IMPACT OF INFORMATION TECHNOLOGY ON ORGANIZATIONAL PERFORMANCE: CASE OF POPULATION SERVICES KENYA

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DECLARATION

This research project is my original work and has not been submitted to any university for any award.

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Signature ..... Date 24/11/2015

This research project has been submitted for examination with my approval as the university supervisor.

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DEDICATION

I dedicate this research project to my family for their support and understanding during the time of writing this project. I will forever remain grateful.

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ABSTRACT

This study sought to determine the level of use of information technology and its relationship with organisational performance at PS Kenya. To achieve the objectives of the study, a descriptive survey was used. Primary data was collected using a semi-structured questionnaire. The population for this study comprised of the entire PS Kenya staff which was 438. The questionnaire was administered electronically for data collection, out of which 311 respondents responded to the study resulting in a response rate of 71 percent which was considered as a sufficient representation of the organisation. The study findings revealed that majority of the respondents had various IT company devices at their disposal to enable them perform their duties. The study findings also revealed that there was a positive relationship between the level of IT use and organisational performance at Population Services Kenya. The study results indicated that IT use explains 82.4% of organisational performance at PS Kenya. The study recommends that organisations should embrace IT tools and services so as to have competitive edge and improve service delivery to their customers. The study also recommends that more study should be done on challenges facing information technology use in organizations in Kenya.

ABBREVIATIONS AND ACRONYMS

AIDS	–	Acquired Immune Deficiency Syndrome
CBOs	–	Community Base Organisations
HIV	–	Human Immunodeficiency Virus
ICT	–	Information and Communication Technology
IT	–	Information Technology
NGO	–	Non-Governmental Organization
PSI	–	Population Services International
PS KENYA	–	Population Services Kenya
SPSS	–	Statistical Package for Social Science
UNDP	–	United Nations Development Program

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Since the early years of the 20th century, the world has been experiencing a revolution known as information technology. Some consider it to be the most fascinating development since the industrial revolution around the mid-18th Century (Tom, 1991). This revolution is changing our daily lives at home and at work, in shops and banks, in schools, colleges and universities. It is changing the way people think, communicate and behave. Today, the world has become a global village with the internet, mobile phones and satellite networks shrinking time and space, bringing together computers and communications; resulting in new ways of communication, processing, storing and distributing enormous amounts of information (UNDP, 2001). Advancement in chip, satellite, radio, and optical fiber technology have enabled millions of people around the world to connect electronically regardless of national or international boundaries. This explosion in connectivity is the latest and the most important wave in the information revolution (Evans & Wurster, 1997).

Information Technology (IT) is clearly considered as a key growth area in this century, specifically, in a dynamic and highly competitive business environment which requires utilizing advanced IT tools to improve efficiency, cost effectiveness, and deliver high quality products and services to customers (Allen & Morton, 2004). IT is also considered as a tool of marketing, contacting customers and looking for possible customers, as well as presenting IT services as distinguished potential services for customers (UNDP, 2001; Werthner & Klein, 2005).

Organisations are increasingly using information technology to develop solutions to business problems, to improve both the efficiency and effectiveness of the decision-making process, to enhance productivity and service quality, to achieve dynamic stability, and compete for new markets (Attewell & Rule, 1984; Molloy & Schwenk, 1995; Boynton, 1993). According to Cerere (1993) organizations have always sought and adopted technologies that enhance efforts of their manpower in production and management. Indeed he noted that although it has evolved over a considerable period of time, information technology has emerged as an important tool in management of organizational operations.

1.1.1 Information Technology

Information technology refers to anything related to computing technology, such as networking, hardware, software, the Internet, or the people that work with these technologies. According to Daft (1997) IT can be defined as the hardware, software, telecommunications, database management, and other information-processing technologies used to store, process, and deliver information. Information technology is commonly used to assist managers with direct control over business functions, personnel and other resources. As managers oversee resource coordination and allocation, it can be difficult to coordinate business functions across various projects. Information technology is one of the key innovations that is frequently implemented to assist in this process (Hobday, 2000). Peansupap and Walker (2005) maintain that IT is often implemented as it is believed to facilitate communication, improve integration, enhance productivity and service delivery (Bjork, 1999).

As organisations grow and change, they depend more and more on information technology for their survival (Feeny & Willcocks, 1998). Companies today implement and use information technology to find solutions to business problems, to improve management decision-making, enhance productivity and quality, and compete for new markets in our global and aggressive business environment (Porter & Millar, 1985). Moreover, IT can be seen as a powerful force that opens exciting opportunities for organisations to achieve their missions and goals in an effective way. Therefore, leaders in organisations must obtain an overall appreciation of the potential of IT and link the acquisition and utilization of IT to the organizational mission (Hacker & Saxton, 2007).

1.1.2 Organisation Performance

Information technology is at the core of many business functions, operations, products and services. Today, organisations worldwide spend over 50% of their new investment funds on IT and related communications. How organisations manage these large investments is of critical importance to organisational efficiency and effectiveness. Further, IT is often the link between the business model and the critical drivers of success. Many organisations have been unsuccessful with their IT-based investments because of poor alignment of IT with the business.

Take for example Toyota; a Japanese automotive manufacturer, which has flourished in a highly competitive environment because it has created a set of finely-tuned business processes and

information systems that simultaneously promote agility, efficiency, and quality. It can respond instantly to customers and changes in the marketplace as events unfold, while working closely with suppliers and retailers. As part of its ongoing effort to monitor quality, efficiency and costs, Toyota management saw there was an opportunity to use information systems to improve business performance. Even though technology alone would not have provided the solution, Toyota carefully revised its business processes to support a build-to-order production model that based vehicle production on actual customer orders rather than "best guesses" of customer demand. Once that was accomplished, Oracle e-business software was useful for coordinating the flow of information among disparate internal production, ordering, and invoicing systems within the company and with systems of retailers and suppliers.

This resulted in Toyota building only the cars customers have ordered, its vehicle order management system reduces inventory costs, because the company and its dealers do not have to pay for making and storing vehicles customers did not want. The system also increases customer satisfaction by making it easier for customers to buy exactly the model, make and option they desire. Information provided by the system helps management monitor trends and forecast demand and production requirements more accurately. The system creates value for Toyota by making its ordering and production processes more efficient and effective. Electronically integrating key business processes in vehicle ordering and inventory management has made this company much more agile and adaptive to customer demands and changes in its supplier and dealer network.

