

**EFFECT OF INFORMATION SYSTEMS MANAGEMNET ON SERVICE
DELIVERY IN PUBLIC SECTOR ORGANISATIONS.**

CASE STUDY: MINISTRY OF INTERNAL AFFAIRS

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2015-M102-20085



February, 2018

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CASE STUDY: MINISTRY OF INTERNAL AFFAIRS**

**A postgraduate dissertation presented to
Faculty of Business Administration and Management
in partial fulfillment of the requirements for the award of the degree in
Masters of Business Administration**

Uganda Martyrs University

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2015-M102-20085

February, 2018

Dedication

This research is dedicated to my family and my friends for their love, patience, support and encouragement throughout this period. God bless them.

ACKNOWLEDGEMENTS

I acknowledge the almighty God for making it possible for me to complete this research successfully.

I would like to express my sincere gratitude to all those who helped me throughout the research period. I would like to thank Mr. Magara Mugaga and Mr. Idraku Felix who have been my supervisors for their patience, guidance and continuous encouragement. I would also like to thank all the MBA lecturers at Uganda Martyrs University for the support they rendered to enable me complete the program successfully.

My sincere thanks go to the management of the Ministry of Internal Affairs for allowing me use the Ministry as my case study. Many thanks go to the staff who participated in the study for their cooperation and provision of information.

I thank my family and colleagues at my work place for the support and encouragement they provided.

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LIST OF ACRONYMS AND ABBREVIATIONS

CEO:	Chief Executive Officer
CVI:	Content validity index
ICT:	Information and communications technology
IFMS:	Integrated Financial Management System (IFMS)
IT:	Information Technology
ITGI:	Information technology Governance Institute
LGs:	Local Governments
MDAs:	Ministries, Departments and Agencies
MoICT:	Ministry of Information and Communications Technology
NSIS:	National Security Information system
NDP:	National Development Plan
NITA-U:	National Information Technology Authority Uganda
NPM:	New public management
NRM:	National Resistance Movement
SPSS:	Statistical package for social sciences
URF:	Uganda Road Fund

ABSTRACT

The purpose of this study is to assess the effect of information systems management on service delivery in the public sector organizations. Service delivery is vital for the survival of a modern government and access to government information by citizens and organizations is therefore a fundamental ingredient in effective service delivery. In realizing the importance to improve service delivery, public sector organizations have taken further steps to enhance their quality of service and increase the effectiveness of organizations through information systems management. Service delivery in most public organizations has been described as poor, inefficient and ineffective. There are problems of inadequate staffing and limited ICT skills, poor management of information system projects, limited sharing of information, existence of overcrowding at ministries and wastage of resources. The study specifically focused on the following objectives; the effect of information systems planning on service delivery in public sector organizations, the effect of information system acquisition on service delivery in public sector organizations and the effect of information system implementation on service delivery in public sector organizations. The study used case study and both qualitative and quantitative approaches were used to collect and analyze data. Interviews and questionnaires were used to collect data from a sample of 152 respondents of the Ministry of Internal Affairs selected using stratified sampling technique. The data was analyzed using SPSS statistical tool. The finding from the study showed that a variation in information systems planning explained 2.8% of service delivery giving a significance value of 0.506. A unit increase in information systems acquisition increased service delivery by 21.6% giving a significance value of 0.030. And a unit increase in information systems implementation explained 12.9% of service delivery giving a significance value of 0.003. The adjusted R square 0.100 showing that a variation in information systems management explained a variation in service delivery of upto 10%. In conclusion information systems acquisition had a weak positive statistically significant effect on service delivery given the p- value 0.030. Information systems implementation had a weak positive statistically significant effect on service delivery given the p- value 0.003. However information systems planning had a weak positive statistically insignificant effect on service delivery given the p value 0.506. The study recommends emphasis in, information systems acquisition and implementation through considering reliability and convenience to use of a system before it is acquired, having proper information system infrastructure in place before acquiring an information system, top management support so as to have them provide the necessary resources to information system projects timely, and training end users on system use so as to have them learn how to use the systems and attain user satisfaction. These will improve service delivery in public sector organizations. Although information systems planning had no significant effect on service delivery effort in user involvement in the planning process will help to identify user requirements thus improve service delivery in public sector organizations.

CHAPTER ONE

GENERAL INTRODUCTION

1.0 Introduction

According to Stair & Reynolds (2013) an Information system is a set of interrelated components that collect, manipulate, store and disseminate data and information that helps organizations achieve their goals such as increasing profits or improving customer service. Over the past two decades, information Systems have viewed significant growth (Rakibul, Ekram&Wahiduzzaman, 2016, p. 307), in the delivery of public services to the people in the most efficient and effective manner (Kauzya, 2011). Evidence also shows ninety four percent surveyed managers agreed that information systems are very important in the delivery of their organizational objectives (ITGI, 2011). Information Systems have become more critical, provide competitive advantage to the organizations, are interactive tools deeply involved in the minute to minute operations and decision making (Laudon &Laudon, 2012) and improve service delivery of governmental functions (Adam, Delis, & Kammas, 2011). This study is about information system management and service delivery in public organizations. The chapter covers the background on information systems management and service delivery at a global, continental and national level. It also states the problem statement, objectives, research questions, scope, significance and justification of the study.

1.1 Background of the Study

Globally, governments have introduced innovations in management, processes, government services, organizational structure, practices, and capacities as a way of improving service delivery (Arundel & Huber, 2013). There is increasing evidence of relatively resource-poor countries that have succeeded building competitive economies by leveraging on information systems such as South Korea and Singapore. Globally, Information and Communications Technology (ICT) is increasingly playing a pivotal role in the socio-economic transformation and development of societies. Research has showed that there is a strong positive relationship between investment in information systems and growth in Gross Domestic Product (GDP). The 2009 World Bank study showed that the impact of increasing information systems usage to GDP

was higher in Low and Middle Income Countries than in High-Income economies (NITA, 2012). Information Systems planning is an essential component of a government strategy to succeed in a rapidly changing world (Ziemba, & Oblak, 2014). Effective planning will help establish information systems as a key resource and enabler to meeting business goals and achieving improved service delivery (Cassidy, 2016). Information systems acquisition helps in achieving higher levels of efficiency and productivity, especially when coupled with changes in business practices and management behavior (Laudon & Laudon, 2012). Over the past decades, the implementation of information systems has given impact in most sectors in public service organizations (Othman, & Lam, 2011).

In the past, organizations recognized the importance of managing resources such as labor, capital, and raw materials. Today, it is widely accepted that managing the information resource is equally important to achieve efficient and effective service delivery in government institutions. Information systems support the process of collection, manipulation, storage, distribution and utilization of an organization's information resources (Lundvall & Johnson 2011). According to Laudon & Laudon (2012), 162 million Americans shop online, and 133 million have purchased online. Everyday about 41 million Americans go online to research a product or service. People and organizations are increasingly able to monitor and control their interactions and environments in near real-time with their clients (Ahmad, & Mehmood, 2015). The ease of interaction is the main formative dimension of service quality (Shareef, Archer & Dwivedi, 2015).

Africa has been experimenting with information systems since the 1980's; it is now time to fully embrace it with the rest of the world as a way of life and especially to manage resources. Unfortunately, organizations in Africa have not been proactive in use of information systems to provide integrated services more effectively (Troshani et al, 2011). Information Systems have to be used in order to create and deliver a service, which is useful and has an effective impact for the businesses and for the citizens (Mugambi, 2013). There is need for organizations to proactively embrace information systems to elicit responses and fulfill changing expectations within organizations (Ball, 2011). Many countries have followed the worldwide trend towards establishing government with the aim of improving public service delivery through the use of information systems (Dombey & Rannyai, 2014). The issue of service delivery is all above the

customer service and effectiveness. Effectiveness in customer service typically refers to “doing the right things” and measures constructs like customer satisfaction on dimensions, such as service quality, speed, timing, and human interaction. Proper service delivery is vital for the survival of a modern government and access to government information by citizens and organizations is therefore a fundamental ingredient in effective service delivery (Ewuim, Ngozi, Igbokwe, & Chinyeaka, 2016). For effective and efficient service delivery, governments have acquired information systems for faster and better communication, efficient storage, retrieval and processing of data and exchange and utilization of information to individuals, groups, businesses and organizations (Mugambi, 2013). Implementation of information systems enhances process management thereby enhancing delivery of public services, improving information flow to citizens, promoting productivity among public servants and encouraging citizens’ participation. Information systems are not only tools that enhance delivery of public services but also have the potential to reform the way policies are formulated and implemented in terms of efficiency, accountability, transparency, and citizens’ participation (Njuru, 2011).

Government established National Information Technology Authority Uganda (NITA-U) and charged it with the overall mandate to set, monitor, and regulate standards for information systems planning, acquisition, implementation, delivery, support, organization, sustenance, disposal, risks management, data protection, security and contingency planning (NITA-U, 2012). Embracing information systems as one of the key strategies for enhancing social-economic transformation of the country, improving effectiveness and efficiency in delivery of services to the people, the Uganda Government acquired the IFMS (integrated finance management system) in order to improve efficiency in budget preparation, execution and financial reporting in government departments (Semakula & Muwanga, 2012).

The Ministry of Information Communication Technology and National Guidance through its mandated agency National Information Technology Authority Uganda (NITA-U) commenced the trial provision of free wireless access to Internet in Kampala Central Business District and parts of Entebbe effective 1st October 2016. As a result, 169 Ministries, Departments and Agencies (MDAs) and Local Governments (LGs) are now connected (NITA-U, 2016), thereby reducing communication costs, as public servants can send reports to management on time via the internet thus improving service delivery.

Ministry of internal affairs which facilitates the legal and orderly movement of persons to and from Uganda, regulates the residence of immigrants in the country, verifies and processes Uganda citizenship and enforces national and regional immigration laws for the development and security. The ministry oversees a number of government bodies which include Uganda Police, Uganda prison services and the Directorate in charge of Citizenship. Government of Uganda through the Ministry of Internal Affairs is implementing the National Security Information System to identify, register and issue national identity cards to all Citizens of Uganda of 18 years and above and to create a platform for integration with other databases of other agencies and ministries for ease of data sharing and effective service delivery among others (NITA-U, 2015).

1.2 Problem statement

Service delivery is a mechanism used by an organization to meet the needs and aspirations of the people it is meant to serve. At the center of service delivery is accountability, value for money, efficient and effective use of resources, improved communication and decision-making processes. Effective service delivery is about providing the services that meet the needs of the users in the most efficient and effective ways. Sharing best practices leads to effective and efficient service designs and implementation (Mutabwire, 2013).

Government has embraced information systems as one of the key strategies for enhancing social-economic transformation of the country, improving effectiveness and efficiency in delivery of services to the people (waiswa & Okello, 2014). According to National Information Technology Authority (2012), policies have been put in place to promote standardization in the planning, acquisition, implementation, delivery, support and maintenance of information systems, to ensure uniformity in quality, adequacy and reliability of information systems usage throughout Uganda and to enhance efficiency and effectiveness in service delivery to the people through deepening use of information systems.

Despite implementing information systems, service delivery by government ministries is still marred by inadequate staffing, limited ICT skills, poor management of information system projects, limited sharing of information, existence of overcrowding in ministries, poor performances and wastage of resources (NITA-U, 2012). This study therefore seeks to determine the effect of information systems management on Service delivery in public sector organizations in Uganda.

1.3 Objectives of the study.

1.3.1 Major objective.

To assess the effect of information systems management on service delivery in public sector organizations.

1.3.2 Specific objectives.

- I. To examine the effect of information systems planning on service delivery in public sector organizations.
- II. To establish the effect of information systems acquisition on service delivery in public sector organizations.
- III. To assess the effect of information systems implementation on service delivery in public sector organizations.

1.4 Research questions

- I. What is the effect of information systems planning on service delivery in public sector organizations?
- II. What is the effect of information systems acquisition on service delivery in public sector organizations?
- III. What is the effect of information systems implementation on service delivery in public sector organizations?

1.5 Scope of the study.

1.5.1 Content scope

The study was limited to the concepts of information systems management, and service delivery in public sector organizations, focusing on the planning, acquisition and implementation of information systems.

1.5.2 Geographical Scope.

This study was conducted at the Ministry of Internal Affairs located in the central division of Kampala, Jinja Road plot 75. Ministry of Internal Affairs has been chosen because it's one of the ministries under the public service. In bid to deliver enhanced public services to the citizens it

implements a number of information systems one of them being National Security Information System used to register and issue national identification cards to all citizen above 18 years.

1.5.3 Time scope

The study considered data from 2013 to 2016. This period was chosen because within this time frame the organizational reports and other necessary documents would still be available to help in data collection.

1.6 Significance of the study.

In conducting this study, the research findings may be of benefit to policy makers in the public sector who are tasked with the formation of policies. The policy makers may issue policies that are relevant and lead to improved service delivery.

The study may further help policy makers and managers in identifying better ways of information system management in order to improve service delivery.

Policy makers with the help of this study may be able to focus on areas which need emphasis through allocating more resources to those particular areas for better service delivery as pointed out by the study.

The findings of this study may be important to future researchers as it may act as a source of reference on the use of information systems in public sector organizations in Uganda. In addition, the findings of this study may be valuable as it may suggest areas for further research where future researchers can research on.

The researcher has indicated areas of further research which may help other researchers who may want to do further research in the field of information systems in service delivery.

1.7 Justification

Information Systems have become crucial for organizations to survive in today's competitive technology-focused environment. Service delivery in any institution is highly depended on effective implementation and management of information systems. A reliable service delivery cannot be realized without effective and efficient information systems. However, majority of the literature reviewed is on studies conducted in other sectors other than the public sector (Yussuf,

2014). The research gap on the effect of information systems management on service delivery which the study seeks to fill by looking at the public sector organizations.

1.8 Definition of terms.

The following definitions are provided to ensure understanding of these terms throughout the study.

Information System is a set of interrelated components that collect, manipulate, store and disseminate data and information and that helps organizations achieve their goals such as increasing profits or improving customer service (Stair and Reynolds, 2013).

Management is the process of dealing with or controlling things or people. Is to forecast and plan, organize, command, coordinate, and control (Fayol, 1917 as cited by Heiman, 2011).

Planning is an important organizational process of team building, modeling, and consensus that analyzes and evaluates key elements of the information system (Managing-IT, n.d).

Acquisition is the process of acquiring necessary hardware and software resources (Managing-IT, n.d).

Implementation is that part of the information system development process devoted to delivering the information system into its use (Kornkaew, 2012).

Service delivery Service delivery is a mechanism used by an organization to meet the needs and aspirations of the people it is meant to serve (Mutabwire, 2013).

Service is a product or activity that meets the needs of a user or can be applied by a user (Mugambi, 2013).

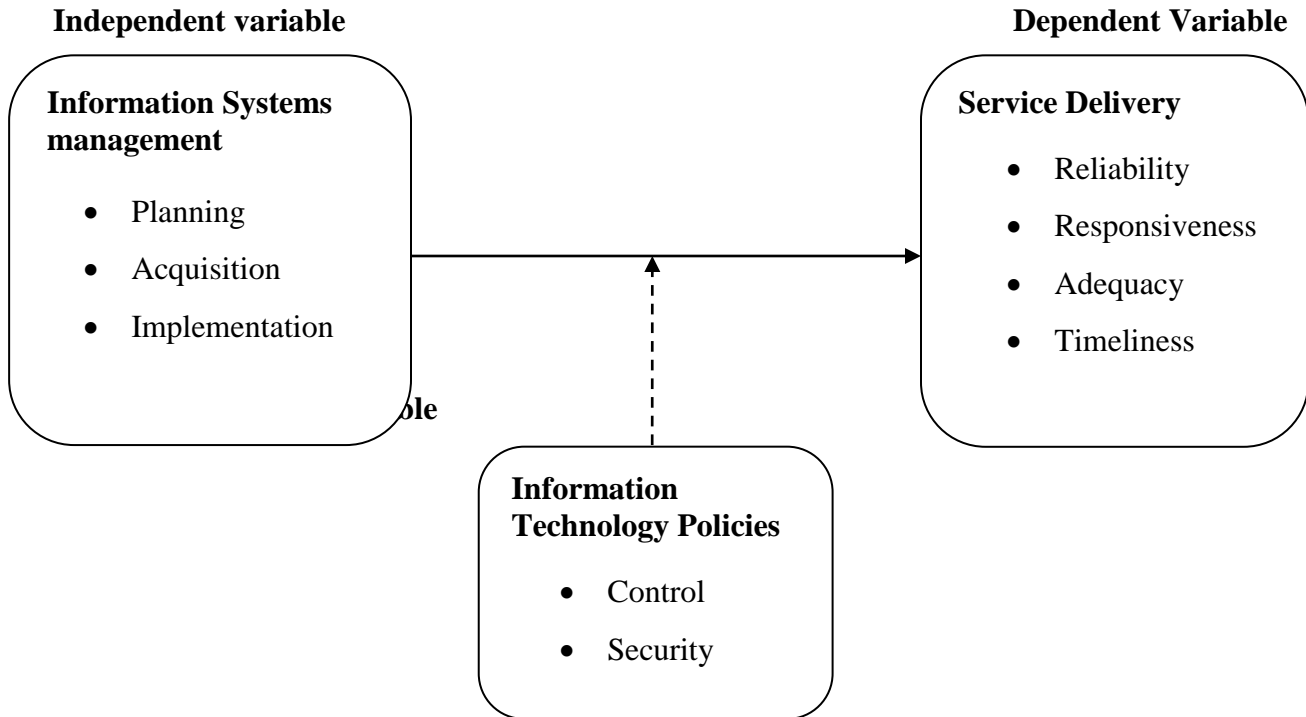
Public sector is an institution of governance and administration established essentially to deliver public good to the people in the most efficient and effective manner (Kauzya, 2011).

