-government systems. Currently the volumes of records are still low and mostly recent. We may have challenges of preservation, storage and access in future".
Respondent 6	"Every ministry seems to be doing their own thing. Neither the national archives nor the ICT authority are providing any guidance on what would be minimum requirements. That is why almost every effort to implement records management systems have collapsed at some point".
Respondent 7	"The IRMS was supposed to give us a harmonized approach to managing records, but since the champion left government it just died. We really do not know who owns it now. We were trained on it but it died as soon as we finished the training".
Respondent 8	" I am not sure IRMS could really help us on e-government. It didn't seem to be a very strong system. It appeared more of a file tracking system than a wholistic system that could support heavy electronic records management".

Respondent 9	“We have procured an Enterprise Resource Planning (ERP) system with no capabilities of records management yet our biggest headache has been disappearance of files”

Six respondents further noted that the electronic records practices are not adequate because of the design of electronic records systems being procured. There was a shared opinion amongthe six that some of the electronic records systems that have been considered in the ministries are not as robust. For example, one respondent observed that they developed requirements for an EDRMS “but we ended up with a content management system”, which could not address the specified needs. As a result the project stalled.

All the respondents were also of the view that restructuring of the manual systems would have a bearing on the success of electronic records management, because most of the records management processes remained manual and in need of improvements. As a result even where there were attempts to integrate electronic records management, it became tricky to export a dysfunctional manual system into digital platforms. The risk of the electronic and manual systems having different records was real and this undermined the reliability of e-government data.

Two RMOs also attributed the non-effectiveness of electronic records practices on e-government to the design of the e-government systems themselves. They felt that the e-government systems being deployed did not consider management of records as a critical functional requirement. One respondent remarked:

> “Look at the e-procurement system. There are no clear standards on metadata capture or even classification of the documents being uploaded by suppliers. Even basic requirements like establishing authenticity of the records is missing. This means we could have a huge bulk of records that are not genuine and we use them to make sensitive business decisions”.

One other respondent raised inability of e-government systems to provide full spectrum

MER given the practice of citizens being asked to deliver hardcopies of what they had captured online defeating the spirit of e-based services:

> “ At immigration once you complete the application online, you are again asked to print and submit a hard copy. At the registrar of companies, even though one submits an application online and attaches ID, PIN and photos, they still ask people to bring the same documents in hardcopy including a printout of the invoices that are actually generated by the very system they administer. At ministry of lands, yes you can conduct a search online. But if you need to transact on that land, you have to take the search printout for stamping”.

These views were validated during discussions with ICT officers and heads of the e-government service areas. The situation of citizens being required to submit hardcopy printouts of their applications also obtained at HELB.

5.4.5 Data from ICT Officers

Questions eight and twelve of the ICT officers interview schedule obtained data on the ICT officers' views on how practices for MER supported e-government.

5.4.5.1 Integration of ERM Systems With E-government Systems

Question eight sought data on whether systems for managing electronic records were integrated with e-government.

In the case of the respondent who reported to be using Case 360 EDRMS, it was established that the system was largely being used to accommodate scanned records but not electronic records received on e-government platform. The remark made by the respondent was:

> "In any case, I do not think this system was designed with e-government in mind because it has been around for a while before the e-government drive".

The four respondents who reported that they were in the process of implementing EDRMSs indicated that the integration of the proposed systems and e-government systems was not part of the systems designs. One of the four remarked:

> "The ministry is in the process of obtaining an EDRMS to support management of documents received on e-procurement. However, it is not clear how the system will pull records from the e-procurement system-whether the design will incorporate inbuilt interfacing or not".

Probed further on why the systems for managing electronic records were not integrated with e-government, the general views across the respondents were that the EDRMSs were being procured to solve internal ministry challenges around records management, especially manual records, but not entirely to serve e-government. One respondent observed:

> "We are thinking of an EDRMS to sort our internal issues. E-government is for ICTA. Whenever they install an e-government platform they will tell us how to manage the electronic records. But for us we have a huge bulk of paper records that need to be digitised and improve service delivery"

All the five respondents with an electronic records system or working to obtain one, indicated that the intentions of implementing EDRMSs were to implement automated workflows for document movement to eliminate inefficiencies and risks arising from movement of manual records from one officer to another. E-government was not a key consideration.

5.4.5.2 Support for E-government by MER Practices

Question 13 sought the ICT officers' opinions on whether practices for MER adequately supported e-government. All the 16 ICT officers responded in the negative. Among the reasons cited for this view were as follows:

- "There is nothing on electronic records management hence support cannot be alive".
- "The design of systems for managing electronic records is weak".

- “Existing e-government systems do not include management of electronic records”.
- “The skills on electronic records management in e-government context are low”.
- “General skills on electronic records and even records management in general are low”.
- “ICT infrastructure in place is not robust in some ministries”.
- “No policy framework in place to embed MER in e-government”.
- “No standards on managing of electronic records”.
- “Duplication of systems and data across ministries in place of robust shared services and data strategies”.

5.4.6 Data from Heads of E-government Services

Question 8 on the Heads of e-government services’ interview schedule obtained data on the views of the respondents on whether existing practices for MER adequately supported e-government. Responses obtained from the informants were as captured verbatim in Table 5.13.

Table 5.13: Effectiveness of MER practices for E-government

Respondent 1	“I can’t tell now because we have nothing in place”
Respondent 2	“Not quite effective. We haven’t tested it for a while. Preservation maybe a challenge in view of volumes and compliance to retention legislations”
Respondent 3	“So far so good. We are still implementing but we haven’t seen any challenge”.
Respondent 4	“The systems are good but connectivity is a challenge in the country”
Respondent 5	“A lot needs to be done on preservation of the records and adoption of standards. Infrastructure also needs to be enhanced”

5.5 CHALLENGES IN MANAGING E- RECORDS THAT IMPACT ON E-GOVERNMENT

This section provides data obtained with regard to objective four of the study, which was to identify the challenges faced by ministries in managing electronic records that could impact on implementation of e-government.

5.5.1 Data from Principal Secretaries

Questions 12 and 13 on the interview schedule for PSs were used to obtain data on the challenges faced in managing electronic records that hampered e-government.

Question 12 sought data on the challenges in managing electronic records that had an impact on e-government. The responses obtained, as captured verbatim, were as follows:

- “Lack of both professional and technical capacity to manage electronic records”.
- “Lack of robust policy guidelines from ICTA beyond the technical configurations of systems”.
- “Low understanding of e-government dynamics across government especially among low cadres of government officers”.
- “Poorly developed ICT infrastructure that also lacked uniformity across government”.
- “Existence of many stand-alone (silos) systems of e-government leading to duplication of resources and stretching of staff”.

- “Dysfunctional manual record keeping systems that hold vast amount of information required for service delivery”.

- “Centralisationn of e-government service support and maintenance which has resulted to lack of empowerment of ICT officers to drive e-government delivery in ministries”.

Question 13 obtained views from the PSs on how they coped with the challenges. Responses provided by the two respondents were as follows:

- “We are working with the ICTA to see how to improve management of electronic records. A lot depends on them”.

- “For now we are still struggling with the challenges. Our processes for managing records are largely manual. We intend to train our staff on electronic records after which we can determine how to progress”.

5.5.2 Data from KNADS Respondents

Questions 8 and 12 sought to obtain data from KNADS staff on the challenges faced in managing electronic records.

Question 8 sought data on challenges facing MER in general. The respondents mentioned the following challenges:

- “Lack of capacity (skills and knowledge) on both ICT and MER”
- “Lack of a model for preservation of electronic records generated on the e-government platforms”.

- “Absence of infrastructure for digital preservation”.
- “Weak interoperability between electronic records systems and e-government systems”.
- “Weak legislation and regulatory framework on electronic records”.
- “Absence of defined standards and best practices to guide management of electronic records”.
- “The KNADS had no capacity in terms of human resources, finances and infrastructure to support ERM”.
- “Overall low e-readiness status for government ministries and entities which resulted to pushing automated processes to institutions that were not ready”.
- “Dysfunctional manual records systems, which when transferred into automated environments became chaotic and dysfunctional as well”.
- “Emphasis by government ministries and parastatals on digitisation of manual records alone as opposed to wholistic management of electronic records across the life-cycle”.
- “Private organisations were not bound by Cap.19, which meant that essential records in private organisations, even where government had a majority shareholding, were not taken care of”.
- “The grading of jobs for RMOs were very low in government which bureaucratically undermined any investment in their development. Some RMOs were graded at job group J”.
- “Absence of properly defined retention-disposition schedules for electronic records received on e-government platforms”.

On question 12 regarding issues in MER that may hinder effectiveness of e-government, the respondents made the following remarks:

- “Inability to integrate e-government requirements in management of electronic records strategies”.
- “Lack of robust systems for managing electronic records that can interface with e-government platforms would undermine effectiveness of e-government”.
- “Low skill levels in MER by stakeholders in both records management and e-government”.

5.5.3 Data from ICT Authority Respondents

Question 15 on the ICTA staff interview schedule obtained data on challenges in managing electronic records by asking the respondents to describe how MER hampers e-government implementation. The following responses were provided by the informants:

- “Lack of a strategic view on records management within e-government development”.
- “Lack of credible champions for electronic records management in government”.
- “Shortage of funding for electronic records projects”.
- “Lack of skills and expertise on MER especially within ICTA”.
- “Absence of a functional shared data platform for government resulting to duplication of data and resources”.
- “Unstandardised technologies across ministries”.

- “Distortion of government processes with the restructuring of Government in 2013”.
- “Management of mobile data”.

5.5.4 Data from Records Management Officers

Questions 14, 15 and 19 obtained data on challenges in managing electronic records in general and also specifically with regard to e-government. The findings are presented in the following sections.

5.5.4.1 Technical Challenges Faced by RMOs in Managing Electronic records

Question 14 asked RMOs to describe technical challenges they faced in managing electronic records in general. The following technical challenges were cited by the respondents:

- “Inadequate policy framework” (by 17 respondents).
- “Lack of skills and expertise” (by 17 respondents).
- “Dysfunctional manuall systems” (by 11 respondents).
- “Weak ICT infrastructure” (by 10 respondents).
- “Lack of strategies for preservation of electronic records” (by 3 respondents).
- “Lack of standards for managing electronic records” (by 2 respondents).
- “Lack of good internal controls on information access and handling” (by 2 respondents).

Some of the typical remarks made by the respondents while explaining these challenges were as follows:

- “The ministry has been developing policies for ICT administration. However no one has seen value to develop one for electronic records”.
- “Yes the RM unit should lead the process of developing a policy on electronic records. But I have raised this and I have not been heard. Instead at one point I was informed that the ICT policies and procedures would cater for electronic records”.
- “In this ministry ICT claims to be taking care of electronic records but you can see they really have no training on issues around management of electronic records. They need training.”
- “We do not have even a basic scanner which we can use to scan some of these documents. This is also true in many other ministries. As a result we remain manual yet some of these documents we could scan and just email to the action officers. That is why we have so much paper around here”.
- “For instance, with only one server, we cannot keep a lot of electronic records in that server because that is not core business and hence may not get much accommodation”.
- “We have nothing in place on preserving the born digital records received from the online platforms”.

- “Even here where we have common government domain (.gov) for our emails using MS Outlook, the fate of those emails depends on each individual. They can decide to delete any time”.

- “In the manual system every correspondence has to be captured and for external ones they go through PS office. That means it is possible for the chain of command to be in view of what is happening. But with electronic records, a correspondence can be sent directly to a staff without going through the PS office or even the registry for capture. Whether that will end up in our hands is at the mercy of the officer who received it”.

5.5.4.2 Organisational Challenges Faced by RMOs in Managing Electronic records

Question 15 obtained data on general organisational challenges the RMOs faced in managing electronic records. The challenges cited were as follows:

- “Lack of collaboration between ICT and RM units”- 16 RMOs.
- “Lack of budgetary support”-16 RMOs
- “Lack of top management support”-13 RMOs.
- “Low government commitment to professional MER”- 8 RMOs
- “Resistance to change by users”- by 17 RMOs.

Typical verbatim comments of the respondents' views on organisational challenges were:

- "There is no relationship between ICT and us in so far as electronic records are concerned. IT does not involve us in all they do. We create electronic records through digitization but we do not manage them. ICT does. Digitization is supported as a business process and not as a records management issue. We are ideally working for ICT when we digitize".
- "The RMOs need to be engaged on electronic records and not just ICT officers as eventually the electronic records is a responsibility of the RMO".
- "The relationship between us and ICT is a challenge. In fact at one point a senior ICT manager had proposed abolishment of the RM unit saying ICT could do everything we do".
- "During the start of the digitization process, which is being championed by the legal department, the ICT officer told me he is going to render us redundant".
- "The tragedy we have is that IT people do not know records management and records managers do not know IT, yet we are not working together".
- "The IRMS is a classic example of disregard for RMOs. The ICT people in DPM who designed never bothered to consult RMOs. In the end the system was not able to help us. That is why it is not operating in any ministry. It only worked in DPM and for only a while".

- “If the government took all the concerns raised by the anti-corruption authority, the auditor-general and the public procurement authority, records management would be a key focus area.
- “If you look at this ministry and even the entire government, there is obsession with scanning of documents but not wholistic improvement of records management processes”
- “It has not been easy to achieve what we have. We have had to a lot of selling and convincing, a lot of back and forth movements, yet everyone knows records are critical. But look at IT, they get whatever they ask. We have about 60 different systems in this ministry yet only 2 are the ones that contribute 80% of information required to measure our performance”
- “When I started the digitisation project, in one department there was strong view that they did not need any scanning since they were already doing just fine than many others. To them they felt that was waste of money and time and they needed to hear more value adds to buy in the idea”.
- “Records are sensitive and sometimes unique to departments. If you just wake up and start demanding to digitise records from departments, they wonder what your motive is and may resist. Even if the intentions are well and within strategy. Sometimes files just disappear”.

5.5.4.3 Issues in MER that Impacted Negatively on E-government

Question 19 focused specifically on issues in MER that had a direct impact on the success of e-government. The following are the issues raised by the RMOs which they felt impaired MER's capability to adequately support e-government:

- "Poorly designed electronic records systems that exclude e-government requirements"- from 13 respondents.
- "Selection of wrong systems for management of electronic records in the e-government environment" – from 5 respondents.
- "Non-integration of MER in business practices and systems to enable capture and management of data and records generated on business systems" – from 13 respondents.

The following are some of the remarks made by the respondents in explaining the challenges of poorly designed systems and selection of wrong systems responding to question 19 as captured verbatim:

- "Ours is an ERP system but with no consideration for electronic records management. As a result there is no mechanism of managing all those records received online other than just holding them in the database".
- "The IFMIS systems and especially the e-procurement component has no provision for management of electronic records. There is no standardized

metadata or file plan. We are told IFMIS department now wants to procure an EDMS to help in management of the electronic records".

- "What's happening with e-procurement is that we have a risk of clearing fake documents if we use the e-documents uploaded. On the other hand, if we accept the e-documents but later demand the hardcopies, then it implies we are holding electronic records on the e-procurement database that are of no use. We are just spending money keeping records of no value and people wonder why we tell them to upload and again ask for the same in hardcopies".

- "We were told the IRMS was to help us manage electronic records following the government's move to digitise. However when it was installed, we realised it could not manage electronic records. The much it could do was to track movement of manual files. Today IRMS is not working in any of these ministries"

- "Many of us are unable to distinguish between ERMS, EDMS and EDRMS. And also the ECMS which have also gained prominence. There is so much focus on workflows. As a result we see parastatals procuring systems that cannot serve them. For instance I know a parastatal which was supplied a CMS when they wanted an EDRMS".

- “I am not aware of any ministry which has a proper system for capturing, managing and archiving email. Yet so much is being transacted on email nowadays”.

5.5.5 Data from ICT Officers

Questions 14 and 15 obtained data from ICT officers on the challenges in two forms. One was on challenges in MER that undermined e-government and the other on issues in design of ICT infrastructure that undermined effective MER.

5.5.5.1 Issues in Management of Electronic records that Undermined E-government

Question 14 sought data on issues in MER that could undermine e-government. The ICT officers raised a number of challenges in MER that they felt undermined e-government as captured below:

- “Lack of budgets to support e-government”.
- “Weak capacity for management of electronic records for e-government”.
- “Lack of ERM systems in place”.
- “The decision by ICTA to run with most issues on ICT including electronic records systems’ implementation”.
- “Resistance to change across ministries”
- “Lack of political good will”.
- “Absence of strong electronic records systems in the market”.

- “Failure of IRMS in ministries”.
- “Lack of comprehensive system analysis and design for electronic records systems”.
- “Disjointed systems”.
- “Lack of standards for electronic records management across ministries”.
- “Duplication of data across government”.
- “Weak ICT infrastructure across government, specifically on internet connectivity”.
- “The proliferation of mobile data and transactions”.
- “Challenges of information and data security”.

5.5.5.2 Issues in Design of ICT Infrastructure that Undermined Management of Electronic records

Question 15 for ICT officers established the issues in the design of ICT infrastructure in the ministries that undermined effective MER. The following were raised by the respondents:

- “Poor design for metadata capture”.
- “Weak ICT systems analysis and design”.
- “Absence of provisions for long term preservation of electronic records”.
- “Absence of standards to harmonise ICT systems acquired in Government”.
- “Weak electronic data security controls”.

- “Weak workflows designs”.
- “Selection of wrong systems due to poor needs analysis and stakeholder engagement”.
- “Some systems support only one format of digital records e.g. pdf only”.
- “Uncustomisable systems”.
- “Poor hardware and software support and maintenance by vendors”.
- “Duplication of data across government”.
- “Inability to handle mobile-based data”.

A verbatim remark explaining selection of wrong ICT infrastructure was captured as follows:

> “In my previous ministry, we almost purchased a library system to manage digitized records”.

5.5.6 Data from Heads of E-government Services

Question 9 of the interview schedule for heads of e-government services asked them to indicate some of the challenges they faced in managing the electronic data/records received and processed on the e-government platforms. The challenges cited cumulatively by the five respondents were as follows:

- Authentication/validation of data due to non-interfacing with Integrated Population Registration system (IPRS).
- Risk of forgery by users
- Lack of linkage with national databases for data sharing hence duplication of data.
- Lack of mechanisms for long-term preservation of the data
- High volumes of data received on the platform.
- Legal/regulatory compliance
- Inferior hardware and software capabilities to support high volumes of information and facilitate faster data processing.
- Internet connectivity and weak bandwidth across the country.
- Dysfunctional manual systems.
- Low ICT skills levels for staff in records management
- Inadequate financial resources to enable full automation

5.6 RECOMMENDATIONS FOR EFFICIENT MANAGEMENT OF ELECTRONIC RECORDS IN SUPPORT OF E-GOVERNMENT

Objective five of the study was to propose recommendations that could improve management of electronic records in ministries to support e-government effectiveness. Data was obtained from respondents on their proposed recommendations that would guide the overall recommendations of the study.