The impact of Information Technology on organizations' services and performance has been examined by many studies (Beckey, Elliot, & Procket, 1996; McNutt, & Boland, 1999). Although most of these studies have suggested that IT plays a vital role in improving the quality and quantity of information, its potential for adoption and innovation is often uncertain (Mano, 2009). Different firms allocate their resources differently in a way that maximizes their objectives and those firms that allocate more resources on IT perform better than those firms that allocate less resources (McAfee & Brynjolfsson, 2008). Achieving high performance also requires good IT infrastructure supported by good IT management practice (Mwania & Muganda, 2012).

1.1.3 Population Services Kenya

Population Services International (PSI) is a non-governmental organization (NGO) that was founded in 1970 to improve reproductive health services using commercial marketing strategies.

For the first 15 years, PSI worked mostly in family planning (hence the name Population Services International) but in 1985 it started promoting oral rehydration therapy program. In 1988 PSI began its first HIV prevention project; which promoted abstinence, fidelity and condom use, there after adding malaria and safe water to its portfolio in the 1990s and tuberculosis in 2004. PSI measures its effect on disease and death much like a for-profit measures its profits. Just last year PSI saved the lives of 15,445 mothers, prevented 5,646,997 unintended pregnancies, stopped 254,792 new HIV infections, and avoided 273,740 deaths due to diseases like malaria, diarrhea and pneumonia (PSI Journal, 2015).

PSI global headquarters are in Washington, D.C. and has programs in 69 countries with more than 8,900 staff and affiliates, with 1% of the overall workforce being expatriates. PSI major donors include the governments of the United States, United Kingdom, Germany and the Netherlands; the Global Fund to Fight AIDS, Tuberculosis and Malaria; United Nations agencies; private foundations; corporations and individuals.

After 25 years of successful operations in Kenya, in 2014 PSI's operations and people were transitioned to Population Services Kenya or "PS Kenya". With the believe that a locally-led and governed organization will be well positioned to work with the Kenyan government and donors to deliver local solutions driven by best global practices. PS Kenya has 7 regional offices spread across the country with more than half of its staff working as field officers. The field officers comprise of medical practitioners; clinical officers, nurses, researchers, sales representatives among others (PS Kenya Journal, 2015).

PS Kenya works closely with private sector stakeholders including more than 55 commercial distributors, 700 wholesalers, and more than 30,000 kiosks, dukas, pharmacies, bars and lodges. They support a network of over 320 private providers in the Tunza clinics franchise, dozens of community-based organizations CBOs, and hundreds of institutions, suppliers, and partners. Through the Tunza Family Health Network of over 320 clinics, PS Kenya delivers quick, quality and affordable integrated health services to vulnerable populations in the rural and peri-urban settings.

1.2 Statement of the Problem

The concept of performance has always been present in management literature covering various aspects such as efficacy, efficiency, competitiveness, relevance and financial viability. Marmouse (1997) highlighted that; organization's performance represents the manner in which the company is organized to reach its objectives and the way it manages to reach them. Over the years, PS Kenya continued to grow as an organization and this involved a change in its operations and processes. There was tremendous growth in the number of technological devices used by staff at PS Kenya and investments on data management and communications systems. There was a need to find out if that was contributing positively to the organizational performance hence the essence of the research. Anticipated changes in organizational performance involve reduction in the duration taken in processing critical tasks and elimination of repetitive tasks resulting in higher productivity and efficiency as well as better and quality service delivery.

Information technology researchers have empirically demonstrated that IT investments enhances firm's productivity, management capabilities and comparative advantage (Griffith, 1999). Studies in the developed world have attested that given the proper infrastructure, IT can be an enabler for socioeconomic development. Examples given from the developed world where significant IT investments have had major impacts include increasing the United States gross domestic product (GDP) by 7.8%, UK by 8.0%, Singapore by 8.3% and Australia by 8.4% (Kamel, Rateb & El-Tawil, 2009).

Illustrations of studies done on IT's impact on performance included; a study of an information services firm by Pulley and Braunstein (1984), which found an association with increased economies of scope; another was by Diewert and Smith (1994) which provided an interesting case study of a large Canadian retail firm. According to their accounting frame-work, the distribution firm experienced an astounding 9.4% quarterly multi-factor productivity growth, for six consecutive quarters starting at the second quarter of 1988. They argued that "these large productivity gains were made possible by the computer revolution which allowed a firm to track accurately its purchase and sales of inventory items and used the latest computer software to minimize inventory holding costs". While Loveman (2001) found no evidence on performance increase from IT investments; Weill (1990) found that transactional IT had a positive impact on

firm performance but strategic IT or informational IT did not. Pourmirza (2006) found that IT labour produced substantial high returns in organizational performance but IT capital did not.

Similar studies that were done locally to shade some light on the subject under study included; Gakuo (2011) who conducted a study on the impact ICT at Nairobi Water & Sewerage Company and observed that its investments substantially increased the average organizational performance in achieving various milestones, overall revenue increment, enhancing research and development and product innovation. Katana (2011) studied electronic procurement adoption: the case of Kenya Ports Authority and showed that firms that acquire extensive IT resources are able to create better competitive advantage. Kinuthia (2012) researched on the relationship between IT investment and performance of NGOs in Kenya and concluded that IT was crucial in the efforts to improve performance and Waruguru (2012) explored the influence of ICT on performance of the airline industry in Kenya concluded that ICT improved performance of the company to a large extent. These studies had not quite given detailed insights and analysis of the issues that were addressed in this study therefore leaving a knowledge gap on the impact of information technology on organizational performance in Kenya. The purpose of this study was to determine the level of IT use at PS Kenya and its relationship with performance. In particular, the following research question was addressed; what is the impact of information technology on performance at PS Kenya?

1.3 Objectives of the Study

The objective of this study were to;

i. Determine the level of information technology use at PS Kenya.
ii. Determine the relationship between information technology use and performance at PS Kenya.

1.4 Value of the Study

It is hoped that the management will use the findings as the base upon which to review organization performance and necessary improvements identified will be undertaken to enhance performance at the work place and increase operations efficiency. It is also hoped that the findings will also be used by human resource management to help in boosting employee performance.

It is hoped that this study will be important to organizations in identifying unexploited opportunities in data management and communication systems and tools, and determine areas of

wastage on these resources, implement controls and thus save on costs. It is also hoped that the findings of this study will also be beneficial to organizations and institutions in developing strategies for adopting information technology successfully and setting standards that should work towards improvement of service delivery.