IT Policies are the rules and procedures for all individuals accessing and using an organization's IT assets and resources (NITA-U 2012).

Top management the highest ranking executives within organizations. Top management in the public sector are the executive director, directors and heads of departments (URF, 2015).

End users are people for whom an information system is designed for. People who use the information system for their daily activities (Leonardi, 2013).

1.9 Conceptual Frame work



Source: Framework modified from National Information Technology Authority Uganda, (2012).

The study adopts a conceptual framework based on the effect of information systems management on service delivery in the public sector organizations. Information system management is the independent variable whose dimensions include information systems planning, information systems acquisition and information systems implementation while service delivery is the dependent variable measured in reliability, responsiveness, adequacy and timeliness. The assumption was that more effective information systems planning led to improved service delivery. Effective information systems acquisition led to improved service delivery. And better information systems implementation led to improved service delivery. Proper planning will lead to acquisition of the right information system in an organization and if the right systems are in place, proper implementation of the information system will lead to more

efficient and effective service delivery. If planned, acquired, and implemented properly, information systems can bring about greater efficiency in organizational operations, better working environments, and effective decision-making processes. Promoting standardization in the planning, acquisition, implementation, of information systems ensures uniformity in quality, adequacy and reliability of information systems thereby enhancing service delivery (NITA-U, 2012). IT policies regulate the use of information systems in public organizations. A number of policies, laws, and frameworks have been designed to enhance and promote the use of information systems in service delivery and to regulate it so as to stem abuse and exploitation (ministry of ICT, n.d).

Conclusion

Information Systems have become more critical, in providing competitive advantage to the organizations. Many countries have followed the worldwide trend towards establishing governments with the aim of improving public service delivery through the use of information systems. The implementation of information systems has given impact in most sectors in the public service. Unfortunately, organizations in Africa have not been proactive in use of information systems to provide integrated services more effectively. There is need for organizations to proactively embrace information systems to elicit responses and fulfill changing expectations within organizations.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents a review of related literature on information systems management and service delivery in relation to the study objectives based on what other authors and researchers who carried out research in the same field of study have written. The specific areas covered in this chapter are the theoretical review, the actual review of the study focusing on the information system dimensions and how they relate to service delivery. A number of literature materials were reviewed and the findings documented in this chapter.

2.1 Theoretical framework

The need and importance of information systems in government offices in today's public service is highlighted by the theory of NPM (New public management). Although, there are other theories that can be used in this study, such as Technological acceptance model, the study is situated within the ambit of the New Public Management theory. New Public Management (NPM) is an approach used to run public service organizations in a more "businesslike" way and improves efficiency of public organizations by using private sector management models. NPM often focused on citizens who were the recipient of the services or customers to the public sector." New Public Management (NPM) is a strong emphasis on cost cutting rather than over all bureaucracy expansion (Hood 1991 and Hood and Jackson 1991). Deliberate policies and actions to alter organizational structures, processes and behavior to improve administrative capacity for efficiency and effective public sector performance (Kapucu, 2007). The term was first introduced by academicians in the UK and Australia in the 1980s (Hood 1991; Hood & Jackson 1991). Different factors led to the emergence of NPM, some of which are: poor performance of the public sector in different arenas, imperious bureaucracy, and lack of accountability, corruption, changes of people's expectations and the emergence of better alternative forms of service delivery (Common 1998 & Minogue 1998 cited in Sarker, 2006). NPM is intended to improve the quality of public services, save public expenditure, improve the efficiency of governmental operations and make policy implementation more effective (Aucoin, 1990; Pollitt & Bouckaert, 2000; Laffin & Painter, 1995). Furthermore NPM encourages

government to concentrate on the efficient production of quality services (Manning, 2001). So, the relationship between information systems management in public service and NPM theory is an important area of study to better understand the factors that steer and shape information systems in public service delivery (Bekkers & Homburg, 2007, Sahay & Sudan, 2007).

In applying this theory, following the private sector practices, the public sector has envisaged information systems as an instrument to foster a more profound re-engineering of public organizations. NPM and information systems are therefore deeply intertwined as they share the same aims and the same reform goals. The use of information systems in the public sector affects the chief characteristics of the classic public sector paradigm, in the same way as NPM techniques do. Information systems therefore reshape the production, coordination, control, and direction of processes that take place within the public sector (Fountain, 2011). The theory is suitable for this study because it aims at achieving an improved service delivery through information systems management which is the objective of this study. In short, as a strong theoretical foundation, the application of the concept of new public management in this study is to strengthen the need and importance of information systems management in the public sector and the implicit assumption is that a more efficient organizational procedure will automatically lead to a better public service.

New public management criticisms.

Kaboolian (1998), Khademian (1998) & Maor (1999) pointed out that giving public managers more authority to manage programs may result in concentrating decisions making in them. Thus, NPM may lead to centralized decision making by public managers, rather than encouraging decentralization in public organizations as it claims.

Applying private sector management techniques to the public sector. Pollitt (1990) & Armstrong (1998) argued that most areas of public service and administration have distinct political, ethical, constitutional and social dimensions and these factors make the public sector different from the private sector. Savoie(2002) & Singh (2003), also argued that NPM is basically flawed because private sector management practices are rarely adopted into government operations.

NPM involves ethical issues. It is argued by Hughes (2003) that NPM offers greater transparency so that unethical or corrupt behavior can be detected more easily. Ormond and Loffler

(2006) contended that increased freedom of management within public sector organizations allows more opportunities for unethical behavior.

However while NPM ideas have been introduced in developing countries there are constraints and NPM may be inappropriate. An aspect of NPM that is useful for one developing country might not be useful for other developing countries. NPM involves public expectations of government in developing countries. (Manning, 2001). It is difficult for developing countries to succeed in implementing NPM unless citizens are motivated to complain about their local service. (Manning, 2001; Minogue, 2001; Polidano, 1999). Polidano (1999) argued that the NPM does not suit developing countries since governments in these countries may lack the necessary expertise and have unreliable information systems. The NPM commitment to privatization may be difficult to manage in developing countries because they may not have the administrative capacity to undertake this complex task successfully (Haque, 2005; World Bank, 1995). NPM principle of decentralization has diffused from rich countries into developing countries, governments in developing countries often retain centralized decision making. Leading public managers still have authority to make all decision within their organization. This centralized decision making can generate its own pressure for arbitrary action and corruption (World Bank, 1997).

Hughes (2003) argued that it is difficult for the government in developing countries to move to contractual arrangements for the delivery of service because the necessary laws and the enforcement of contract are not well established. Schick (1998) criticized the introduction of performance-based mechanisms of accountability by pointing to the existence of a sharp dichotomy between the formal and informal rules of the game in developing countries and the predominance of the informal realm which is non-bureaucratic. He argues that the rules which actually guide people's behavior may be different from those which are written down.

2.2 Overview of information systems management and service delivery

Information system refers to networks of hardware and software that people and organizations use to collect, filter, process, create and also distribute data so as to achieve efficient service delivery. Information system aims to support operations, management and decision-making. An information system is the information and communication technology (ICT) that an organization uses, and also the way in which people interact with this technology in support of better service

delivery (Bulgacs, 2013). Information systems are becoming ever more central to organizations, especially in making them achieve competitive advantage. Information systems when deployed provide a pivotal role in helping organizations improve efficiency of their operations. Organizations develop individuals with the aim of making them gain ability to both understand and manage these complex and interrelated systems (Othman & Lam, 2011). Managing information systems is important to achieve efficient and effective service delivery in government institutions. Information systems support the process of collection, manipulation, storage, distribution and utilization of an organization's information resources (Lundvall & Johnson 2011).

According to National Information Technology Authority (2012), policies have been put in place to promote standardization in the planning, acquisition, implementation, of information systems, to ensure uniformity in quality, adequacy and reliability of information systems and to enhance efficiency and effectiveness in service delivery. National technology Authority (2012), guides, directs, and approves the establishment and implementation of policies, guidelines, and standards pertaining to the use of ICT. Information technology policies ensure that everyone's use of the organization's ICT resources supports its educational, research, and administrative mission in the best possible way. Information technology policies of an organization regard to the use and security of its computer systems, networks, and information resources. All users of these facilities, including technology developers, end users, and resource administrators, are expected to be familiar with these policies and the consequences of violation.

Service delivery is a continuous cyclic process for developing and delivering user focused services (Mugambi, 2013). According to Mutabwire (2013) Service delivery is a mechanism used by an organization to meet the needs and aspirations of the people it is meant to serve. At the center of service delivery is accountability, value for money, efficient and effective use of resources, improved communication and decision-making processes. Effective service delivery is about providing the services that meet needs of the users in the most efficient and effective ways. Proper service delivery is vital for the survival of a modern government and access to government information by citizens and organizations is therefore a fundamental ingredient in effective service delivery (Ewuim, Ngozi, Igbokwe, & Chinyeaka, 2016). For effective and efficient service delivery, governments have acquired information systems for faster and better

communication, efficient storage, retrieval and processing of data and exchange and utilization of information to individuals, groups, businesses and organizations (Mugambi, 2013). To be effective, services should be reliable, responsive, adequate and timely to the evolving user needs (Mugambi,2014whilequotingKundenbindun, 2008).

2.3 Actual review.

2.3.1 Information systems planning and service delivery.

The planning process enables information systems help an organization meet its objectives. Information Systems planning is critical in developing and executing successful strategic plans in organizations. Objectives of information system planning are desired future positions and destinations the organizations intend to reach in order to fulfill its mission. A properly planned information system is a critical component of an organization's success ineffective service delivery. The Information Systems Planning is a key process for the success and competitiveness of public organizations. Plans explain the structure and content of information system and the way it is developed. The major aim of Information Systems Planning is to recognize the stages of IS planning in the organization. Information system planning determines ways to reduce costs and gain efficiencies (Cassidy, 2016). Effective service delivery is not an accident, rather it is a result of careful planning and intention. Information system planning process is therefore critical to the success of the organization as it is through the planning process that all system requirements are gathered. Otherwise if mismanaged the organization core function of service delivery will fail (Esagala, 2014). More specifically, it evaluates an organization's internal and external environments, forecasts new developments, establishes an organization's vision, goals, and objectives and develops strategies, tactics, and policies to realize them. Effective information system planning is a key ingredient in achieving strategic business success with information systems (Managing IT, nd). Planning the acquisition of an information system will include understanding the; what? Solution, description of system, problem or need, outlining acquirements borders. Scheduling, phases and decision points, resourcing of project, buy or make information system? How to choose a vendor? Project management, who, when, how? (Cassidy, 2016).

Planning is the foundation of all management fields including information systems planning. It is the function which forms the foundation for the rest of the management functions. When

planning is properly conceived and implemented, it can serve as an important mechanism for extracting, distributing and allocating resources which result into successful delivery of services as cited by (Esagala (2014) from Thai,2004). Information system planning refers to the phase that forms a project team with leadership roles, sets budget targets, and defines the information system objectives and plan. The current business process is analyzed in detail in order to select an appropriate information system (Seo, 2013). Careful planning is crucial for the successful implementation of an information system. This allows Ministries to properly scope the information system, assign time and desired level of resources to identifying user requirements, assign staff and develop skills relevant to participate in implementing and using the information system and put in place arrangements to manage the information System during and after its implementation (Semakula & Muwanga, 2012).

Governments have taken huge steps in managing the planning of information systems in the public sector (Karunasena, Deng & Singh, 2011). This is parallel to adapt to the world wide changes of information technology to promote more efficient and cost effective government, facilitate more convenient government services, allow greater public access to information and make government more transparent and accountable to citizens (Azemiet al, 2016). Information system planning can also overcome the financial challenges of information system implementation in developing countries (Wall et al, 2013). Although information system planning is critical many public organizations spend too much time and money in the planning process and complete the plan in isolation. This can result in over analysis, inability to obtain approval of the plan or spending a lot of money on solving the wrong problem (NITA-U, 2012).

Top management is the highest ranking executives within organizations. They translate the policies into goals, objectives and strategies and project shared vision for the future. They make decisions that affect everyone in the organization and are held entirely responsible for the success or failure of the organization. They play a critical role in information system success or failure. As strategic stewards of the organization, top managers play a vital role in supporting information system planning (Loonam, McDonagh, Kumar & O'Regan, 2014). Top management in the public sector are the executive director, directors and heads of departments (URF, 2015).

Top management can support information planning through allocation of resources. By virtue of their leadership role, top management are able to ensure sufficient allocation of resources. More successful organizations are more likely to have long term commitments from top management for a stable funding of information system activities. When the CEO's involvement is high, information systems' activities may receive a larger percentage of the overall organization's budget (Ioonam, McDonagh, Kumar & O'Regan, 2014 while quoting Jones and Arnett, 1994).

According to Cassidy (2016), public organizations spend more money on information systems yet management may not know much about these systems thus they are reluctant in approval of information system plans and thus hampering service delivery. Top management must have a clear understanding of the information system to manage this asset effectively. They must understand; what the company will get from the investment whether the information system will meet the organization's feature needs and the level of service quality and responsiveness of the information system, so they can align the information system to the organizational direction and priorities, Does management know the cost per email, the cost per help desk call and the cost per server? Do they know how to manage information system costs through demand planning, and monitoring? Information system planning is a tool to balance these conflicting forces. Budget pressures are common in many organizations. Continuing doing more with less money is a common challenge faced by information system management. The information system planning process is a tool to balance these conflicting forces. As a result the information system will be in position to support the growing requirements of the organization in the most cost effective manner (Cassidy, 2016).

User involvement is a subjective psychological and personal relevance that a user attaches to a given information system (Esposito, 2015). In order to make sure information systems will be accepted by end users, end users should be included in the information system planning phase. Every information system planning should begin with a user requirement specification. It is important that all team members participate in the information system planning. Information system specification should be based on real user requirements and that user involvement is on its highest level throughout the information system plan, in order to ensure successful implementation of the system and user satisfaction of the result (Wysocki, 2012). Information system developers often get too involved with their ideas, their vision of the information system,

that they forget the main goal or purpose of the information system they are developing. They often burden the information system with numerous unnecessary features, making it too complex for the average user. They often forget some of the most useful features that is why it is beneficial to involve users in the planning process.

Organizational structure in its nature requires that the project team be organizationally and physically separated from the user. Because of this, the project team is in danger of losing insights of the real user needs. In addition, key users have their everyday duties, and the extra work required by the project may require over-time work. The project team in such cases usually does what it thinks users want, and that is often different from what users really want (Ivana, 2014). Therefore, as explained by Wysocki (2012), it is essential that all team members participate in the development of the information system plan, that the information systems plan specification be based on real user requirements, and that user involvement is on its highest level throughout the project execution, in order to ensure a successful implementation of the system and user satisfaction with the result.

Planning rationalizes use of available IT skills and consolidates IT skills development in Government ministries (NITA –U, 2012). Effective information systems planning (MAMPU, 2011) is a major tool for achieving higher levels of efficiency and productivity in service delivery (Laudon & Laudon, 2012). End user resistance to changes in information systems can be minimized by end user involvement in the information systems planning process (Seo, 2013). According to Wall et al, (2013) end user involvement in the planning process, can overcome this challenge, which is one of the key challenges in information system implementation. This can be successfully achieved through an effective, efficient and transparent information system planning which will ensure all requirements for effective service delivery are provided promptly as planned in order to avail services uprightly (NITA –U, 2012). In my view end user involvement in the planning process will enable users feel part of the information system as their requirements will be included or understood and thus the system will be accepted and used thus improving service delivery.

2.3.2 Information systems acquisition and service delivery.

A formal acquisition process reduces the possibility that a business will buy inadequate or unnecessary information system. When evaluating an information system, the business should

investigate specific performance characteristics for the information system to be acquired. These characteristics include performance, cost, reliability, availability, quality, usability and compatibility. Acquisition process for information system services should focus on the quality of support services computer users may need. During this process the necessary hardware and software resources are acquired (Managing IT, n.d). Acquisition of information systems enhances transparency and accountability, as well as networked structures of public organizations, information management and knowledge creation (Mugambi, 2013). Acquiring an effective information system can be an assurance for an organization to stay competitive in its bid to deliver more effective and streamlined services to the citizens (Midiwo, 2015).