5.6.1 Recommendations by Principal Secretaries

Question 17 on PSs interview schedule obtained data on their recommendations to improve MER and e-government. The two DAs proposed the following recommendations:

- “Developing staff capacity on ICT, e-government and MER across the government ministries”.
- “Expanding existing capacity for system administration of IFMIS, e-procurment, IPPD and GHRIS to include ministry ICT officers”.
- “Developing a clear policy direction for e-government rollout and MER including the specific roles of ICT officers and individual ministries”.
- “Improving ICT infrastructure to ensure existing hardware and software are capable of supporting high volume data and complex processes that come with e-government”.
- “Implementation of good systems for managing electronic records that would ensure full capture and preservation of the electronic records”.
- “Removal of system-silos by implementing harmonised systems that can share data by for instance merging IPPD and GHRIS instead of running many systems”.
- “Centralization of all e-government systems into one unit”.

- “Provision of sufficient budgetary support towards MER and e-government development”.

5.6.2 Recommendations by KNADS Respondents

Question 13 for KNADS staff sought their recommendations to improve MER in support of e-government. The following recommendations were suggested by the respondents:

- “Well-defined institutional mandate from which government entities can seek guidance on e-government”.
- “Review of legislative and regulatory frameworks for MER”.
- “Better working relationship between stakeholders concerned with MER and e-government”.
- “Extensive training of RMOs and ICT officers on MER and e-government”.
- “Standardization of records management practices across government”.
- “Adoption of ISO standards for management of electronic records”.
- “Placement of KNADS under the ministry responsible for information and ICTs”.

5.6.3 Recommendations by ICT Authority Respondents

Under question 20, ICTA respondents were asked their recommendations to ensure successful intergration of MER in e-government. The proposed recommendations were:

- “Development of a robust strategic framework for managing electronic records in government”.
- “Alignment of e-government and electronic records systems”.

- “Implementation of shared data capability within and across government to eliminate duplication of data and resources”.
- “Development of robust standards to guide management of electronic records on data capture, retention, preservation, access and security to achieve a harmonized model for managing electronic information”.
- “Records management initiatives be focused on service delivery and not just on internal processes to capture the spirit of e-government”.
- “Enhanced institutionalized approach to management of digital information, especially mobile data and information”.
- “Institutionalize e-government in Kenya including proper legislative and statutory frameworks”.
- “Anchoring of management of electronic records in comprehensive legislative frameworks”.
- “Enhanced training of records managers and ICT officers in ministries on management of electronic records in an e-government context”.

5.6.4 Recommendations by Records Management Officers

Questions 20 and 21 required the respondents to make recommendations they could make to improve the management of electronic records in support of e-government. The proposed the following:

- “Development of comprehensive policies and procedures to manage electronic records”.

- “Proper training of all records management offices and ICT officers on electronic records management”.
- “Adoption of e-government systems that cater for electronic records”.
- “Proper leadership from government on electronic records management and records management in general”.
- “Provision of adequate ICT infrastructure to support management of electronic records”.
- “Improved top management support towards electronic records management”.
- “Adoption of common international and national standards on electronic records across the ministries”.
- “Development of a harmonized model for managing electronic records within government ministries and government institutions”.
- “Improved collaborative approach to management of electronic records between ICT and RM units”.
- “Allocation of adequate budget towards management of electronic records”.
- “Implement one robust EDRMS for entire government with modules to cater for each ministry”.
- “Streamline the manual record keeping systems before transitioning to electronic records”.
- “Implement robust security controls for electronic records in both e-government systems and electronic records systems”.

- “Anchor management of electronic records in the legislative framework of the country especially on laws relating to governance, accountability and transparency”.
- “Engagement of professional change management practices when implementing electronic records projects”.

5.6.5 Recommendations by ICT Officers

Question 16 asked ICT officers to propose ways to improve management of electronic records to in support of e-government. They proposed the following:

- “Provision of robust policy direction and leadership on MER”.
- “Training ICT officers and ICT teams on MER in the e-government environment”.
- “Training RM teams on management of electronic records”.
- “Government should work to have all services delivered online”.
- “There is need to sensitise public servants on the need to embrace technological changes”.
- “Develop standards to provide guidelines on specifications for systems for managing electronic records”.
- “Integrate management of electronic records in all e-government platforms”.
- “Government should adopt one robust EDRMS to serve all ministries”.
- “Improvement of the ICT infrastructure, especially internet connectivity, to support e-government and electronic records transfer”.
- “Proper comprehensive system analysis and design be conducted prior to implementing any system for managing electronic records”.

- “Improved collaboration between ICTA, ICT Officers and RMOs in management of electronic records and general automation of records services”.
- “Provision of adequate funding for electronic records projects”.
- “Installation of better computer hardware in ministries”.
- Eliminate duplication of data generation across government and adopt a shared services approach to data generation and usage.

5.6.6 Recommendations by Heads of E-government Services

Heads of e-government services made their recommendations under question 10 as follows:

- “We need to relook at legislations affecting electronic records and data and ensure compliance is enforced”.
- “Advanced technology to help in validating the data provided by applicants may help in avoiding risks of forgery”.
- “Training of ICT team on management of electronic records”.
- “Linking of the e-government services with civil registration database to help in authenticating /validating data submitted from citizens”.
- “We need robust infrastructure to provide better security, backup and preservation of electronic records”.
- “Implement long-term preservation strategies for electronic data in view of risks of technological obsolescence”.

5.7 SUMMARY OF RESEARCH FINDINGS

This section provides a summary of findings in line with the research objectives.

5.7.1 Status of Management of Electronic records in Government Ministries

- The findings revealed that management of electronic records across government ministries in Kenya was low key and significantly inadequate. Key findings among this included lack of policy and regulatory framework on MER in all ministries.

- There was lack of systems in place to manage electronic records. In addition the designs of the systems that existed were not adequate for management of online-based electronic records.

- The findings also revealed lack of standards for MER to help in harmonizing the management of electronic records across ministries.

- There were evidently inadequate skills and expertise in MER across government ministries.

5.7.2 Levels of E-government Utilization in Government Ministries in Kenya

- It emerged from the findings that the Government of Kenya has implemented various e-government services.

- E-government utilisation was at different levels across government ministries.

- All ministries had a website each through which citizens could access information.

- E-government services were centrally managed and supported but accessed at the ministries.

- ICTA was responsible for the oversight on e-government and provided standards and guidelines for the ICT infrastructure to support e-government.

5.7.3 Effectiveness of Existing MER Practices in Supporting E-government

- The study revealed that MER should be part of the shared data element of e-government outlay. However, the nexus between e-government and MER was significantly weak. The alignment between the two was functionally non-existent with little collaboration between the stakeholders in the two practices.

- In addition it also emerged that the design of e-government had not integrated requirements for MER.

- The systems for managing electronic records that had been adopted or were in the process of being adopted in the ministries did not integrate the requirements for e-government.

- There was no policy framework to guide MER within the e-government context. The management of e-data generated across e-government platforms was executed on the e-government databases that had been installed.

5.7.4 Challenges in Managing Electronic records for E-government

The leading challenges facing MER in support of e-government were identified to include: lack of policy and regulatory framework; lack of standards on MER in e-government; lack of skills and expertise; inadequate design of MER and e-government systems that excludes either; lack of strategic view on and ownership of MER in Government; disjointed implementation of MER initiatives across ministries; absence of a model/framework for managing electronic records in e-government; inadequate stakeholder engagement; weak ICT infrastructure; lack of adequate funding.

5.7.5 Recommendations for Effective MER in Support of E-government

Among the recommendations made by respondents to improve management of electronic records in support of e-government were: development of a robust policy, regulatory and legislative frameworks to inform management of electronic records; development of standards and best practices for MER; integration of MER in e-government systems designs; consideration of e-government in all MER initiatives; development of a clear strategy for MER in Government; capacity building on both MER and e-government; improved engagement between MER and e-government stakeholders to achieve collaborative approach between the two to both MER and e-government; enhance ICT infrastructure across Government; adoption of one robust EDRMS for Government; increased funding for electronic records and e-government initiatives.

5.8 CHAPTER SUMMARY

This chapter has the presented findings of the study as obtained from the interviews conducted with Principal Secretaries, KNADS staff, ICTA staff, RMOs, ICT Officers in ministries and heads of e-government services.

Findings revealed that MER is present across all government ministries. The findings show a high level of awareness across ministries on importance of MER in supporting e-government. They also revealed that e-government is wide-spread across government ministries although at different levels of maturity and utilisation. It was also established that even though efficiency levels for MER in support of e-government were low, there are demostratable efforts to improve MER to effectively support of e-government.

Synergy between management of electronic records is weak within government ministries in Kenya, which undermines the effectiveness of e-government services. The findings showed significant weaknesses in systems and capabilities for managing electronic records. They further established that the integration of electronic records management in e-government and integration of e-government in MER initiatives were significantly low.

A number of recommendations from the respondents have been presented that could help improve the MER in support of e-government. The next chapter (six) provides an interpretation of these findings.

CHAPTER SIX
INTERPRETATION OF FINDINGS

6.0 INTRODUCTION

This sixth chapter presents an interpretation of the findings of the study as presented in chapter five. Data interpretation links the findings to existing knowledge on the subject and hence helps in identifying the proper place of the research within the existing universe of knowledge (Ngulube 2015; Silverman 2011; Babbie & Mouton 2010; Neuman 2007).

The interpretation of the research findings has been done according to the themes used to present the findings in Chapter Five as follows:

- Status of management of electronic records in government ministries.
- Levels of e-government utilization in government ministries.
- Effectiveness of existing practices for managing electronic records in supporting e-government.
- Challenges faced in managing electronic records that impact on e-government.

6.1 CURRENT STATUS OF MANAGEMENT OF ELECTRONIC RECORDS IN GOVERNMENT MINISTRIES

This study findings revealed that the general status of management of electronic records in government ministries is inadequately positioned to support e-government. The study specifically investigated the existence of electronic records, the capacity and preparedness of ministries to manage electronic records in terms of infrastructure, available technologies, skills and expertise of those managing records, legal and policy framework and standards and best-practice.

6.1.1 Types of Electronic Records

The findings from all respondents established existence of electronic records within the government ministries. All respondents interviewed confirmed existence of massive electronic records within the ministries. These records arose from business applications, online platforms, e-government platforms, digitized records and email records.

The ICT officers confirmed existence of electronic records arising from business applications in structured databases. The same was obtained from the heads of e-government services. The RMOs reported to be managing digitized records converted from manual records. Heads of e-government services also confirmed existence of records in different formats on the e-government platforms which are uploaded by users when seeking services.

Transactional records (Haughn & Rouse 2013) emerged as the predorminant types of records managed by the ministries. These are records that describe events/transactions. The RMOs interviewed confirmed that the bulk of electronic records are records related to various transactions within the ministries and which come as born-digitals or received in hardcopies then converted into digital surrogates through digitization. The heads of e-government services confirmed that the services they manage predorminantly handle transactional records. For instance: at HELB are loan application forms; at the Public Service Commission (PSC) are job application forms; at Kenya Power are electricity connection application forms and supporting documents; at KRA are tax returns and PIN applications; at Ministry of Lands, Housing and Urban Development are applications for land searches. These findings confirmed Nengomasha's (2013) views that most of electronic records in government entities are transactional records. This underscores the need to prudently manage these records to sustain provision of reliable evidence for the transactions they represent.

Discussions with ICT officers and heads of e-government service areas established that there existed large e-data residing in structured databases of various business applications that constituted electronic records. The data generated on e-government platforms and other business applications was managed on structured databases. Examples of these were data on the HELB loan application system and that on public service online job applications system. The management and preservation of such data depended on the design and configuration of these databases.

All respondents interviewed across all the categories confirmed existence of email records, on both official government domain and personal email addressed domiciled on public email services like gmail and yahoo.

The ICT officers confirmed that email records were a reality in their ministries because all employees in ministries have email accounts. The RMOs reported that they handle email records as part of their mandate. It also emerged that all ministries had government email domains domiciled at ".go.ke". However not all ministries had their staff using these email address.

Even though the RMOs took care of their ministries' emails, they did not have dedicated systems/software to help in managing the emails. These emails however were reported to carry transactional records related to various business activities in the ministries-from both internal and external sources. This status confirmed three issues: firstly, email was a source of electronic records within government, secondly, the management of email records was a challenge across the ministries and thirdly, there was no policy in place to guide management of email records.

The study findings confirmed that the challenge of email management remains a concern in the practice of electronic records management. Mnjama and Wamukoya (2007) confirm that this challenge is a reality across Sub-Sahara Africa. The fact that all employees in ministries have access to email-whether ministry-domiciled or private emails-implies that email is a predorminant source of electronic records within the ministries. Most ministries have general email addresses domiciled on the government email domain (.go.ke) which citizens are required to use to contact the ministries. These

findings were very significant to the study because they underscored the need to accord practical focus on e-mail management as a critical component

The case of the former US Secretary of State Hillary Clinton and her use of personal emails for transacting official matters (Dinam 2015; Cilliza 2015; Kaplan 2015) would provide significant lessons on the importance of management of emails as official records.

Contrary to previous studies that the government had embarked on digitization of all government registries (Muoka 2013; Kithinji 2015; Rubenfeld 2011; IRMT 2011b), the present study established that records digitization was not as widespread across ministries. Even though IRMT (2011b) had observed that the automation of RM in government seemed to be more about digitisation other than holistic management of electronic records in the continuum, the study did not find this situation on the ground. Majority of registries manned by RMOs were manual. Only three RMOs reported to manage digitized records.

Another significant finding of the study was that there were no mechanisms in place to manage electronic records generated on business application systems, including those uploaded online by citizens to the various services that were not yet available for e-government. These records were handled by database administrators as ordinary data in the databases. Their management was essentially seen from the ICT practices than the professional records management lens.

6.1.2 Policy, Procedures and Regulatory Framework

On the issue of policy and regulatory framework for managing electronic records, all respondents interviewed across all categories contended that there were no solid policies and regulatory frameworks or managing electronic records in their respective ministries. Respondents from KNADS were unanimous that the policy framework for managing electronic records across the ministries is inadequate. The RMOs reported that there were no functioning policies in place to support MER. None of the ministries had procedures in place to aid in daily management of electronic records.

However, unlike in previous studies (IRMT 2011a; Kemoni 2009; Wato 2006; Mnjama & Wamukoya 2006; Wamukoya & Mutula 2005a-b; Wato 2002; Wamukoya & Kemoni 2001) where it was not clear on the government initiatives on the issue of policy and regulatory framework, the present study revealed that there were efforts towards developing policy and regulatory framework to support MER. These efforts were championed by ICTA. An example was the standard on electronic records management developed by ICTA.

The lack of comprehensive policies and procedures for MER has been cited as a major challenge not only in Kenya but globally (Valisiki & Delegou 2014; New York State Archives 2011; Ohio State University 2011; US Government Accountability Office 2010).

The National Archives of Australia (2004) states that “policies define the organisation’s approach to managing digital records and provide the necessary senior management authority for the implementation of the framework. Procedures outline how the policies will be implemented and provide clear instructions for their practical application”.

Studies on MER from around the world also reveal that lack of policy frameworks, including absence of legislative guidelines have been a challenge to achieving effective MER regimes in governments and even corporate entities (White House 2012; National Archives of UK 2006).

The findings also indicate that the situation on policy and regulatory frameworks in Kenya reflects what obtains across the rest of Esarbica region (Okello-Obura 2012; Kemoni 2009; Wato 2006; Mutiti 2001). Lowry (2013), reporting on the issues of ICT and records policy integration in East Africa, showed that lack of a national regulatory framework for records management, at the highest level, had affected the design and implementation of systems, at the lowest, technical level.

However the present study revealed that there have been efforts by the government at the national level to develop a policy/regulatory framework as seen in the development of strategy for improvement of records management by the government and the IRMS in 2011 and 2012 respectively.

Other than policy framework, the findings also revealed that the legislative frameworks on MER were equally weak. However it emerged that several laws in Kenya made loose provisions on records in general. For instance The Companies Act, The Cooperative Societies Act, The Evidence Act and The Records Disposal Act amongst others.

These laws were however drawn in view of manual records and were lacking in terms of electronic records.

The issue of weak legislations to support MER has been flagged globally with profound impact in the developing countries (Luyombya & Sennabulya 2013; Asogwa 2012; IRMT 2011a; Iwhiwhu 2011; Tale & Alefaio 2005; Millar 2004). Laws provide compelling reasons for necessary and right actions to be taken. With laws in place, mechanisms for enforcing accountability due to non-compliance to regulations are put in place, triggering establishment of functioning systems.

In Kenya, weak legislative framework for electronic records has been previously raised as a limiting factor to effective MER (Lusuli & Rotich 2014; Kemoni 2009; Wamukoya & Mutula 2005a).There are also no specific documented guidelines on MER provided by KNADS as was confirmed by respondents from KNADS and the RMOs, as is the case in South Africa where the National Archives and Records Service (NARS) of South Africa has a manual for “Managing electronic records in governmental bodies: policy, principles and requirements (NARS 2006).

6.1.3 Professional and Technical Capacity

Lack of adequate skills and expertise has been cited globally as a challenge on achieving effective MER. For example, in Malaysia, despite progressive efforts towards e-government, Johare (2006) cites lack of adequate knowledge and skills in MER as a key challenge. The present study therefore found it prudent to also establish the status of prevailing skill-levels on MER because of the profound impact of skills and expertise on the overall status of MER in the ministries.

Professional capacity denoted familiarity with theory and practice of MER whereas technical capacity meant technical hands-on skills on ICT tools used to manage electronic records.

The professional and technical capabilities on MER for those interviewed were found to be inadequate. The findings revealed that professional knowledge on electronic records and technical skills on management of electronic records on issues like metadata and electronic records management systems was inadequate. This was confirmed by ICT officers, respondents from ICTA and those from KNADS. Most RMOs for instance felt that the knowledge and skills of their staff were adequate for management of electronic records, while a few felt the skill levels were low for effective management of electronic records. Respondents from KNADS felt the skills were significantly low, while all the 16 (100%) ICT officers felt that skills in MER were low. Majority of the ICT officers felt they are adequately prepared to manage electronic records.