It is also hoped that human resource teams and policy makers will use the findings of this study to formulate viable policy documents that will effectively boost productivity and operation efficiency. Lastly, researchers may benefit from the study as it adds on to the growing body of knowledge in IT and will act as a source of reference for studies to be done on technology. It is in this light that the research aims at filling the existing academic gap by carrying out a research on the relationship between information technology and organisation performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 IT and Organisations.

Non-government organisations (NGOs) have traditionally contributed significantly to a country's future, however, to continue this work effectively in today's technological age, they need not only the technology but the skills to use and gain value from applications from which the technologies have enabled. Furthermore, they require timely access to 'markets' to enable the sharing and dissemination of the information obtained. Often NGOs are at a 'grass-root' level; these organisations give assistance to communities at a local level by the local or common 'man'. Grass-root NGOs are a life line for many people in developing countries in improving skills, knowledge, and support from outside the confines of their small, isolated communities.

Historically, organisations, specifically Non-Governmental Organisations have been behind their corporate counterparts in adopting IT and have been relatively slow to take advantage of emerging information technology developments Nitterhouse (1999). Most of the NGOs adopt the traditional (manual) methods by using computers for word processing, spreadsheet and accounting applications, and managing a patchwork of old and new elements that often do not work well together. NGOs, unlike their corporate counterparts, face some constraints that inhibit them from adopting IT. These inhibiters include lack of budget to invest in the latest and greatest systems and IT tools, lack of sustainable capital for IT investment, an inability to pay competitive salaries to technical personnel, and inability to build the needed technical skills.

Some sources of financial support for NGOs may be individual donations, governmental grants, fundraising efforts, grants via funding agencies, or direct contributions from other NGOs. However, NGO funds are mostly dedicated to achieve the organization's mission, goals, and planned activities, (Hacker, & Saxton, 2007), while a comparatively low proportion of the budget is directed to general IT support or staff's professional development. Lack of such IT budgetary planning or IT strategic planning impacts the organization's ability to take advantage of the strategic and innovative opportunities provided by IT (Nitterhouse, 1999).

In organizations there are those factors which influence a firms' IT adoption including anticipated benefits and barriers. An organization will adopt the new technology if it perceives there will be

savings of inputs, general efficiency, gains, higher flexibility and improvement of product quality (Brynjolfsson & Hitt, 2006). A firm will often fail to adopt the new technology if it perceives that it is faced with unfavorable financial conditions, human capital restrictions (e.g. lack of IT specialists and multi-skilled workers) , information and knowledge barriers and managerial barriers like resistance to the new technology within the firm (Heinz, 2002).

2.2 IT and Business Processes

The recent information technology developments have enormous implications on the operation, structure and strategy of organisations. According to (Evans & Wurster, (2007) the competitiveness of future economies will, to a great extent, depend both on the development and application of these technologies. The proliferation of the World Wide Web forced most organizations to rethink the way they do business and how they can reengineer their business processes. As businesses can now interact more efficiently, competent businesses become digital and networked, facing a whole range of fresh opportunities and challenges (Dennis, 2007).

According to Bocij (2003) technology has already revolutionized a wide range of functions including business functions, external environment monitoring, communicating with partners and with consumers at large. Clear strategic goals and commitment are prerequisites for the development of an appropriate e-Commerce strategy and the development of web sites and other technological solutions. The emergent mobile technologies and mobile commerce are expected to change drastically a number of industries and to force organisations to reconsider their strategic management (Evans & Wurster, 2007).

2.3 The Role and Use of IT in Organisations

Within the international community, the collective technical infrastructure of hardware, software, and telecommunications is often referred to as information and communications technology (ICT) which can be seen as an extended synonym for IT. Many organisations perceive IT as an important tool to optimize operations and conduct information exchanges.

Information technologies can provide powerful strategic and tactical tools for organizations, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness (Porter, 2001). IT can be a means of facilitating communication and the exchange of information and/or facilitating knowledge sharing between various departments and

functions in the organization. In this light IT can act as an enhancer of collaboration and a networking tool amongst employees, customers and partners because it removes the barriers to real-time communication and effective information sharing (Scott, 2001).

IT helps organisations innovate through fusion of new technologies with society and business thus enabling the creation of new knowledge and discovery (Diem, 2007). IT is being used by organizations to improve performance, communication, motivate employees, increase competitiveness, improve market dynamics, and repositioning the company against its competitors facilitating entry into new markets (Hagen, 2010).

2.4 IT and Productivity - Productivity Paradox

Productivity is the fundamental measure of a technology's contribution. While major success stories exist, so do equally impressive failures (Kemerer & Sosa, 1991; Schneider, 1987). The lack of accurate quantitative measures for the output and value created by information technology has made information systems manager's job of evaluating investments particularly difficult. Academics have had similar problems assessing the contributions of new technology, and sometimes this has been interpreted as a negative signal of its value.

In the 1980s and early 1990s, disappointment in information technology was chronicled in articles disclosing broad negative correlations with economy-wide productivity and information worker productivity. Several econometric estimates also indicated low IT capital productivity in a variety of manufacturing and service industries. More recently, researchers began to find positive relationships between IT investment and various measures of economic performance.

Strassmann (1985) reported disappointing evidence in several studies. In particular, he found that there was no correlation between IT and return on investment in a sample of 38 service sector firms: some top performers invested heavily in IT, while others did not. In his later book (1990), he concluded that "there is no relation between spending for computers, profits and productivity". A study by Parsons, Gottlieb and Denny (1990) estimated a production function for banking services in Canada and found that overall, the impact of IT on multifactor productivity was quite low between 1974 and 1987. They speculated that IT had positioned the industry for greater growth in the future. Similar conclusions were reached by Franke (1987), who found that IT was associated with a sharp drop in capital productivity and stagnation in labor productivity, but

remained optimistic about the future potential of IT, citing the long time lags associated with previous “technological transformations” such as the conversion to steam power. Harris and Katz (1991) and Bender (1986) looked at data on the insurance industry from the Life Office Management Association Information Processing Database. They found a positive relationship between IT expense ratios and various performance ratios although at times the relationship was quite weak. Alpar and Kim’s (1991) study of 759 banks indicated cost reducing effects of IT. A 10% increase in IT capital was associated with 1.9% decrease in total costs.