In most situations, acquiring the right information systems may also lead to increases in efficiency when it comes to making decisions in organizations and as a result enabling an employee to obtain many hours of the day on his or her back instead of spending these hours dealing with non-strategic tasks. The decisions made should also increase in quality and as a result, the productivity of both employees and managers should increase and become more effective (Ball, 2011). When an organization invests in an affordable information system, it suddenly becomes capable of handling its operations by looking at efficiency and effectiveness of services delivered. Public organizations also invest in information system that help them put the full productivity of their workforce to use, including the varied experiences, talents, and skills of all staff within the organization (Rietsema, 2015). When the right information systems are acquired, organizations can enjoy the ultimate benefit of an all-in-one system that can decrease errors, lower cycle times, reduces turnaround time, and support management decisions (Midowo, 2015).

In many public organizations, the focus of the acquisition of an information system is on operational efficiency. However, as organizations seek to grow and compete in the rapidly evolving knowledge-based economy, the pressure continues to grow for organizations to play a more strategic role in the success of their operations (Muriithi, Gichinga & Mburugu, 2014). Evidently, many organizations have adopted information systems to assist their daily operations. Information systems must align and satisfy the needs of the organization and its users in order to be successful in efficient and effective services (Noor & Razali, 2011). Kananu (2013), observed that it is important to choose the right information systems. An organization that takes time to

invest in an information system that fits their goals, objectives, mission, and values, is investing in its future and in its success. It will be necessary to customize any information system to the unique needs of an organization so the system will remain flexible and relevant throughout the life of the organization.

The key premise of information system acquisition in public organizations is attaining benefits. In particular that refers to benefits which translate into the quality of government services delivered to citizens and businesses. This is due to the fact that public organizations are evaluated in terms of competitiveness and attractiveness for the clients of its services (Bhuiyan, 2011; Hwang & Akdede, 2011; Pillania, 2011). In general, it can be stated that the benefits from an information system acquisition must link in some way into the objectives of the provided government services itself. These benefits are attained both by government clients using government services, as well as government units. Benefits to government clients include; access to information for general public, online services, and access to timely, relevant and accurate information (Cordella & Bonina, 2012). The benefits to government units are process redesign and standardization, improved project management practice, rigorous quality assurance, and increased support and involvement from all levels of personnel (Bhuiyan, 2011).

Investing in information systems can be attributed to increasing emphasis on quality consciousness, optimum utilization of resources, integration of various administration processes, cost cutting, right sizing, international standardization, providing web based training, public education, detection of fraud, closer monitoring of implementation of company policies, shorter product development/launching time, etc. Information systems are, therefore, pertinent and being used in the following applications in the public organizations: public administration, product control, claims management, reinsurance cover, accounts, management information & control system, document fulfillment and reporting (Idris, Olumoko, & Ajemunigbohun, 2013).

Over a decade ago, it was emphasized that benefits of information systems to organizations would include faster and accurate ways of getting things done, relieving workers of the burden of performing minor repetitive tasks and elimination of unnecessary use of resources such as paper work (Idris, Olumoko, & Ajemunigbohun, 2013). Because information systems are so important, businesses need to be sure that improvements or completely new systems help lower costs, increase profits, improve service, or achieve a competitive advantage (Stair & Reynolds, G,

2013). Many governments have invested huge amounts of money in acquisition of information systems to serve their stakeholders in an efficient and effective way (Azemi et al, 2016. while quoting Kalisnman, 2009). Managers in government departments acquire online collaborations and social networking software to improve coordination, collaboration and knowledge sharing by this they improve communication in service delivery (Laudon & Laudon, 2012). Government of Uganda spends a substantial amount of money on acquisition of information systems due to high cost of ICT infrastructure and facilities including licenses coupled with procurement styles(NITA-U, 2012). An information system acquisition cost puts pressure on organizations to justify the return on investment (ROI) in such a system. The nature and scope of processes served by the information system can be a difficult item to measure and evaluate given the long term duration needed for ROI to be realized (Midiwo, 2016).

National Information Technology Authority (NITA_U) regulates and enforces standards for information systems acquisition in all Government Ministries, Departments, agencies and parastatals. Cabinet under Minute No: 334 (CT2011) approved the National Information Technology (IT) Policy, aimed at streamlining, harmonizing and rationalizing the acquisition, deployment, utilization and disposal of IT services and information systems in Government as well as enhancing service delivery in the public sector. Several Government agencies and ministry departments have continued to acquire inappropriate and fragmented information systems, duplication of information systems and projects – these information systems are being implemented in isolated and disparate (stand-alone) manner leading to wastage of resources and lack of standards (NITA-U, 2012). Although information systems acquisition have grown in the public sector , the use and especially, the effects of it on a large scale service delivery are still in the early stages and changes are only starting to occur (Grimson et al, 2012).

2.3.3 Information system implementation and service delivery.

Implementation transforms a newly developed information system into an operational system for end users (Managing IT, n.d). According to Abbas (2011), the major benefits of information systems implementation are improved productivity and reduced cost. There is considerable pressure on most organizations to make their operational, tactical, and strategic processes more efficient and effective. Consequently, public organizations decide to implement Information

systems in order to improve the effectiveness and efficiency of service delivery. Information System implementation mainly affects business process which lead to change, for instance jobs, routines, and service delivery (Kornkaew, 2012). Implementation of information systems allows a government's internal and external operations to gain speed, precision, simplicity, outreach and networking capacity, which can then be converted into cost reductions and increased effectiveness which is desirable for government operations and service delivery (Mugambi, 2013).

As Danfulani (2013), put it, there is no contesting the fact that the infusion of ICT into publicsectororganizations has massively downsized the level of corrupt activities in the public sectorwhich has enhanced the governmental activities in the area of service delivery. It is in line withthis laudable (commendable) role that governments in order to ensure the full exploitation ofthe potentials of ICTs in the area of effective service delivery laid the foundation for information systems across the ministries agencies and other departmental units of thegovernment. With this compliance, governments are expected to improve the quality of services rendered to the people. Government of Uganda has prioritizedinformation systems as one of the primary growth drivers of economy and key strategy for improving efficiency and effectiveness of service delivery to citizens with the eventual goal of attaining a knowledge-based economy. This is clearly enshrined in all key national development strategies such as the Uganda Vision 2040, the National Development Plan (2010/11-2014/15) and the National Resistance Movement (NRM) Manifesto (NITA-U, 2012).

The advent and deployment of information systems in public services presents opportunities for its use to facilitate effective service delivery as many countries haveembraced it as a way forward (Seo, 2013). In most developed European economies, information system development has advanced significantly in terms of the complexity of public services (Arduini et al., 2013; Seri &Zanfei, 2013). Each nation has a different level of information technology development, a different level of the application of information systems to the public organizations. It is not with-out significance, that highly developed countries are moving their focus from basic information system implementation to reengineering their internal operation radically to reduce costs of government delivering services (Weerakkody, Janssen, & Dwivedi, 2012).

Peppard & Ward (2016) stated that information systems deployment improves the efficiency of information based functions in organizations when technology is used to automate discrete, structured, repetitive, stable information-intensive tasks. According to Ainabor (2011), in implementing information systems, the efficiency can take different forms. For example, one form is to reduce errors and improve consistency of outcomes of governmental projects through automating standard tasks. The second form of efficiency improvement is to reduce costs and the many layers of organizational processes (the popular bureaucracy) by streamline operating procedures through e-applications. Part of efficiency improvement is reduction in time spent on repetitive tasks. This without doubt, will give the government employees ample opportunity to develop new skills and advance their carriers. It is highly believed that no managerial reform can be materialized unless it is supported by information systems to improve effectiveness and efficiency of personnel management, procurements and many other government activities (Ambali, 2010).

According to NITA-U (2012), implementation of a National data bank that acts as the central repository of information that is used for many national purposes such as elections (delivery for the Electoral Commission an Updated clean voters' register, a data and personalization center for the Ministry of Internal Affairs, as well as issuing 3.5 million National Identity Cards and numbers), government to business (G2B), government to citizens (G2C) service delivery, (production of National IDs, through the Mass enrolment for all citizens and alien residents, and issuance of 11.5 million National Identity cards personalized and distribution, Passports and Driving Permits. All the ministry departments and agencies and other permitted users access this information from a central point.

The implementation of the Integrated Financial Management System (IFMS) was motivated by the Ugandan Government's desire to improve service delivery through efficiency in budget preparation, execution and financial reporting. Since 2003, the IFMS has been extended across all 22 ministries and 25 central government agencies. The IFMS has also been implemented in 8 local Governments with plans to extend it to 6 more districts. This has led to greater expenditure control and discipline in budget management as a result of improved oversight and enforcement of internal controls; a reduction in the time taken to process payments; improvement in account reconciliation; and more accurate and reliable financial reporting (Semakula & Muwanga,

2012). In reference to Ibirogba, (2011), the governments reduced the increasing rate of violent crimes by applying latest information systems. Armed robberies and road accidents can be controlled by installing surveillance cameras and radio transmission connections in tracking accidents that the police in crime prevention and control. Accordingly, the governments install surveillance cameras to curb down cases of robberies, bomb explosions and kidnapping that are rampant.

Using information systems has provided remarkable opportunities to decrease errors, support operations, increase efficiency and quality of service delivery. On the other hand, there are numerous problems in the scope of IT-based systems in public organizations therefore it causes a deep gap between the positive potential for information systems to organizations and their negative impacts. A huge amount of money is invested in information systems, but a significant portion of this money is wasted for inefficient systems or not implemented ones (Sadoughi, Kimiafar, Ahmadi, & Shakeri, 2013). Organizations require a comprehensive evaluation framework, which can help create and develop methods of information system evaluation. On the other hand, timely identification of methods for information systems evaluation can be possible through the identifying the success and failure factors of these systems (Ozkan, Baykal & Sincan, 2012).

The effectiveness and productivity of information systems in public industries was already being questioned at the beginning of the 1980s (Grimson et al, 2012). It was not clear that implementing information systems would improve productivity, even if the implementation process were conducted properly. There are always some processes which information systems improves almost automatically, but the deeper effects which should create the ultimate and intended benefits are time-consuming and need thorough changes in both processes and organizational thinking. Strategically there is a need to take a more business process view of public service delivery and to identify the appropriate organizational and information infrastructure to support these processes (Yussuf, 2014). Information system implementation has greatly improved productivity of public organizations by reducing bureaucracy, operational costs and time spent on repetitive tasks thereby improving service delivery.

Top management are the strategic stewards of organizations, they focus on strategy formulation, communication, resource allocation and delegation. Top manager's support needs to be holistic in nature covering all stages of the implementation process. Top managers should maintain a positive attitude, build an effective and powerful coalition group, create an inclusive steering committee, developing a strong vision for information system, align the information system strategy with the organization and provide sufficient resources for the information system initiative. These will help top managers towards a more holistic approach to support information system in the delivery of services (Ioonam, McDonagh, Kumar & O'Regan, 2014).

Strategic foresight is critical to the implementation of information system. Such initiatives can have huge effects on organizational performance through business process reengineering and system integration. Top managers should be actively involved and supportive of new information system. Top managers who foster a positive attitude towards information systems can build a powerful coalition group to develop a vision and foresight that is aligned to the organization's strategy. Communication is a powerful means through which top management can signal their support for the information system. Top management must regularly communicate with information system management and users in order to inform them about organizational objectives (Ioonam, McDonagh, Kumar & O'Regan, 2014 while quoting Applegate, 1988).

Since information system implementation inevitably causes organizational changes, it requires the engagement of top management from across the Organization to resolve conflicts. Without the commitment of top management, information system implementation has a high risk of failure thereby hampering service delivery (Seo, 2013). Abbas (2011) presented that "the structures of the public organizations are very rigid and resistant to change". In this sense, the role of top management is critical to plan and monitor across an organization during information system implementation. For successful information system implementation, all the users should be informed and involved about the implementation process and progress. The effective and efficient communication increases the possibility of success of information system implementation and improved service delivery. Information system implementation causes delay or overrun cost even more without strong top management support (Seo, 2013).

Once an information systems investment has been implemented by an organization, top management needs to assess how successful it has been in achieving its goals. Few organizations

systematically attempt to measure the effectiveness of their information systems or even know how to do so. The evaluation should determine whether or not an information system is performing up to its expectations and if it is being used to its full advantage and return on investment (Midiwo, 2015).

Implementing an information system is effective to the extent that it is accepted and utilized by the relevant staff and management. Introducing an information system is more than procuring and installing technology (hardware and software). It is about changing the way business is conducted, and changes to procedures will need to be adopted by staff and management in order to have a positive impact on service delivery (Semakula & Muwanga, 2012). Due to changes in business processes across an organization, there can be resistance to adopting the information system (Seo, 2013), in most public organizations because it involves not merely the adoption of a new information system, but a holistic change in organizational culture (Abbas, 2011). Lack of end user training increases risks by creating confusion and inaccuracy, thereby decreasing user satisfaction and the credibility of the system (Seo, 2013). For successful information system implementation, all the users should be informed and involved about the implementation process and progress. The effective and efficient communication increases the possibility of success of the information system implementation (Abbas, 2011).

End users are people for whom an information system is designed for. People who use the information system for their daily activities (Leonardi, 2013). Governments should invest in purposeful ICT training and the development of its staff, to upgrade the skill and abilities of the civil servants. (Ewuim et al., 2016). According to Seo (2013), End user training is essential for a robust understanding of how the information system works and how to use it. Consequently, appropriate end user education and training will maximize information system benefits, increase user satisfaction and improve service delivery. Therefore, it is critical that management staff be committed, and particularly that they equip employees who are using business functions influenced by the information systems with clear channels of communication. It is not hard to come across a project that failed because it was not accepted by users. The project team finished the job on time and within the established range, but end users were not interested in using the new system. One of the main reasons why these situations occur is poor communication with end users, and lack of user involvement in the information systems project (Ivana, 2014).

According to Abbas (2011), there can be resistance to information system implementation. Information systems have been used in order to create and deliver a service, which is useful and has an effective impact for the businesses and for the citizens. Properly managed information systems have the potential to help build better relationships between government and the public by making interactions with the citizens smoother, easier and more efficient (Mugambi, 2013). To this end, information systems are seen as a tool to support the work of governmental institutions and agencies with the objective of delivering public services and information in a more convenient, citizen centric and cost effective manner (Ewuim, Ngozi. Igbokwe-ibeto, Chinyeaka, 2016). From the above review user training helps improve service delivery through users being able to understand how to use the system and how the system works, thus user satisfaction which motivates the user to use the system.

2.3.4 IT Policies and Service Delivery.

The Information and communications Technology Authority enforces ICT standards in government and enhances the supervision of its electronic communications (GOK, 2013). To Increase the use of information systems for equitable and sustainable socio-economic and cultural development, governments put in place policy frameworks through which coordinating mechanisms and harmonized strategies might be nurtured. These policy frameworks make it possible for government departments to work together and become further empowered through the appropriate development and application of information systems (National ICT Policy, 2013), thereby enhancing delivery of public services, improving information flow to citizens, promoting productivity among public servants and encouraging citizens' participation (Njuru, 2011).

Accordingly, Government established National Information Technology Authority Uganda (NITA-U) and charged it with the overall mandate to coordinate, promote and monitor the development of Information Technology (IT) in the context of social and economic development of the country., the functions of NITA-U is to promote standardization in the planning, acquisition, implementation, delivery, support and maintenance of information systems, to ensure uniformity in quality, adequacy and reliability of information systems' usage throughout Uganda. And regulate and enforce standards for Information systems' procurement in all Government Ministries, Departments, agencies and parastatals, among others (NITA-U, 2012).

Hence a number of policies, laws, and frameworks have been designed to enhance and promote the use of information systems in service delivery and to regulate it so as to stem abuse and exploitation. First a fully-fledged Ministry of Information and Communications Technology (MoICT) was formed in 2006, to, among others: provide leadership at the strategic level, overall coordination, advocacy, and support on matters of ICT (Ministry of ICT, n.d.).

A number of laws exist to enable and regulate ICT investments and usage. Some of them are: The Electronic Transactions Act (Act 8) (Uganda, 2011); an act intended to provide for the use, security, facilitation and regulation of electronic communications and transactions; to encourage the use of e-Government services. And the Computer Misuse Act (Act 2) of 2011 (Uganda, 2011) Intended to protect users against willful attacks and theft of information. Offences under the act include hacking, unauthorized access to computer systems (altering software and data, changing passwords and settings to prevent others from accessing) and purposefully spreading malicious and damaging software such as viruses. Others include, The Regulation of Interception of Communications Act 2010, a law intended to bar users of ICTs from repeatedly abusing those they communicate to, or using Internet and telephones in a manner that threatens national security or the security of individuals. The Act provides for lawful interception and monitoring of certain communication in the course of their transmission through a telecommunication, postal or any other related service or system in Uganda, to provide for a monitoring center (NewVision, 2011).

