

**INFLUENCE OF INFORMATION TECHNOLOGY IN
DEVELOPING SUSTAINABLE COMPETITIVE ADVANTAGE AT
THE DEPARTMENT OF CIVIL REGISTRATION, KENYA**

BY

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**A RESEARCH PROJECT PRESENTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD
OF THE DEGREE OF MASTER OF BUSINESS
ADMINISTRATION, UNIVERSITY OF NAIROBI, SCHOOL OF
BUSINESS**

NOVEMBER, 2018

DECLARATION

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D61/86068/2016

This research project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

To my parents, sisters, brothers, friends and relatives.

ACKNOWLEDGEMENT

I acknowledge the effort of my supervisor Prof. Aosa, thank you for the endless guidance.

I appreciate my parents, sisters and brothers for the support they have accorded to me throughout the course of my studies.

I am finally grateful to the ALMIGHTY GOD for the knowledge, wisdom, understating and excellence, let your name be glorified forever.

LIST OF ABBREVIATIONS AND ACRONYMS

CBIS	Computer-Based Information Systems
EDI	Electronic Data Interchange
ERP	Enterprise Resource Planning
GOK	Government of Kenya
ICT	Information Communication Technology
IT	Information Technology
MIS	Management Information Systems
RBV	Resource Based View
RFID	Radio Frequency Identification Systems
TAM	Technology Acceptance Model

ABSTRACT

In the dynamic and globally competitive environment, the inability of established firms to come up with breakthrough technological innovations that will help them operate effectively is a truism today. Both public and private organizations are facing increasing levels of competitive pressure concerning maintaining and sustaining efficiency in their operation systems. Most organizations management are forced to implement innovative strategies so that to achieve competitive advantage. The objective of the study was to establish the influence of information technology on development of sustainable competitive advantage at the department of civil registration in Kenya. This study was guided by several theories such as the technology acceptance theory, resource based view theory and the diffusion of innovation theory that have tried to explain the relationships between technological innovations and performance of firms. A case study research design was used to address this research problem. The study used primary data collected using key informant interview guide. The researcher personally interviewed six senior managers distributed across the functions giving a total of six interviews. Content analysis was used to evaluate the response, draw conclusions and to derive recommendations. Results revealed that the civil registration department has adopted information technology but on a rather sluggish pace. Results revealed that use of these IT systems enhanced development of sustainable competitive advantage. The study concluded that the civil registration department in Kenya has adopted the use of information technology. The particular IT applications that the department had adopted included EDI, ERP and E-procurement. As a result the departments had accrued various benefits which included reduced costs of operation, improved efficiency, data security, better reporting and planning, increased transparency, enhanced service delivery and reduced delays. The study also concluded that adoption of the various information technology application has led to the development of sustainable competitive advantage. Sustainable competitive advantage was realized through enhanced optimal resource allocation, reduction of fraud and corruption, and improve transparency and accountability to a certain extent. In addition, adoption of IT led to reduction of the costs of operations, ensured efficiency in service delivery and

elimination of lots of paperwork which was at times erroneous and tedious. The study recommends that policy makers in the government should come up with mechanisms, for use by regulators in various arms of the government, geared towards speeding up adoption of IT so as to enhance sustainable competitive advantage and service delivery. The study also recommends that the Ministry of Interior and Coordination of National Government will realize the benefits of adopting IT. This study experienced various limitations. To begin with, there was trouble in accessing the targeted respondent. Additionally, the researcher experienced hesitance by respondents to give their feedback as they feared it would be used against them. The study recommends that a similar study be conducted but focus on a different department in the Ministry of Interior and Coordination of National Government for comparison purposes. Being that this study was qualitative, the study suggests that a quantitative study should be conducted so as to measure the magnitude of influence of the adoption of various IT applications on sustainable competitive advantage.

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CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

In the dynamic and globally competitive environment, the inability of established firms to come up with breakthrough technological innovations that will help them operate effectively is a truism today (Davila, 2014). Technological innovation is part of strategy implementation that enhances organization performance through increased expansion and reduced risks (Drucker, 2001). Advancement techniques are key in enhanced execution among numerous organizations and are reflected by expanded productivity and overall industry development (Palmer & Kaplan, 2007). Yilmaz, Alpan and Ergun (2005) also recognize technological innovations as critical enablers for organization's performance by creating value in the undeniably unpredictable and quickly evolving environment. Firms that adopt current information technology are likely to achieve sustainable competitive advantage in their industry.