IT contribution to output and productivity is documented in several important studies, but whether or not this output growth is beneficial to profits and market value is not yet clear. In addition, some practitioners and researchers still believe that “the full power of the computer in increasing national productivity has not yet unfolded.” In this sense, the productivity paradox still awaits explanation.

2.5 IT and Performance of Organisations

In the 1960's and 70's, information technology was widely employed by many firms mainly for achieving routine clerical and administrative activities such as processing data related to bookkeeping and accounting activities (Bird & Lehrman, 1993). It was used as a monitor of the firm's internal and external environment; in other words, as a support factor for the other organisational system components (Blili & Raymond, 1993). However, the cost, the distribution, and the fact that it was generally applied to only simple tasks in its early stages discouraged its application to strategic uses in areas such as enhancing the organisation's position against competitors, moving into new markets, and providing managers with better information for effective decision making. The advancement in the technological field along with other advancements have enhanced the economies of information technology and greatly expanded its applications (Bird & Lehrman, 1993).

Today, information technology has become not only a tool to process data and record transactions, but also a competitive weapon that can change an industry's structure. Galliers (1994) suggested that because of the rapid pace of technological advances and the impact of information technology on the changing competitive environment, organisations are forced to critically evaluate their management of information and technology resources in order to achieve their strategic objectives.

One of the strongest evidences of the impact of IT has been illustrated as coming from the firm-level analysis that is confirmed to a number of developed countries (OECD, 2003). Most of these studies use a combination of growth accounting methods and econometric models to examine samples of industries and firms. For example, (Gretton, 2002), studying firm-level data from the Australian Business Longitudinal Survey, found positive and significant links between the use of IT and growth in both manufacturing and service industry. (Brynjolfsson & Hitt, 2003), investigating US firm-level data, proved that IT has a solid impact on productivity. (Pilat & Wolfl, 2004) examined the role of ICT-producer and key ICT-consumer sectors in explaining overall productivity growth in OECD (Organisation for Economic Co-operation and Development) countries; they found that the impact of ICT-producer sectors is most significant in Finland, Ireland, and Korea whereas ICT-consumer sectors in some countries, remarkably US and Australia, had an impressive growth in the second half of the 1990s. (Hempell, 2004) analyzed comparable panel data of the Dutch and German firms in the service industry and found that ICT capital deepening and innovation have complementary impact on productivity.

The Massachusetts Institute of Technology group in 1991 concluded that information technology is the platform on which success can be built but organizational factors are crucial to realizing the benefits of automation and `informating' process (Morton, 1991; Zuboff, 1988). Information technology can be considered to be a series of innovations. Even though the innovations provide organisation with new and different ways of solving problems and enhancing performance, there is still a great deal of research to be done and discussion among researchers and organisational theorists on how innovations should be implemented and managed and how they affect organisations on different levels.

It is widely accepted among many authors and researchers in the organisational field that information technology has a significant effect on the performance of the organisation's activities (Bhattacherjee & Hirschheim, 1997; Morris & Westbrook, 1996; Porter & Millar, 1985). For example, information technology applications can be used to improve the level of efficiency of administrative functions in an organisation and to enhance the effectiveness of managerial activities. These applications also can be used as tools to impose better organisation on tasks and to provide better information to managers. Zuboff (1988) pointed out that information technology applications are strongly altering the way in which production operations are carried out in a

variety of industries and thus using information technology to create and acquire a competitive advantage.

2.6 Theories

The study will rely on theoretical models to determine the impact of information technology on organisation performance. The study will therefore rely on; Model of the organisation (Leavitt, 1965) and the Technology Acceptance Model (Davis et al., 1989).

2.6.1 The Technology Acceptance Model

Emerging information technology cannot deliver improved organizational effectiveness if it is not accepted and used by potential users. Technology Acceptance Model (TAM) is one of the most successful measurements for computer usage effectively among practitioners and academics (Davis, 1989). TAM is consistent with (Rogers, 1983) theory on diffusion of innovation where technology adoption is a function of a variety of factors including; relative advantage and ease of use.

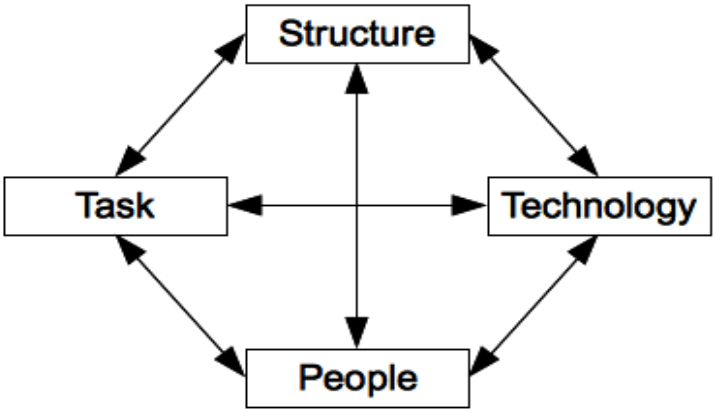
Two particular beliefs are addressed through TAM; perceived usefulness and perceived ease of use. Perceived usefulness is defined as being the degree to which a person believes that the use of a system will improve his performance. Perceived ease of use refers to the degree to which a person believes that the use of a system will be effortless. TAM attempts not only for prediction but also for explanation to help researchers and practitioners identify why a particular system may be unacceptable and pursue appropriate steps

2.6.2 Model of the Organisation

The research theoretical framework to be applied in this study is based on the model of the organisation (Leavitt, 1965). He suggested that an organisation consists of four interrelated components: structure, task (strategy), people, and technology as presented in Figure 2.1. Organisation's structure refers to systems of communication, systems of authority, and systems of workflow; organization’s strategy can be defined as the establishment of the basic long-term objectives of an enterprise, and the adoption and commitment of resources to a course of action intended to obtain these corporate objectives (Chandler, 1962); People refers to individuals working in the organisation and; Technology can be defined as the tools, techniques, and actions

used to transform organisational inputs into outputs (Daft, 1995). Leavitt (1965) reported that if any of the four components changes, the other three must also change. It is the interaction between these four components that determines the fate of an organization. This framework has been chosen for this study because it covers many critical issues that could lead us to a comprehensive understanding of the relationship between information technology and organisations. This study focuses on the impact of information technology on the organisation which is part of the technology component, and organisational characteristics.

Figure 2.1: Model of the Organisation.