In Kenya, lack of skills and expertise in electronic records management has been identified as a major impediment to effective management of records (Wamukoya & Kemoni 2001). Wato (2006) commenting on electronic records management in the Esarbica region observed that lack of skills in managing electronic records was considered “the leading challenge” to MER “followed closely by lack of clear policies on electronic records”. The findings of the study correlated with the Wamukoya’s and Wato’s views and those of other authors on the subject in Kenya.

Nyongesa (2012) cited lack of skills on records digitisation and ICT skills among staff in the ministry of lands as some of the challenges that face implementation of automated national and information management system at the ministry. She also mentions challenges like, “poor records management practices” and “lack of local experts” to maintain heavy duty scanning equipment. All these point to the issue of skills and expertise, as a prevailing weak point in MER capabilities in government ministries.

Mwangi (2012) while writing on the challenge of access to digitized records at KNADS, remarks “there was no one who seemed to know exactly how to go about uploading the material that we wanted uploaded without compromising the rest of the material in the server.

The respondents from KNADS indicated that most of the RMOs and other officers in RM units in government were deployed from non-records management units in 2003 following restructuring by then government with majority coming from supplies departments. It also emerged that registries have been used as avenues to “dump” non-performing individuals. These factors have contributed to the low skill levels because the individuals in the RM roles were not interested in the practice from the start.

The practice of deploying untrained officers to records management roles has been cited to have had detrimental effects on RM and MER elsewhere. For instance, Nengomasha (2013) cites cases of Namibia where records management officers had no skills to use computers. In one ministry in Namibia, Nengomasha cites deliberate actions to deploy staff with low grades to records management functions because the

ministries believed records management “is not a specialized area that requires better qualifications”.

In a study on management of electronic records at Moi University, Kenya, Nasieku, Kemoni and Otike (2011), revealed that only 10.6% of respondents had knowledge and skills in electronic records management while 89.4% did not. This contributed to poor management of electronic records.

However, in comparison to statistics from previous studies, the findings showed that there has been a growth in knowledge and skills in records and archives management. For instance nine RMOs had a bachelors degree while four had masters degree information sciences. The study therefore revealed that the knowledge levels have improved compared to the situation in the previous studies.

The findings are nonetheless significant because they demonstrated that the challenge of expertise remains alive as had been raised in previous studies by Wato (2006) Mutiti (2002) and Wamukoya and Kemoni (2001). These revelations were important to the study because they demonstrated the need to enhance intellectual and technical capacity of those responsible for management of electronic records to gain the necessary impetus to drive the MER agenda.

Commenting on the deteriorating quality of university education in Africa, including Kenya, Katuu (2015) warns that “this scenario cannot be expected to produce ARM

graduates who can competently face the challenges of a profession that is globally redefining itself". This would mean the issue of lack of expertise may be more challenging in future with rapid innovations in electronic records and data management, unless deliberate efforts are tuned to bridge the gap. It would also imply from Katuu's remark that the impact of inadequate skills on MER may be more profound at the moment than it was like ten years ago before rapid technological penetration.

In a study to establish student assessment of the Master of Philosophy in Information Sciences (Records and Archives Management) degree at Moi University, Kenya, by Kemoni, Maseh & Mzera (2011), lack of practical perspective in the courses offered was cited as a major weakness of the programme. The findings of the present study confirmed sentiments of the respondents to the Moi University's programme, especially given the fact that some of the RMOs were graduates of the programme and reported limitations in technical know-how on MER.

What these findings mean is that the levels of knowledge, skills and expertise on MER by those responsible for managing electronic records are directly proportional to the status of electronic records in any institution, underscoring the need to develop people capacity to manage electronic records.

6.1.4 Existing Software for Managing Electronic records

The findings of the study identified that implementation of systems for managing electronic records in the ministries was significantly low with only one ministry reporting to have an EDMS in place.

A number of softwares have been developed across the records management industry over the years to aid the management of electronic records. These include electronic records management systems (ERMS), electronic document management systems (EDMS), electronic document and records management systems (EDRMS), document scanning/imaging softwares, content management systems (CMS) and digital repositories (Codafile 2015; New South Wales Government 2012; University of South California 2012; National Archives of Australia 2011; McMullan 2010; Marill & Luczak 2009; Joseph 2008; Semple 2006).

Contrary to Anami (2011) and IRMT (2011b) that the governmet had rolled out IRMS in ministries, the study's findings established that IRMS was not functional in any single ministry. This finding is significant because it raises questions on the design and implementation of the IRMS project given its failure to take off .

In 2011, the then Directorate of e-government had suggested that government ministries, departments and agencies would adopt best practices in records management which shall include, "capturing full and accurate records of web based transactions into a record–keeping system that can guarantee the authenticity, reliability and accessibility of the records" and "maintained for as long as they are required"

(Directorate of e-government 2011). This followed the development of the IRMS by the DPM.

None of the ministries sampled in the study had a functional system to help in capturing and managing web-based records, despite web-based systems that interface with citizens being in existence. Even though DEG was disbanded in 2014, the role of standards remains in existence within the ICTA. But going by the findings, it would appear these requirements on capturing web-based records have not been implemented, underscoring the need for action.

The findings on this aspect were significant to the study because the selection of appropriate software for MER is a fundamental success factor in managing electronic records. Lack of systems in place to manage electronic records would directly translate to lack of effective MER in organisations, as it generally emerged out of the study. With the absence of proper application software to manage electronic records, capturing and preserving electronic records over time would be impossible.

The findings also revealed a glaring gap among ICT officers and RMOs in harnessing best practices guidelines in identifying suitable systems for MER. For instance, the Moreq model and the ICA functional requirements provide rich specifications for systems for managing electronic records. However, none (0%) of the ICT officers or RMOs demonstrate knowledge of these models.

It has been proven from many countries across the world that selection of appropriate software for MER considering all required functional requirements is a critical success

factor in effective management of electronic records (NARA 2005; Moreland 2002; Emery 2007).

6.1.5 Standards and Best Practice

Standards play a significant role in enhancing universality of management of electronic records especially in the highly digital world with increasing global collaborations and information exchange. Standards help information systems exchange data. They provide universal preservation formats that are versatile enhancing spatial and temporal accessibility across technological platforms. They also provide guidelines on requirements for systems for managing electronic records and general guidelines around infrastructure for MER.

The findings revealed that there is no single ministry in Kenya that has adopted any form of standard for MER. Respondents from KNADS, indicated that there were efforts previously to adopt and domesticate ISO 15489 but that did not progress for unclear reasons.

Unlike IRMT (2011b) and Wato (2006) who indicated that there were no standards developed for MER in Kenya, the present study established that several standards on MER exist having been developed by the Kenya Bureau of Standards (KEBS). These were: KS 2229:2010-Electronic records management systems-functional requirements; KS 2374:2012-Electronic records management systems-implementation guide; KS 2391:2013-Electronic signatures – metadata requirements. In addition it emerged that

ICTA had developed a records management standard to aid in management of electronic records. However, neither the KEBS standards nor the ICTA standard had been adopted by any ministry.

The findings also established that government ministries had not adopted any of the international standards on MER. A search on the ISO online catalogue revealed there are no less than 17 different standards on records management. In addition, institutions like the IRMT and ICA have developed various tools to enhance best practices in managing electronic records. Even in the absence of standards, policies or laws, best practices assist in injecting professionalism in practices. Examples of best practices:

- European Union's Model requirements for management of electronic records (Moreq).
- IRMT's Good Practice Indicators for Integrating Records Management Functionality in ICT systems (IRMT 2009b).
- ICA's principles and functional requirements for records in electronic office environments (2008).
- IRMT's e-readiness assessment model (IRMT 2005).
- IRMT's benchmarks for open government and trustworthy records (2013).
- ICA's guidelines and functional requirements for electronic records management systems (ICA 2011).

Even though these best practice indicators are universal and are developed by ICA and IRMT for application across the globe, it was significant to note that no ministry in Kenya

has adopted any of them. In any event other than respondents from KNADS, respondents from the other institutions demonstrated little knowledge of these best practices.

The fact that the standard for MER developed by ICTA was not known by any of the RMOs, raised concerns with regard to stakeholder engagement in implementation of standards in MER. There was no clarity on how ICTA intends to engage stakeholders to accommodate electronic records requirements when developing standards touching on MER.

This state of affairs together with little knowledge on KEBS standards implied that the challenge on standards application in MER in ministries was not unavailability of standards as previous studies had indicated but lack of knowledge of the existing standards in Kenya and lack of collaboration among MER stakeholders in implementing the standards.

These findings have a profound meaning to the present study because they reveal that the need for adoption of standards for MER in Kenya is a key issue. The findings also underscore the need for the proposed model for managing electronic records in supporting e-government to provide alternative best practice approach. They also reveal that need for sensitisation of stakeholders in MER on existing standards and best practices. In addition, the lack of awareness of MER standards reflect the findings on shortage of skill and expertise on electronic records management as elucidated in section 6.1.2.

6.1.6 ICT Infrastructure

ICT infrastructure play an anchor role on success of MER. Because electronic records are automated assets, they are created and managed on ICT platforms, the status of the ICT infrastructure is central to effectiveness of MER. This is why the present study found it necessary to establish from the respondents on how existing ICT infrastructure impacts on MER.

Two issues emerged out of the findings of the study on this theme. Firstly, there is expansive ICT spread across government ministries in Kenya. Secondly, the adequacy of the ICT infrastructure to support MER returned mixed reactions.

ICT officers reported that the nature of ICT infrastructure was adequate to support MER. There were adequate computers, servers and virtually all staff had access to a computer and email address. The challenge seemed to be on the mechanisms of utilizing the ICTs to effectively manage the electronic records and not on the backbone infrastructure. ICT officers' opinions were centred on the argument that ICT infrastructure is generic and can be customized to accommodate various needs. Only in one ministry were records officers working manually because of the manual nature of record keeping processes in place.

On the issue of whether the existing ICT infrastructure effectively supported MER, the RMOs felt they were inadequate while the ICTs felt they are. The general views from RMOs were centred on the argument that ICT systems are procured without records management in mind, and they are not consulted, unlike in other functions in the ministries. One RMO for instance observed that the ministry has only one server, which cannot accommodate large volumes of electronic records.

First, these findings indicated that Kenya has made considerable strides in integration of ICT in government functions, which is a critical ingredient for MER. Lack of ICT infrastructure has previously been cited as a major hindrance to successful MER (Wato 2006; Kemoni, Wamukuya & Kiplang'at 2003). The findings however indicated that the situation has significantly improved.

According to Keakopa (2009),

> in most countries in the developing region solutions to the management of electronic records could take longer as these countries appear to have no or limited information and technology architecture and no serious thought of the electronic recordkeeping aspects.

Contrary to Keokopa's observation, the study established that lack of ICT infrastructure was no longer a major threat in the case of government ministries in Kenya. ICTA staff reported that the government had invested in ICT infrastructure. By laying adequate

infrastructure-hardware and software- as well connectivity, the ground for MER was effectively ready.

The second indication of the findings relate to Keakopa's point "…no serious thought of the electronic recordkeeping aspects". For instance, the government through the IFMIS department defines the e-procurement service as an "automated business process which includes procurement planning, management of suppliers, requisitions, quotations, contracts and receipts will be shifted to a more effective and cost efficient online transaction". This highlights the fact that MER is a central element of the e-procurement service, yet the feedback from the study indicated that this was not factored in during the design of the e-procurement system. It can be projected that given e-procurement is about public procurement, possibilities of litigations arising from this business process are real. The government and judiciary should find the records on the e-procurement system sufficiently reliable to process such litigations.

The findings revealed that the integration of electronic records aspects in ICT infrastructure has not been properly harnessed in ministries, exposing the government to potential risks of non-capture and preservation of critical information.

The RMOs for instance raised concern on lack of collaboration between ICT and RM units in relation to MER. As a result, electronic records aspects are not well captured within the design and development of electronic records systems.

These findings implied that there was a significant assimilation of ICTs in government business operations, however the integration of electronic records elements is lacking. Mutiti (2002) writing on computerization of records and archives management in the Esarbica region observed that “despite the use of information technologies in government administration, very few institutions have initiated programmes for the management of electronic records”. These views are also shared by (Lowry 2013; IRMT 2011b; Mnjama & Wamukoya 2007; Ngulube 2007).

The findings underscored the need for collaborative approach between RM and ICT people when adopting ICTs systems to ensure they procure systems that address electronic records needs, especially because e-data and records are an inherent part of ICT systems. Oliver and Foscarini (2014) advise that “even without a detailed knowledge of IT, it is possible to develop awareness of the overall information architecture and to evaluate policies in the light of their impact on recordkeeping”.

6.2 CURRENT LEVELS OF E-GOVERNMENT UTILIZATION IN GOVERNMENT MINISTRIES

The findings of the study revealed that utilization of e-government in Kenya had grown significantly and more ministries were adopting e-government services than had been the case previously (Mungai 2012; Wachira & Arlikattis 2010; United Nations 2008; Gichoya 2005; Kaaya 2001). At least thirteen institutions were providing one form of e-government service or another. The e-citizen portal was found to be the primary

platform for delivery of Government's e-government services. It had a total of 23 e-government services.

Gauging the levels of e-government maturity against the UN five-stage e-government maturity model (which was the model that formed the theoretical framework of the study), the findings revealed that the e-government had reached the fourth stage (transactional web presence) for some services. There were other e-government services at stage three (interactive web presence), while virtually all government and public entities had gone through stages one (emerging web presence) and stage two (enhanced web presence)

At the interactive web presence, users and service providers are connected to government portals (websites). Interaction became more sophisticated than in the former stage. Services such as search facilities and accessibility of various forms are enhanced. E-government services at Kenya Revenue Authority, Kenya Power, Higher Education Loans Board, passport application and application of public service jobs were at this stage. They provided for enhanced accessibility to information but not complete online transaction since payments capabilities are yet to be integrated.

The transactional web presence stage allows two-way interactions between the citizen and the government; users can conduct complete online transaction including buying and selling activities. Services like application for driving licenses and registrations of business names have reached this level, where interfacing this mobile money transfer services have been implemented to facilitate payment of the services.

The e-citizen portal emerged as a move to progress e-government to the fifth stage of the UN five-stage e-government maturity model of seamless/networked web presence. This is the most sophisticated level of e-government service delivery where all services and functions across all government levels are integrated and citizens can access any kind of services from a central location at any given time (United Nations 2001). This stage is a work-in-progress because not all government services were available on the e-citizen portal. However the model as conceptualized projected an optimistic graduation to stage five of the maturity model.

In their study on challenges to effective e-governance in Kenya Wachira and Arlikattis (2010) state that " e-governance expenditure and efforts are being directed to a small number of citizens as Internet represents only a small portion of the population". However the findings of the present study demonstrate that e-government is directed at the entire population. The nature of services deployed on the e-citizen portal for instance are services utilized by all citizens. While Wachira and Arlikattis (2010) state that Internet users made up of 8.6% of the population, the present study revealed that this was no longer the case since Internet subscriptions in Kenya stood at 68.84% of the population.

With regard to ICT infrastructure for e-government, the present study revealed there were significant efforts by the Government to develop ICT infrastructure to support e-governemnt. Fibre optic cabling and under sea cabling had been installed to improve Internet accessibility and speed. Mobile technologies also improved Internet

connectivity to a large extent. As a result many citizens were involved in e-government than had been reported in previous studies (Wachira & Arlikattis 2010).

The findings on e-government development revealed that the prevailing administrative structure of e-government under ICTA was not as focused as was the case under DEG. Whereas DEG was established to purely own development and implementation of e-government, ICTA appeared to be more focused on development of ICT infrastructure for general government automation. The institutions can then implement e-government-based services within the standards and quality assurance guidelines provided by ICTA.

This state of affairs potents a challenge on development of e-government across government institutions. It implied that different institutions would move at different pace to roll out their services on e-government. This may impair the ability of Government to achieve a unified approach to e-government development in Kenya.

In addition, the findings also confirmed that the UN five stage model as depicted by the Yngstrum and Kowalski (2012), Karokola and Yngstrum (2009) and UN (2001), was a reality and a valid theoretical framework for the present study.

With the seemingly rapid growth of e-government to stage five of the UN model, the findings flag the urgent need for a framework to guide MER within e-government. At stage five of the maturity ladder, involvement on online payments present a need for robust strategies for managing data especially with the financial transactions involved which required stable accountability mechanisms to avoid financial losses.

With regard to e-government policy framework, whereas a previous study by Gichoya (2005), had cited “lack of ICT policies and master plans to guide investment” in ICTs for e-government, the present study revealed the government of Kenya has put in place policy framework for e-government as seen in the National ICT masterplan, the e-government strategy of 2011 and the ICTA legal notice (executive order) of 2013.

The findings also demonstrated Government’s commitment to e-government through investment in ICTs and training of ICT officers. There was revealed a high sense of innovativeness across Government with regard to development of e-government services going by the number of quality of services provided. These findings were in contrast to assertions by Mungai (2012) in his study that there was shortage of highly trained ICT professionals and low innovativeness with regard to e-government.

These findings were significant because they revealed that utilization of e-government in delivery of government services in Kenya was on a gradual growth path underscoring the need for robust information management capabilities to support e-government.

6.3 EFFECTIVENESS OF EXISTING PRACTICES FOR MANAGING ELECTRONIC RECORDS IN SUPPORT OF E-GOVERNMENT

Broadly, the findings of the study revealed three key issues: first there were several e-government systems in place. Second, there was some management of electronic records practiced across government ministries. Thirdly and fundamental to the study,

there was no integration of MER within the design and implementation of e-government systems.

The study generally established that there was virtually no working relationship between MER and e-government. All respondents to the study reported that existing practices to management of electronic records were not supportive to e-government. In order to establish the impact of MER to e-government, the study viewed the status from two perspectives: integration of MER in e-government design and integration of e-government in design for MER.

6.3.1 Integration of Management of Electronic records in E-government Systems' Design

The study revealed that MER was not a central focus for e-government systems. The design and configuration of e-government systems gave little consideration to the MER component, beyond the ordinary management of data within the e-government databases.

All respondents from ICTA reported that management of electronic records was not a priority even thought it was an essential element of data management in support of e-government that would later be addressed under the shared data component of e-government delivery framework. One respondent from ICTA indicated that MER was "not a priority of e-government" because MER is considered a backend process for

internal efficiency than service delivery. One other respondent also indicated that there has “never been a strategic view of MER” and RM in general in the context of e-government.