Conclusion

The literature reviewed shows that information system planning, acquisition and implementation have become an initiative to develop smart services and provide opportunity to citizens to interact with government offices. Public service faces many challenges in the present world especially in service delivery. While it is clear that information systems have been widely adapted in the private sector, few studies show how information systems give high impact on public service performance. This research is intended to fill the gap about information systems management and service delivery in the public sector.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction.

This chapter describes and explains the way the study was conducted. It presents the research design, the study population, the sample size and selection, sampling methods and procedure, sources of data, data collection methods, data collection instruments, pretesting of data collection methods, validity and reliability of the instruments, data collection procedure, data analysis, ethical procedure, study limitation and conclusion.

3.1 Research design.

The study was carried out using case study. Case study is an empirical inquiry that investigates a the problem at hand in depth and within its real life context and in which multiple sources of data gathering are used(Yin, 1984). Case study was considered most relevant as it helped determine factors and relationships among the variables focused on in the study.It helps understand the issue at hand and can add strength to what is already known through previous research, emphasizes detailed background analysis of a limited number of variables and their relationships and involves using multiple sources and techniques in the data gathering process like questionnaires and interviews. (Yin, 1984).Case study is time bound, study carried out within a particular period. The study was conducted in the Ministry of Internal Affairs and both qualitative and quantitative approaches were used in data collection and analysis. The qualitative approach was used in order to obtain textual data using interviews. The quantitative approach was used to get data through questionnaires whose data was quantified and manipulated statistically. Holman (1993) concludes that a good research recognizes the complementarities and interpretation of qualitative and quantitative methods of inquiry.

3.2 Area of study.

Ministry of Internal Affairs was the area of study which was selected becauseit is oneof the government ministries underpublic service, which has implemented a number of information systems including the National Security Information system (NSIS) used to identify, register and issue national identity cards to all Uganda citizens of 18years and above, the researcher

identified it to give a good representation of how information systems management affects service delivery in public sector organizations. It was easily accessible for the researcher due to its being located in Kampala where the researcher could easily move to, to collect data. The Ministry of Internal Affairs is located at Plot 75 Jinja Road in the central Division of Kampala. Ministry of Internal Affairs is a Government Ministry charged with ensuring and maintaining internal security, peace and stability in Uganda. It uses a number of information systems in bid to provide these services to the people in Uganda (Ministry website, n.d).

3.3 Study population.

The target population was the Ministry of Internal Affairs. A total of 270 staff constituted the study population (Ministry of Internal Affairs HR department, 2017). The respondents were the Ministry of Internal Affairs staff who use information systems. These included junior staff, supervisors, middle managers and top managers from the different departments.

3.4 Sample size and selection.

A sample is a portion of the population whose results can be generated to the entire population (Amin, 2005). Sampling enabled the researcher to select respondents from the population in such a way that the respondents selected represented the entire study population. Sampling also enabled the researcher to work within budget and conduct the research in time (Saunders et al., 2009). In accordance with the sampling table by Krejcie & Morgan (1970), a sample size of 155 respondents was got basing on the population of 270 staff. The 155 respondents were selected to form a sample from the different departments in the Ministry of Internal Affairs. These included top management, middle management, supervisors and junior staff.

Stratified sampling technique was used to select the respondents. Respondents were divided into their respective departments which formed the separate strata. From each stratum, respondents were selected proportionally using simple random sampling so that the total sample size became 155 respondents. To make this process easier, the researcher presented a letter introducing her and stating the purpose of the research from the university to the Ministry administration so as to be allowed get information from the staff.

Table: 3.4.1 Showing how the respondents were selected.

Category	Number of respondents
Top management	01
Middle management	38
Supervisors	47
Junior staff	69
Total	155

Source: Primary Data (2017)

3.5 Data collection methods and instruments

Primary and secondary data was used in data collection. Primary data was collected using questionnaires and interviews, issued to staff of the Ministry of Internal Affairs, this provided the researcher with specific information about the effect of information systems management on service delivery. Secondary data was collected from journals, articles, websites, reports, graphs and books.

Qualitative data collection was done using interviews, which was used to offer a complete description and analysis of the research subject, without limiting the scope of the research and the nature of participant's responses (Collis & Hussey, 2003). Qualitative data collection methods are time consuming therefore interviews were conducted from a small sample compared to the quantitative approach used. This data collection approach involved direct interaction with individuals on a one to one basis using individual interviews. Qualitative data helped the researcher to get, in depth, and richer information that had a deeper insight into information systems management and service delivery.

Quantitative data was obtained by administering questionnaires. Quantitative data collection technique was used to quantify attitudes, opinions, behaviors and other defined variables. Quantitative data produced results which were easy to summarize, compare and generalize. Measurable data was used to formulate facts and uncover patterns in research. Quantitative data collection methods are more structured than qualitative data collection methods. It involved use of closed and open ended questions. Data was presented using tables, bar graphs, pie charts and frequency distribution.

3.5.1 Questionnaires

The questionnaire enabled the researcher to reach many respondents in a short time thus being less expensive (Amin, 2005). Respondents responded freely to questionnaires since they remained anonymous (Cupid Lucid 2008). The questionnaire enabled the respondent time to independently reflect on answers to avoid hasty responses. The questionnaire had both open and closed ended questions designed according to the objectives of the study (Mugenda and Mugenda, 1999). They helped in collection of quantitative data.

The questionnaire were designed using a 5-point Likert Scale from 1 (strongly disagree) to 5 (strongly agree). And was comprised of five sections including section A for bio data of the respondents. Section B contained questions on Information system planning, section C on information system acquisition, section D on information system implementation and section E on service delivery. The questionnaires were pretested by going through the wording and clarity to clarify all terms and items and remove all ambiguity(unclear meaning). The questionnaires were then edited and used for the actual data collection. Questionnaires were collected after two days from date of issuing them to the respondents, to give enough time for completing the questionnaires. 155 questionnaires were dispatched for data collection.

3.5.2 Interviews

Interviews were used to capture qualitative aspects of the study. The interviews enabled the researcher to acquire information from key staff in the ministry. The interviews helped explore the topic under study in depth and allowed the interviewer clarify questions, increasing the likelihood of useful responses (Trochim, 1999). This gave the researcher an opportunity to have face to face conversation to probe, prompt and exchange opinions with the staff, and to practically collect more ideas. The interview involved oral questions to individual respondents, developing a rapport with the respondent and closing the interview. Answers to the questions posed were written down during the interview session.

3.6 Quality control methods

For quality control, the research instruments (questionnaires and interviews) were pretested to ensure validity and reliability.

Validity

Validity of an instrument refers to the appropriateness of the instrument to measure a variable and come up with the intended results (Amin, 2005). Validity is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform (Neuman, 2012). Validity of the instrument was measured by ascertaining its truthfulness or correctness. The validity of the instrument was attained through continuous guidance of the research supervisors who read through and gave guidance and advise on the instrument. This was done inline with Gay (1996) who advised that the content validity index (CVI) is refined based on expert advice. It measures whether the questions accurately assess what the researcher wants to know.

$$\text{CVI} = \frac{\text{Items considered to be valid}}{\text{Total number of items}} = \frac{24}{30} = 0.8$$

The closer the CVI is to 1 (one), the more valid the instrument is. The scale 0.8 shows that the instrument was relevant in measuring the effect of information system management on service delivery and therefore highly valid.

Reliability

Reliability refers to the consistency of a measure over time (Neuman, 2012). Reliability of an instrument is the measure of whether an instrument consistently measures what it is intended to measure. Consistency describes the extent to which all the items in a test measure the same concept. Reliability of the questionnaires was tested using Cronbach alpha coefficient to establish clarity and dependability of the instrument (Cronbach, 1976). Reliability Alpha test results are expressed as a number between 0 and 1, where results towards 1 show that the instrument is highly reliable. The researcher tested reliability of quantitative data by using Cronbach alpha coefficient computed using SPSS as shown below.

Reliability Statistics

Cronbach's Alpha	No of items
.724	20

Variables yielded an alpha value 0.724. This concluded that the instrument was consistent in measuring effect of information systems management on service delivery. This implies the tool used for data collection was reliable as asserted by (Sekron, 2003).

3.7 Data management and Analysis.

Quantitative data was analyzed by measuring statistical correlations between independent and dependent variables. The required tabulations for analysis were produced using SPSS for quantitative data. Content analysis was done for qualitative data collected from responses on open ended questions in the questionnaires and interviews.

Quantitative data was collected using questionnaires, edited and coded using a 5-point Likert Scale into 1 (strongly disagree), 2 (disagree), 3 (not sure), 4 (agree) and 5 (strongly agree) and computed using SPSS to facilitate quick analysis of data. Quantitative data was presented in form of percentages, mean and standard deviation of each variable. Standard deviation showed the variation in the responses of the respondents. Mean showed the central tendency of the data distribution. Multiple regression analysis technique using adjusted R square R^2 value, beta, t values and significance values were used to determine whether information systems planning, information systems acquisition and information systems implementation significantly affected service delivery. Adjusted R^2 explained that the independent variables explained a percentage variation of the dependent variable on the dependent variable. The adjusted R^2 showed that the percentage variation of the dependent variable was explained by only those independent variables that affect the dependent variable. R^2 showed that all the independent variables explained the variation in the dependent variable. The linear regression line formula $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon_1$ Where Y (Dependent variable; service delivery), α (the level of service delivery that is independent of the stated independent variables), β_1 (Effect of information systems planning on service delivery), β_2 (Effect of information systems acquisition on service delivery), β_3 (Effect of information systems implementation on service delivery), ϵ_1 (error term). The researcher used both tabular and descriptive narration and graphs as a means of presentations.

Qualitative data was collected using interview guides. Content analysis was used which involved a systematic and objective means of describing and quantifying information obtained from the

interview. Qualitative data was coded and grouped into themes that emerged, ideas and opinions of individuals were summarized. Through content analysis, it was possible to distill information obtained from the interview into fewer content related categories. When classified into the same categories, information obtained from the interview was then presented to supplement the quantitative data in order to have a clear interpretation of the results.

3.8 Measurement of variables

Service delivery had the dimensions of reliability, responsiveness, adequacy and timeliness. Planning had the dimensions of top management support, user involvement, cost and time. Acquisition had the dimensions of information system benefits, cost and usability. While implementation had the dimensions of end user training, time and top management support. Categorical variables were measured using the nominal scale, with numbers being assigned to each category to identify similar objects within a category from elements in another category that are different. The researcher used ordinal measurement scale for categories with increasing ranking. Which were coded using a 5-point Likert Scale from 1 (strongly disagree) to 5 (strongly agree). A regression was employed to determine how the independent variables affected the dependent variable.

3.9 Ethical Considerations

A letter was presented from the University to the Ministry of Internal Affairs to seek for permission to conduct the study.

The instruments used to collect data clearly stated that the purpose of the study was purely academic. This was achieved by using the findings only to achieve the objectives of this study.

Respondents were assured of being kept anonymous and confidentiality of their information, this was achieved by no requirement for respondents' names as they filled the questionnaires.

The researcher acknowledged and cited previous studies by other scholars in the area of information systems and service delivery.

Respondents participated in the study voluntarily this gave them freedom to fill at their convenience. They were not forced to take part in the study. Respondents were given the

questionnaires which were picked after two days. This gave the respondents time to fill at convenience.

3.10 Limitations of the study

During the study the following limitations were met which included:

Time constraint there was not enough time to carry the research as the research was done alongside other course units. Much as time was not enough the researcher overcame this by starting research early enough, using assistants in issuing and collection of questionnaires.

Lack of enough funds. This was overcome by the researcher selecting a study area (Ministry of Internal Affairs), which is within Kampala district and was easily accessible by the researcher for data collection.

Gathering literature related to the study was a challenge because the relevant information was scanty, scattered and needed to be collected and assembled together. To eliminate this challenge, the researcher devoted all extra time to gather all the relevant literature within the possible time limit by using online journals and articles and websites which were simpler to access and get information than books.

Conclusion

This chapter explains the methods that were used in undertaking the research. It clearly indicated the research design, population, sample size and sampling technique, data collection, analysis and presentation methods. Validation and reliability of the instruments used. It further indicated ethical considerations and the constraints that were faced by the researcher in the accomplishment of the study and how they were overcome.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS.

4.0 Introduction

This chapter presents the, presentation, analysis and discussion of findings in relation to the study objectives. The variables of the study included service delivery as the dependent and information systems management as the independent variable. The study was based on the following research questions: what is the effect of information system planning on service delivery in public organizations? What is the effect of information system acquisition on service delivery in public organizations? And what is the effect of information system implementation on service delivery in public organizations? The study findings are presented in accordance to the study specific objectives in tables using mean, standard deviations and percentages. The mean showed the central tendency of data distribution while the standard deviation showed the variation in the respondents' responses. A low standard deviation indicated that the data points tend to be close to the mean while a high standard deviation indicated that the data points varied or were spread. The chapter begins with the characteristics of the respondents, descriptive frequencies of the items under study and regression analysis of the independent and dependent variables.

4.1 Demographic characteristics of the respondents.

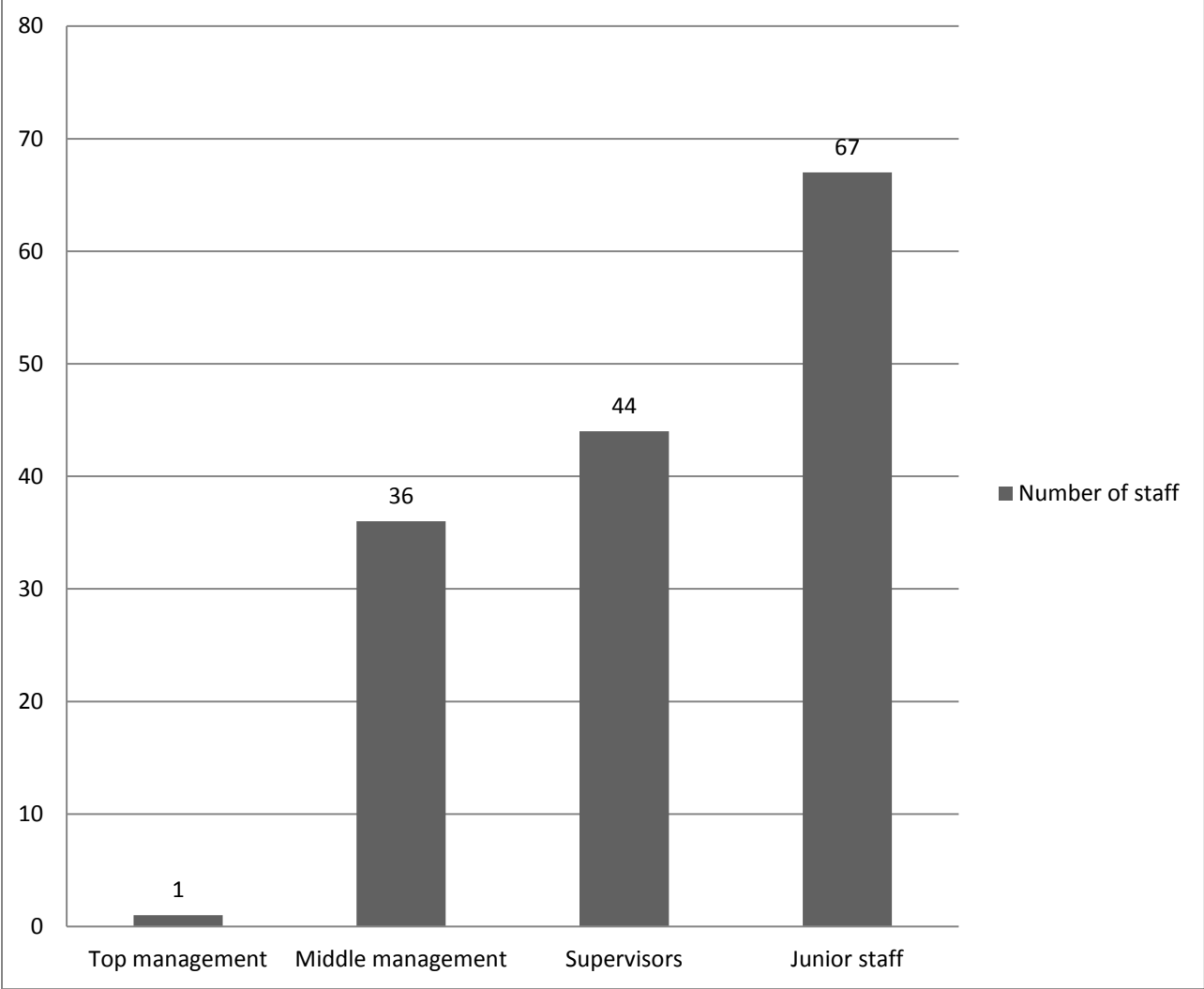
The questionnaire sought for data on the respondents which was intended to give a clear picture of the characteristics of the study respondents. Data collected included the position in the organization, highest level of education, age group, gender and number of years served in the Ministry of Internal Affairs. The study targeted a sample of 155 staff of the Ministry of Internal Affairs and consisted of top management, middle management, supervisors and junior staff.