2.7 Summary of Literature Review

There is a great deal of agreement among researchers that quantifying the impact of information technology on the performance of organisations is a very difficult process. There is no accepted measure among researchers and scholars for management productivity. Direct physical measures of outputs and inputs provide an alternative metric that permit process-specific comparisons of manufacturing performance associated with alternative technological choices and organisational designs (Mitchell & Stone, 1992).

Other techniques to measure productivity are the time-based measures for key production operations. They are commonly used by industrial engineers and production managers to plan schedules, to estimate costs, and to monitor machine utilization rates in batch manufacturing processes such as machining (Kelley, 1994). According to Panko (1991), one measure of office productivity is "output per hour". This measure can be calculated by dividing units of output by the number of hours worked to produce them.

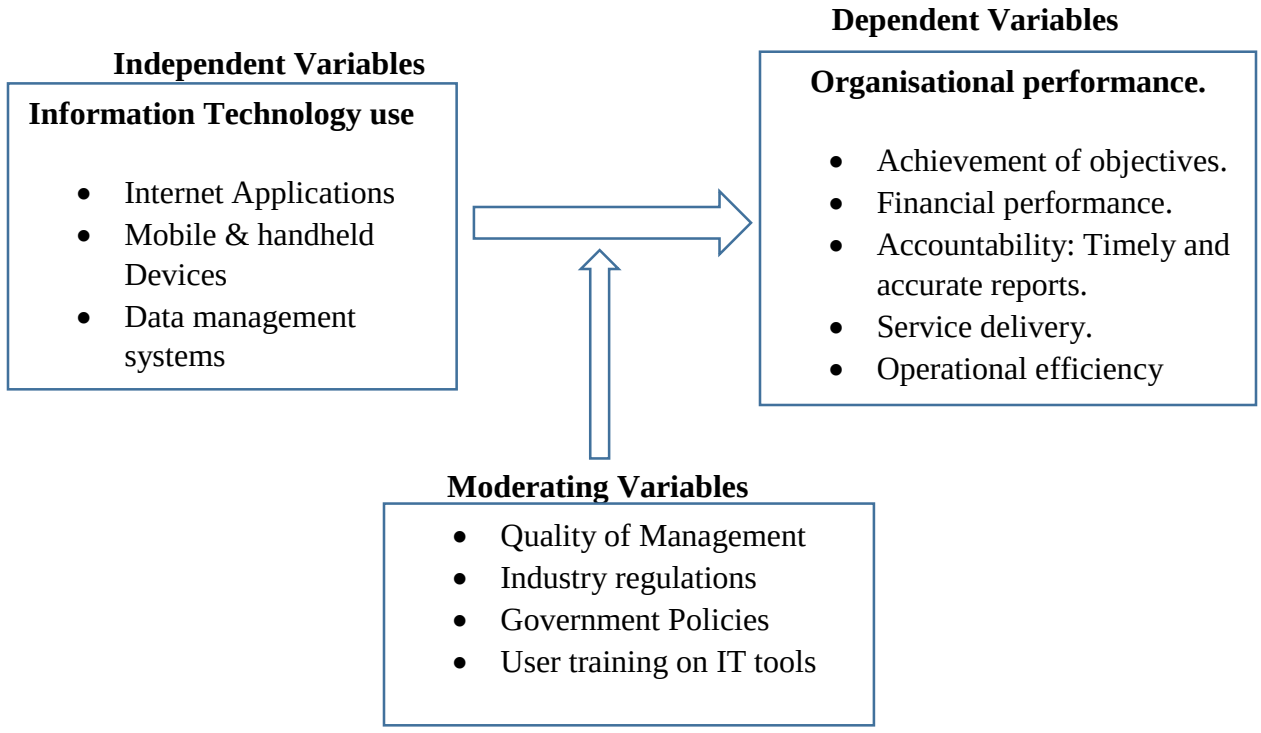
A useful framework for analyzing the strategic significance of information technology has been provided by Porter and Millar (1985). They introduced the concept value chain which explains how and why the technology is changing the way organisations work from inside as well as changing the relationship between organisations and their suppliers, customers and competitors.

Although IT is being adopted in many organizations, assessment of its appropriateness and effects on performance has not been fully understood. Based on this, the study seeks to assess the relationship between information technology use and performance of organizations in Kenya.

2.8 Conceptual Framework

The conceptual framework looks performance of organisations as the dependent variables with mobile and handheld devices, internet applications and data management systems being the independent variables where achievement of objectives, service delivery, accountability and operational efficiency measuring the performance of organisations as presented in Figure 2.2.

Figure 2.2: Conceptual Framework



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

This research project adopted a descriptive survey design. Descriptive surveys are used to describe a behavior of a given subject. The impact of information technology on organizational performance was a cross-sectional study as it sought to describe data and characteristics about the population or phenomenon being studied and it used a quantitative research approach.

3.2 Population

The population targeted for the study comprised of the entire PS Kenya staff; at the time of the study there were a total of 438 permanent employees.

3.3 Data Collection

The study made use of primary data which was collected through a questionnaire which was administered electronically due to the ease of administration and reach as the staff were spread out across the country and had access to internet connection from their laptops and mobile devices. The Questionnaire had two sections, the first part captured demographic information of the respondent and the second part entailed the use and impact of Information technology.

The questionnaire was anonymous as no personal information of the respondents was collected, to facilitate data collection approval from the supervisor and human resources director was obtained, subsequently an email notification was sent to the respondents and they were given two weeks to complete the survey.

3.4 Data Analysis

The research objective was to assess the relationship between information technology and organizational performance. Data collected from the study was imported into a computer programme statistical package for social sciences (SPSS) for analysis using descriptive statistics like frequency distributions, percentages and averages. Inferential statistics such as regression analysis was performed, while standard deviation was computed to test for consistency and the

variability of responses across the study. The significance level was set at 5% for every statistical set.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. The results presented were on impact of information technology on organisational performance. The research sought to determine the level of information technology use at PS Kenya and also to determine the relationship between information technology use and performance.

4.2 Response Rate

The study targeted the entire PS Kenya respondents out of which 311 respondents responded to the study resulting in a response rate of 71 percent. This response rates was considered sufficient and representative and conforms to Mugenda and Mugenda (2003) stipulation that a response rate of 50 percent is adequate for analysis and reporting; a rate of 60 percent is good and a response rate of 70 percent and over is excellent.

4.3 Background Information of the Respondents

The study sought information on various aspects of respondents' background, i.e. the respondent's designation, highest level of education and the number of years they had worked for PS Kenya. This was for general information and was not a direct objective of the study.