It is generally agreed within the records management practice that MER is a critical success factor for e-government (Komba & Ngulube 2011; An 2011; An 2009; Harries 2008; Kunis, Runger & Schwinu 2007). This implies that the design of systems for e-government delivery should put into consideration management of electronic records that would provide information needed to support e-government. An (2009) reports that “studies show that better electronic records management are foundations to good governance and good performance, as essential part of e-government services”. This is the reason why countries that are advanced in e-government like the United Kingdom, USA, Australia, Malaysia and New Zealand have given focus to MER as a critical success factor for e-government (Saman 2011; Yusof 2011; An 2009).

In underscoring the value of electronic records management to e-government, An, Sun & Zhang (2011) observe that “research has shown that good electronic records management (ERM) strengthens e-government services by supporting business continuity, security and risk management, legal compliance and accountability, evidence-based decision making and transparency”. These sentiments have also been shared by other authors like Bwalya and Mutula (2015), Komba and Ngulube (2011), Kemoni (2009), Kulcu (2009), Bustelo and Garcia-Morales (2008), Mnjama and Wamukoya (2007) and Ngulube (2007).

The findings revealed that this is not the case in government ministries in Kenya. It emerged from the present study that there were more e-government systems operating in government than there are systems for managing electronic records. The e-citizen portal alone has 23 services (see table 2.1) which generate web-based electronic records. This excludes services held in other government agencies like KRA, Kenya Power and HELB. On the flip side, there is no EDRMS dedicated to management of web-based electronic records.

Just as MER is viewed as a success factor to e-government, the lack of it therefore becomes a major challenge in achieving effective e-government, primarily because of the limitations it imposes on access to information required to drive e-government (Carter & Weerakkody 2008; Dimitrova & Chen 2006; Carter & Belanger 2005; Chircu & Lee 2005). This reality can be deduced from the prevailing state of e-government in the government ministries as discussed in section 6.2. It was clear from the findings that there are no dedicated professional electronic records management mechanisms in place for managing the volumes of electronic records generated across existing e-government platforms.

Respondents on e-procurement reported to be planning to procure an EDMS to help in managing the electronic records generated on the e-procurement platform. This implied that MER was not a priority when designing the e-procurement system, yet the system receives volumes of records from thousands of suppliers across the country who upload

their documents online. The situation at the time of the study remained the same as was in 2011 when IRMT reported that management of electronic records did not feature as a key component of e-government (IRMT 2011a). This is implied that little has been done over the years to position MER as an essential component of e-government.

This situation is however not unique to Kenya. The findings confirmed what had been captured by several authors on this subject in other countries in sub-Saharan Africa and the Esarbica region (Bwalya & Healy 2010; Kamatula 2010; Nengomasha 2009).

Discussing on the case in Southern Africa, Nengomasha (2013) observed that most electronic information systems "generate transactional records that are not captured and maintained in record-keeping systems, which compromises the creation and preservation of reliable and authentic records for evidence, accountability and transparency".

Overall the findings of the study build a case for dedicated commitments towards integrating MER into the design and implementation of e-government systems.

6.3.2 Integration of E-government in Electronic records Systems Design

Whereas the findings revealed that e-government designers seldom consider electronic records management, they also revealed that implementers of ERM systems do not factor e-government as a central deliverable of electronic records management initiatives. Initiatives to improve MER were more focused to improvement of internal processes with little focus to e-government.

All RMOs and ICT officers indicated that e-government has not been a consideration in automation of RM processes. Even the design of the dysfunctional IRMS system, did not capture requirements for e-government.

As reported in section 6.1.4, there were no systems in place for capturing electronic records generated on online platforms. For instance, an RMO who reported to have Case 360 EDMS in place, reported that this is only used to handle digital archives but not management of born digital records. This implies that electronic records management activities were in disconnect with the pressing need for improved service delivery through digital capabilities.

The relationship between e-government and electronic records management should be a complimentary one where both services work in unison to achieve the common objective of efficient and effective quality service to citizens through robust information and data management.

The National Archives of UK (2001) flags out the significance of managing electronic records in an e-government environment by

> "integrating ERM facilities and procedures into new e-government systems and business processes as these are developed and implemented, and by ensuring that electronic records are captured and made available for effective

management in controlled records management systems as these become operational".

It was evident from the findings that systems for managing electronic records (where they existed) were concerned with ministries' internal operational efficiencies with little focus on e-government. Whereas the interests for operational efficiencies are justified, the interests should be for the good of delivery of public service of which e-government is an important channel. This state of affairs indicated that there are inadequate practices in place for managing electronic records to support e-government. The findings reflected what had been observed earlier by previous studies on MER and e-government in Kenya and Sub-Saharan Africa (IRMT 2011b).

6.4 CHALLENGES IN MANAGEMENT OF ELECTRONIC RECORDS THAT IMPACT ON IMPLEMENTATION OF E-GOVERNMENT

A number of challenges were raised by respondents with regard to effectiveness of MER in ministries in supporting e-government. These included inadequate skills and expertise, weak MER infrastructure, absence of robust policy and regulatory framework, absence of standards and best practices, duplication of electronic records and data, unpreparedness by some ministries for electronic records management, funding constraints, lack of top management support, weak design of both MER and e-government systems, absence of systems for managing electronic records, failure by the IRMS, proliferation of mobile transactions and data, long term preservation,

technological obsolescence, challenges of interoperability across systems and change management challenges.

These challenges reflect what has been cited across the world as limitations to effective MER in e-government environments (An 2011; An 2009; Bustelo 2008; Chen 2008; Hussin, Satirah & Ahmad 2008; NASCIO 2007).

The present study categorized the challenges cited as technical challenges and soft challenges. Soft challenges would refer to people issues like lack of skills and expertise, top management support, change management and funding.

Technical challenges in the context of the study referred to those relating to the design and operability of electronic records and e-government systems. The study paid a lot of attention to these challenges because they speak to the heart of the study on the practical operationalization of MER practices. These include: absence of shared data capabilities, absence of systems for managing electronic records, proliferation of mobile data, interoperability between government data warehouses, electronic records standards, policy and regulatory frameworks.

The challenges of standards, policies and other regulatory frameworks including legislative anchors have been discussed in section 6.1.2. The impacts of these to MER and best practices around it have also been discussed by several authors on the subject (Muchaonyerwa & Khayundi 2014; Okello-obura 2011; Ngoepe, Mokoena &

Ngulube 2010; Nengomasha 2009; Kyobe, Molai & Salie 2009; Keakopa 2007). The study does not therefore wish to recap the same at this stage, but focus on the other technical challenges relating to practical implementation of MER systems.

6.4.1 Absence of Shared Data Capabilities

The issue of absence of shared data capabilities was raised by respondents from ICTA and e-government service areas. A major concern raised was massive duplication of data across government ministries leading to wastage of resources. From an electronic records viewpoint, duplication of data does only result to wastage of database storage but also compromises the data integrity.

For instance, one respondent from ICTA reported that data in government is predominantly on four aspects namely: persons; land and infrastructure; assets; and institutions. If this data is captured in one central data base, the rest of public institutions can then pull and share from the central database. Yet the obtaining situation was such that every institution creates its own version of the same data. Shared data is one of planned deliverables of ICTA to facilitate e-government and was considered a driver of efficient government. However from the findings, it was reported that it is yet to be implemented.

One other respondent from an e-government service observed that lack of shared data makes it difficult for the service to validate biodata provided by citizens to determine

whether they are genuine or not. This exposes the service to risks of forgery, with a potential for loss of funds.

6.4.2 Absence of Electronic Records Management Systems

Effective systems for managing electronic records are the backbone of professional MER (Fenton 2014; Johnson & Bowen 2005). There are various types of systems used to manage different categories of electronic records. These include EDRMS, EDMS, ERMS, CMS and digital repositories amongst others as discussed in section 3.4.5.

The findings revealed that only the ministry of lands had actively implemented an electronic document and records management system for supporting online registration services. The other EDMS reported were from a parastatal (HELB) and Kenya Power (a public listed company with government majority shareholding).

This would explain why the ministries are unable to manage web-generated records and other born-digital records like emails. The National Archives and Records Service of South Africa (2006) advises that

> "only the use of an effective Integrated Document and Records Management System will ensure that authentic and reliable evidence of transactions that take place via the gateway would be able to be captured and maintained".

The National Archives of UK (2001) states that there are two categories of systems for managing electronic records:

- “electronic records and document management systems, that provide a secure environment for maintaining records that are generated by office systems and common desktop programmes – effectively all single digital objects, including word processing documents, e-mail messages, spreadsheets, presentations, graphic and scanned images, desktop published documents, static web pages, and so on”.
- “structured data systems which hold transactional records, or website/Intranet databases which construct dynamic HTML/XML pages”

Structured data systems were available as evidenced by ICT officers and heads of e-government service areas. The systems that received online data uploaded by citizens like job applications at the Public Service Commission, loan applications at HELB, electricity applications at Kenya Power and the various services on the e-citizen portal.

However, the challenges within these systems arise from issues authenticity, reliability, integrity, standard metadata and audit trail. This is because there are no mechanisms of capturing this data into an electronic records management pipeline to subject them to tests of validity and integrity. This exposes the ministries to the risk of making critical decisions, including financial decisions, based on inaccurate data.

There is therefore a close correlation between the absence of integrated records and document management systems and the inadequate MER across the ministries. It was established that the IRMS that was developed to support records management in 2011 is no longer functional in any of the ministries. This was attributed to weaknesses in the design of the system and change management issues during its roll-out.

The situation on IRMS was particularly of interest to the study because it was the first government-wide initiative towards a consolidated and harmonized approach to MER. Its dysfunctional presented key lessons for the study with regard to development of systems for MER. It revealed the importance of adopting standards, like ICA's functional requirements for electronic records management systems, when design systems for managing electronic records.

The challenges notwithstanding, the findings indicated that there was however in increasing focus on adoption of systems for managing electronic records across government ministries, looking at the number of the ministries that were in the process of procuring electronic document and records management systems.

6.4.3 Weak Design of E-government and Electronic records Systems

The study established that existing e-government systems have not integrated electronic records management functionalities, impairing the management of the electronic records generated on these platforms. The e-procurement systems for instance, which is the predorminant e-government system across all ministries was

found not to have the electronic records management component. As a result suppliers have to upload the document and still submit the hardcopies for action which are then used to make necessary decisions. Mechanisms for establishing authenticity of the uploaded documents did not exist. Strategies for long-term preservation as well as standards for metadata and naming conventions for documents did not also exist. This scenario posed a challenge which had necessitated the need to procure an EDRMS to support the e-procurement service. This situation also obtained at the HELB with regard to the system used for loan applications.

In the absence of integration of electronic records component in e-government, it becomes difficult to manage the electronic records generated on the e-government platforms. This denies the government and e-government users the full benefits of e-government. The risks of running parallel systems for electronic records and paper records become real as was revealed at HELB and e-procurement.

Similarly the case of IRMS and Case 360 EDMS revealed weakness in the design of electronic records systems. The failure of electronic records systems to accommodate requirements for e-government poses challenges especially on interfacing of electronic records systems and e-government systems. The IRMS was not initially designed to interface with e-government systems. It could therefore not pull web-based records from e-government platforms. The Case360 EDMS in one of the ministries on the other hand was reported to only manage digitized records, but not web-based records created on e-government platforms.

These kind of challenges make electronic records systems emerge as unreliable and unsupportive to e-government service delivery hence undermine the business case for investing in them.

6.4.5 Implementation of Systems

The findings established that ICTA placed significant value on implementation of systems that were interoperable with others to enable sharing of common data across government. All systems that would provide e-government services needed to be integrated with the IPRS which holds population biodata. As a result other systems do not need to capture primary data (birth, citizenship and death details) and secondary data (NSSF, NHIF and KRA registration), but to pull the data from the IPRS.

The challenge raised during the study centred on software interoperability with regard to sharing of biodata of citizens to avoid duplication. For instance, a respondent from HELB expressed concern over inability to validate and establish genuiness of data supplied by students when applying for loans because there is no mechanisms in place to validate the data with the citizens database to determine whether applicants are genuine or not. As a result, they still have to receive hardcopies of application forms that have been signed / approved by government administrators or religious leaders as a basis to prove authenticity. The result of this has been replication of e-data in hard copy formats ending up with both electronic records and corresponding manual surrogates. In this case, the manual records provide the most reliable copy for ultimate

approval/disapproval of loan applications. Even though the processing of the applications can proceed based on the electronic copy, the final decision will require verification of the data against the hardcopies.

Implementing capabilities for system interoperability, where systems interface with each other, improves relative value of electronic records through validation of data, enhancement of security and optimization of resources (Riisma 2011). In structured databases, this can be implemented with relative ease through interfacing of the databases so that standard data can be read by all systems from a single database. This was part of the reason for the Government implementing the IPRS (The Presidency Kenya 2015; Mukinda 2015; The Star 2015).

Interfacing of systems that handle e-data would be helpful to enforce data integrity across e-government platforms and eliminate cases of fraud as well as improve electronic records resource optimization.

6.4.6 Challenge of Long-Term Preservation

The preservation of electronic records for the long term has been acknowledged as a significant challenge especially in view of technological obsolescence (National Archives of Australia 2015; New York State Archives 2011). Preservation of records guarantees availability and accessibility of records. It should also ensure that authenticity of records and their integrity is retained over the period of preservation to be able to provide the required evidence the records were created to capture.

The study revealed that strategies for long-term preservation of electronic records to guarantee their accessibility and authenticity over time, were non-existent in most ministries sampled. Only the Ministry of Lands confirmed deliberate focus to preservation of electronic records through use of “open formats” and digital archiving module on the Case 360 EDMS in place.

It emerged that most of the ministries who have electronic records only created backups as a disaster management strategy. However, the preservation of the records to enable accessibility across different hardware and software was not in place. Only one RMO (8%) reported that mechanisms for migration have been implemented for digital archives that are scanned and held in an EDMS. These confirmed views that have been expressed by authors like Muchaonyerwa and Khayundi (2014), Kalusopa and Ngulube (2012), Marutha and Ngulube (2012). Ohio State University (2011), IRMT (2009a) and Lin, Ramaiah and Wal (2003).

6.5 CHAPTER SUMMARY

This chapter has interpreted the findings of the study. It has attempted to link the findings of the study to existing literature and extract the implications of the findings. It has focused on the state of MER in government ministries, e-government utilization and the impact of MER practices to e-government delivery in Kenya and corresponding challenges.

The findings as interpreted and elucidated in this chapter have underscored the need for a framework to tie the loose ends and fill the existing gap between MER and e-government to achieve a complementary relationship to deliver sustainable and quality e-government service. Arising from these interpretations, the subsequent chapter (chapter seven) discusses the conclusions and recommendations of the study.

CHAPTER SEVEN

SUMMARY OF RESEARCH FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

7.0 INTRODUCTION

This chapter presents a summary of research findings, conclusion and recommendations to improve management of electronic records in support of e-government. A framework for management of electronic records in support of e-government is also provided.

7.1 SUMMARY OF FINDINGS

The summary of findings is presented according to the research questions.

7.1.1 How are electronic records currently managed within government ministries in Kenya?

This section presents a summary of findings in relation to the current state of MER in government ministries in Kenya.

7.1.1.1 Electronic records created/generated in ministries

- The study revealed that electronic records are a reality in government ministries in Kenya. There was evidence of rapid generation of electronic records occasioned by extensive assimilation of ICTs in government.

- The findings showed that the electronic records created/generated in government ministries are predominantly transactional records relating to various business transactions within government.

- The findings also revealed that the electronic records that exist in government included born digital records and digitized records arising from format conversion of manual records into digital formats through scanning.

- Born digital records included such records like structured data in databases, web-based records arising from various ministries' websites, email records and records arising from business application softwares and other application softwares like Microsoft office suite programs.

- Whereas some records are generated internally within the ministries, there exists considerable volumes of electronic records received from citizens through emails, web-sites and other online-based systems including e-government systems.

- Email records emerged as a critical constituent of the electronic records body within the ministries. Virtually all government officers have emails and these result to massive email records generated on both official and personal email addresses. All ministries were found to have official e-mail addresses domiciled at the official government email domain (.gov). Email formed a major mode of communication in government, both internally and externally.

7.1.1.2 Standards and Best Practices for Managing Electronic records

- It was established that the Kenya Beureu of Standards (KEBS) - KS 2229:2010- Electronic records management systems-functional requirements; KS 2374:2012 - Electronic records management systems-implementation guide; KS 2391:2013- electronic signatures – metadata requirements - had developed three standards on management of electronic records.

- It was also established that ICTA had developed an electronic records management standard in partnership with KEBS to support management of electronic records.

- However, none of the standards was in application in the ministries in the management of electronic records.

- The study also established that no ministry had adopted any of the international standards on management of electronic records.

- The KNADS had not adopted any international standard on management of electronic records.

7.1.1.3 Human Capital for Managing Electronic records

- The findings revealed that each ministry had records management units lead by Records Management Officers (RMOs) to support the function of managing records.

- A scheme of service for records management roles had been developed in Government and work was in progress to fill the vacant positions to ensure a strategic focus on management of records.

- The function of records management, including MER, had been positioned under the Ministry of Sports, Culture and the Arts.

- The capacity of ICT officers to provide the required support on the ICT infrastructural front was found to be adequate.

- The training levels, professional and technical, of records officers on MER were established to be considerably low.

- There was limited training of ICT officers on management of electronic records, a factor that undermined development and implementation of electronic records systems.

- Whereas the ICT officers were sufficiently trained on ICT, they were inadequately trained in MER yet they were responsible for development and implementation of all automation projects in ministries, including electronic records systems.

7.1.1.4 Challenges facing Management of Electronic records

Staff involve in the management of electronic records faced challenges, namely:

- Inadequate policy and regulatory framework to guide MER.
- Absence of a strategic view of management of electronic records within government.

- Inadequate skills and expertise for MER among ICT and RM officers on management of electronic records.
- Selection of wrong systems for MER that are unable to address full scope of principles and functional requirements for managing electronic records.
- Absence of electronic records management systems that would help in capture, management and preservation of records within the continuum.
- Duplication of electronic records due to lack of shared data systems.
- Absence of standards and best practices to guide MER resulting to disjointed and mixed approaches to management of electronic records.
- Inadequate budgetary support to implement electronic records infrastructure.
- Proliferation of mobile data, including mobile payment systems that pose new challenges to capture and preservation of mobile-based records.
- Inability of the Kenya National Archives to provide quality assurance and professional guidance on MER for government ministries.