This study was guided by several theories such as the technology acceptance theory, resource based view theory and the diffusion of innovation theory that have tried to explain the relationships between technological innovations and performance of firms. Technology Acceptance Model (TAM) clarifies the way clients embrace and make use of an innovative idea. TAM was applied in this study to establish how technology acceptance influences technological innovations among listed agricultural firms in Kenya. Resource Based View (RBV) theory as developed by Wernerfelt (1984) suggests that resources enables the firm to achieve competitiveness through enhancing innovations thus firms need to focus on how they can identify and use resources to develop a sustained competitive advantage which enhances their performance.

Diffusion of Innovation refers to the communication of an idea which is considered to be novel to the members of a social system through certain preferred channels. Innovations have to gain acceptability in a wide area in order to be sustainable. This theory guided the study of the adoption of various technological innovations in businesses.

The department of civil registration which the body placed with the responsibility of implementing the compulsory registration of deaths and births that occur in Kenya has experienced numerous challenges in the recent past such as; Manual processes leading to loss of records, outdated act guiding registration of births and deaths, inadequate tools of operation including offices spaces, equipment, misplacements and delay in service delivery, sanitation facilities, vehicles, poor customer redress, lack of adequate funds, low staff morale, lack of standardized registration and operational procedures, lack of computerized registration systems and inadequate ICT skills. The department has recently adopted ICT in their operations in a bid to be more efficient and to achieve competitive advantage. Hence, the influence of the adoption of ICT in the department should be established to inform decision makers on the progress.

1.1.1 Concept of Strategy

Strategy has been associated with pre-empting various scenarios and action plans developed to counter them. The term strategy has never had a single definition, it has several meanings, ranging from tactics, objectives, policies, goals, programs, among others, in an attempt to express the concepts necessary for its definition. Bryson (2011) gives strategy the definition that; it is a plan which is designed for achieving a specified objective. According to Rumelt (2011), a strategy is a cohesive response to

an important challenge. Kavale (2012) define strategy as the setting of objectives, formulation of courses of action and allocation of resources for the realization of the goals. The various definitions given by the authors suggest that selective attention was given to aspects of strategy, and they are all relevant to us in understanding the concept (Aosa, 1992).

There are three perspectives of strategy. The corporate strategy deals with decisions relating to what businesses the organization should invest in, how to manage it, and its relationship with the society. The corporate strategy is for the organization as a whole. Business strategy deals with how individual businesses will attempt to achieve their goals and objectives within their industries. Functional strategy is for providing support to the corporate and business strategies. It is the strategy for the various functional units of a business. Functional strategies are concerned with operations of the functional areas of a business which will deliver the desired competitive business level strategy and complement each other (Bowman & Ambrosini, 2007).

Hough et al., (2010) stated that a company's strategy highlights the competitive measures that organizations pursue to expand their businesses, achieve and maintain a competitive advantage, carry out their business and gain the desired performance levels. Generally, a consensus that strategies are about the future exists. Depending on the market conditions, strategies tend to be both proactive and reactive and over time they will evolve as firms endeavor to stay ahead of their competitors in relation to customer service, profitability and market share.

1.1.2 Sustainable Competitive Advantage

Porter (1985) defined competitive advantage is what makes a product, service or organization superior in the market hence customers choice it. The reason behind profitability of a firm in an industry is competitive advantage. Thompson and Strickland (1998) defined strategy as the game plan for positioning an organization in the market arena. In this definition strategy is seen as a means by which an organization ‘fits’ into the environment. However strategy as a fit does not fully explain the performance of organization. Johnson and Scholes (2002) defined strategy as a configuration of an organizations resources and competences with the aim of achieving stakeholder expectation. Sustainable competitive advantage is the ability for company to stand out from the competitors. (Porter, 1996).

For firms to survive and adapt to dynamic environments and attain competitive advantage, appropriate innovative strategies must be implemented. Competitive advantage can be described as the continuous reward of using specific distinct strategies established through unique combinations of internal organizational resources and capabilities that are not imitable. This enables an organization to attain a sustainable competitive advantage. Competitive advantage is “evolution that meets requirements of the current generation without undermining the potential of later generations in meeting their obligation” (Kihumba, 2008). A company is said to exhibit competitive advantage if it has higher positioning in terms of safeguarding against competitive forces (Damanpour, 1996). A firm is said to have a competitive edge if it has a mastery of making extended gain.