4.3.1 Distribution of Respondents by Designation

In order to understand the respondents' responsibilities, the respondents were asked to indicate their designation. Table 4.1 shows the distribution of respondents by designation.

Table 4.1 Distribution of Respondents by Designation.

Designation	Frequency	Percentage
Director	12	3.85
Senior Management	18	5.78
Middle Management	62	19.9
Subordinate	219	70.04
Total	311	100

The results in Table 4.1 show that majority of the respondents (70%) were subordinates at PS Kenya while 3.85% were directors.

4.3.2 Highest Level of Qualification

The respondents were asked to indicate their highest level of qualification. Table 4.2 distribution of respondent's by highest level of qualification

Table 4.2 Distribution of Respondent's by Highest Level of Qualification

Academic qualification	Frequency	Percentage
Secondary Education	12	4.02
Certificate	57	18.3
Bachelor's Degree	173	55.36
Master's Degree	65	20.98
Doctorate	4	1.34
Total	311	100

As shown in Table 4.2, most of the respondent 76% were graduates; 55% were bachelor's degree holders and 20% were master's graduates. The rest of the respondents 18% were certificate or diploma holders. This implies that most of the respondents were educated and hence in a position to respond to the issues in the questionnaire.

4.3.3 Work Experience at PS Kenya

The respondents were asked to indicate the duration for which they had been working at PS Kenya. Findings are presented in Table 4.3.

Table 4.3 Distribution of Respondent's by Work Experience at PS Kenya

Years of service	Frequency	Percentage
Less than 5 years	146	46.88
5 – 10 Years	103	33.04
11 – 15 Years	50	16.07
16 - 20 Years	12	4.02
Above 20 Years	0	0
Total	311	100

From the findings in Table 4.3, most of the respondent (46 percent) had worked at PS Kenya for less than 5 years, 33 percent for 5 to 10 years, 16 percent for 11-15 years, while 4 percent had been working at PS Kenya for 16-20 years. Thus, Most of the respondents had the experience to respond to the issues in the questionnaire.

4.3.4 Distribution of Respondents by Gender

The respondents were asked to indicate the gender and the findings are presented in Table 4.4.

Table 4.4 Distribution of Respondents by Gender

Gender	Frequency	Percentage
Male	152	48.21
Females	159	51.79
Total	311	100

From Table 4.4, it is evident that majority of the respondents who participated in the study were females represented at 52 percent while males were 48 percent.

4.3.5 Distribution of Respondents by Age

The respondents were asked to indicate their age. This was for general information and was not a direct objective of the study. Findings are presented in Table 4.5.

Table 4.5 Distribution of Respondents by Age

Respondents Age	Frequency	Percentage
Below 20 years	3	1.34
21 – 30 Years	116	36.61
31 – 40 Years	137	44.2
41 - 50 Years	43	13.84
Above 50 Years	12	4.02
Total	311	100

From Table 4.5, majority of the respondents were aged between 31-40 years with 44 percent and 21-30 years (37 percent). The findings in Table 4.5 further revealed the rest were aged between 41-50 years (13 percent) and above 50 years (4 percent).

4.4 Level of IT Usage at PS Kenya

The study sought to find ou1t the various IT devices the respondents had at their disposal to perform their tasks and also the extent to which they used the various IT devices and systems.

Table 4.6 Company IT device(s) at Disposal to Enable Performance of Duties

Devices	Frequency	Percentage
Mobile Phone	68	35.98
Desktop Computer	95	50.26
Laptop	96	50.79
Ipad or Tablet	48	25.4
Others	8	4.23

Table 4.6 shows that majority of the respondents (50.79 percent) had laptops and desktop computer (50.26 percent) at their disposal to enable them perform their duties. Table 4.6 further reveals (35.98 percent) of the respondents had a company mobile phone, and iPad or tablet (25.4 percent) at their disposal to enable them to perform their duties at PS Kenya.

The study sought to find out the level of use of IT devices and systems at PS Kenya. Table 4.7 shows that majority of the respondents agreed to a very large extent (50.53 percent) on the level of use of laptops and desktop computers at PS Kenya, while mobile phones and tablets level of

usage was closely followed at (34.21percent). In addition the respondents agreed to a large extent on the level of use of various IT systems at PS Kenya; the intranet usage was at 47.37 percent, HR system usage was at 56.84 percent, office365 usage was at 51.05 percent and CRM usage was at 35.26 percent. On the hand, the respondents were neutral on the level of use of DHIS (The District Health Information Software) at 31.05 percent.

Table 4.7 Level of IT Usage at PS Kenya

IT device/System	Very Large Extent (%)	Large Extent (%)	Neutral (%)	Little Extent (%)	Very Little Extent (%)	Mean	SD
Laptops and desktop computers	50.53	38.42	4.21	5.26	1.58	4.31	0.899
The intranet (Julisha)	41.05	47.37	5.79	3.16	2.63	4.21	0.890
HR System	24.21	56.84	10	3.16	5.79	3.91	0.993
Office365 (email/OneDrive/ Yammer etc)	51.05	24.21	10	8.95	5.79	4.06	1.222
Mobile devices and tablets	26.32	34.21	23.68	10	5.79	3.65	1.143
CRM	15.26	5.26	23.68	9.47	16.32	3.24	1.290
DHIS2	14.74	24.74	31.05	8.42	21.05	3.04	1.331

4.5 Impact of IT on PS Kenya Performance Data Management.

The study sought to find out the impact of IT on performance in various areas at PS Kenya. The respondents were requested to indicate their level of agreement with various statements on various aspects of organization performance.

Table 4.8 Impact of IT on PS Kenya Performance in Data Management

Data Management Aspect	Mean	SD
Use of IT tools and services has significantly improved the data collection process by field officers.	4.32	0.598
Use IT tools in data collection is easier as compared to previous paper based process.	4.25	0.608
Use of IT has facilitated better management of departmental data needs.	4.30	0.555
Use of IT data management systems has made the decision making process faster.	4.16	0.565
Use of IT has facilitated better knowledge management for the organisation.	4.21	0.608
Use of IT tools has improved operational efficiency of employees at PS Kenya.	4.23	0.589
Use of IT has helped PS Kenya improve collaboration activities with her partners.	4.19	0.604
Average	4.22	

The results in Table 4.8 show that majority of the respondents represented by an average mean of 4.22/5 agreed that the use of IT had improved PS Kenya performance in data management processes significantly. Data collection process of field officers had a mean of 4.32/5, and data collection activities using IT tools had a mean of 4.25/5. Management of departmental data needs had a mean of 4.30/5, while decision making process had a mean of 4.16/5. Facilitation of better knowledge management for PS Kenya had a mean of 4.21/5, and improved operational efficiency of employees a mean 4.23/5 while collaboration activities with PS Kenya partners had a mean of 4.19/5.