7.1.2 What is the extent of e-government utilisation in government ministries in Kenya?

This section presents a summary of findings on the utilization of e-government in Kenya.

7.1.2.1 E-government Penetration and Maturity

- The e-citizen portal was the central point for access to e-government services by citizens. The portal hosted 23 e-government services from various government agencies.
- The IFMIS e-procurement e-government service was the other predorminant e-government service implemented in all ministries but which was not hosted on the e-citizen portal.
- The study also revealed that the Kenyan Government through ICTA had focused on high impact services as the first line of e-government. These are services that are utilized by many Kenyans like the civil registration services, taxation services, education, public service job applications, driving license application and land search services.
- Other e-government services were either under parastatals (e.g. HELB and Kenya Power), directorates (like Department of Immigration) and other government agencies, (like registrar of companies, registrar of marriages and National Transport and Safety Authority).
- Other than the Ministries of Lands which had established an e-government service for searching of land registries by citizens, the other ministries did not have additional e-government services in place.
- The levels of e-government maturity varied across the ministries.

- The findings established that the highest stage across the five-stage ladder realised was stage four, transactional web presence. A few e-government services were at this stage. This stage allows two-way interactions between the citizen and the government where users can conduct complete on-line transaction including buying and selling activities.

- Further, all ministries had enhanced web presence benchmarked against the UN's e-government maturity model.

- The study established that the National Treasury through the IFMIS/e-procurement and Ministry of Lands, Housing and Urban Development through the Land Search service on e-citizen portal had achieved transactional web presence maturity level in their e-government with their interactive e-government services. These service were administered directly under the ministries.

- It emerged from the findings that the fifth stage of the five-stage maturity mode, the seamless/networked web presence, has not been achieved by any ministry.

7.1.2.2 Structure for E-government Delivery in Kenya

- The study revealed that there is a strategic focus on e-government delivery in Kenya. E-government delivery was administered by the ICTA and fell under the Shared Services Directorate.

- It also emerged that individual parastatal institutions, which are semi-autonomous public entities were implementing their own e-government services

some of which like the NTSA were available on the e-citizen portal. Other parastatals like Kenya Power and HELB provided distinct access to their e-government services.

7.1.2.4 Challenges Facing E-government

A number of challenges were cited that undermine successful implementation of e-government in Kenya:

- Weak policy framework for e-government implementation, which was however under development by the ICTA.
- Inadequate ICT infrastructure across public institutions. This included especially hardware like Internet connectivity and servers to support effective transmission and storage of information.
- “Over-centralization” of e-government services which impairs system administration efficiency.
- Inadequate collaboration among all e-government stakeholders to ensure implementation of systems that address wide stakeholder interests.
- Inadequate standards and best practice indicators for implementation of e-government infrastructure.
- The emergence of mobile transactions including mobile data and mobile money services poses unique challenge to e-government design shifting the thinking from the conventional Internet-based services to accommodate mobile-based services.

7.1.3 Is there a policy framework integrating management of electronic records in the e-government?

- The study established that there had been initiatives my the Ministry of Public Service through the DPM to develop a policy framework for managing electronic records in 2011 through the strategy for improvement of records management in the public service..

- The findings revealed that there was inadequate policy and regulatory framework to support general management of electronic records across government.

- No ministry had a functioning policy to guide management of electronic records. The strategy for improvement of records management in the public service of 2011 and the records management procedures manual for the public service of May 2010 were found not to sufficiently cover the requirements for management of electronic records.

- There was inadequate legislative framework in place to aid management of electronic records. The Kenya National Archives Act (cap.19) was inadequate for management for electronic records. The Kenya Communications (amendment) Act of 2008 recognises electronic records but did not provide any specific guidelines on how to achieve effective management of the electronic records.

7.1.4 What systems have been implemented in government ministries to manage electronic records?

- One ministry had implemented an EDMS software (Case 360) to manage electronic records.
- One other ministry had an EDMS implemented in a parastatal under the ministry.
- Four ministries were in the process of acquiring EDMS softwares to support management of electronic records.
- Thirteen ministries did not have a system in place to support management of electronic records.
- The study also established that the Integrated Records Management System (IRMS) that was developed by the Ministry of state for Public Service in 2010 was dysfunctional in all ministries. This was blamed on the design of the system as well as change management challenges in its implementation.

7.1.5 Are the existing practices for managing electronic records adequately support e-government services?

This section presents a summary of findings with regard to how electronic records are management in the context of e-government and whether existing practices for managing electronic records adequately support or undermine e-government.

7.1.5.1 Integration of Management of Electronic records in E-government Design

- The study established that electronic records are received on the e-government platforms from citizens. Citizens also search the e-government platforms and pull data to respond to their needs.

- An electronic records managements standard had been developed by ICTA to guide the integration of MER in e-government.

- The existing e-government systems were supported by various application softwares. Backend work is done to update data on the systems to be able to provide required information to citizens when sought. These e-government platforms ran on structured databases designed on tools like Oracle or SQL. They had capabilities to receive structured data through templates and forms and also upload digitised documents like national identity cards, route maps and photos.

- There was no e-government system that was interfaced with an EDRMS to help in management of the uploaded documents. As a result, storage and preservation of these records were weak. In one case for instance, the study found out that the uploaded documents are deleted after one year to create room for new documents. Whether this one year period was within the legal retention period was not clear from the respondents.

- Strategies for long-term preservation of the electronic records generated on the e-government platforms were not in place. Similarly measures for compliance to legislative requirements around retention and preservation of information were not documented.

- The findings also revealed that there were no existing partnerships between ICTA and other agencies involved in records management in Kenya like the

Kenya National Archives and the Kenya Bureau of Standards on professional and technical developments on electronic records for e-government.

7.1.5.2 Integration of E-government Requirements in Electronic records Systems

- The study established that e-government was not considered a factor in the design of systems for managing electronic records.

- Systems for managing electronic records were focused on internal RM processes rather than enhancing government service delivery as contemplated by the e-government spirit.

- Even though there was general concensus on value of records management in delivering quality services to citizens, the systems put in place for managing electronic records, where they existed, including attempts to define electronic records strategic focus in the RM Strategy of 2011 and RM Procedures manual of 2010 did not quite capture that succinctly.

- The findings further revealed little collaboration between ICT officers who implement e-government systems and records management officers within the sampled ministries.

- The study further found out that there were low professional and technical skills levels on integration of MER and e-government.

7.1.6 What challenges do government ministries face in implementing systems for managing electronic records especially in the context of e-government?

The present study established a number of challenges in the MER that undermined e-government namely:

- Weak interoperability between e-government and electronic records systems was a major challenge that impacted significantly on the technical orientation of both e-government and electronic records systems.
- Absence of strategic view on MER within the eyes of e-government resulting to non-integration of MER in e-government development.
- Low skill levels on technical design, implementation, configuration and management of electronic records systems among ICT officers and RMOs.
- Inadequate model for long-term preservation of electronic records within the e-government environment.
- The focus by electronic records stakeholders on improving internal efficiencies as an end in themselves as opposed to enhancing quality service delivery to citizens.
- Technical challenges on enhancing integrity and authenticity of electronic records on e-government platforms.
- Proliferation of mobile data, which results to conducting of official transactions on mobile phones.
- Non-standardization of softwares for management of electronic records, as well as e-government.

- Dysfunctional manual record keeping systems make it cumbersome to capture legacy evidence into e-government systems to facilitate continuity and evidence trail.
- Financial constraints to facilitate sourcing of superior technologies to manage electronic records in government. Budgetary allocations to records management activities were found to be significantly low, in some cases non-existent.
- Weak legislative framework in Kenya on electronic records that would provide impetus and legislative anchoring of electronic records within the e-government environment.
- Non-integration of electronic records management within ordinary business processes (besides e-government specific platforms).

7.2 CONCLUSIONS

This section presents the conclusions of the study in view of the findings and the interpretations thereof. According to Shuttleworth (2009), conclusions involve “summing up the paper and giving a very brief description of the results, although you should not go into too much detail about this” and that the conclusions “merely act as aid to memory” because anyone who reads a conclusion has essentially “read the entire” research report. The objective of the conclusions was to reflect on the findings of the study and indicate their implications, which lead to the drawing of recommendations of the study.

7.2.1 Conclusion on State of Management of Electronic records in Ministries

The findings revealed that electronic records constitute a significant proportion of government information. The findings also revealed that these records exist in various forms including but not limited to digitized records, structured data in business applications' databases, email records and other born digital records arising from various desktop applications.

The study further revealed that there were initiatives to improve policy framework for management of electronic records as well as acquisition of softwares to aid management of electronic records.

However, the existing practices for managing the electronic records were found to be significantly inadequate to warrant professional management of the electronic records within the principles of records management. It is this professional management of records that would set a baseline for MER in the e-government context. Policy frameworks were lacking, ICT infrastructure (both hardware and software) were inadequate, skill and expertise levels were predominantly of lower levels, legislative frameworks were non-impactful, standards and best practices were not adopted as well as absence of a strategic view on management of electronic records.

An outstanding observation was absence of specifications for requirements for MER across government entities and even within business applications that could provide standard guidelines for MER.

It can therefore be concluded from the findings that despite the prevalence of electronic records across government entities in Kenya, strategies and approaches to manage the electronic records are evidently inadequate. Further, management of electronic records across the government institutions exposed the government to substantial risks including transactional and compliance risks with regard to information management and service delivery.

The findings also established that the country experienced challenges in management of electronic records similar to those raised in previous studies in the region (Mnjama & Wamukoya 2007; Wamukoya & Mutula 2005a,b; Wamukoya & Kemoni 2001; Wato 2002; Mutiti 2001, 2002).

It can be concluded that the measures taken were not adequate to enhance management of electronic records necessitating need for interventions to leverage the state of MER in Kenya.

7.2.2 Conclusion on Utilisation of E-government in Ministries

The findings revealed that all ministries sampled were running websites, with majority having interactive web presence. Several other institutions have adopted transactional web presence that permit two-way interactions with citizens (or stakeholders) allowing for execution of complete transactions including payment capabilities.

The set-up of an e-citizen portal to provide a central one-stop gateway to government services demonstrated a move to achieving seamless/networked web presence Even though all government services are yet to be deployed on the e-citizen portal, the portal demonstrated commitment towards harnessing e-government for delivery of government services.

Findings also showed that the placement of e-government under ICTA's shared services lowered the visibility of e-government compared to the time when DEG was in existence. ICTA is responsible for overall ICTs integration in government which includes e-government and non e-government elements. Whereas the consolidation of all government automation initiatives under ICTA was a noble idea, the risk of loosing close control/focus on e-government as was the case under DEG was evidently real. Other ICT services, like infrastructural development may override development of e-government.

It is therefore the conclusion of the present study that the level of e-government penetration in Kenya is significant and ripe for enhanced delivery of e-based services. The study also confirmed that Kenya has a deliberate commitment towards harnessing e-government. It was the view of the study that the prevailing status of e-government penetration in Kenya provides ample grounds for enhanced delivery of government services electronically.

7.2.3 Conclusion on Management of Electronic records in Support of E-government

The study established that management of electronic records is a key driver to e-government efficiency in the ministries. Discussions with respondents revealed that stakeholders in e-government and records management acknowledge the value of MER in e-government.

However, the integration of MER in e-government at both strategic and technical fronts was lacking. Similarly, consideration of e-government requirements in MER initiatives was also lacking. Standards and best practice models were lacking to guide the delivery of MER services within e-government.

The lack of strategic focus on MER and non-existence of robust systems for managing electronic records across public institutions emerged as a significant impediment to e-government. The absence of capabilities for MER implied that e-government stakeholders had virtually nothing to consult with regard to MER, compelling them to chart their own paths without the input of electronic records experts. This was evidently possible given the low skill levels among records management officers that impair their articulation of electronic records issues.

It was the view of the present study that developments in e-government were progressing at a much faster rate compared to developments in MER. For MER to offer credible support to e-government there was need for initiatives in MER to be expedited to match the pace of e-government development especially given the fact that both depend on the ICT infrastructure.

It also emerged from the findings that implementers of e-government were focused on only the management of structured data generated on the e-government platforms but not on the full spectrum of electronic records, including digitized documents, email records and other desktop generated born-digital records.

It was therefore the conclusion of the study that even though MER was acknowledged across the ministries as being central to success of e-government, there have been little efforts to align MER to e-government in Kenya. It emerged from the findings that records management practitioners in Kenya have done little to anchor electronic records within the e-government big picture.

The findings also led to the conclusion that there was limited knowhow of the approaches and strategies to integrate MER into e-government and vice versa by both e-government and electronic records stakeholders. The impact of weak electronic records systems to long-term success of e-government was not appreciated among the e-government and electronic records stakeholders.

7.2.3 Overall Conclusion on the Research Problem

The purpose of the study was to investigate how the management of electronic records in Kenya facilitate or undermine implementation of e-government.

The overall conclusion about the research problem is that although MER was acknowledged as an essential driver of e-government, the integration of MER and e-government was inadequate, which would undermine the success of e-government.

7.3 RECOMMENDATIONS

This section presents recommendations of the study that if adopted would enhance management of electronic records to ensure it adequately supports e-government.

7.3.1 Recommendations on Management of Electronic records

This section provides recommendations that would help improve general management of electronic records.

7.3.1.1 Capture of Electronic records

The study revealed that the capture of electronic records into electronic records management systems across Government was inadequate which impaired comprehensive capture and recording of records and data to support e-government. It therefore recommended that:

- All ministries through RMOs and ICT implement systems for managing electronic records that would enable capture of all electronic records generated in the institutions.

- The ICTA develop policies and procedures to ensure that all electronic records arising from official transactions are captured.
- The ICTA in conjunction with records management officers and ICT officers develop standards for metadata to harmonise capture and storage of electronic records in government systems.
- The Kenya National Archives and Documentation Service (KNADS) initiate review of legislative framework to compel the capture of electronic records arising from official business transaction within government institutions.
- The ICTA and ICT officers implement email archiving systems to provide for capturing and preservation of email records to avoid the loss of email records.
- The ICTA and ICT officers enforce a standard email application across the public institutions to eliminate the use of personal email addresses for transaction of official business making it difficult to capture email records on personal email inboxes.
- The Ministry of Sports, Culture and the Arts which is responsible for RM Directorate in the civil service administers the IRMS system in conjunction with ICTA reactivates the IRMS and implement it across the government entities to achieve harmonized capture and management of electronic records across government and public institutions.
- The ICTA and ICT officers develop standards for interfacing business application systems, including e-government systems, with e-documents/records systems to facilitate capture of the records generated on these systems into proper records management systems.

- The RMOs and KNADS develop retention guidelines for all series of electronic records generated across government entities to eliminate premature deletion of electronic records to create room for storage space regardless on their activity status.
- KNADs implements a robust digital archiving system that can harmonise digital archiving across government institutions. KNADS should also provide guidelines for capturing of digital archival records into the digital archival repository. KNADS can learn from countries like South Africa, Singapore, Australia, UK and US on implementation of large-scale digital archiving capabilities.
- ICTA should provide a framework for managing email records within government including information sharing policies that includes email usage. Robust systems for capturing emails into electronic records keeping systems need to be implemented, beyond just consolidation of email domains into one as was established during the study. ICTA could study email archiving systems like Mailstore, GFI Archiver and Barracuda, as well as experiences from other countries like the US on how such capabilities can be implemented.

7.3.1.2 Policy and Regulatory Framework for Managing Electronic records

The study established that existing policy and regulatory framework for management of electronic records was weak and incapable of providing the necessary push for comprehensive MER. It is therefore recommended that:

- KNADS takes the lead role in developing comprehensive policy, programme and procedures for harmonized management of electronic records across government institutions. This policy should cover such issues as: framework for integrating electronic records in e-government, requirements for systems for managing electronic records, long-term preservation of electronic records, common data to be shared across government, ICT infrastructure requirements for MER, partnership between ICTA and records management professionals as well as email management.

- The ICTA, Ministry of sports, Culture and the Arts and the ministry of ICT champion the development of wholistic legislative framework that would provide controls on capture, management and preservation of electronic records. This would include a review of existing legislations touching on electronic records for alignment and enhance effectiveness.

7.3.1.3 Design of Electronic records Systems in Support of E-government

The findings of the study revealed that e-government requirements are not considered in the design and implementation of electronic records systems. It is therefore recommended that:

- KNADS, in collaboration with ICTA and the Ministry of Culture, Arts and Sports develop specification and functional requirements for electronic records management systems within the Kenyan context to ensure that all software

acquired for managing electronic records capture the requirements for e-government, including capability to interface with the e-government platforms for push and pull of data. The Moreq model would provide a good reference point for defining these specifications to ensure standardised capacbilities for systems acquired for management of electronic records in support of e-government.

- The ICTA and KNADS should champion adoption of standardised EDRMSs across government that have functionalities for interfacing with e-government systems. Convergence points for e-government and electronic records systems should be defined by KNADS and ICTA to facilitate exchange of information and a uniform metadata nomenclature across the government entities. This will ensure that exchange of data and records across e-government and electronic records systems is not impaired by technical incompatibilities.

7.3.1.4 Skills and Expertise for Management of Electronic records

The findings also revealed that the levels of skills and expertise for management of electronic records were significantly low among records managers and ICT officers. This impedes the ability of the officers to have informed viewpoints on implementation of electronic records capabilities as well as integration of MER in e-government. The study therefore recommends that:

- The Public Service Commission in conjunction with Directorate of Personnel Management develops minimum training requirements for all officers in records

management roles across the government. This should also include MER within the e-government context.

- The ICTA develops training requirements for ICT officers on MER, including training on standards, principles and functional requirements for electronic records systems and records within electronic office environments.
- RMOs and ICTA develop partnership programmes with other governments that have made positive strides in MER and e-government. Examples of such include the governments of Australia, Turkey, Malaysia, United Kingdom, United States of America, New Zealand, Malaysia and China. This would provide benchmarking and learning grounds to foster alignment of MER to international standards.