Competitive advantage occurs when the business enterprise has the capability of administering identical benefits as its rivals at a lower cost or deliver benefits or products that are exceedingly higher than those of rivals. This is referred to as differentiation advantage. Competitive advantage enables a firm to attain superior profits and gain superior firm value for its customers (Barney, 1991). Oliver (1997) purports that customers must notice certain differentials among the products offered by an organization for the firm to attain competitive advantage. Businesses can attain competitive advantage by generating a unique competitive plan that allows a suitable orientation in the industry that could be leveraged to increased firm capability resources and this can be attained through higher innovation levels (Porter, 2006).

1.1.3 Information Technology

Haag and Cummings (2010) define information technology as technologies convey information through telecommunications. It is connected to IT but it focuses on communication technologies that include mobile phones, the internet and wireless networks among other medium of communication. Further, IT can be defined as data processing with the aid of a computer. It involves use of technologies from computing in processing and distribution of information in digitized form. IT involves studying, designing, creation, utilization, support including managing of Computer-Based Information Systems (CBIS), in particular application of software and hardware. IT systems enable firms to work more efficiently and to maximize productivity and are one of the tools popularly used by organizations to improve faster communication, electronic storage and protection of records.

Licht and Moch (2009) note that organizations that use IT systems are more efficient in their operations as compared to those who are reluctant to adopt IT systems. Gerald and Anderson (2012) indicate that information technology supports the flow of information in the organization, this has increased dependency on global networks including internet. Use of IT systems provides a basis to solve problems through designing, developing and adoption of technology related systems and processes to boost efficiency and effectiveness of knowledge in strategic, tactical and operational circumstances. IT systems are utilized by organization to execute various tasks.

Some firms use IT to process basic transactions; others utilize it to allow customers, to interact easily with the firm. Internet is one of the most commonly used information technology system. IT systems are perceived as a driving force to most firms. Organizations are seeking to get IT applications to assist them in selling of products or services conveniently with the help of the internet, businesses can move information quicker and coordinate numerous activities. There are various IT systems used by organizations to achieve overall efficiency and improved flow of information. This study will discuss the following information technology systems: Electronic Data Interchange (EDI), Enterprise Resource Planning (ERP), E-procurement and Radio Frequency Identification Systems (RFID).

1.1.4 Public Sector in Kenya

Public sector in Kenya have been adjudged to be a critical prerequisite for the development of the nation. It has been divided into Central Government, County Government and the parastatals. Most of the counties of the nation, so as also Civil Registration which falls under the central government have been created to accelerate

economic and social development. After independence, and especially after the acceptance of planning as the only possible means to achieve the desired economic development in the country, public sector in Kenya has become indispensable. The public enterprises in Kenya have been set up as result of the conscious policy of the Government to participate in the industrialization of the country with a view to give impetus to the economic growth as well as to achieve certain socio - economic goals.

The Kenyan government spent billions of dollars so that to come up with service automation that focus on ensuring there is effective and efficient services in public sector known e-government initiative. In line with Vision 2030, a national strategy whose aim was to transform Kenya into a well-developed nation sustained by a knowledge-based economy, various IT projects have been deployed. These ICT projects include Huduma Centres which were meant to enhance and spectacularly improve the performance of government interactions with both business and its citizens (Government of Kenya, 2016). Before decentralization was effected citizens had to go for a long distance to seek for service and this was accompanied with bureaucracy which in return wasted a lot of time.

Effective and functioning ICT adoptions are at the core in ensuring efficient service delivery to the citizens is attained and will benefit the whole country towards its objective of Vision 2030 (GOK, 2016). These information technologies contribute heavily in meeting their mandate as well as enhancing their efficiency and effectiveness which results to influence on their overall competitiveness (Ochieng, 2009).

1.1.5 Department of Civil Registration

The Department of Civil Registration is the government agency conferred with the responsibility registering births and deaths that occur in Kenya regardless of the nationality. It is also charged with providing birth and death registration certificates to Kenyan citizens occurring both within and outside the country. Civil registration is an internationally recognized body by organizations such as the United Nations its responsibility is to keep permanent and compulsory records on the occurrence of vital events for legal documentation and safeguarding of secondary information for purposes of statistics.

Births and deaths registration was first introduced in Kenya in 1904 and applied only to Americans and Europeans. However, amid 1928, there was enactment of the Registration Act Cap 149 that advocated for compulsory registration of death and not birth registrations. Compulsory birth registration that occurred in the country was however enacted in 1st September 1971. The Civil Registration Department derives its mandate from the Registration Act Cap 149 of 1928 under Legitimacy Act (Cap. 145) and Presidential Circular No1 on government organization (GOK, 2017).