Table 4.9 Impact of IT on PS Kenya Performance in Target Achievements

Target achievement Aspect	**Mean**	**SD**
Use of IT has improved target monitoring and reporting significantly at PS Kenya.	4.22	0.593
Use of IT has helped PS Kenya incorporate quantitative targets at planning stage.	4.07	0.653
Use of IT has helped PS Kenya implement target schedules on time.	4.05	0.658
Use of IT has helped PS Kenya improve employee's productivity and increased flexibility.	4.13	0.631
Use of IT has helped PS Kenya attract sustainable donor funding.	3.92	0.717
Average	4.07	

Results in Table 4.9 show that majority of the respondents agreed that the use of IT had a significant impact on PS Kenya performance in target achievement aspect with an average mean of 4.07/5. Through the use of IT PS Kenya had improved the target monitoring and reporting; mean of 4.22/5, incorporated quantitative targets at planning; mean of 4.07/5, improved employee performance and increased flexibility; mean of 4.13/5, and attracted sustainable donor funding; mean of 3.92/5.

Table 4.10 Impact of IT on PS Kenya Performance in Accountability

Accountability Aspect	**Mean**	**Total**
Use of IT has helped PS Kenya monitor variances (budget versus actual) in real time basis.	4.02	0.735
Use of IT has facilitated better management of PS Kenya Products and services offered to Its customers (Sara)	4.09	0.636
The use of IT has led to more formalization of communication and procedures.	4.22	0.602
Whistle blowers have used PS Kenya IT services in reporting malpractice and malfeasance.	3.68	0.844
Average	3.99	

Results in Table 4.9 show that, majority of the respondents agreed that the use of IT has facilitated better accountability of resources at PS Kenya with an average mean of 4.99/5. Through the use of IT PS Kenya can monitor variances against budget in real time basis; mean of 4.02/5, manage products and services better; mean 4.09/5 and also helped whistle blowers report malpractice and malfeasance; mean 3.68/5.

Table 4.11 Impact of IT on PS Kenya Performance in Service Delivery

Service Delivery Aspect	**Mean**	**SD**
Use of IT has facilitated quality service delivery to PS Kenya customers.	4.12	0.612
Use of IT has facilitated better communication with its beneficiaries and partners in service delivery.	4.11	0.611
Use of IT has improved planning and execution activities of projects in reaching its customers.	4.13	0.600
Use of social media has helped PS Kenya reach its beneficiaries and also collaborate with our partners.	4.02	0.729
Average	4.09	

Results in Table 4.11 show that the respondents agreed that the use of IT had facilitated better service delivery with an average mean of 4.09/5. The respondents agreed that use of IT facilitated quality service delivery to customers; mean of 4.12/5, facilitated better communication with its beneficiaries and partners in service delivery; mean 4.11/5, improved planning and execution of project activities; mean 4.13/5, and helped PS Kenya reach its beneficiaries and improved collaboration; mean 4.02/5

4.6 Relationship between Information Technology Usage and Performance at PS Kenya

The study conducted a regression analysis to test relationship between IT use and organisational performance at PS Kenya. The researcher applied the statistical package for social sciences (SPSS V21.0) to compute regressions for the study.

Table 4.12 Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.908[a]	.824	.766	6.55617

a. Predictors: (Constant), IT Use

The coefficient of determination is 0.824, which shows that about 82.4% of the variation in performance at PS Kenya can be explained by the level of use of IT.

Table 4.13 Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	605.102	35	605.102	14.078	.033[b]
Residual	128.950	276	42.983		
Total	734.052	311			

a. Predictors: (Constant), IT use b. Dependent Variable: Performance

As shown in Table 4.13, the model has an F value of 14.078 and P value of 0.033 and hence the regression model is statistically significant

Table 4.14 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	3.704	2.265		0.704	0.053
	IT use	.848	.226	.908	3.752	0.033
a. Dependent Variable: Performance						

The linear regression model obtained in this study was:

$Y=3.704 +0.848X_1 +€$

The regression model obtained shows that there is a positive relationship between IT use and organisation performance at PS Kenya. This implies that holding all other factors constant a unit increase in the variable obtained in the regression model results into a corresponding increase in performance at PS Kenya. Further, the regression results observed that level of IT use is statistically significant in explaining the impact of IT on performance at PS Kenya. This is because the probability value obtained from the regression model in Table 4.14 was below 0.05 (5%). P=0.033.

4.7 Discussion of Findings

The research findings reveal that there was a positive relationship between the performance at Population services Kenya and the level of IT use. The results indicated that IT use explains 82.4% of the performance at PS Kenya. The study findings are in line with some of the studies in the literature. In three case studies, Lee (1994) found that the use of information technology has shown significant positive impacts on productivity. This agrees with the statement that utilization of IT tools has an important influence on the organization and all of its elements including people, culture, structure, process and tasks (Leavitt and Pondy, 1964).

The study also found that, the majority of the respondents had official phones (35.98%), computer (50.26%), IPad/Tablets (25.4%) at their disposal to enable them perform their duties. In addition, the respondents agreed to a large extent on the level of use of laptops and computers with a mean of 4.31/5, the intranet; mean of 4.21/5, HR systems; mean of 3.91 and email; mean of 4.06/5. This depicts that PS Kenya had adopted IT to a large extent due to its many benefits to the employee performance particularly through coordination of work in the organizations. The study findings are in line with Scott, (2001), who found that IT is a means of facilitating communication and the exchange of information between various departments and functions in the organization and in this light IT acts as an enhancer of collaboration and networking tool amongst employees, customers and partners because it removes the barriers to real-time communication and effective information sharing (Scott, 2001).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The basic purpose of this chapter was to give the summary, conclusion and recommendation of the study. The findings of the study were based on the objectives of the study which were to determine the level of IT use at PS Kenya; and to determine the impact of information technology on organisation performance at PS Kenya.