7.3.1.5 Standards and Best Practices

The present research established that there was virtually no adoption of standards and best practices in management of electronic records in Government. Neither international nor national standards on MER have been adopted by any government institution to professionalize MER. In view of these findings, the study recommends that:

- KNADS by virtue of its knowledge of standards on electronic records management and general records management champions the adoption of relevant standards to enhance MER. This includes but not limited to: ISO 15489; ISO 16175-2:2011Information and documentation - Principles and functional requirements for records in electronic office environments; ISO 15836:2009-

Information and Documentation-The Dublin Core Metadata element set; KS 2229:2010-Electronic records management systems-functional requirements; KS 2374:2012 - Electronic records management systems-implementation guide; KS 2391:2013-electronic signatures-metadata requirements; Model requirements for the management of electronic records (MoReq).

- KNADS champions the adoption of international best practices like the IRMT's Good Practice Indicators for Integrating Records Management Functionality in ICT systems to improve the professional quality of MER for e-government.

7.3.1.6 Resourcing of Management of Electronic Records

The challenge of inadequate budgetary support towards MER was raised by RMOs as a major impediment to implementation of electronic records capabilities across Government. To this end, the study recommends that government institutions dedicate sufficient resources to management of electronic records to enable adequate management of electronic records. In addition, adoption of electronic records systems should be enhanced to improve efficiency and economy of these institutions in management of records by eliminating cost overheads arising from space and storage equipment for unnecessary paper records.

7.3.2 Recommendations on Utilisation of E-government in Ministries

In order to enhance utilisation of e-government in Government ministries in Kenya, the study recommends as follows:

- ICTA should develop a robust policy framework to guide e-government development and utilisation modelled on the Kenya E-government Strategy of 2011.

- ICTA should empower ICT officers in the ministry to provide support services on e-government platforms.

- ICTA in collaboration with the National Treasury should decentralise the administration of IFMIS e-procurement to allow for onsite support at the ministry levels to improve service efficiency, as opposed to present scenario where system support is centralized at the National Treasury.

- ICTA should develop a dedicated standard to guide development of e-government across ministries. The GEA standard that has been adopted is designed for development of ICT infrastructure but not e-government.

- A model fro assessing e-government maturity should be identified, adopted and cascaded across ministries by ICTA. This would be helpful in assessing and scoring progress on e-government maturity in Kenya which would eventual inform priorities to be focused on in enhancing e-government.

- In developing e-government systems, ICTA should develop a framework for managing mobile-based data in the e-governemnt environment as opposed to only Internet-based data.

- ICTA should improve sensitization of both the public officers in ministries and the general public on e-government initiatives in place and the importance of utilizing them as a way of enhancing utilisation of e-government platforms.

7.3.3 Recommendations on Integration of Management of Electronic records in E-government

The study also established that practices for MER in ministries were not adequately supporting e-government. As a result, the e-government systems miss out on the benefits of professional MER in the capture and preservation of data and records. It is therefore recommended that:

- The ICTA partners with RM stakeholders to define electronic records elements that need to be integrated in the design of e-government systems to facilitate capture, management and preservation of electronic records.
- The design and architecture of e-government platforms be reengineered to provide for interfacing and interoperability with systems for managing electronic records (EDRMS). ICTA should provide leadership on this in collaboration with other RM stakeholders. This will ensure that records generated on the e-government platforms are pushed into the EDRMS for their management

throughout the continuum. Whenever data/information is required by citizens, the e-government would pull it from the EDRMS.

- ICTA, KNADS and RMOs should study strategies adopted by countries that have made progress on MER in e-government like Australia, US, UK, Singapore, Republic of Korea, Malaysia and others to identify lessons they can borrow to enhance MER.
- KNADS should implement digital archiving system to provide for long-term preservation of electronic records to support e-government over time. KNADS could learn from Singapore and Korea National Archives who have implemented capabilities for unified digital archiving (Chae-gun 2015).
- ICTA should champion, through a consultative process, a standard model to be adopted by all government ministries and agencies for implementation of MER in the e-government environment.
- Robust training should be provided to both records managers and ICT officers on proper management of electronic records in the e-government setup with a focus on service delivery rather than internal process efficiencies. Such a programme could be developed through collobaritve efforts of KNADS, ICTA, DPM and the training institutionsin Kenya.

7.4 PROPOSED FRAMEWORK FOR MANAGEMENT OF ELECTRONIC RECORDS IN SUPPORT OF E-GOVERNMENT

A key output of the present study was a framework for managing electronic records in support of e-government. The proposed framework is premised on the understanding that effective management of electronic records is a critical success factor for e-government.

7.4.1 The Proposed Framework

This framework provides a structure that can enhance a collaborative approach to MER between e-government service owners and records management stakeholders in Kenya to achieve the desired synergies between e-government and MER to ensure that existing practices for MER adequately support e-government. Figure 7.1 presents a visual depiction of the proposed framework.

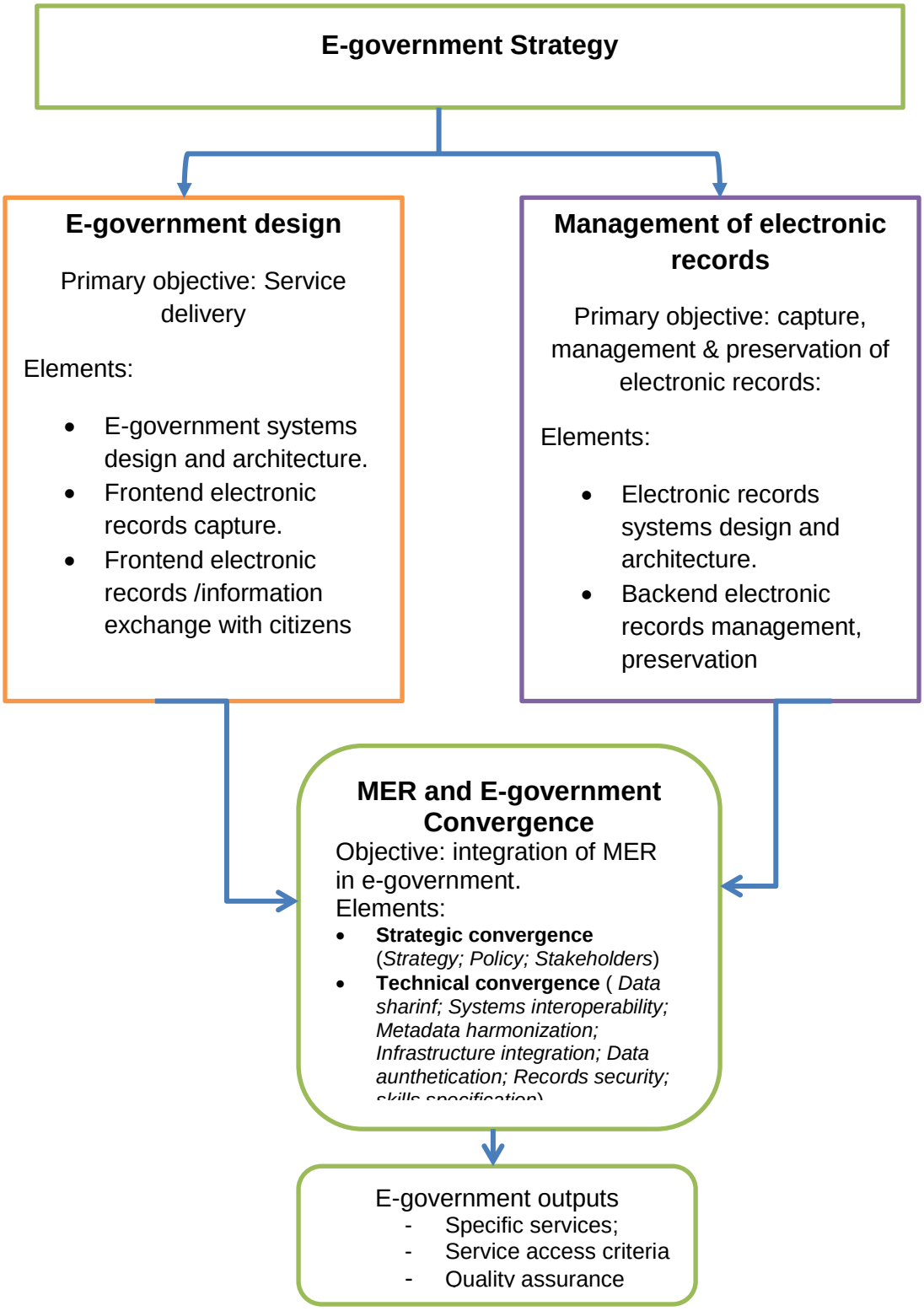

Figure 7.1: Proposed framework for management of electronic records in support of e-government

7.4.2 Explanation of the Framework

This section explains the elements within the framework. The framework considers service delivery as the primary purpose (reason for existence) of e-government. The e-government platforms form the frontline that interfaces with the citizen while MER systems form the backend operations that support e-government to serve the citizens effectively. It sees MER as a means to an end (service delivery) rather than an end in itself (internal operational efficiencies) as was established by the study that this was predorminantly the case.

7.4.2.1 E-government Strategy

The first element of the e-government strategy refers to the development of a strategic focus for e-government design and delivery. The e-government strategy should be developed to define the following:

- The objectives of e-government.
- The scope of e-government across government functions and the extent to which e-government would transcend government services.
- Success measures for government, citizens and businesses.
- Services to be delivered on e-government.
- The growth plan for the e-government penetration in government.
- Policies, standards, best practices and legislative anchors of e-government.
- Infrastructure and key players (and partners) in e-government.
- Model of e-government delivery.

- Standardisation of e-government services across the Government institutions in Kenya.
- The role of management of electronic records in supporting e-governmet.

7.4.2.2 E-government Design

The e-government design component would define service delivery specifications within e-government.

Three elements would constitute this component, namely: e-government systems design and architecture; frontend electronic records capture and frontend electronic records /information exchange with citizens.

The e-government systems design and architecture refers to the development, implementation and configuration of the e-government platforms. This element would provide technical specifications and requirements for the e-government platforms. It will also look at e-government models, e-government readiness, ICT infrastructure for e-government. It is at this stage that the e-government requirements on electronic records will be determined to scope what e-data and records will be required to support the service including the desired formats of the records. The GEA requirements would be defined under this component.

Frontend data capture refers to defining the parameters for capturing data by citizens onto the e-government. It would be concerned with the design of the e-government interface to enable online capture of data onto e-government system by citizens. Whereas this is an element on the design and configuration of e-government platform, it

is a key element from MER viewpoint because it is at this stage that issues of metadata and interfacing with other systems for data capture are defined. The design of interface should be simple for ordinary citizen to use. It should also be versatile to be applicable on both computers and mobile devices.

Frontend records/information exchange with citizens relates to citizens being able to pull data from the e-government platform. It would therefore concern itself with the capability of the e-government platform to output required data to citizens. This would include issues like the formats of display, exportation of data into other formats, interfacing with citizen emails, linking with mobile devices and general interactivity between the citizen and the e-government service in exchanging information. The development of the e-government component will be the responsibility of ICTA.

7.4.2.3 Management of Electronic records Component

This component defines the requirements for effective MER that would ensure adequate management of electronic records with the e-government environment. When designing the MER component, the following technical requirements should be considered:

- Capture of various formats of records.
- Metadata of records.
- Security and integrity of records.
- Retention-scheduling of the electronic records.
- Appraisal and disposition of the electronic records.
- Authentication of records.

- Interoperability with business systems to avoid duplication of data.
- Preservation of the electronic records.
- Digital archiving .
- The principles and functional requirements for electronic records management systems.

The development of the MER component will be a responsibility of the records management officers and KNADS.

7.4.2.2.4 Management of Electronic records and E-government Convergence

The convergence point is the point at which the unique requirements defined at e-government and MER components are merged to build a harmonised approach to e-government service delivery. Duplicate requirements are merged. Complementary requirements are identified for alignment. Supplemental requirements are identified to define areas of efficiency and economy. Unique requirements are determined and their relationship with the rest established. The convergence should be on two fronts: strategic and technical convergence.

1. Strategic convergence

Strategic convergence refers to the blending of e-government objectives and MER objectives as contemplated in the e-government and MER components' scoping to provide guiding principles that inform the direction of e-government implementation. The objective of this element is to anchor MER into e-government and e-government into

MER and provide strategic view of MER into the e-government environment. Key outputs of strategic convergence will be:

- Harmonised strategy that capture the requirements for both e-government and MER that define the relationship between the two.
- Policy directions for aligning MER and e-government.
- Clear definition of MER and e-government stakeholders and their respective roles in driving effective e-government.
- Standards, models and best practice indicators for managing electronic records within the e-government space.
- Framework for collaboration between electronic records and e-government stakeholders.
- Specification of ownership of the MER functions within e-government in line with the e-government service delivery objectives.
- Benchmarks for electronic records services that would help enhance quality of MER.

Strategic convergence should be a shared responsibility between e-government professionals and records management professionals. These would be experts from ICTA, KNADS, ICT units and RMOs.

2. Technical Convergence

Technical convergence relates to the interfacing/interoperability between the e-government and MER systems. It is at this stage that the platforms for managing electronic records and those of e-government are linked to ensure seamless

management of electronic records in support of e-government. This can be achieved through the following:

- *Data sharing* – which refers to mechanisms for push and pull of data from the e-government platforms to the electronic records systems and vice versa. At this stage decisions should be made which data should be shared across the e-government and MER platforms, their formats, modes of authentication and the significance of the data.
- *Systems interoperability.* This would involve interfacing of the e-government application service with the database for the EDRMS. The objective of interoperability is to achieve data exchange that is scoped in the data sharing element above. It would also involve interfacing e-government applications and the IPRS to facilitate authentication of citizen biodata.
- *Metadata harmonization*. During metadata harmonization, nomenclature for describing records within the e-government, electronic records and business systems is standardised. During data interchange between e-government and electronic records systems, data is exchanged based on linked database fields. The fields are defined to accept data of certain formats and field lengths. Therefore harmonization of metadata becomes important to achieve the seamless interchange of data.
- *E-data/records authentication*. Mechanisms for authenticating data and electronic records must be put in place to eliminate consumption of

services based on forged or fraudulent records. The objective of this stage is to ensure accurate data is captured and used to dispense government services. This element will be important in enhancing transparency and accountability.

- *Records security and integrity*. The security and integrity of records overtime must be established across e-government and MER systems to ensure the records remain valid and reliable.
- *Electronic records preservation*. Preservation of records generated on the e-government be done at the MER backend side. This will avoid cases of deleting records from e-government databases or other business application systems to create room for newer records. Email archiving systems can be interfaced with MER to enhance preservation of emails.
- *Infrastructural intergration*. This refers to harmonization ICT infrastructures across e-government and MER systems to ensure both are operating at the same level to achieve operational resilience and economy in MER and e-government. This integration would include both hardware and software harmonization.
- *Skills specification*. This refers to defining the minimum skills sets and competencies for managing electronic records. These are skills base for both ICT and records management officers. The objective of this aspect is to anchor required expertise for MER in e-government setup-both professional and technical- on ICT and electronic records.

7.4.2.2.5 E-government Outputs

The e-government outputs element defines the expected services from the e-government to citizens and other government entities. At this stage, the service levels and desired qualities are defined. This would include scope of information to be provided, formats of information output, channels of accessing information e.g. Internet and mobile computing, information/data output standards, target consumers of each service. Monitoring and evaluation mechanisms should also be defined under this element.

7.4.3 Responsibilities for Implementation

It is suggested that the implementation of this model in Government shall be a joint responsibility between the records management officers (RMOs) and the ICT officers.

7.5 IMPLICATION OF THE STUDY TO THEORY, POLICY AND PRACTISE

The significance of a study is evaluated on how it enriches scholarly research and literature in the field (theory), how it improves practice and how it affects policy (Mitchell 2012; Pajares 2007; Davis 2005; Cooper & Schindler 2003; Creswell 2003).

With regard to the present study's implication to theory, the study has sought to elucidate the relationship between e-government and MER. Empirical findings have been provided to demonstrate the role of electronic records in e-government. These findings together with other expositions from literature contribute to the ongoing scholarly discourse on the role of MER in effective delivery of e-government. The

proposed framework has provided a basis for further scholarly engagement on effective frameworks for MER in support of e-government.

The present study broke new ground in management of electronic records in Kenya by focusing on development of a framework for MER in e-government in Kenya. Previous related studies have tended to discuss challenges facing MER and proposed recommendations to enhance MER for e-government (IRMT 2011a; Wato 2006; Wamukoya & Mnjama 2005).

The study's implication to practice stems primarily from the proposed framework in section 7.4 which can be harnessed by records management practitioners to enhance integration of MER in e-government. As An (2009) points out, integrating MER into national informational strategic plans is an effective e-government strategy. The framework suggests a structure that can be utilized to achieve this integration.

With regard to the study's contribution to policy, by establishing the nexus between MER and e-government in Kenya and through the recommended framework, the study has shed light on approaches for integrating MER within the policy direction for e-government. It has further provided a baseline for developing policy guidelines for MER within e-government in Kenya. Lack of comprehensive policy frameworks on ERM has been cited as a major impediment to adequate electronic records management (Iwhiwhu 2010; Kemoni 2009; Tale & Alefaio 2005).

7.6 INTEGRATION OF THEORETICAL FRAMEWORK IN THE RESEARCH OBJECTIVES, FINDINGS AND RECOMMENDATIONS

The present study adopted the triangulation of Moreq model and the UN five-stage e-government maturity models as theoretifcal framework of the study. The models and their relevance to the study have been explained in chapter three. It is however important to demonstrate how the theoretical framework came alive in the study especially in its objectives, findings and recommendations (Grant & Onsaloo 2014). The present study integrated the theoretical framework in the following ways:

- The findings of the study were interpreted relative to the provisions of the two models especially in assessing the capabilities of electronic records systems as well as the prevailing maturity levels of e-government in Kenya. Sections 6.1, 6.2, 7.1 and 7.2 demonstrate the integration into the findings.

- Recommendations of the study have been made express reference to the theoretical framework. Specifications for MER as provided in Moreq model have been recommended as a reference point when developing standards and best practices for MER. Even though e-government improvement was not the major focus of the study, it nonetheless has recommended the UN five-stage e-government model as a worthwhile reference for MER stakeholders when designing systems for MER in support of e-government.

- The proposed framework for enhancing MER in government (section 7.4) has factored in the theoretical framework in advancing its arguments. The development of the MER component of the framework is recommended to borrow guidance from the Moreq model. Similarly, the e-government strategy and the e-government design components are recommended to reference the UN five-stage model in their developments.

7.7 SUGGESTIONS FOR FURTHER RESEARCH

The findings from the present study revealed a number of issues that warrant further research as presented in the discussion that follows.