Over the last decade, the department of civil registration has been faced with dysfunctional circumstances in its processes, operation and activities. However, more effort has been made to modernize the department through information technology so as to deliver their mandate and offer efficient services. Some of the recent Kenyan government successful information technology projects in the department are; eCitizen, that enables citizens and foreigners to access government to citizen services, Integrated Financial Management Information System (IFMIS) which is an online

public financial management system. Government Human Resource Information System (GHRIS) is another Government of Kenya system being used (GOK, 2016).

The problems of dysfunctional and negative performance attributes, lack staff proper systems in the provision of these vital documents. The department later invented the use Information Technology in all their processes and done away with manual systems in their operations. IT however has shown some improvements but still not at the standards expected to be reached by the department. The researcher therefore intends to evaluate and come up with the relevance of IT in promoting competitive advantage in the department since even the Huduma centres and many other government institutions have embraced the use of Information Technology in the operations.

1.2 Research Problem

Both public and private organizations are facing increasing levels of competitive pressure concerning maintaining and sustaining efficiency in their operation systems. The management of most organizations is being forced to come up with innovation strategies in there organization that will ensure competitive advantage (Morash & Lynch, 2012). IT system is a competitive tool by organizations for enhancing competitive advantage. Sanders and Premus (2013) argue that IT is part of an integrative approach that coordinates the entire system in a firm and enhances sharing of information. Sambamurthy and Grover (2011) stress that IT helps to align a firm's operation function in a manner that it enhances information sharing and reduces communication costs.

Department of civil registration in Kenya has undergone through various reforms in terms of automation of their services from paper to efficient and effective services. Forces of change that have had an immense impact on the performance of government departments include mainly technological advancement (Oyeyinka, 2006). Research demonstrates that a significant number of government departments need appropriate advancements in technologies, however, efforts to enhance technology use in public organizations is not successful (Lytra et al., 2008). For organization to survive in competitive environment the government of Kenya need to be innovative in various ministries to ensure sustainable competitive advantage (Robbins & Coulter, 2009).

Globally, Hemataffar (2010) looked at the role that information systems play in giving an organization an edge over their competitors and he explored the role of information systems in employment of robust strategies by providing paramount information to guide the strategy formulation. Anderson (2014) found that although costly when implemented, innovation strategy leads to rapid firm's growth. Anderson's finding emanates from a research he carried out on competitive advantage, innovation strategy correlation and operations automation level of private security firms in Belgium between the years 2004 to 2014. Idris (2014) studied the strategies used by Halaal food companies to gain a foot hold in the small and medium sized enterprises in Malaysia. She focused on the role that innovation and product quality played in gaining a sustainable competitive advantage. These studies provide insights as to how organizations are striving for a sustainable competitive advantage in the global market.

Locally, Mobegi (2012) argued that adopting ICT plays a role in allocating of resources since it is automated. Gataua (2013) did a research on determinants of ICT adoption by SMEs in Thika municipality: a case of selected SMES. The results showed that communication is most important factor that influences ICT adoption by SMEs. Mobile phones, computers and other ICT tools are used for enhancing communication. A study by Ndeda (2014) on logistics Information Systems (IS) and performance of International Humanitarian Organizations (IHOs) in Kenya concluded that the use of IS enhanced cost effectiveness, on-time delivery, accurate and timely reporting of IHOs. Kiptoo (2013) did a study on computer-based management information systems (MIS) and service quality in middle level institutions in Kenya, a case study of Ol'lessos technical training institute. The conclusion was that institutions embraced the need to adopt MIS and had made attempts to facilitate its implementation. However, there exists a gap in the usage of these systems in the management of information largely due to lack of training.

From the above both local and international studies, it is evident that there exists a knowledge gap based on the fact that no single study has been carried out on information technology and sustainable competitive advantage at the department of civil registration. Hence the study sought to answer the question “what is the influence of information technology on competitive advantage at the department of civil registration?”

1.3 Objective of the Study

The objective was to establish the influence of information technology on development of sustainable competitive advantage at the department of civil registration in Kenya.

1.4 Value of the Study

The study may contribute to future references for future academicians. The study may identify further areas of research by highlighting related topics critiquing to identify research gaps. The study contributes significantly to technological innovations in the public sector.

Policy makers maybe enlightened by the study findings, by showing them how information technology influence sustainable competitive advantage of government departments and thereby identify mechanisms to be utilized by the regulators to improve performance of such firms which form the framework for achievement of economic growth and development goals of vision 2030. The study may also be geared towards helping firms which are yet to adopt information technology. The management of these firms may be able to determine how information technology is suitable for them to develop sustained competitive advantage.