4.1.1 Response rate

155 questionnaires were administered to the top managers, middle managers, supervisors and junior staff and only 148 questionnaires were returned, the response rate was 95.5%. The response rate was above the minimum recommended 50% implying that an adequate number of Ministry of Internal Affairs staff participated in the study and hence the results were reliable.

Interviews were conducted with three key informants including the head of IT of the Ministry of Internal Affairs, the deputy head of IT and a system’s developer in the IT section.

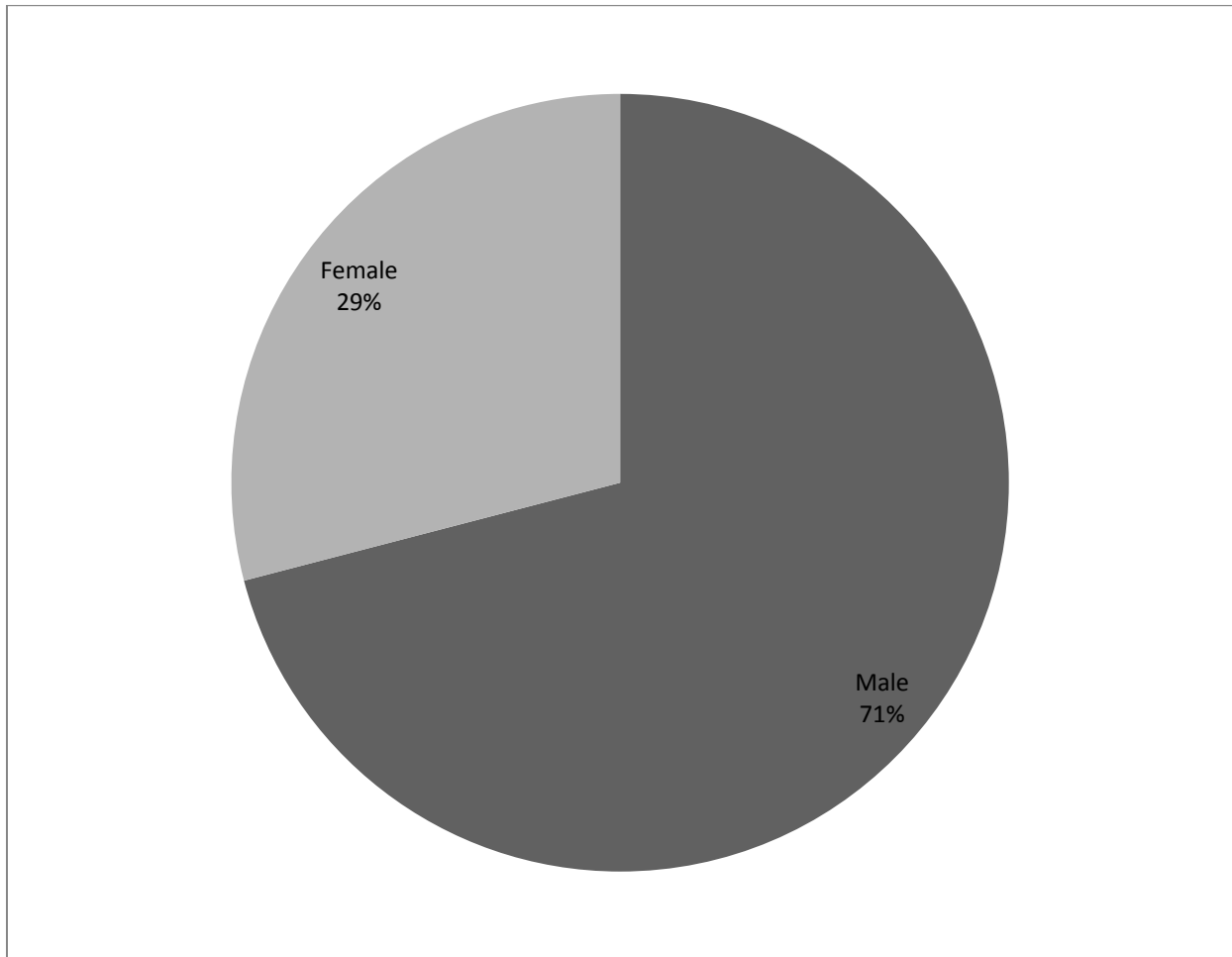
Figure 4.1.2: Position in the organization.



Source: Primary Data (2017)

The graph above shows that of the 148 respondents, 1 belonged to top management, 36 belonged to middle management, 44 were supervisors and 67 were junior staff who constituted the majority of the respondents. The findings revealed a good representation of all the levels in the organization from the junior staff to top management and helped in gathering unbiased responses. It further reveals that most organization structures have more staff at the lower levels (junior staff) and fewer staff at the top (top management).

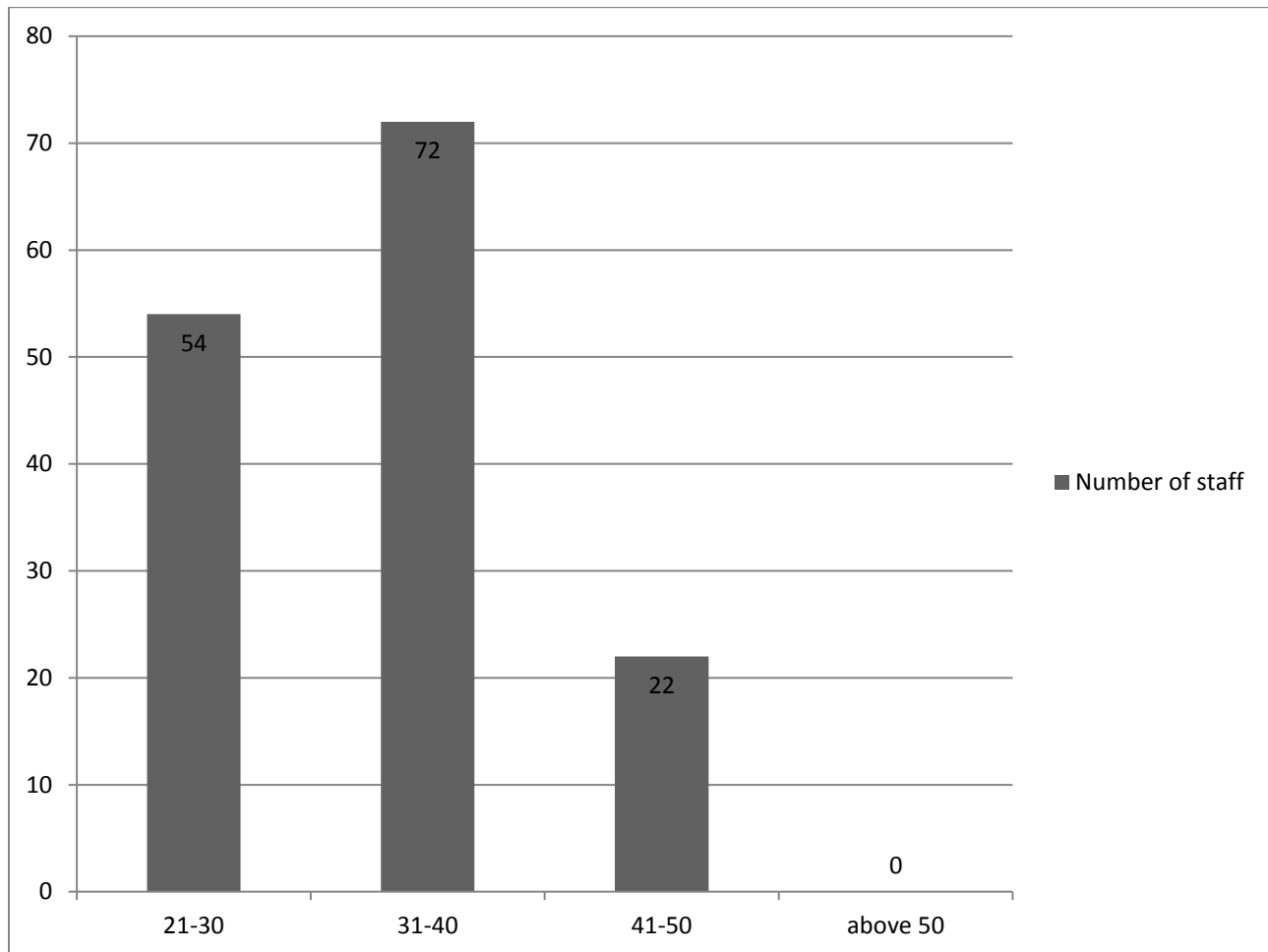
Figure 4.1.3: Gender of the respondents



Source: Primary Data (2017)

The pie chart above shows that out of the 148 respondents, 71% were male this constituted to 105 while 29% were female constituting to 43. The findings reveal that males were more involved and interested in the study than females, which was attributed to women still occupying fewer positions in some public service ministries. Skill levels, responsibility, pay, status and power still hamper attainment of gender equality in the work force (Aritua, 2014). And “men’s greater sense of community and belonging through common experiences and frequent interactions” (Arboleda, Wang, Shelley & Whalen, 2003. p. 528).

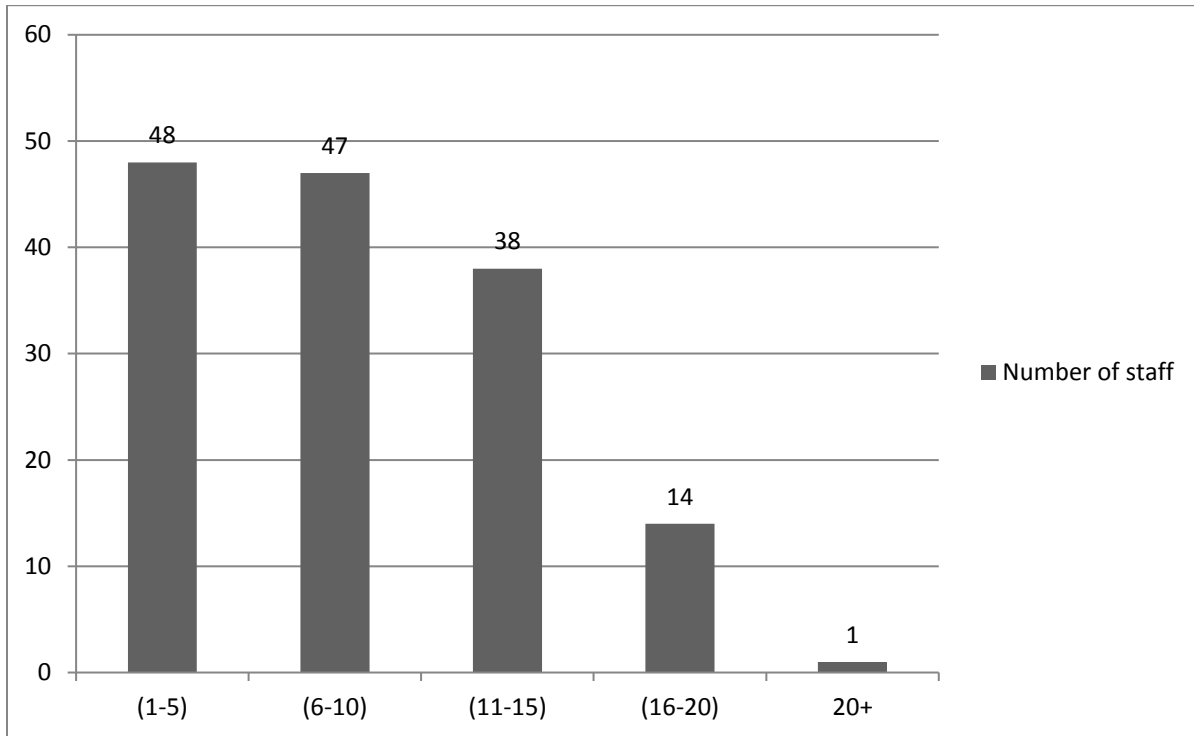
Figure 4.1.4: Age group of the respondents



Source: Primary Data (2017)

The bar chart above shows that out of the 148 respondents 54 belonged to the 21-30 age group, 72 belonged to the 31-40 age group and 22 belonged to the 41-50 age group. No respondent belonged to the 50 above age group. This implies the age group that was fully involved in the study was 31-40 years and registered the highest number 72 out of the 148 respondents. They had interest in information systems management in the study, the ministry should involve them in planning and also train them on system use so as to improve service delivery.

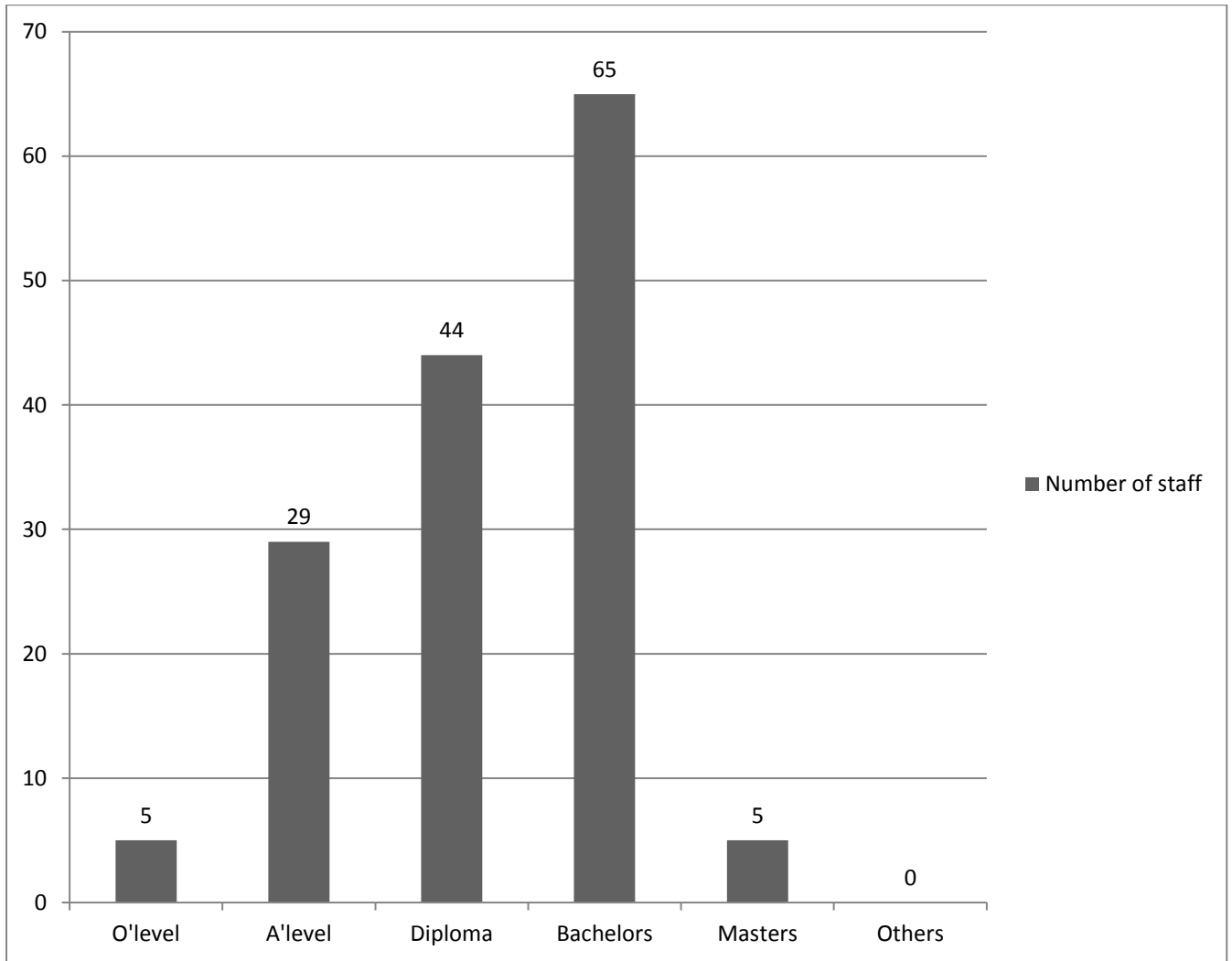
Figure 4.1.5:Duration of service



Source:Primary Data (2017)

Duration of service in the organization was proposed to answer the question of experience the staff had with information systems management and how it related with service delivery. Basing on the fact that the respondents were staff of the ministry who interfaced with information systems and the managers, and the number of years they had worked for the organization. Out of the 148 respondents, the bar graph above shows that 48 respondents had worked with the ministry for 1-5 years, 47 respondents had worked for 6 – 10 years, 38 respondents had served for 11-15 years, 14 respondents had served for 16-20 years while only 1 respondent had worked for 20 and above years in the Ministry of Internal Affairs. The findings reveal that those who had worked in the organization for 1-5 and 6-10 years were more involved and interested in the study and had gained some experience on the management of information systems in the ministry. The ministry should focus more on training and involving this group of staff in information systems management as they interact more with the information systems, so as to improve service delivery.