7.7.1 Suitable Systems for Managing Electronic records

The study revealed that lack of systems for managing electronic records was a major challenge to the capture and management of electronic records. Three institutions were found to have an EDMS in place and they were all using case EDMS, Case360. Interviews with respondents from these institutions revealed limitations in use of the system in MER. There is therefore need for a research to determine what would be ideal functional requirements for suitable software for managing electronic records in Kenya. The study will define key requirements in view of e-government requirements and structures for records management in Kenya.

7.7.2 Electronic records Management Standards and Best Practices

The findings of the study confirmed that no standard or best practice indicators had been adopted across the government institutions in Kenya to support management of neither paper nor electronic records.The standards by KEBS have not been adopted in any ministry. As a result MER has not been harmonised and benchmarks for best practices were lacking. There is therefore a need for a further research to determine what would be the best way to integrate standards and best practice indicators within MER. Such a study would also recommend which of the international standards would be ideal and the best approach to implement standards for adoption cross government.

7.7.3 Records Management Governance Structures in Kenya

During the present study, it emerged that one of key challenges affecting the development of MER and RM in general in Kenya was the placement of the RM within government. The present study recommends that a further research to determine the most appropriate placement of RM governance within the government structure would be useful. Such a study would explore practices in countries that have advanced in RM and MER, evaluate all factors and circumstances around governance in Kenya and propose the most suitable placement of RM in the Kenyan government.

7.8 FINAL STUDY CONCLUSION

The present study investigated the effectiveness of exiting practices for MER in supporting e-government, with a view of proposing a framework for MER to support e-government as its major output.

The study established that MER in Kenya was inadequately supporting e-government. The professional, technical and organisational orientation of MER was not sufficient to provide the desired impetus to e-government. Numerous challenges were identified in the MER that limits its capacity to support e-government. The integration of electronic records in e-government was evidently low.

Various recommendations were made in view of the study's findings to help close the gap between MER and e-government. Fundamental within the recommendations was proposition of a framework for MER in support of e-government. The study was demonstrated its significance to theory, practice and policy on MER in relation to e-government.

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APPENDIX 1: INTERVIEW SCHEDULE FOR PRINCIPAL SECRETARIES

My name is Cleophas Ambira. I am a registered doctoral student in the Department of Information Science, University of South Africa (UNISA), conducting a research on *a framework for electronic records management in the support of e-government in Kenya.* This is in partial fulfillment of the requirements for Doctor of Literature and Philosophy (DLitt et Phil) in Information Sciences.

The aim of the study is to investigate effectiveness of current management of electronic records in supporting e-government in Kenya. A key output of the study will be a framework for managing electronic records that could be adopted by your ministry to enhance e-government. The study will also make other recommendations that your ministry may find helpful in aligning management of electronic records to e-government delivery.

The study targets Government Ministries in Kenya. Information provided will be treated with utmost confidentiality.

For any query/clarification please contact me, Cleophas Ambira, on 0714-882678 or cleophasambira@gmail.com or 49112104@mylife.unisa.ac.za or my supervisors Prof. Henry Kemoni at hkemoni@yahoo.com and Prof. Patrick Ngulube at ngulup@unisa.ac.za

Thank you.

Ministry:…….

Date of Interview…….. Venue of interview…….

1. What is the mandate of your ministry?
2. Has your ministry integrated e-government in its functions and activities? If yes, please explain
3. If yes to 2 above, what are the objectives of integrating e-government within the services offered by your ministry?
4. How would you describe your ministry's readiness/preparedness for e-government implementation in terms of the following?

i. ICT Infrastructure
ii. Policy and regulatory framework
iii. Human resources

5. Is there a strategic plan/framework that guides the implementation of e-government in your ministry? Please explain.

6. Are there any challenges hampering implementation of e-government in your ministry? If yes, please explain.
7. Does your ministry create and manage electronic records?
8. Does your ministry have a policy on management of electronic records?
9. Are there any success factors that enhance the management of electronic records in your ministry?
10. Are there any challenges facing management of electronic records in your ministry?
11. How adequate do the current practices for managing electronic records support e-government implementation in your ministry?
12. Does your Ministry face challenges in managing electronic records that hamper effective implementation of e-government? If yes, please explain
13. How do you currently cope with the challenges cited in question 12 above?
14. Does the e-government framework/policy (if any) cater for the management of electronic records in support of e-government?
15. Does the policy/framework for managing electronic records explicitly provide for considerations for e-government in the management of the electronic records?
16. Kindly suggest any measures that could ensure management of electronic records effectively support e-government in your ministry?
17. What other recommendations can you provide regarding management of electronic records and e-government implementation?

Thank you.

APPENDIX 2: INTERVIEW SCHEDULE FOR CHIEF EXECUTIVE OFFICER AND DIRECTORS OF ICT AUTHORITY

My name is Cleophas Ambira. I am a registered doctoral student in the Department of Information Science, University of South Africa (UNISA), conducting a research on *a framework for electronic records management in the support of e-government in Kenya.* This is in partial fulfillment for the requirements for Doctor of Literature and Philosophy (DLitt et Phil) in Information Sciences.

The aim of the study is to investigate effectiveness of current management of electronic records in supporting e-government in Kenya. A key output of the study will be a framework for managing electronic records that could be adopted by the government ministries to support e-government implementation. The study will also make other recommendations that your directorate may find helpful in aligning management of electronic records to e-government delivery.

The study targets government ministries and select government agencies involved in e-government and/or management of electronic records. Information provided will be treated with utmost confidentiality.

For any query/clarification please contact me, Cleophas Ambira, on 0714-882678 or cleophasambira@gmail.com or 49112104@mylife.unisa.ac.za or my supervisors Prof. Henry Kemoni at hkemoni@yahoo.com and Prof. Patrick Ngulube at ngulup@unisa.ac.za

Thank you

Date of Interview…… Place of Interview……..

1. What is the mandate of ICT Authority?
2. What is the current state of e-government in government ministries?
3. Do we have a framework guiding the implementation of e-government in Kenya? If yes, please explain.
4. What model/criteria do you use to measure the level of e-government maturity in Kenya? Please explain.

5. What is the current level of e-government maturity based on the measurement criteria?
6. What factors explain the current level of e-government maturity in Kenya?
7. What are the existing operational e-government platforms in government?
8. What are the ongoing e-government projects/initiatives in the government?
9. Does the Directorate face any challenges implementing these e-government platforms and other e-government initiatives? Please explain.
10. How do you cope with these challenges?
11. What are the future plans for enhancing e-government in Kenya?
12. Does the directorate consider management of electronic records as a critical success factor for e-government?
13. Do the e-government platforms, existing and upcoming, consider management of electronic records? Please explain.
14. How does management of electronic records support e-government initiatives? Please explain.
15. How does management of electronic records hamper e-government implementation?
16. Is the Directorate involved in implementation of systems for managing electronic records, if any, in government entities? Please explain.
17. Does Directorate partner with other government agencies regarding management of electronic records within e-government? Please explain.
18. Is the Directorate familiar about any legal or regulatory framework regarding management of electronic records? Please explain.
19. Are there any standards that regulate records management automation or records digitization in government agencies?
20. What recommendations would you propose to ensure successful integration of management of electronic records in support of e-government?

Thank you.

APPENDIX 3: INTERVIEW SCHEDULE FOR DIRECTOR AND DEPUTY DIRECTORS, KENYA NATIONAL ARCHIVES

My name is Cleophas Ambira. I am a registered doctoral student in the Department of Information Science, University of South Africa (UNISA), conducting a research on *a framework for electronic records management in the support of e-government in Kenya.* This is in partial fulfillment for the requirements for Doctor of Literature and Philosophy (DLitt et Phil) in Information Sciences.

The aim of the study is to investigate effectiveness of current management of electronic records in supporting e-government in Kenya. A key output of the study will be a framework for managing electronic records that could be adopted by the government ministries to support e-government implementation. The study will also make other recommendations that KNADS may find helpful in aligning management of electronic records to e-government in Kenya.

The study targets government ministries and select government agencies involved in e-government and/or management of electronic records. Information provided will be treated with utmost confidentiality.

For any query/clarification please contact me, Cleophas Ambira, on 0714-882678 or cleophasambira@gmail.com or 49112104@mylife.unisa.ac.za or my supervisors Prof. Henry Kemoni at hkemoni@yahoo.com and Prof. Patrick Ngulube at ngulup@unisa.ac.za

Date of Interview……Venue of Interview……

1. To what extent is KNADS involved in the management of electronic records in government?
2. In your assessment, do government ministries have capacity to manage electronic records? please explain
3. Is there a legal and/or regulatory framework that guides management of electronic records in government agencies? If yes, please explain.
4. Does the existing legal and regulatory framework adequately cater for management of electronic records? Please explain.
5. Are there any standards and/or best practices adopted across government for management of electronic records? Please explain if any.

6. Is KNADS involved in projects implemented in government ministries and agencies on managing of electronic records? If yes, please explain.
7. If yes to 6 above, please describe some of these projects and the role of KNADS in them.
8. What would you consider as the key challenges facing management of electronic records in government ministries and agencies?
9. What are the envisaged developments in as far as management of electronic records in Kenya concerned?
10. Is KNADS involved or consulted by government agencies on issues regarding e-government implementation? Please explain.
11. In your opinion, do the existing practices of managing electronic records in government support e-government initiatives?
12. Are there issues in management of electronic records that may hinder effectiveness of e-government? please explain
13. What strategies would you recommend to enhance management of electronic records in government ministries to support e-government?

Thank you.

APPENDIX 4: INTERVIEW SCHEDULE FOR RECORDS MANAGEMENT OFFICERS

My name is Cleophas Ambira. I am a registered doctoral student in the Department of Information Science, University of South Africa (UNISA), conducting a research on *a framework for electronic records management in the support of e-government in Kenya.* This is in partial fulfillment for the requirements for Doctor of Literature and Philosophy (DLitt et Phil) in Information Sciences.

The aim of the study is to investigate effectiveness of current management of electronic records in supporting e-government in Kenya. A key output of the study will be a framework for managing electronic records that could be adopted by your ministry to enhance e-government. The study will also make other recommendations that your ministry may find helpful in aligning management of electronic records to e-government delivery.

The study targets government ministries in Kenya. Information provided will be treated with utmost confidentiality.

For any query/clarification please contact me, Cleophas Ambira, on 0714-882678 or cleophasambira@gmail.com or 49112104@mylife.unisa.ac.za or my supervisors Prof. Henry Kemoni at hkemoni@yahoo.com and Prof. Patrick Ngulube at ngulup@unisa.ac.za

Date of Interview…… Place of Interview……..

Ministry …… Years of Service…….

Highest Academic Qualification……

Professional qualification in Records Management ……..……

1. What is the mandate/role of your unit?

2. Does your mandate include managing electronic records? If yes, please explain.
3. What are the various forms of electronic records generated/received in your ministry? Please explain how they are generated as well.
4. Are there policy and procedures for that guide management electronic records in your ministry? Please explain.
5. Do you consider the policy and procedures adequate? Please explain.
6. Is the human resource capacity for your unit to manage electronic records adequate? Please explain.
7. Have you adopted any standard or best practice model to guide management of the electronic records? Please explain.
8. what controls are in place for access and use of the electronic records?
9. How do you enhance the security and integrity of electronic records?
10. Are there strategies in place for long-term preservation of the electronic records? Please explain.
11. Are there mechanisms for archiving the electronic records of enduring value? Please explain.
12. Has your ministry installed any system for managing electronic records? If yes, please explain its features.
13. How are you involved in the design, development and implementation of the electronic records management system(s)?
    a. Design……
    b. Development……..
    c. Implementation……
    d. Review……
14. Are there any technical challenges you face in managing electronic records in the ministry (e.g. design of systems, ICT infrastructure, etc.)?
15. Are there organizational challenges (e.g. management support, finances, etc.) you face in managing electronic records in the ministry
16. Are you aware of e-government services running in the ministry? If yes, please explain them.
17. Are you involved as a stakeholder in the implementation of e-government initiatives and platforms in the ministry? Please explain extent of involvement.
18. What do you consider to be critical success factors for effective management of electronic records in support of e-government?
19. Are there issues in management of electronic records (technical and organizational) that impact negatively on success of e-government in your ministry?
20. What recommendations would you suggest to improve management of electronic records in general?

21. What recommendations would you propose to improve management of electronic records in support of e-government?

Thank you.

APPENDIX 5: INTERVIEW SCHEDULE FOR INFORMATION AND OMMUNICATION TECHNOLOGY OFFICERS IN THE MINISTRIES

My name is Cleophas Ambira. I am a registered doctoral student in the Department of Information Science, University of South Africa (UNISA), conducting a research on *a framework for electronic records management in the support of e-government in Kenya.* This is in partial fulfillment for the requirements for Doctor of Literature and Philosophy (DLitt et Phil) in Information Sciences.

The aim of the study is to investigate effectiveness of current management of electronic records in supporting e-government in Kenya. A key output of the study will be a framework for managing electronic records that could be adopted by your ministry to enhance e-government. The study will also make other recommendations that your ministry may find helpful in aligning management of electronic records to e-government delivery.

The study targets government ministries in Kenya. Information provided will be treated with utmost confidentiality.

For any query/clarification please contact me, Cleophas Ambira, on 0714-882678 or cleophasambira@gmail.com or 49112104@mylife.unisa.ac.za or my supervisors Prof. Henry Kemoni at hkemoni@yahoo.com and Prof. Patrick Ngulube at ngulup@unisa.ac.za

Date of Interview…… Venue of Interview……..

1. What is the mandate of your unit?
2. What is the level of ICT integration in your ministry?
3. Are there any e-government services currently available in your ministry? please explain.
4. What is your unit's involvement in implementing these e-government initiatives?
5. What is the current state of e-government readiness in your ministry in terms of the under listed?
    a. ICT infrastructure
    b. Human resource
    c. Policy and regulatory framework.

6. Do you face any challenges in implementing e-government in your ministry? Please explain
7. Have you implemented any system for managing electronic records in your ministry? Please explain.
8. Is this system integrated with e-government systems?
9. Have there been any other forms of records management automation projects in your ministry? Please explain.
10. Who are the stakeholders in records management automation projects?
11. What is the technical and professional capacity of your unit to support management of electronic records in the ministry?

12. Are there standards and best practice indicators adopted in your ministry to guide management of electronic records and/or general records automation/ digitization? Please explain.
13. In your opinion do existing practices of managing electronic records adequately support e-government in your ministry? Please explain.
14. What issues in the management of electronic records would undermine the success of e-government?
15. Are there issues in the general design of the ICT infrastructure in your ministry that could undermine effective management of electronic records?
16. What recommendations would you propose to improve management of electronic records in support of e-government?

Thank you.

APPENDIX 6: INTERVIEW SCHEDULE FOR HEADS OF E-GOVERNMENT SERVICE AREAS (KENYA POWER, KENYA REVENUE AUTHORITY, HIGHER EDUCATION LOANS BOARD, MINISTRY OF LANDS AND PUBLIC SERVICE COMMISSION)

My name is Cleophas Ambira. I am a registered doctoral student in the Department of Information Science, University of South Africa (UNISA), conducting a research on *a framework for electronic records management in the support of e-government in Kenya.* This is in partial fulfillment for the requirements for Doctor of Literature and Philosophy (DLitt et Phil) in Information Sciences.

The aim of the study is to investigate effectiveness of current management of electronic records in supporting e-government in Kenya. A key output of the study will be a framework for managing electronic records that could be adopted by your service to enhance e-government. The study will also make other recommendations that your ministry may find helpful in aligning management of electronic records to e-government delivery.

The study targets government ministries in Kenya. Information provided will be treated with utmost confidentiality.

For any query/clarification please contact me, Cleophas Ambira, on 0714-882678 or cleophasambira@gmail.com or 49112104@mylife.unisa.ac.za or my supervisors Prof. Henry Kemoni at hkemoni@yahoo.com and Prof. Patrick Ngulube at ngulup@unisa.ac.za

Date of Interview …… Venue of Interview……

1. What is the objective of the e-government service you manage?
2. What triggered the establishment of this service?
3. How is the information shared on this service generated/created/received?
4. Are the procedures for managing the information shared on this platform documented?
5. Please comment on the level of training for staff manning the service.
6. How do you enforce integrity of the information shared across this service?
7. What strategies are in place for long-term preservation of the information shared across the service?
8. In your assessment, do the existing practices for management of electronic records adequately support this service?

9. Do you face any challenges in managing the information received and transmitted across this service? Please explain.
10. What recommendations would you propose to improve the management of data received on this service to enhance the quality of the service in supporting e-government?

Thank you.

APPENDIX 7: RESEARCH PERMITS 1 AND 2

THIS IS TO CERTIFY THAT:
MR. CLEOPHAS MUTUNDU AMBIRA
of UNIVERSITY OF SOUTH AFRICA, 0-502
Karen,has been permitted to conduct
research in Nairobi County

on the topic: A FRAMEWORK FOR ELECTRONIC RECORDS MANAGEMENT IN SUPPORT OF E-GOVERNMENT IN KENYA

for the period ending:
31st December,2014

Applicant's
Signature

Permit No : NACOSTI/P/14/0062/2120
Date Of Issue : 4th July,2014
Fee Recieved :Ksh 2,000

Secretary
National Commission for Science,
Technology & Innovation

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science,
Technology and Innovation

RESEARCH CLEARANCE
PERMIT

Serial No. A 2162

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MR. CLEOPHAS MUTUNDU AMBIRA
of UNIVERSITY OF SOUTH AFRICA, 0-502 Karen,has been permitted to conduct research in *Nairobi County*

on the topic: *A FRAMEWORK FOR ELECTRONIC RECORDS MANAGEMENT IN SUPPORT OF E-GOVERNMENT IN KENYA*

for the period ending:
30th June,2015

.....
Applicant's Signature

Permit No : NACOSTI/P/15/0062/4658
Date Of Issue : 4th February,2015
Fee Recieved :Ksh 1,000

.....
Secretary
National Commission for Science, Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 4177

CONDITIONS: see back page

APPENDIX 8: AUTHORISATION LETTERS FROM MINISTRIES

Jogoo House B

Republic of Kenya

Ministry of Education, Science & Technology
State Department of Education

EDUCATION SECRETARY'S OFFICE
INTERNAL MEMO

TO: OFFICER IN-CHARGE OF ICT
RECORDS MANAGEMENT OFFICER
OFFICE IN CHARGE OF E-GOVERNMENT PROJECTS

DATE: 31ST MARCH, 2015

RE: DOCTORAL RESEARCH

Mr Cleophas Mutundu Ambira is a doctoral student in Information Sciences at University of South Africa (UNISA). He is conducting a research on A framework for electronic records management in the support of e-government in Kenya.