Findings from the study may also form a foundation for implementing an effective information technology system. The study would help the Government of Kenya in formulation and implementation of policies for operational efficiency. Through the results of this study, the department of civil registration will find the benefits realized and how more benefits can be realized for optimal operational efficiency.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter entails theoretical literature review, information technology and its relationship with sustainable competitive advantage. The chapter further outlines both local and global empirical reviews and finally the conceptual framework.

2.2 Theoretical Foundation of the Study

This study was based on three theories namely; the resource based view theory of the firm, the diffusion of innovation theory and the technology acceptance model.

2.2.1 Resource Based View Theory

This hypothesis contends that maintained upper hand and enhanced execution by a firm might be acknowledged by misusing profitable, uncommon, non-substitutable and incompletely imitable assets (Hart, 1995). A significant asset or heap of assets enables a venture to bridle openings and diminish dangers in its condition. An uncommon asset or heap of assets is one that isn't controlled by countless. A non-substitutable asset or heap of assets is one for which a proportional asset can't undoubtedly be made by contending firm or firms. An incompletely imitable asset or heap of assets is one that is hard to imitate or one that can be repeated at a critical cost (Hart, 1995). Ignorant (1983) records these assets to incorporate all abilities, resources, hierarchical procedures, learning and data controlled by a firm.

Assets can just extend the firm esteem in the event that they are utilized in a way that thinks about the dynamic outside business condition (Sirmon, Hitt& Ireland, 2007).

The assets can be sorted as substantial or elusive (Mentzer, Min & Bobbitt, 2004) Wagner (2006) contends that technological innovations are defined as the desirable practices acquired from efficient technologies. Desirable practices will support the technological functions in the delivery of services of high quality and sustain superior performance therefore technological innovation frameworks is important to ensure improved service delivery and performance.

This study is of the view that higher level of bonding between information technology and sustainability is directly associated with an organization's competitive advantage. Under RBV by exploiting information technology, firms build capabilities for development of sustained competitive advantage. This theory was relevant to the study since it explains the relationship of how resources ensure an organization achieve competitive advantage.

2.2.2 Diffusion of Innovation Theory

Diffusion of Innovation refers to the communication of an idea which is considered to be novel to the members of a social system through certain preferred channels (Rogers, 2003). The spread of new ideas is impacted by four variables which are: the actual innovation, social systems, time and communication channels. Of utmost importance is innovations have to gain acceptability in a wide area in order to be sustainable. According to Fisher (1971), adoption of innovation when mapped in the long run forms an S shaped curve. This curve begins with the innovators, early adopters, early and late majority and finally the laggards.

How successful an innovation is, it stems from the resolutions put forward by the social systems through five defined steps which are; knowledge: such as innovation

awareness and continuous learning regarding it; persuasion which means willingness to have detailed knowledge concerning the innovation; resolution, that is, consideration of the advantages and disadvantages of the innovation and choice of whether to adopt the innovation; application which is an examination of how useful the innovation will be and finally confirmation, which is eventual decision on the continual use of the innovation (Rogers, 2003). The diffusion of innovation model though falls short of explaining the importance of the capability and the dynamics of different inter-connected trading partners and the influence of power between trading partners (Hart & Saunders, 1997).

Rogers (1995) describe communication channel as a critical contributor to the success of adoption of new innovation in the organization. As an effective communication channel creates prior awareness of the new technology, the trading partners need to work together to ensure the success of technological innovations. This is determined by the inter-connected industry the organization is in and how influential that organization is to its trading partners (Lundblad, 2003). This theory has guided the study of the adoption of various information technology innovations in businesses.

2.2.3 The Technology Acceptance Model (TAM)

This model clarifies the way clients embrace/acknowledge and utilize an innovation. TAM was found in 1989 by Davis. This model asserts that once a client is given an alternative innovation, some aspects influence their choices on the means and time of utilization. This incorporates its apparent convenience and seen helpfulness. TAM embraces settled causal chain of genuine conduct convictions, goal and disposition. This was produced by social clinicians from the hypothesis of contemplated activity.

In Davis' study, two vital parts are recognized; seen convenience and seen helpfulness (Davis, Pallister & Foxall, 2002).