Figure 4.1.6 Highest level of Education attained.



Source: Primary Data (2017)

The researcher's interest here was to establish the highest level of education of the respondents. From the bar graph above out of the 148 respondents, 5 respondents had O'level, 29 respondents had A' level, 44 respondents had diplomas, 65 respondents had bachelor's degrees, 5 respondents had masters while no respondent selected the option others alone. The study revealed that the ministry recruits more staff at bachelor's level who according to the study have knowledge on the information systems. This is supported by MOE (2005) which stated that the minimum qualification required by most companies within the formal sector is degree level. Any other qualification beyond degree is mostly called for at the executive level.

4.2 Presentation and analysis of findings from the study objectives.

Descriptive statistics were used to establish the effect of information system planning, information systems acquisition, information systems implementation on service delivery in public organizations. The findings were analyzed and interpreted basing on the instrument scale such that a mean close to 5 represents strongly agree, 3.5 – 4-agree, 3.0 – 3.4-not sure, 2-disagree and 1-strongly disagree as analyzed below.

4.2.1 Information system planning

Table 4.2.1.1: Descriptive statistics of information system planning.

Item	SD%	D%	NS%	A%	SA%	Mean	Standard Deviation
1. Sufficient time is allocated to identify user requirements.	11.6	22.4	6.8	44.9	14.3	3.28	1.281
2. Information system plans in the organization are completed on time.	4.1	39.5	14.3	29.9	12.2	3.07	1.163
3. A budget is made for the purchase of information systems in the organization	1.4	6.1	10.2	47.6	34.7	4.08	.903
4. User requirements are listed sufficiently to assess budget costs for the items	1.4	8.2	22.6	50.7	17.1	3.74	.887
5. End users of the system are involved in determining system requirements.	12.8	23.0	20.3	24.3	19.6	3.15	1.327
6. Skilled IT staff are selected to participant in the information system planning process.	6.1	13.6	15.0	32.7	32.7	3.72	1.226
7. Information system budgets are approved on time by top management in the organization.	10.3	22.6	20.5	34.9	11.6	3.15	1.200
8. Proper scoping of the information system helps top management understand its need in the organization.	2.0	6.8	10.1	51.4	29.7	4.00	.926

Source: Primary Data (2017)

The findings from table 4.2.1.1 on information systems planning, reveals that Ministry of Internal Affairs allocates sufficient time to identify user requirements showed by the 44.9% agreed, 14.3% strongly agreed, 6.8% were not sure, 22.4% disagreed and 11.6% strongly disagreed. The mean value of 3.28 was more to the center position of not sure. The standard deviation of 1.281 shows a high variance in the respondents' opinion. This implies the organization allocated sufficient time to identify user requirements. This was in agreement with Semakula & Muwanga, (2012) who stated that careful planning is crucial for the successful

implementation of an information system. This allows organizations to assign sufficient time and desired level of resources to identifying user requirements.

Furthermore, the results indicated that to some extent information systems plans were not completed on time at the Ministry. This was shown by the 39.5% who disagreed, 4.1%, strongly disagreed, 14.3% were not sure, 29.9% agreed and 12.2% strongly agreed as shown in the table 4.2.1.1. The mean value of 3.07 pulled data more to the center of the not sure position. The standard deviation of 1.163 shows a variance in the opinion of the respondents. The findings indicate that effort was not put to complete information system plans on time. This was not in agreement with NITA-U, (2012) which stated that although information system planning is critical many public organizations spend too much time and money in the planning process and complete the plan in isolation. This can result in over analysis, inability to obtain approval of the plan or spending a lot of money on solving the wrong problem.

However respondents agreed that budgets were made to purchase information systems, this was revealed by the results where 1.4% strongly disagreed, 6.1% disagreed, 10.2% were not sure, 47.6% agreed and 34.7% strongly agreed to this item giving a mean value of 4.08, the agree position as shown in table 4.2.1.1. The standard deviation 0.903 reveals that there were variances in the respondents' opinions. This is consistent with Seo (2013), who suggested that information system planning involves setting budget targets, and defining the Information system objectives and plan. Budget pressures are common in many organizations. Continuing doing more with less money is a common challenge faced by information system management(Cassidy, 2016). Budgeting helps the organization plan in advance and be accountable for funds used within a particular period. It also helps the planning team to include all the necessary items so they are allocated enough funds for the information system project.

Furthermore at the Ministry of Internal affairs, user specifications were listed to assess their budget costs, shown by 1.4% who strongly disagreed, 8.2% disagreed, 22.6% not sure, 50.7% agreed and 17.1% strongly agreed on this item giving a mean value of 3.74 the agree position. The standard deviation 0.887 reveals that there were variances in the respondents' opinions. The results show that user specifications were listed to assess their budget costs at the

Ministry of Internal Affairs. This was in line with Semakula & Muwanga (2012) who stated that information system planning helps to assign desired level of resources to identifying user requirements. When user requirements are properly listed, top management will understand the cost per email, cost per desktop call, cost per server and be able to manage information system costs through demand planning and monitoring (Cassidy, 2016).

The findings from table 4.2.1.1, further revealed that to some extent users of the system were involved in determining system requirements, as per the results of 12.8% who strongly disagreed, 23.0% disagreed, 20.3% were not sure, 24.3% agreed and 19.6% strongly agreed giving a mean value of 3.15 (the not sure position). The standard deviation of 1.327 suggests variation in the responses of the respondents. This implies that end users were being involved in determining system requirements at the Ministry of internal Affairs. End user involvement in information systems planning helps to identify the necessary user requirements and gives the user a psychological attachment to the system this avoids user resistance to the system during implementation. This concurred with Esposito (2015) who suggested that in order to make sure information systems will be accepted by end users, they should be included in the information system planning phase. Information system specification should be based on real user requirements and that user involvement is on its highest level throughout the information system plan, in order to ensure successful implementation of the system and user satisfaction of the result (Wysocki, 2012). According to Seo (2013) end users resistance to changes in information systems can be minimized by end user involvement in the information system planning process.

The results from table 4.2.1.1, revealed that skilled IT staff were selected to participate in the information system planning process, showed by the 6.1% who strongly disagreed, 13.6% disagreed, 15.0% were not sure, 32.7% agreed and 32.7% strongly agreed giving a mean value of 3.72 as agreed by respondents. The standard deviation of 1.226 shows that the responses of the respondents varied. This implies that skilled IT staff were selected to participate in the information system planning process in the ministry. Skilled IT staff have knowledge on user requirement identification and analysis of existing systems to identify system requirement. This is consistent with Semakula & Muwanga (2012) who revealed that during information system planning staff are assigned and relevant skills are developed to participate in planning and using

the information system, arrangements are put in place to manage the information System during and after its implementation. According to NITA –U (2012), planning rationalizes use of available IT skills and consolidates IT skills development in Government ministries.

On the other hand to some extent budgets were approved on time by top management at the Ministry of Internal Affairs, this is shown by the 10.3% who strongly disagreed, 22.6% disagreed, 20.5% were not sure, 34.9% agreed and 11.6% strongly agreed to this item giving a mean value of 3.15 the not sure position as agreed by the respondents from table 4.2.1.1. The standard deviation of 1.200 shows that a variance in the respondents' opinions. The results reveal that top management understood and were involved in information system programs and they approved information system budgets in time. This was in line with loonam, McDonagh, Kumar & O'Regan, (2014) while quoting Jones and Arnett (1994) who stated that, top management can support information planning through allocation of resources. By virtue of their leadership role, top management are able to ensure sufficient allocation of resources. More successful organizations are more likely to have long term commitments from top management for a stable funding of information system activities. When the CEO's involvement is high, information systems' activities may receive a larger and timely percentage of the overall organization's budget.

Furthermore from the table 4.2.1.1, respondents revealed that proper scoping of the information system helped top management understand its need in the organization. This was shown by the 2.0% who strongly disagreed, 6.8% disagreed, 10.1% were not sure, 51.4% agreed and 29.7% strongly agreed to this item, giving a mean value of 4.00 the agree position. The standard deviation of 0.926 showed a variation in the respondents' responses. This implies that proper scoping of information systems at the Ministry of Internal Affairs helped top management understand the need of the information systems thus they supported information system planning processes. This is in agreement with Semakula & Muwanga (2012) who stated that information system planning helps to properly scope the information system. Cassidy (2016) revealed that top management must have a clear understanding of the information system to manage this asset effectively. They must understand; what the company will get from the investment whether the information system will meet the organization's feature needs and the level of service quality and

responsiveness of the information system, so they can align the information system to the organizational direction and priorities.

In support of these findings were open structured questions and interview questions which particularly highlighted the strength and short comings in the information system planning process. The respondents revealed that information system planning was vital in the organization, the importance of involving end users in the planning process, top management support being necessary and the necessary resources (time and funds) being in place. On answering how user involvement in information systems planning helped reduce costs in the organization, one staff said *“involving users in the planning process helps reduce costs on change management and also in identification of user requirements.”*

From the above statements, it can be concluded that more effort is required in information system planning especially in end users involvement in determining system requirements and in information system budgets being approved on time by top management. There were gaps in information system plans being completed in time at the Ministry of internal affairs more effort was required in completion of system plans in time so as to improve service delivery. According to the interviewed staff, information systems planning helps in identifying user requirements and reducing costs on change management.

4.2.1.2 Regression analysis of information systems planning and service delivery.

The regression equation $Y = \alpha + \beta_1 X_1 + \epsilon$ to establish the dependency of service delivery on information system planning, where α is the level of service delivery that is independent of information systems planning, and β is the effect of information systems planning on service delivery and ϵ is the error term.

Table 4.2.1.3 Regression analysis of information system planning and service delivery.

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	1.811	.075		23.991	.000
	Planning	.075	.043	.144	1.755	.081

a. Dependent Variable: Service delivery

Source: Primary Data (2017)

Service delivery = 1.81 + 0.075(Planning) based on the findings in table 4.2.1.3. Table 4.2.1.3 shows that a unit increase in information systems planning has a 7.5% increment effect on service delivery. This shows a weak positive effect of information systems planning on service delivery. However this effect is not statistically significant, as shown by the p value 0.81 > 0.05. The findings are not consistent with Semakula & Muwanga (2012) who stated that planning is crucial for the successful implementation of an information system. Effective service delivery is not an accident, rather it is a result of careful planning and intention. Information system planning is therefore critical to the success of an organization as it is through the planning process that all system requirements are gathered (Essagala, 2014). Although information system planning is critical, many public organizations spend too much time and money in the planning process and complete the plan in isolation. This can result in over analysis, inability to obtain approval of plan or spending a lot of money on solving the wrong problem (NITA, 2012).

4.2.2 Information system acquisition.

Findings on information system acquisition.

The study was interested in examining information system acquisition on service delivery.

Table 4.2.2.1: Descriptive Statistics of information system acquisition.

Item	SD%	D%	NS%	A%	SA%	Mean	Standard Deviation
1. Information system's reliability should be considered before acquisition.	.7	3.4	3.4	37.0	55.5	4.43	.778
2. Information system's acquisition in the organization is based on convenience to use.	3.4	8.8	15.0	57.8	15.0	3.72	.942
3. Information systems are acquired on budget in the organization.	.7	11.0	6.2	62.3	19.9	3.90	.869
4. Acquisition of information systems in the department has reduced operational expenses.	4.1	10.9	10.9	41.5	32.7	3.88	1.110
5. The information system should be appropriate for current organizational needs.	1.4	3.4	5.5	45.5	44.1	4.28	.829
6. Information system acquisition is based on its responsiveness to user needs.	2.1	8.2	8.2	52.1	29.5	3.99	.947
7. The information system should meet all key user requirements.	.7	2.1	2.1	45.8	49.3	4.41	.704

Source: Primary Data (2017)

The results in table 4.2.2.1 on Information systems acquisition, reveals that respondents agreed that reliability should be considered before information systems are acquired at the Ministry of Internal Affairs shown by the mean value 4.4.3 as agreed by respondents where 0.7% strongly disagreed, 3.4% disagreed, 3.4% were not sure, 37.0% agree and 55.5% strongly agreed to this item. Furthermore results revealed that information system acquisition should be based on convenience to use in the ministry, shown by the mean value of 3.72 as agreed by respondents, where 3.4% strongly disagreed, 8.8% disagree, 15.0% were not sure, 57.8% agreed and 15.0% strongly agreed. The standard deviations 0.778 and 0.942 respectively reveal that respondents had varied opinions to this item. Before an information system is acquired the characteristics

should be taken into account. The quality, convenience to use, reliability, compatibility, ease of use should be considered. These are consistent with Midiwo (2015) who argued that acquiring an effective information system can be an assurance for an organization to stay competitive in its bid to deliver more effective and streamlined services to the citizens. According to Managing IT (nd), the organization should investigate specific performance characteristics which include performance, cost, reliability, availability, quality, usability and compatibility, when evaluating an information system to be acquired.

From table 4.2.2.1 results show that information systems are acquired on budget in the ministry, shown by the mean value of 3.90 (the agree position) as agreed by respondents, where 0.7% strongly disagreed, 11.0% disagreed, 6.2% were not sure, 62.3% agreed and 19.9% strongly disagreed. The standard deviation 0.869 reveals that respondents had variances in their opinions on this item. Having information systems acquired on budget helps that organization in proper planning accountability and during evaluation on return on investment. This is in line with Nita-U (2012) that argued that government spends a substantial amount of money on acquisition of information systems due to high cost of ICT infrastructure. Budget pressures are common in many organizations. Continuing doing more with less money is a common challenge faced by information system management. Proper information system budgeting is a tool to balance these conflicting forces (Cassidy, 2016).

Results further revealed that acquisition of information systems had reduced operational expenses in the ministry shown by the mean value 3.88 where 4.1% strongly disagreed, 10.9%, disagreed 10.9% were not sure, 41.5% agreed and 32.7% strongly agreed. The standard deviation 1.110 reveals that respondents had variances in their opinions on this item. This is in line with Muriithi, Gichinga & Mburugu (2014) who emphasized that the focus of acquisition of an information system in public organizations is on operational efficiency. More to that Midiwo (2015) stated that when the right information systems are acquired, organizations can enjoy the ultimate benefit of an all in one system that can reduce errors, lower cycle times, reduce turnaround time and support management decisions.

Furthermore table 4.2.2.1 shows that information systems should be appropriate for current organizational needs, shown by the mean value 4.28 where 1.4% of the respondents strongly disagreed, 3.4% disagreed, 5.5% were not sure, 45.5% agreed and 44.1 strongly agreed. Results further revealed that information system acquisition was based on its responsiveness to user needs at the Ministry of Internal Affairs, shown by the mean value of 3.99, where 2.1% of the respondents strongly disagreed, 8.2% disagreed, 8.2% were not sure, 52.1% agreed and 29.5% strongly agreed to this item. The standard deviations 0.829 and 0.947 respectively revealed that there was a variance in the respondents' responses. An information system that is responsive to user needs and appropriate to organizational needs will lead to attainment of the objectives of the organization and increase the efficiency of the organization thus improving service delivery. This is consistent with Noor & Razali(2011), who suggested that information systems must align and satisfy the needs of the organization and its users in order to be successful in efficient and effective services. Kananu (2013) observed that it is important to choose the right information systems. An organization that takes the time to invest in an information system that fits their goals, objectives, mission, and values, is investing in its future and in its success.

The results in table 4.2.2.1 further revealed that information system should meet all key user requirements before being acquired for the ministry. This was shown by the mean value of 4.41 where 0.7% of the respondents strongly disagreed, 2.1% disagreed, 2.1% were not sure, 45.8% agreed and 4.41% strongly agreed to this item. The standard deviation of 0.704 showed variations in the respondents' responses. For an information system to be accepted by end users, user requirement specifications should be determined and considered before the information system is acquired. This is in line with Wysocki (2012) who suggested that information systems specifications should be based on real user requirements so as to ensure successful implementation and user satisfaction of the acquired information system.

In support of these findings were open structured questions and interview questions. The respondents revealed that efficiency, effectiveness, improved productivity and accountability and reduced operational expenses would be achieved by acquiring the right information system. For the interview, the key staff said that information systems in the ministry were reliable. On answering the obstacles to effective information system acquisition a key staff said that "*lack of*

top management support (tone at the top), top management at times does not support some information systems project, there is lack of proper information system infrastructure there and information systems are very expensive.”