He has requested for authority to undertake research in this Ministry through face-to-face interviews.

The purpose of this memo is to request you to provide data to the student.

Onesmus Kiminza
Ag. EDUCATION SECRETARY

ISO 9001 BUREAU VERITAS Certification

18 March 2015

Cleophas Mutundu Ambira,
P.O Box 1406-00502,
KAREN-NAIROBI,
Tel 0714-882678/0736 296091/0774854158
Email: cleophasambira@gmail.com and 49112104@mylife.unisa.ac.za

09 APR 2015

14 APR 2015

I DA II
Deal
14/04/15

THE PRINCIPAL SECRETARY,
MINISTRY OF SPORTS, CULTURE AND THE ARTS,
KENCOM BUILDING, 2nd FLOOR,
P.O. BOX 49849-00100, NAIROBI

Dear Sir/Madam,

DOCTORAL RESEARCH

I am a doctoral student in information sciences at University of South Africa (UNISA), conducting a research on *A framework for electronic records management in the support of e-government in Kenya.* The study aims to develop a framework for managing electronic records within the context of e-government in Kenya. The study population includes all government ministries in Kenya.

I am writing to request your authority to collect data in your ministry. Attached please find a copy of research authorization letter and permit from the National Commission for Science, Technology and Innovation.

I would like to conduct face-to-face interviews with the following officers in your Ministry:

i. The Principal Secretary
ii. The office in-charge of Ministry ICT
iii. The Ministry's Records Management Officer
iv. The Office in Charge of e-government projects/initiative in the Ministry if different from ICT officer
v. The officer responsible for specific e-government initiatives, if applicable.

I intend to conduct the interviews in the months of March-April 2015. I request your approval to allow me interview the indicated officers.

My supervisors are Prof. Henry Kemoni (Technical University of Kenya – hkemoni@yahoo.com, 0710431730) and Prof. Patrick Ngulube (University of South Africa – ngulup@unisa.ac.za).

Thanking you in advance.

Yours faithfully,

CLEOPHAS AMBIRA
UNISA Student No. 49112104

AS/oselu
Alert the officers for the interview
W/18/5

With compliments from Cleophas M Ambira

REPUBLIC OF KENYA
MINISTRY OF ENERGY & PETROLEUM

Telegrams: "MINPOWER" Nairobi
Telephone: +254-20-310112
Fax: +254-20-240910
Telex: 23094 MINERGY
Email: ps@energymin.go.ke
When replying please quote
Ref. **No. ME&P/ 1/1/3 VOL. IV**

NYAYO HOUSE
P. O. Box 30582-00100
NAIROBI

8th April, 2015

Cleophas Mutundu Ambira
P.O. Box 1406-00502
Karen
NAIROBI.

Dear

RE: DOCTORAL RESEARCH

This is to acknowledge receipt of your letter dated 18th March 2015 on the above subject.

Please call on the office of the Director of Administration for planning and coordination of the research with the relevant Heads of Departments in this ministry.

Yours faithfully

MICHAEL M. MWANGI, MBS, OGW
FOR: PRINCIPAL SECRETARY

Copy to: Principal Secretary

MINISTRY OF HEALTH

Office of the Director of Medical Services

Telephone: Nairobi 254-020-2717077
Fax: 2719008
Email : dmskenya@gmail.com

Afya House
Cathedral Road
P.O. Box 30016 - 00100
NAIROBI

When replying please quote:

Date: 15th April 2015

Ref: MOH/ADM/1/2/45

Mr. Cleophas M. Ambira
University of South Africa
P.O. Box 1406-00502
NAIROBI, KAREN

RE: AUTHORITY TO COLLECT DATA FOR A DOCTORAL RESEARCH IN MINISTRY OF HEALTH

The Ministry of Health is in receipt of your undated letter on the above subject.

It is noted that the doctoral research is part fulfilment of your Doctoral Studies in Information Sciences at University of South Africa (UNISA) with Research Title; A framework for Electronic Records Management in the Support of e-Government in Kenya.

The following offices in the Ministry of Health will be visited for face-to-face interviews:

1. Principal Secretary
2. In-charge of Ministry ICT
3. Ministry's Records Management Officer
4. In-charge of e-Government initiatives/projects

This office has no objection to collection of data through face-to-face interviews with the suggested offices.

On completion of the research, you are requested to share the research thesis/report with the Ministry of Health.

Dr Nicholas M. Muraguri
Director of Medical Services

Noted and will be implemented when the researcher comes along.

MINISTRY OF TRANSPORT
NAIROBI
31 MAR 2015
RECEIVED
SECRET
RECORDS MANAGEMENT UNIT

MINISTRY OF TRANSPORT
RECEIVED
31 MAR 2015
HEAD OF ICT UNIT

18 March 2015

Cleophas Mutundu Ambira
P.O Box 1406-00502,
KAREN-NAIROBI,
Tel 0714-882678/0736 296091/0774854158
Email: cleophasambira@gmail.com and 49112104@mylife.unisa.ac.za

Copy of notice is attached

THE PRINCIPAL SECRETARY,
MINISTRY OF TRANSPORT AND INFRASTRUCTURE,
NGONG ROAD,
P.O. BOX 52692-00200, NAIROBI

Head ICT
INA
31/3/2015

Dear Sir/Madam,

DOCTORAL RESEARCH

I am a doctoral student in information sciences at University of South Africa (UNISA), conducting a research on *A framework for electronic records management in the support of e-government in Kenya.* The study aims to develop a framework for managing electronic records within the context of e-government in Kenya. The study population includes all government ministries in Kenya.

I am writing to request your authority to collect data in your ministry. Attached please find a copy of research authorization letter and permit from the National Commission for Science, Technology and Innovation.

I would like to conduct face-to-face interviews with the following officers in your Ministry:

i. The Principal Secretary
ii. The office in-charge of Ministry ICT
iii. The Ministry's Records Management Officer
iv. The Office in Charge of e-government projects/initiative in the Ministry if different from ICT officer
v. The officer responsible for specific e-government initiatives, if applicable.

I intend to conduct the interviews in the months of March-June 2015. I request your approval to allow me interview the indicated officers.

My supervisors are Prof. Henry Kemoni (Technical University of Kenya – hkemoni@yahoo.com, 0710431730) and Prof. Patrick Ngulube (University of South Africa – ngulup@unisa.ac.za).

Thanking you in advance.

Yours faithfully,

CLEOPHAS AMBIRA
UNISA Student No. 49112104

With compliments from Cleophas M Ambira

MINISTRY OF DEFENCE

Telegrams: "DEFENCE", Nairobi
Telephone: Nairobi 020 – 2721100
Email:ps@mod.go.ke
Fax: 020 2723446
When replying please quote

DEFENCE HEADQUARTERS
ULINZI HOUSE
P. O. Box 40668,
NAIROBI, KENYA

MOSD 12/14/1A

2nd April 2014

Cleophas Mutundu Ambira
P O Box 1406 – 00502
KAREN - NAIROBI

Dear Cleophas

RE: DOCTORAL RESEARCH

We acknowledge receipt of your letter dated 18th March 2015 on the above subject.

Please note that due to the information held in this Ministry, it will not be possible to undertake any research.

Sorry for any inconvenience.

J N MUGO (MRS)
FOR: PRINCIPAL SECRETARY

NHIF Building

18 March 2015

Cleophas Mutundu Ambira,
P.O Box 1406-00502,
KAREN-NAIROBI,
Tel 0714-882678/0736 296091/0774854158
Email: cleophasambira@gmail.com and 49112104@mylife.unisa.ac.za

THE PRINCIPAL SECRETARY,
MINISTRY OF ENVIRONMENT, WATER AND NATURAL RESOURCES,
NHIF BUILDING, 12th FLOOR,
RAGATI ROAD, UPPERHILL
P.O. BOX 30126-00100, NAIROBI

Dear Sir/Madam,

DOCTORAL RESEARCH

I am a doctoral student in information sciences at University of South Africa (UNISA), conducting a research on *A framework for electronic records management in the support of e-government in Kenya.* The study aims to develop a framework for managing electronic records within the context of e-government in Kenya. The study population includes all government ministries in Kenya.

I am writing to request your authority to collect data in your ministry. Attached please find a copy of research authorization letter and permit from the National Commission for Science, Technology and Innovation.

I would like to conduct face-to-face interviews with the following officers in your Ministry:

i. The Principal Secretary
ii. The office in-charge of Ministry ICT
iii. The Ministry's Records Management Officer
iv. The Office in Charge of e-government projects/initiative in the Ministry if different from ICT officer
v. The officer responsible for specific e-government initiatives, if applicable.

I intend to conduct the interviews in the months of March-June 2015. I request your approval to allow me interview the indicated officers.

My supervisors are Prof. Henry Kemoni (Technical University of Kenya – hkemoni@yahoo.com, 0710431730) and Prof. Patrick Ngulube (University of South Africa – ngulup@unisa.ac.za).

Thanking you in advance.

Yours faithfully,

CLEOPHAS AMBIRA
UNISA Student No. 49112104

NOTE
APPROVED.
CONFIDENTIALITY
TO BE OBSERVED
AG SADHALM
NGUGI
30/3/2015

Ministry of Environment, Water and Natural Resources
State Department of Environment and Natural Resources
P.O. Box 30126-00100, NAIROBI
30 MAR 2015
H.R.M. DIVISION
RECEIVED

With compliments from Cleophas M Ambira

REPUBLIC OF KENYA
THE NATIONAL TREASURY

Telegraphic Address: 22921
Finance - Nairobi
FAX NO. 310833
Telephone: 2252299

THE NATIONAL TREASURY
P O Box 30007 – 00100
NAIROBI

When Replying Please Quote

Ref: MOF/TE.158/01/A/(30)

Date: 19th May, 2015

Mr. Cleophas Mutundu Ambira
P.O. Box 1406 – 00502, Karen,
NAIROBI

Dear Sir

RE: DOCTORAL RESEARCH

Reference is made to your letter dated 8th March, 2015 on the above mentioned subject.

The officers in charge of ICT, e-government (Ifmis) and Records Management have been informed and the questionnaires forwarded to them accordingly. You are requested to liaise with them to arrange when you can carry out the interview. The Principal Secretary has also been informed accordingly and you will be informed when he is available.

We regret any inconvenience that might have been caused by the delay in responding to your request. It was not intentional.

Yours faithfully

N. K. WAWERU
FOR: PRINCIPAL SECRETARY

ISO 9001:2008
Certified.

REPUBLIC OF KENYA

MINISTRY OF INFORMATION, COMMUNICATIONS AND TECHNOLOGY

Telephone: +254-020-4920000/100
Fax: 315147
When replying please quote

Telposta Towers
P.O. Box 30025-00100
NAIROBI
KENYA

Ref No. MICT/G/3/57

Date: 2nd April, 2015

The Chief Executive Office
ICTA Authority
NAIROBI

RESEARCH AUTHORIZATION: CLEOPHAS AMBIRA

The above named person has been authorized by the National Commision for Science, Technology and Innovation to carry out research on "Framework for Electronic Records Management in support of Government in Kenya".

He has requested that he conduct the research at your Authority and this Ministry.

The purpose of this letter is to inform you that we have no objection to the person conducting the research in the two organisation and hereby request you to accord him the necessary assistance and support.

Enclosed herewith please find copy of the research authorization for your ease of reference.

Henry Mung'asia
FOR: PRINCIPAL SECRETARY

APPENDIX 9: RESEARCH ASSISTANT AUTHORISATION

Cleophas Mutundu Ambira

P.O Box 1406-00502, KAREN-NAIROBI,
Tel.0714-882678/0736-296031/0774-854158
Email: cleophasambira@gmail.com

18 March 2015

TO WHO EVER IS CONCERNED

Dear Sir/Madam,

JAMES MWANGI-ID NO.26149785

The bearer of this note, James Mwangi National ID number 26149785 is my research assistant. I have authorised him to assist in data collection by liaising with my research participants. Your kind assistance to him on my behalf will be highly appreciated.

CLEOPHAS AMBIRA

With compliments from Cleophas M Ambira

APPENDIX 10: LIST OF RMOs PROVIDED BY THE MINISTRY OF SPORTS, CULTURE AND THE ARTS

REPUBLIC OF KENYA

MINISTRY OF SPORTS, CULTURE AND THE ARTS
OFFICE OF THE PRINCIPAL SECRETARY

Telegrams: "***HERITAGE"***, Kencom Hse, Nairobi P.O. Box 49489-00100
Tel: +254-020-2251164/005, 2250576 Nairobi, Kenya
Fax: +254-020-316187
When replying please quote:

Date: 10th November, 2014

NO	NAME	PF. Number	CURRENT MINISTRY
1	Gitonga Margaret Nyawira	1979135759	Ministry of Mining
2	Sospeter Oyoo Ajuoga	1979018850	Ministry of Health (HIV/AIDS tribunal)
3	Abongo Peter	1982023238	Ministry of Health
4	Mose Janet Nyangate	1995034696	Ministry of Energy and Petroleum
5	Mokaya Jane Kemunto	1983039779	Ministry of Information and Communication
6	Owino Angeline Adhiambo	1984135251	Ministry of Sports, Culture and the Arts
7	Simon Onyambu Mounde	1986110045	National Registration Bureau
8	Jayne Wangari Kanyoro	1989049544	State Department for Immigration
9	Morara Sandy Mokeira	1993021702	Ministry of Lands Housing and Urban Development
10	Kimweli Joseph Mukula	1989009065	Ministry of Transport and Infrastructure
11	Magachi Jennifer Kwamboka	1988051611	Ministry of Foreign Affairs
12	Kavanga Stephen Kieti	1987100700	Ministry of Labour Social Security and Services
13	Mary Goretti G. Kamau	1991057676	Ministry of East African Affairs, Commerce

			and Tourism
14	Mbuvi Peter Mutinda	1981079325	Ministry of Interior and Coordination of National Government (Administration Police)
15	Kukubo Ronald Kisongochi	1987079543	The National Treasury
16	Muthengi Fredrick Kiteme	1984044434	Ministry of Interior and Coordination of National Government (Regular Police)
17	Otieno Machel Oyuke	1983007358	Ministry of Industrialization and Enterprise Development
18	Margaret Njoroge	1979227239	Attorney General and Department of Justice
19	Njagi Stephen Nyaga	1986107571	Ministry of Defence
20	Musyoki Daniel	1982067339	Ministry of Energy and Petroleum
21	Mwangi Jane Kabura	1987111337	Ministry of Interior and Coordination (State Department for Coordination)
22	Kihara Susan Wangu	1979136771	Ministry of Devolution and Planning (Directorate of Special Programmes)

APPENDIX 11: RESEARCH MEMBER-CHECKING GUIDE

RESEARCH TITLE:

A framework for management of electronic records in support of e-government in Kenya

Research Purpose

The purpose of this study was to investigate how the current state of management of electronic records in Kenya facilitates or undermines implementation of e-government with a view to develop a best practice framework for management of electronic records in support of e-government.

The specific objectives of the study were to:

1. Ascertain current status of management of electronic records in Government in Kenya including the capacity of Government ministries to manage electronic records in support of e-government.
2. Determine the current level of e-government utilization across government in Kenya.
3. Establish the effectiveness of existing practices for management of electronic records in supporting e-government.
4. Identify challenges faced by ministries in managing electronic records that could impact on implementation of e-government.
5. Propose recommendations that could improve management of electronic records in ministries to support e-government effectiveness.
6. Suggest a best practice framework that could be adopted by the Kenya government to enhance management of electronic records in support of e-government.

SUMMARY OF FINDINGS

State of management of electronic records

- All ministries and government entities generate vast amounts of electronic records in multiformats.
- No single ministry was found to have a functioning policy to guide management of electronic records.
- No ministry has a full-fledged system (software) to manage electronic records both born digital and converted records.
- Application of national and international standards on management of electronic records was non-existent within the ministries
- The training levels, professional and technical skills of records officers on MER were established to be considerably low

E-government utilization

- There was generally high penetration of e-government within government ministries in Kenya.

- There were not more than fifteen (15) e-government services running within the public entities, providing services most predorminantly used by citizens.
- All ministries had enhanced web presence benchmarked against the UN's e-government maturity model.

Management of electronic records in support of e-government

- The study established that enormous volumes of electronic records are received on the e-government platforms from citizens.
- Integration of electronic records requirements in e-government design was low-key.
- There was no single e-government system that was interfaced with an EDRMS to help in management of the uploaded documents
- There were not yet deliberate steps taken to embed MER within the frame of e-government.
- The study established that management of electronic records has had little consideration of e-government requirements
- The systems put in place for managing electronic records were primarily concerned with internal processes on RM rather than improving service delivery, as e-government is.

RECOMMENDATIONS TO ENHANCE MER IN E-GOVERNMENT SUPPORT OF E-GOVERNMENT

Key recommendation	Proposed timeframe	Comment (please indicate your comments here)
All government institutions implement systems for managing electronic records that would enable capture of all electronic records generated in the institutions on e-government platforms.	Mid-long term	
The Kenya National Archives and Documentation Service (KNADS) initiate processes to develop effective legislative framework to compel the capture and management of electronic records within the e-government environment.	Mid term	
KNADS takes the lead role in developing comprehensive policy, programme and procedures for harmonized management of	Short term	

electronic records across government institutions.		
KNADS, in collaboration with ICTA and the Ministry of Culture, Arts and Sports develop specification and functional requirements for electronic records management systems within the Kenyan context.	Short term	
The ICTA and KNADS should champion adoption of standardised EDRMSs across governments that have functionalities for interfacing with e-government systems.	Mid-term	
KNADS should implement digital archiving system to provide for long-term preservation of electronic records to support e-government over time	Mid- long term	
The Public Service Commission in conjunction with Directorate of Personnel Management develops minimum training requirements for all officers in records management roles across the government. This should also include MER within the e-government context.	Short term	
The design and architecture of e-government platforms be reengineered to provide for interfacing and interoperability with systems for managing electronic records (EDRMS).	Mid term	
The ICTA partners with RM stakeholders to define electronic records elements that need to be integrated in the design of e-government systems to facilitate capture, management and preservation of electronic records	Mid term	
ICTA, KNADS and RMOs should study strategies adopted by countries that have made progress on MER in e-government like Australia, US, UK, Singapore, Republic of Korea, Malaysia and others to identify lessons they can borrow to enhance MER.	Short term	