In other studies regarding technology, TAM is widely adopted and greatly contributes to the development of a prediction of an individual's usage of technology (Fishbein & Ajzen, 2010). Perceived ease of use influences the perceived usefulness and the intention for adoption (Davis, 1989). Despite TAM being an important source for theoretical framework in the study of adoption and use of technology it has many limitations which include the initial purpose designing the model which is parsimony and generality (Dishaw & Strong, 1999), not taking into consideration non-organizational setting of the organization (Davis & Venkatesh, 2000), and ignoring the factors which moderate the adoption of ICT (Sun & Zhang, 2006).

This theory has affected research in acceptance of technology. In this exploration, TAM was utilized as a part of three distinctive routes, specifically to discover how the utilization of technology enhances hierarchical administration conveyance to natives, how staff technology preparation impacts the utilization of technology in the department of civil registration and how the accessibility of technology offices impacts the utilization of information technology in the department of civil registration.

2.3 Information Technology in Business

Kantor (2001) is of the opinion that information technology is key factor in economic progress of any country as well as in gaining competitive advantage for different industries. A crucial role for both large firms, medium, small and micro is played by innovation (Wladawsky, 2008). It is also considered by Ruttan (1984) as a very

effective means to progress business' productivity should there be resource limitations. There are various kinds of IT systems; this study will discuss the following EDI, ERP, E-procurement and RFID Systems.

2.3.1 Electronic Data Interchange

Stock and Lambert (2001) posit that EDI is an automated communication device that allows exchange of information through electronic means. This can be realized through complying with set standards. EDI has improved communication in particular monitoring operations. These technologies are anticipated to have a similar data formatting and transmission protocols. This kind of technology is used by firms to integrate operation functions.

The advantage of this approach is that players within the system can overcome problems through increased information sharing of actual demand and supply of information. EDI seeks to minimize cost and competitive gain of the organization. The limitation of this approach is that it's quite expensive to install EDI system, it requires high amount of capital investment and trained employees to manage (Licht&Moch, 2009).

2.3.2 Enterprise Resource Planning

ERP is a system is a data base where firms exploit systems of interrelated applications to manage organizational functions, people and services. ERP provides an integrated overview of the core business functions on a real-time basis with the help of databases maintained with a database. This aids the organization in monitoring resources and production capacity of the business (Licht & Moch, 2009).

Patterson et al., (2013) observe that ERP is an essential organizational tool because it integrates various systems in the organization and facilitates accuracy of transactions and production. This system manages connections to outside stakeholders while allowing efficient and effective flow of information within the organization. This enhances sharing of information and decision making as a result of increased access to information and reduction of costs.

2.3.3 E-procurement

Sambamurthy and Grover (2011) defines e-procurement utilization of internet sources to operate transactions involving requisitioning, authorizing orders, receiving and payment of services and products. E-procurement focuses on local business administrators (business-to-business) network system by which firms can easily connect with their suppliers in order to procure goods and services at a cheaper cost.

Sanders et al., (2013) maintains that e-procurement system integrates all levels of the organizations. E-procurement systems allow an increase in the spend visibility and control, this enables the finance officers to match their purchases with their purchase orders, receipts and job tickets. E-procurement system helps to manage tenders with the help of a website. This leads to increased accessibility to tenders. The advantage of this system is that it enables the firm to achieve efficiency and minimize costs. It promotes transparency in procurement services to minimize corruption and provide equal opportunities to the suppliers.

2.3.4 Radio Frequency Identification Device

Morash and Lynch (2012) note that RFID is a mode of identification where the identification of an item is taken and modern technology is adopted for reading and recording of data. This kind of technology assists the firm to minimize costs; this process is quite efficient as compared to manual process. The advantage of using RFID is that it gives a wide storage where information can be collated from several sources simultaneously (Sanders & Premus, 2013).

Radio frequency identification devices are vital to help firms in surviving antagonistic worldwide money related conditions while likewise getting to be plainly instrumental for producing supportable intensity. This is confirm by the race towards development and interest in environmentally friendly power vitality (e.g. sun oriented vitality and bioenergy), which is attractive for associations to flourish into what's to come. Governments in numerous nations have distinguished advancement as a center component of their dynamic strategies. For example, advancement is a critical part in strategies and vital research needs of both creating and created nations, including the United Kingdom, Australia, India and China (Lin & Ho, 2007).