5.2 Summary of Findings

This study aim was to assess the impact of information technology on the organizational performance at PS Kenya. It adopted cross-sectional survey research design where all the staff at the organisation were the targeted for the study. Data was collected using online administered questionnaires. All completed questionnaires proceeded to data analysis. A total of 311 questionnaires were returned. That represented a response rate of 71% which was sufficiently high to yield the results sought. Data was analyzed using IBM SPSS Version 21 for descriptive and inferential statistics.

The findings reveal that majority of the respondents were females aged between 21-40 years who had attained an undergraduate level of education. The findings further reveal that almost half of the respondents who participated in the study had worked at PS Kenya for 1-5 years.

The findings revealed that all the respondents agreed that PS Kenya had adopted IT to a large extent and use of IT services had improved the performance of the organization significantly. The study findings revealed that majority of the respondents gave the following as ways in which IT had improved performance at PS Kenya: Use of IT had facilitated better data and knowledge management for the organisation, IT had improved operational efficiency of employees, IT had also improved accountability for the organisation and in quality service delivery to its customers.

On the effect of IT on organizational sustainability, the study found that the use of IT enabled PS Kenya attract donor funding and collaborate with other partners respectively. On the achievement of its targets, the study established that IT use had moderately enhanced monitoring and reporting targets with accuracy; achieving organisational objectives; incorporating quantitative targets at planning stage.

Bivariate correlation studies show that there is a positive and significant relationship between information technology use and organization performance. The research therefore proves that IT use has a significant positive and direct effect on performance.

5.3 Conclusion

The study found that, PS Kenya had adopted and used IT to a large extent and that IT had a significant impact on performance. Some of the ways in which IT had an impact on organisation performance include; PS Kenya was able to attract donor funding and collaborate with other partners more effectively, PS Kenya was also able to achieve, monitor and evaluate organisational targets accurately while incorporating them at planning stages. IT use had enhanced service delivery standards; improved customer's satisfaction and improved productivity of employees and increased flexibility in majority of organisations functions.

The study confirmed that there exists a positive relationship between information technology use and organizational performance. This was evident in all the operations information technology use variables analyzed: data management, accountability, target achievement and service delivery.

5.4 Recommendations

From the findings the study recommends that organizations should embrace IT tools and services so as to have competitive edge and improve service delivery to customers, have more self-service enabled services, automate all critical processes to achieve higher efficiency, reliability and control in the organization. Organizations should also build in house capacity to handle IT systems policies and procedures that attempt to retain IT staff and develop backup plans. The success of PS Kenya, with regard to the positive link between IT use and performance, offers a learning experience for other organisations in the country.

5.6 Areas for Further Research

This study sought to assess the impact of information technology on organisational performance in Kenya with particular reference to PS Kenya in attempting to bridge the gap in knowledge that existed. The study mainly focused on one organization hence there is need to replicate the study using many other organisations so as to find out if there are any other factors on the impact of information technology on organisational performance in Kenya.

The study also recommends that more study should be done on challenges facing information technology use in organizations in Kenya

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APPENDIX 1

Questionnaire

Instructions: Please respond to the following questions and where applicable, mark the relevant box with a tick (√).

Confidentiality: The responses you provide will be strictly confidential. No reference will be made to any individual(s) in the report of the study.

Part A: General Information:

1. Please state your designation
   a) Director [ ]
   b) Senior management [ ]
   c) Middle management [ ]
   d) Subordinate [ ]

2. Indicate your highest level of qualification (tick where appropriate).
   a) Secondary education [ ]
   b) Certificate/diploma [ ]
   c) Graduate [ ]
   d) Masters [ ]
   e) Doctorate [ ]

3. How many years have you worked for PS Kenya? (Tick ( ) where appropriate).
   a) Less than 5 Years [ ]
   b) 5-10 Years [ ]
   c) 11-15 Years [ ]
   d) 16-20 Years [ ]
   e) 20 Years and above [ ]

4. What is your gender?
   [ ] Male [ ] Female

5. In which of the following age brackets do you belong?

   [ ] Below 20 years [ ] 21-30 years [ ] 31-40 years [ ] 41-50 years

   [ ] Above 50 years

Part B: Use and impact of Information Technology

1. What IT device(s) do you have at your disposal to enable you perform your duty?
    1. Mobile phone [ ]
    2. Desktop Computer [ ]
    3. Laptop [ ]
    4. IPad or Tablet [ ]
    5. Other [ ] Please specify _____

2. Kindly indicate the extent of use of the following systems/devices at PS Kenya (tick where appropriate).

	Very large extent	**Large extent**	**Neutral**	**Little extent**	**Very little extent**
Mobile devices and tablets					
Laptops and desktop computers					
The intranet (Julisha)					
CRM					
HR System					
DHIS2					
Office365 (email/OneDrive/Yammer etc)					

3. To what extent do you agree with the following statements in regard to use of IT at PS Kenya? (Tick where appropriate).

Data Management	strongly agree	Agree	Neutral	Disagree	Strongly Disagree
Use of IT tools and services has significantly improved the data collection process by field officers.					
Use IT tools in data collection is easier as compared to previous paper based process.					
Use of IT has facilitated better management of departmental data needs.					
Use of IT data management systems has made the decision making process faster.					
Use of IT has facilitated better knowledge management for the organisation.					
Use of IT tools has improved operational efficiency of employees at PS Kenya.					
Use of IT has helped PS Kenya improve collaboration activities with her partners.					

Performance & Targets Achievement	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
Use of IT has improved target monitoring and reporting significantly at PS Kenya.					
Use of IT has helped PS Kenya incorporate quantitative targets at planning stage.					
Use of IT has helped PS Kenya implement target schedules on time.					
Use of IT has helped PS Kenya improve employee's productivity and increased flexibility.					

Use of IT has helped PS Kenya attract sustainable donor funding.					

Accountability	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
Use of IT has helped PS Kenya monitor variances (budget versus actual) in real time basis.					
Use of IT has facilitated better management of PS Kenya Products and services offered to Its customers (Sara)					
The use of IT has led to more formalization of communication and procedures.					
Whistleblowers have used PS Kenya IT services in reporting malpractice and malfeasance.					

Quality of Service	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
Use of IT has facilitated quality service delivery to PS Kenya customers.					
Use of IT has facilitated better communication with its beneficiaries and partners in service delivery.					
Use of IT has improved planning and execution activities of projects in reaching its customers.					

Use of social media has helped PS Kenya reach its beneficiaries and also collaborate with our partners.					

4. Please give suggestions/recommendations on how else the use of information technology has made service delivery better.

_____

_____

_____

THANK YOU FOR YOUR TIME AND COOPERATION