From the above statements, it can be concluded that effort in information system acquisition led to improved service delivery. There was need to consider reliability, convenience to use, cost, organizational needs, user needs, and user requirements in relation to information system acquisition. However there were gaps in information system infrastructure and proper management support.

4.2.2.2 Regression analysis of acquisition and service delivery.

The regression equation $Y = \alpha + \beta_2 X_2 + \varepsilon$ was used to establish the dependency of service delivery on information system, where α is the level of service delivery that is independent of information systems acquisition, and β is the effect of information systems acquisition on service delivery and ε is the error term.

Table 4.2.2.3 Regression analysis of information system acquisition and service delivery.

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	1.383	.192		7.201	.000
	Acquisition	.284	.097	.234	2.913	.004

a. Dependent Variable: Service delivery

Source: Primary Data (2017)

service delivery = 1.383 + 0.284(acquisition) based on table 4.2.2.3. The findings reveal that a unit increase in information systems acquisition has a 28.4% increment effect on service delivery. The effect of information systems acquisition on service delivery is statistically significant, as shown by the p value 0.004 < 0.05. The findings were in line with Mugambi (2013) who argued that acquisition of information systems enhances transparency and accountability, as well as networked structures of public organizations, information management and knowledge creation. Acquiring an effective information system can be an assurance for an

organization to stay competitive in its bid to deliver more effective and streamlined services to the citizens (Midiwo, 2015).

4.2.3 Information system implementation

The study was interested in examining information system implementation in the Ministry of Internal Affairs.

Table 4.2.3.1: Descriptive Statistics on information system implementation.

Item	SD%	D%	NS%	A%	SA%	Mean	Standard Deviation
1. Information system failures in this organization are responded to in time.	15.5	27.7	9.5	37.8	9.5	2.98	1.291
2. Information systems in this organization offer timely response to user requests.	.7	27.0	14.9	40.5	16.9	3.46	1.084
3. Top management should continuously evaluate the information system's performance in the organization.	0.0	7.4	8.8	33.1	50.7	4.27	.908
4. Top management openly shares information about the information system implementation.	4.1	18.2	14.9	34.5	28.4	3.65	1.189
5. Users are trained on use of information systems in this organization.	2.7	7.5	3.4	45.2	41.1	4.14	.990
6. End users in this organization understand how the information system works.	2.0	13.5	18.2	40.5	25.7	3.74	1.051
7. End users know how to use the information system in this organization.	3.4	11.5	6.1	54.1	25.0	3.86	1.030

Source: Primary Data (2017).

The findings in table 4.2.3.1 reveal that to some extent information system failures were responded to in time at the ministry, shown by the results of 15.5% strongly disagreeing, 27.7% disagreed, 9.5 were not sure, 37.8 agreed and 9.5% strongly agreed, giving a mean value 2.98. The standard deviation 1.291 revealed that there were variations in the responses of the respondents. This was consistent with Sadoughi, Kimiafar, Ahmadi & Shakeri (2013) who revealed that there are numerous problems in the scope of IT-based systems in public organizations therefore, it causes a deep gap between the positive potential of information systems to organizations and their negative impacts. A huge amount of money is invested in information systems, but a significant portion of this money is wasted for inefficient systems or not implemented ones. Identification of methods for information systems evaluation can be

possible through timely identifying the success and failure factors of these systems (Ozkan, Baykal & Sincan, 2009).

The study further revealed that information systems offered timely response to user requests, shown by 0.7% who strongly disagreed, 27% disagreed, 14.9 % were not sure, 40.5% agreed and 16.9% of the respondents strongly disagreed to this item, giving a mean value 3.46 close to the agree position. The standard deviation 1.084 revealed that there were variations in the responses of the respondents. This is consistent with CP Foo (2010) who stated that information systems improved timely response while mitigating risks of emergency service operations. Mugambi (2013) stated that implementation of information systems allows a government's internal and external operations to gain speed, precision, simplicity, outreach and networking capacity, which can then be converted into cost reductions and increased effectiveness which is desirable for government operations and service delivery. Information systems give timely responses to user needs thereby improving effectiveness of their operations.

From the findings in table 4.2.3.1 reveal that top management should continuously evaluate the information systems' performance as shown where 7.4% disagreed, 8.8% were not sure, 33.1% agreed and 50.7 % strongly agreed no respondent strongly disagreed to this item, giving a mean of 4.27. The standard deviation 0.908 reveals that there were variances in the respondents' responses. Implying that at the Ministry of Internal Affairs, top management should continuously evaluate the information system. The results were supported by Midiwo, (2015) who noted that once an information systems investment has been implemented by an organization, top management needs to assess how successful it has been in achieving its goals. The evaluation should determine whether or not an information system is performing up to its expectations and if it is being used to its full advantage and return on investment (Midiwo, 2015). System evaluation should determine whether the information system meets the organization's needs and its level of service quality and responsiveness (Cassidy, 2016). This will help the organization to determine the return on investment of the system and whether the system is performing as expected.

The findings in table 4.2.3.1 indicates that top management openly shares information about the information systems at the Ministry of Internal Affairs this is supported by the results where 4.1% strongly disagreed, 18.2% disagreed, 14.9% were not sure, 34.5% agreed and 28.4% strongly agreed, giving a mean value 3.65. The standard deviation of 1.189 shows a high variance in the respondents' responses. This implies that at the Ministry of Internal Affairs, top management openly shared information about the information systems. It is through communication that top management can show their support for information systems in an organization, and users will also be able to bring forth their problems with interfacing with the systems. The findings were supported by loonam et al (2014) while quoting Applegate (1998) who stated that communication is a powerful tool through which top management can show their support for information system. Top managers must regularly communicate with information system managers and users in order to inform them about corporate objectives. Abbas (2011) who suggested that for successful information system implementation, all the users should be informed and involved about the implementation process and progress. The effective and efficient communication increases the possibility of success of the information system implementation. Seo (2013) pointed out that for effective service delivery, top management should involve users and share information with users about the information system implementation.

On the other hand as agreed by respondents in table 4.2.3.1, end users are trained on use of information systems at the Ministry of Internal Affairs this is supported by the results where 2.7% of the respondents strongly disagreed, 7.5% disagreed, 3.4% were not sure, 45.2% agreed and 41.1% strongly agreed, giving a mean value of 4.14. The standard deviation of 0.990 shows a variance in the respondents' responses. In this case end users of systems should be trained on system use so they understand the benefits of the system to them and to the organization and avoid end user resistance to information system implementation. These results corresponded to Semakula & Muwanga (2012) who argued that implementing an information system is effective to the extent that it is accepted and utilized by the relevant staff and management. Consequently, appropriate end user education and training will maximize information system benefits, increase user satisfaction and improve service delivery. Lack of end user training increases risks by creating confusion and inaccuracy, thereby decreasing user satisfaction and the credibility of the system (Seo, 2013).

The results show that end users understand how the information systems work at the Ministry of Internal Affairs, where 2.0% of the respondents strongly disagreed, 13.5% disagreed, 18.2% were not sure, 40.5% agreed and 25.7% strongly agreed to this item, giving a mean of 3.74 as shown in table 4.2.3.1. Furthermore results in the table show that end users know how to use the information systems at the Ministry of Internal Affairs supported by the results where 3.4% of the respondents strongly disagreed, 11.5% disagreed, 6.1% were not sure, 54.1% agreed and 25.0% agreed, giving a mean value 3.86 as agreed by the respondents. The standard deviations 1.051 and 1.030 respectively reveal that there were variances in the respondents' opinions to these items. These results corresponded to Seo (2013), who suggested that end user training is essential for a robust understanding of how the information system works and how to use it. It is through end user training that users will be able to understand how the system works and to know how to use the information system. When users understand how the system works they will be able to detect system error and failures in time thereby preventing further damage to the system. When users know how to use the information system, they are more productive and efficient leading to with less errors and improved service delivery.

In support of these findings were open structure questions and interview questions which particularly highlighted that efficiency, effectiveness, proper accountability and reduced operational expenses were the benefits to implementation of information systems in the organization. On how information systems improved service delivery in the organization, the key informants revealed that, information systems had improved the efficiency and effectiveness of operations in the organization.

A key staff said that *“the organization trains end users and pilots information system projects to increase use of information systems in the organization.”*

From the above statements, it can be concluded that putting more effort in information systems implementation at the Ministry of Internal Affairs improved efficiency of the operations, accountability and reduced operational expenses. Training users and piloting information systems projects increased use of information systems thus improving service delivery.

4.2.3.2 Regression analysis of implementation and service delivery.

The regression equation $Y = \alpha + \beta X + \epsilon$ was used to establish the dependency of service delivery on information system implementation, where α is the level of service delivery that is independent of information systems implementation and β is the effect of information systems acquisition on service delivery and ϵ is the error term.

Table 4.2.3.3 Regression analysis of information system implementation and service delivery.

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.677	.075		22.240	.000
	Implementation	.152	.042	.285	3.589	.000

a. Dependent Variable: Service delivery

Source: Primary Data (2017)

Service delivery = 1.677 + 0.152(implementation), based on the results in the table 4.2.3.3. Table 4.2.3.3 further shows that a unit increase in information systems implementation has a 15.2% increment effect on service delivery. This implies that information systems implementation has a weak positive effect on service delivery in public sector organizations. The effect of information systems implementation on service delivery is statistically significant, as shown by the p value $0.000 < 0.05$. This is in agreement with Ainabor (2011) who stated that in implementing information systems efficiencies are gained in reduced errors, there are improved outcomes of government projects through automating standard tasks, reduced costs, reduced bureaucracy, reduction in time spent on repetitive tasks. Use of information systems strengthens government performance in areas such as more effective and more efficient provision of services, opening new channels for people to access government and official information, and making government more accountable to its citizens (Abdi, 2014).

4.2.4 Service delivery

Table 4.2.4.1: Descriptive Statistics of service delivery.

Item	SD%	D%	NS%	A%	SA%	Mean	Standard Deviation
1. Information systems reduce time spent on repetitive tasks.	0.7	1.4	7.5	42.2	48.3	4.36	0.740
2. Employee performance in the organization has improved with use of information systems.	1.4	0.7	6.8	54.4	36.7	4.24	0.727
3. Information systems' use in the organization gives timely information.	0.0	9.0	4.8	55.2	31.0	4.08	0.846
4. Information systems in the organization deliver accurate information.	0.0	4.8	8.2	58.2	28.8	4.11	0.744
5. Information systems deliver relevant information to users.	0.0	2.8	10.4	63.2	23.6	4.08	0.670
6. Information systems have made service delivery cost effective.	1.4	13.1	10.3	45.5	29.7	3.89	1.021
7. Use of information systems makes the organization more accountable to the public.	0.7	9.5	4.1	52.0	33.8	4.09	0.903
8. Use of information systems has reduced bureaucracy.	4.1	13.1	6.2	39.3	37.2	3.92	1.155

Source: Primary Data (2017)

The results in table 4.2.4.1 show that information systems reduce time spent on repetitive tasks this is supported by the 0.7% of the respondents who strongly disagreed, 1.4% disagreed, 7.5% were not sure, 42.2% agreed and 48.3% strongly agreed to this item giving a mean value of 4.36 more to the agree position of (4) as agreed by the respondents. The standard deviation of 0.740 shows the responses of the respondents varied. Information systems have greatly improved productivity of public organizations by reducing bureaucracy, operational costs and time spent on repetitive tasks thereby improving service delivery. This is consistent with Peppard& Ward (2016) who argued that information systems improve the efficiency of information based functions in organizations when technology is used to automate discrete, structured, repetitive, stable information intensive tasks.

Results showed that at the Ministry of Internal Affairs, employee performance in the organization had improved with use of information systems this was revealed by the results

where 1.4% strongly disagreed, 0.7% disagreed, 6.8% were not sure, 54.4% agreed and 36.7% strongly agreed to this item giving a mean value of 4.24. The standard deviation 0.727 showed variances in the responses. This is in line with Rietsema (2015) who argued that public organizations invest in information systems that help them put the full productivity of their workforce to use including the varied experiences talents and skills of all staff within the organization. Nuru (2011) stated that use of information systems enhances process management thereby enhancing delivery of public services, improving information flow to citizens, promoting productivity among public servants and encourages citizen participation.

Furthermore at the Ministry of Internal Affairs, information systems use gives timely information. This is evidenced by the results where 9.0% disagreed, 4.8% were not sure, 55.2% agreed and 31% strongly agreed to this item giving a mean value 4.08 to the agree position(4) as shown by table 4.2.4.1. The standard deviation 0.846 shows that the respondent's opinions varied. Information systems give timely information thereby reducing wastage of time, costs and improve service delivery. This is consistent with Laudon & Laudon (2012) who stated that information systems are interactive tools deeply involved in minute to minute operations and decision making. With use of information systems, organizations are increasingly able to monitor and control their interactions and environments in near real-time with their clients (Ahmad & Methmood, 2015).

The results in table 4.2.4.1 reveal that information systems delivered accurate information in the Ministry of Internal Affairs this is revealed by the results where 4.8% disagreed, 8.2% were not sure, 58.2% agreed and 28.8 strongly agreed giving a mean of 4.11. The results further reveal that information systems delivered relevant information to users at the Ministry of Internal Affairs shown by the results where 2.8 % disagreed, 10.4% were not sure 63.2% agreed and 23.6% strongly agreed giving a mean of 4.08. The standard deviation of 0.744 and 0.670 respectively show that there were variances in the responses of the respondents. Implying that at the Ministry of Internal Affairs, information systems delivered accurate information. This is supported by Mugambi (2013) who stated that for effective and efficient service delivery, governments have acquired information systems for faster and better communication, efficient storage, retrieval and processing of data and exchange and utilization of information to individuals, groups, businesses and organizations. Effectiveness in customer service typically

refers to measures and constructs like customer satisfaction on dimensions, such as service quality, accurate and relevant information, speed, timing, and human interaction (Ewuim, Ngozi, Igbokwe, & Chinyeaka, 2016).

The results in table 4.2.4.1 revealed that information systems use had made service delivery cost effective supported by the results where 1.4% strongly disagreed, 13.1% disagreed, 10.3% were not sure, 45.5% agreed and 29.7% strongly agreed, giving a mean value of 3.89 which tended towards the agree position. The standard deviation of 1.021 shows a high variance in the responses of the respondents. Use of information systems helps organizations reduce costs and gain efficiencies in their operations. This concurred with Abbas (2011) who stated that the major benefits of information systems use are improved productivity and reduced cost. Mugambi (2013) further reveals that use of information systems allows a government's internal and external operations to gain speed, precision, simplicity, outreach and networking capacity, which can then be converted into cost reductions and increased effectiveness which is desirable for government operations and service delivery.

Furthermore results in table 4.2.4.1, show that use of information systems made the organization more accountable to the public revealed by the results where 0.7% strongly disagreed, 9.5% disagreed, 4.4% were not sure, 52% agreed and 33.8% strongly agreed to this item. Giving a standard deviation of 0.903 and a mean value of 4.09 which is more to the agree position (4). Use of information systems delivers fast, relevant information this has made organizations more accountable in the services delivered. This is in line with Abdi (2014) who revealed that use of information systems strengthen government performance in areas such as more effective and more efficient provision of services, opening new channels for people to access government and official information, and making government more accountable to its citizens.

Results in table 4.2.4.1, further showed that use of information systems had reduced bureaucracy in the organization revealed by the results where 4.1% strongly disagreed, 13.1% disagreed, 6.2% were not sure, 39.8% agreed and 37.2% strongly disagreed to this item giving a mean value of 3.92. The standard deviation 1.155 shows a high variance in the responses of the respondents. Information systems perform tasks that used to be performed by a number of employees, faster services are delivered and bureaucracy in public organizations is reduced. This was in agreement

with Ainabor (2011) who revealed that in implementing information systems, efficiency improvement is to reduce costs and the many layers of organizational processes (the popular bureaucracy) by streamlining operating procedures through e-applications. When the right information systems are acquired, organizations can enjoy the ultimate benefit of an all-in-one system that can decrease errors, lower cycle times, reduces turnaround time, and support management decisions (Midowo, 2015).

4.3 Multiple regression analysis of the independent variables and the dependent variable.

Table 4.3.1: Regression analysis of the independent variables and the dependent variable.

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.344 ^a	.119	.100	.227	

b Predictors: (Constant), Implementation, Acquisition, Planning

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.245	.192		6.492	.000
	Planning	.028	.043	.054	.666	.506
	Acquisition	.216	.099	.178	2.185	.030
	Implementation	.129	.043	.242	3.012	.003

a. Dependent Variable: Service delivery

Source: Primary Data (2017)

The table 4.3.1 shows the strength of the dependent variables to service delivery. It further indicates the significant values of the independent variable in relation to service delivery. According to the linear regression formula $\text{Service delivery} = 1.245 + 0.028X_1 + 0.216X_2 + 0.129X_3$ considering the error term to be zero (0).