2.4 Sustainable Competitive Advantage in Organizations

Porter (2001) posits that a company can have cost or differentiation competitive advantage which is as a result of its value chain. The cost position of a company echoes the combined cost it incurs in executing all the activities in its value chain relative to its competitors. On the other hand, the capacity of the organization to distinguish itself from its competitors is based on how it performs each of its value activities towards satisfaction of customer needs. Most of the company's operations

play a part in contributing to its differentiation. The company's product and also its activities such as after sale services and logistics impact on the customer (Karim, 2011). A study in Japan established that, companies differ in terms of competitive advantage (Lee, 2013).

There are four key dimensions to competitive scope which include geographic scope, vertical scope (extent of vertical integration), segment scope and industry scope (number of industries that the organization competes). In pursuit of sustainable competitive advantage, competitive scope is a potent tool. According to Ward (2010), having a broad scope can permit the organization to exploit the opportunities that arise in the interrelationships among its value chain that emanate from serving diverse related industries, geographic areas and industry segments.

Porter (1985) postulated that an organization can achieve competitive advantage along the three dimensions of cost, differentiation and focus. This is because competitors try to differentiate themselves from the firms that are perceived to be "stuck in the middle" without focusing on any particular form of competitive advantage. Competitive advantage that is based on cost requires the organization to take action and reduce costs of all its activities in the value chain thus making it able to offer products to the market at a lower cost than its rivals. As the firm produces more while reducing its unit costs, it gains economies of scale (Henderson, 2011). Competitive advantage that is based on differentiation suggests that the sustainable event offers a means to look unique from competitors. Forms of differentiation include brand, technology, customer service and the like. Moreover, Porter (1985) argues that competitive advantage that is based on focus is grounded on attending effectively to a

specific target market and thus having advantage on effectively and efficiently serving the market better than competitors. Focus is achieved through either differentiation or cost which makes cost and differentiation the only two definite foundations of competitive advantage.

2.5 Information Technology and Competitive Advantage

Firms are motivated to use Information technology as a tool for attaining competitive advantage due beneficial attributes such as; differentiated products and services, low cost cutting in products and services delivery, market segmentation and improved firm innovativeness. Low cost delivery means conveyance of the products or services to the customer at the lowest cost possible so that the product is useful to the market and captures the maximum return on investment. The delivery of differentiated products or services implies to addition of unique features to the services and products that are offered in the market thus leading to increased customer base. Market segmentation refers to serving specific market segments provision of goods that serve the segments best. IT is leveraged to provide the prerequisite capabilities needed to fulfill a particular segment's needs. Innovation can be defined as the development of unique ways of executing tasks as well as products and services nor improving the existing ones.

According to Vu (2013) technology enhances firms' competitiveness and efficiency by promoting better interaction and communication with customers, facilitating cost and enhancing performance and growth. According to Feen and Willcocks (1998) several challenges must be overcome for the firm to attain a sustainable competitive. It should focus in supporting on how business come up with their strategies and how

technology is used to come up with new development and strategies. There should be correct practical platform where IS services can be applied hence effective strategies that will ensure there is low cost and high quality services are being offered by IS. .Gantz and Gens (2004) cites more emphasize on this issue by stating that the greatest challenge faced is on how to utilize technology efficiently and optimally in the businesses.

Diebold (1986) argues that IT has transformed the competitive environment in six common ways: IT results in Cost displacement, IT enhances Products and services, IT leads to Revision of the firm's objectives and mission, Information Technology (IT) results in enhanced decision support, enabled for the Creation of new products and services and Business linkages. Consoli (2012) did a study and found that the fruits of Information Communication Technology (ICT) become evident after a period of adoption and are dependent on the nature of business, suppliers-customers interaction and internal changes. He further classified the benefits into performance, new products, growth and expansion. He concluded by suggesting that for the firm to attain improved performances, it is necessary to align Information Communication Technology (ICT) with organizational processes and capabilities.

2.6 Empirical Studies and Research Gaps

A lot of research has being conducted on the role of ICT in strategy and competitive advantage in organizations. Otieno, (2010) studied the Kenya banking sector's application of strategy in heightening competitive advantage. The study uncovered that ICT was the principle driving force of competition in the sector and had been widely adopted as a strategy to strengthen competitive advantage. In her conclusion

on her study on the strategies adopted by Kenyan commercial banks to build up competitive advantage, Ogori (2010) intimated that competitive advantage succeeded adoption of unique non imitable strategies, or better execution of strategies already adopted by competitors. Ouma and Munyoki (2010) launched an investigation into the Kenyan banks' marketing strategy to address the service breakdown among SME customers. Their results concurred with Ogori (2010) that competitive advantage was only achievable where the firms' capabilities were valuable, rare and non-substitutable.