A regression analysis was run to establish the predictive qualities of the dependent variable (service delivery) in relation to the independent variable (information systems management). Based on the results in the table 4.3.1 the adjusted R square shows the variation in service delivery is explained by variation in the independent variables that affected service delivery. In this case a variation in information systems management explains variation in service delivery of up to 10 % (0.100×100). This implies that information systems management has a weak positive effect on service delivery in the public sector organizations. There are other variables factors not included in this study that are critical in explaining service delivery to a tune of 90%. The adjusted R square indicated how service delivery was influenced by the information systems acquisition and implementation. While R square indicated how service delivery was influenced by all the independent variables.

In relation to information systems planning, value 0.028 ($0.028 * 100 = 2.8\%$) implies that for every unit increase in information system planning, service delivery will be increased by 2.8%. The p value $0.506 > 0.05$ indicating that information systems' planning had no statistically significant effect on service delivery. This indicated that information systems planning had a weak positive statistically insignificant effect on service delivery.

The results in table 4.3.1 reveal a value 0.216 ($0.216 * 100 = 21.6\%$) indicating that for every unit increase in information systems acquisition, there is a 21.6% increase in service delivery. The p value $0.030 < 0.05$ indicating that there is a statistically significant effect of information system acquisition on service delivery. This indicated that information systems acquisition had a weak positive statistically significant effect on service delivery.

Furthermore the findings in table 4.3.1 reveal a coefficient value 0.129 ($0.129 * 100 = 12.9\%$), indicating that for every unit increase in information system implementation, service delivery will be increased by 12.9%. The p value $0.003 < 0.05$ indicated that information system implementation significantly affects service delivery. This implied that information systems implementation had a weak positive statistically significant effect on service delivery.

Conclusion

The findings of the study revealed that there was a considerable influence of information system acquisition and implementation on service delivery in public organizations. Information systems acquisition and implementation significantly affected service delivery. However, information system planning had an insignificant effect on service delivery. There were gaps in information system plans being completed in time, information system infrastructure and proper management support at the Ministry of internal affairs. Information systems planning helped in identifying user requirements and reducing costs on change management. Training users and piloting information systems projects increased use of information systems thus improving service delivery.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS.

5.0 Introduction

This chapter presents the summary, conclusion and recommendations from the study of information system management and service delivery in public organizations. The study also presents the areas for further research. The summary, conclusion and recommendations are stated basing on the research objectives.

5.1 Summary of the findings.

5.1.1 Demographic traits of the respondents.

The findings on the demographics of the respondents showed a response rate of 95.5%, having got 148 questionnaires returned out of the 155 that were issued. Of the 148 respondents that were involved in the study; 105 were male and 43 were female. The position in the organization showed that 1 respondent belonged to top management, 36 belonged to middle management, 44 were supervisors and 67 were junior staff who were the majority. Age of the respondents showed that 54 belonged to the 21-30 age group, 72 belonged to the 31-40 age group, and 22 belonged to the 41-50 age group, while no respondent belonged to the 50 above age group. Duration of service of the respondents showed that 48 respondents had worked with the ministry for 1-5 years, 47 respondents had worked for 6 – 10 years, 38 respondents had served for 11-15 years, 14 respondents had served for 16-20 years while only 1 respondent had worked for 20 and above years in the Ministry of Internal Affairs. Highest level of education showed that 5 respondents had O'level, 29 respondents had A' level, 44 respondents had diplomas, 65 respondents had bachelor's degrees, 5 respondents had masters.

5.1.2 Information systems planning and service delivery.

The study revealed that for each unit increase in information system planning, there will be a 2.8% increase in service delivery. The results further show the p value $0.506 > 0.05$. Implying that there is statistically no significant effect of information system planning on service delivery. This indicates that information systems planning had a weak positive statistically insignificant effect on service delivery. Furthermore the findings revealed that regression

analysis of information system planning and service delivery showed that $\text{Service delivery} = 1.81 + 0.075(\text{Planning})$.

More to that there were gaps in information system plans being completed on time at the Ministry of Internal Affairs where 39.5% disagreed to this item. However, sufficient time was allocated to identify user requirements where a mean of 3.28 was given to the item, information system budgets were made to purchase information systems where a mean of 4.08 was given, end users were involved in the planning process to which item a mean 3.15 was given, skilled IT staff were selected to participate in the planning process where mean of 3.72 was given, information system budgets were approved on time to which mean 3.15 was given and top management understood the need of the information system in the organization given the mean of 4.00.

From the open questions, respondents revealed that information system planning was vital in the organization, involving end users in the planning process was important to identify user requirements, top management support was necessary so as to avail the necessary resources (time and funds). More to that interview with, the key staff revealed that information system planning helped in the identification of user requirements and also reduced costs on change management. The findings on information systems planning, were not in line with Semakula & Muwanga (2012) who stated that planning is crucial for the successful implementation of an information system.

5.1.3 Information systems acquisition and service delivery.

The study findings revealed that for each unit increase in information system acquisition, there is 21.6% increase in service delivery. The p-value $0.030 < 0.05$, indicates that information system acquisition has a statistically significant effect on service delivery. Implying that information systems acquisition had a weak positive statistically significant effect on service delivery. Furthermore the findings revealed that regression analysis of acquisition and service delivery showed that $\text{service delivery} = 1.383 + 0.284(\text{acquisition})$.

More to that at the Ministry of Internal Affairs, reliability and convenience to use was considered before acquisition of information systems given the mean values of 4.43 and 3.72

respectively. Information systems were acquired on budget supported by the mean of 3.90. Acquisition of information systems had reduced operational expenses given the mean of 3.88. Information systems were appropriate for current organizational needs, responsive to organizational needs and met all key user requirements supported by the mean values of 4.28, 3.99 and 4.41 respectively.

Respondents in the open ended questions revealed that efficiency, effectiveness, improved productivity, accountability and reduced operational expenses would be achieved by acquiring the right information system. For the interview, the key staff said information systems in the ministry were reliable and that the obstacles to effective information system acquisition was lack of management support (tone at the top), lack of proper information system infrastructure and information systems being very expensive. The findings were in line with Midiwo (2015) who suggested that acquiring an information system can be an assurance for an organization to stay competitive in its dib to deliver more effective and streamlined services to the citizens.

5.1.4 Information systems implementation and service delivery.

The findings revealed that for every unit increase in information system implementation, there would be a 12.9 % increase in service delivery. The p- value of 0.003 ($0.003 < 0.05$) indicated that there was a statistically significant effect of information systems implementation on service delivery. The results further revealed that a regression analysis of information system implementation and service delivery showed that $\text{Service delivery} = 1.677 + 0.152(\text{implementation})$.

The findings further revealed that to some extent information system failures were responded to in time given the mean of 2.98, information systems offered timely responses to user requests given the mean of 3.46, top management openly shared information on information systems and continuously evaluated information systems at the Ministry of Internal Affairs given the mean values of 3.65 and 4.27 respectively. End users were trained on information systems use, understood how the information systems worked and knew how to use the information systems supported by the mean values of 4.41, 3.74 and 3.68 respectively.

While responding to the open ended questions respondents revealed that efficiency, effectiveness, proper accountability and reduced operational expenses were the benefits to

implementation of information systems in the organization. During the interviews, the key staff stated that training end users and piloting information system projects were the implementation initiatives being used to increase the use of information systems. On how information systems improved service delivery in the organization, the key informants revealed that, information systems had improved the efficiency and effectiveness of operations at the Ministry of Internal Affairs. This concurred with Abdi (2014), who stated the use of information systems strengthens government performance in areas such as more efficient and effective provision of services, opening new channels for people to access government and official information, and making more accountable to its citizen.

5.2 Conclusions.

Based on the findings of the study, for every unit increase in information systems planning there would be an increase in service delivery of up to 2.8%. A p value of 0.506. This indicated that information systems planning had a weak positive statistically insignificant effect on service delivery. This implies that there is no significant effect of information system planning on service delivery. This answered the research question what is the effect of information systems planning on service delivery. Other factors of information systems management (information systems acquisition and implementation) contributed more to service delivery. There were gaps in information system plans being completed on time at the Ministry of Internal Affairs. However effort in information systems planning will improve service delivery at the Ministry of Internal Affairs.

More to that, from the study findings for every unit increase in information system acquisition there was an increase in service delivery of up to 0.216, the P value of 0.030 was given. This indicated that information systems acquisition had a weak positive statistically significant effect of on service delivery. This answered the research question, what is the effect of information system acquisition on service delivery in public sector organizations? Implying that information systems acquisition significantly affects service delivery. Reliability and convenience to use was considered before acquisition of information systems at the Ministry of Internal Affairs. Information systems were acquired on budget reduced operational expenses, appropriate for current organizational needs, responsive to organizational needs and met all key user requirements. However there was lack of proper information system infrastructure, lack of

management support and information systems were very expensive. A variation in information systems acquisition will affect service delivery. Therefore more effort should be put in information systems acquisition so as to have better service delivery.

The findings further revealed that for each unit increase in information systems implementation there was an increase in service delivery of up to 0.129 units, and the p value 0.03 which is less than 0.05. Implying that information systems implementation had a weak positive statistically significant effect on service delivery. Answering the research question what is the effect of information systems implementation on service delivery. This was supported with the results from the respondents' responses, which showed that to some extent information system failures were responded to in time, information systems offered timely responses to user requests, top management openly shared information systems information and continuously evaluated information systems, end users were trained and understood how the information systems worked and knew how to use the information systems. End user training and piloting information system projects were being used to increase use of information systems at the Ministry of Internal Affairs. A variation in information systems implementation affected service delivery. Therefore more effort should be put in information systems implementation so as to have better service delivery.

5.3 Recommendations

The following recommendations were made to improve service delivery through proper information systems management.

Information systems planning had no statistical significant effect on service delivery, the study recommends more emphasis on information systems acquisition and implementation for effective service delivery. Although more effort in user involvement in the information system planning process would help identify user requirements. If users are involved, they will be able to input their requirements and make them feel part of the information system thereby reducing the chances of them abandoning the information system during implementation. Change management costs will be reduced as the users will be more willing to learn and adapt to the new system this will lead to users to use the system and therefore improve service delivery.

The study found that reliability and convenience to use should be considered before acquisition of information systems. Therefore the study recommends that when acquiring information systems effort should be put on the characteristics of the information system; like its reliability, convenience to use, the system should be usable and easy to learn. The organization should also acquire systems that are appropriate to user needs and to organization needs. Since information systems are expensive, care taken while considering the characteristics and organization needs will make the organization realize a return on investment from the system.

The study found out that there was poor information systems infrastructure at the ministry. The study therefore recommends having in place proper system infrastructure. Having proper network in place better hardware that will be compatible with the new information systems before acquiring the information systems. Information system infrastructure that will be compatible to the information systems. This will contribute to improved service delivery in the organization.

The study found that information system's performance should continuously be evaluated. The study therefore recommends continuous information evaluation of information systems to assess its efficiency and effectiveness achieving the objectives of the organizations. Evaluation of performances in hardware, software, computer networks, data and human resources. Assessing how successfully an Information Systems fulfills its objectives. Information system continuous evaluation will also help the organization determine whether the organization is realizing a return on investment from the information system

From the study findings reveal that end user training was one of the initiatives used to increase information system usage in the organization. In bid to improve service delivery the study recommends more effort in end user training. Training of the end users is one of the most important steps for a successful system implementation. Getting the end users involved at this point is a good way to get them excited about the system thus they will feel more confident about using it. Training end users on information system use will help users understand how to use and know how the information system works, this will lead to a reduction in end user resistance to information systems. End user training will help users identify when the system is having failures. This will also help users be able to identify and correct minor system failures.

The study found that there was lack of management support (tone at the top). Therefore the study recommends management support at the implementation phase. This can be achieved through management understanding the benefits of the information systems to the organization. This will ensure top managers are actively involved and supportive of new information systems. Management support is given in terms of communicating to the end users and system managers about the organizational needs and objective in line with the information system. When management support the information system they will support information system projects like providing timely funds for information system projects, for training of end users. Improvement on information systems implementation process will increase the efficiency and effectiveness of service delivery at the Ministry of Internal Affairs.

5.4 Suggestions for further research.

The study recommends the following:

That since the study was conducted on only one organization, research should be conducted in other institutions in order to assess how information systems management affect service delivery in the public organizations.

Since information system management contributed to 10% of service delivery. The 90% of service delivery was contributed by other variables. The study suggests research on other variables other than information system management.

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Appendices

Appendix: Table for determining sample size

TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN POPULATION

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is population size
 "S" is sample size.]

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Appendix ii: Questionnaire

Dear respondent,

I am a master's student at Umu University, conducting a study on the effect of information systems management on service delivery in the public sector organizations. I am seeking your assistance in terms of possible answers to the questions in this questionnaire. All information gathered through this questionnaire will strictly be used for the purpose of this academic research and will be treated with strict confidentiality.

Section A: Personal information

Please tick where appropriate

1. Top management Middle management Supervisor Junior staff

2. Gender: Male Female

3. Age group: (21- 30), (31- 40), (41- 50), (Above 50)

4. Highest level of education Masters, Bachelors, Diploma A-level

O-level,

Other specify _____

5. Number of years in the organization: (1-5), (6-10), (11- 15), (16- 20),
(Over 20)

For sections B to E tick where appropriate.

Key: 1 for Strongly Disagree (SD), 2 for Disagree (D), 3 for Not Sure (NS), 4 for Agree (A) and 5 for Strongly Agree (SA).

SECTION B: INFORMATION SYSTEM PLANNING	SD	D	NS	A	SA
1. Sufficient time is allocated to identify user requirements.					
2. Information system plans in the organization are completed on time.					
3. A budget is made for the purchase of information systems in the organization.					
4. User specifications are listed sufficiently to assess budgets costs for the items.					
5. End-users of the system are involved in determining system requirements.					
6. Skilled IT staff are selected to participate in the information system planning process.					
7. Information system budgets are approved on time by top management in the organization.					
8. Proper scoping of the information system helps top management understand its need in the organization.					

8. What do you think about information system planning in this organization?

SECTION C: INFORMATION SYSTEM ACQUISITION	SD	D	NS	A	SA
1. Information system's reliability should be considered before acquisition.					
2. Information system acquisition in the organization is based on convenience to use.					
3. Information systems are acquired on budget in the organization.					
4. Acquisition of information systems in the department has reduced operational expenses.					
5. The information system should be appropriate for current organizational needs.					
6. Information system acquisition is based on its responsiveness to user needs.					
7. The information system should meet all key user requirements.					

8. How does acquiring the right information system help your organization improve service delivery?

SECTION D: INFORMATION SYSTEM IMPLEMENTATION.	SD	D	NS	A	SA
1. Information system failures in this organization are responded to in time.					
2. Information systems in this organization offer timely response to user requests.					
3. Top management should continuously evaluate the information system's performance in the organization.					
4. Top management openly shares information about the information system implementation.					
5. Users are trained on use of information systems in this organization.					
6. End users in this organization understand how the information systems work.					
7. End users know how to use the information systems in this organization.					

8. What are the benefits of using the information system in the organization?

SECTION E: SERVICE DELIVERY.	SD	D	NS	A	SA
1. Information systems reduce time spent on repetitive tasks.					
2. Employee performance in the organization has improved with use of information systems.					
3. Information systems in the organization use give timely information.					
4. Information systems in the organization deliver accurate information.					
5. Information systems deliver relevant information to users.					
6. Information systems have made services delivery cost effective.					
7. Use of information systems makes the organization more accountable to the public.					
8. Use of information systems has reduced bureaucracy.					

Thank you for participating in this questionnaire.

Appendix iii: Interview Guide

1. How does user involvement in information system planning help reduce costs in the organization?

2. How reliable are the information systems in providing services?

3. What are the major obstacles to effective acquisition of information systems in the organization?

4. Do end users appreciate the information systems in the organization?

5. What implementation initiatives are being used to increase the use of information systems?

6. How have information systems improved service delivery in the organization?



Office of the Dean
Faculty of Business Administration and Management

Your ref.:

Our ref.:

Nkozi, 27th October, 2016

Dear Sir/Madam,

Re: Research Work Assistance

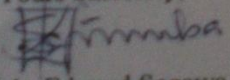
Greetings from Uganda Martyrs University.

This is to introduce NAKIRE HELLEN who is a student of this University. As part of the requirements for the award of the Master of Business Administration of this University, the student is required to carry out field research as part of the dissertation to conclude the programme.

I therefore request you to render the student such assistance as may be necessary and conduct the research.

Thank you in advance.

Yours Sincerely,


Mr. Edward Segawa
Associate Dean