Warucu (2001) in his research on the Kenyan commercial banks and the competitive strategies they employed. Product differentiation and focus are strategies that are employed by banks. Proactive, rather than reactive strategies such as research on changing customer needs and preferences should form the basis of strategic planning. Kiptugen, (2003) ascertained this in a case study on "KCB's strategic responses to changing competitive environment".

Awuah (2011) conducted a case study on Ghana Commercial Bank Limited evaluating its strategies for achieving competitive advantage in its industry. The goal of his study was to analyse the bank's current competitive strategies being pursued at the time of study, diagnose reasons for its success or failure, determine the impact on the banks performance and make recommendations to better the bank's competitive advantage in the industry. Bezniki (2012) intimated that ICT represented a critical success factor in knowledge management in her paper on whether ICT can be a source of competitive advantage and that it played an important role in decision making. She

however indicated that ICT alone would not improve performance or achieve, let alone sustain competitive advantage.

Basweti et al. (2013) studied the impact and challenges of ICT adopted on in the Tanzanian banking sector. Many of the respondents in his study agreed that ICT had a major impact on banking. However being a developing technology, it required the banking professionals to enhance their skills due to ICT's dynamicity and the banks put more effort on customer awareness. Many studies have been done on strategies and competitive advantage, and the impact of ICT in improving performance and gaining competitive. However, none of these studies have been carried out on the department of civil registration and this forms the research gap. This study therefore intends to fill this gap by answering the following research question; what is the effect of information technology on competitive advantage at the department of civil registration?

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter contains information about the research, population and sample that will be selected for the study. Data collection, data analysis and presentation techniques that are used in the study are highlighted in this chapter.

3.2 Research Design

Mugenda and Mugenda (2003) described research design as that method that is procedurally acquired by the researcher and that which enables the researcher to be able to answer questions accurately, validly, objectively, and economically. According to Khan (2008), a research design aims at improving the ability of the researcher in conceptualizing an operational plan in order to be able to embark on the various techniques available and required tasks for the completion of the study while at the same time ensuring that the procedures used are sufficient enough to acquire valid, objective and precise responses to the research questions.

Descriptive case study research design was used to address this research problem. A descriptive study aims at finding out the what, where and how of a phenomenon (Cooper & Schindler, 2008). The appropriateness of this design is that it will allow the researcher to utilize both quantitative and qualitative data so as to establish the effect of information technology on development of sustained competitive advantage at the department of civil registration.

3.3 Data Collection

The primary data was collected by use of an interview guide shown in appendix I. The targeted respondents in this study were managers at the department of civil registration or their representatives. This is because they are involved in the management of the organization and have a broad understanding of the affairs of the organization. The researcher interviewed six senior managers distributed across the functions giving a total of six interviews.

To ensure that the research instrument captures information from respondents as intended, the researcher asked open ended questions that gave room for further prodding if any response is not clear. The researcher personally conducted the interviews. Care and control was achieved by keeping a register of all the questions asked and their responses.

3.5 Data Analysis

The data was analyzed using interview guide in which qualitative data was analyzed. Qualitative analysis was used because the researcher was able to describe, and come up with interpretation of the study making it easier to criticize the subject area. The data was analyzed using content analysis.

Content analysis was used to evaluate the response, draw conclusions and to derive recommendations. Content analysis consisted of analyzing the interview responses looking for similarities and difference in order to find themes and to develop categories. According to Khan (2008), content analysis is done from the documentary of materials such as newspaper, magazines which are printed.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis of the data collected and discusses the research findings on influence of information technology on development of sustainable competitive advantage at the department of civil registration in Kenya

4.2 Respondents of the Study

The researcher conducted interview for 6 senior managers. However, it took some time for the researcher to reach out to all of them. It was not possible to interview the senior managers at ago since most of them travel out of the country. This reveals an overall successful response rate of 83.3% which was adequate for the study.

4.3 Background Information of the Respondents

The study sought to first of all get to know the background information of the interviewees. To start with the study sought to establish their position. The results indicated that the respondents held various positions including senior managers, junior manager and administrator. The study found that to establish the highest education qualification of the respondents. Results revealed that most (60%) of the

respondents had attained master's degree certificates, 20% had a bachelor's degree certificate while 20% had a diploma certificate.

The study established the period of time that the respondents had served in their current positions. The results revealed that the respondents had served in their current position for more than 5 years. This can be explained by the fact that employee retention for civil servants in Kenya is very high. The study also sought to establish whether the respondents were involved in decision making with regard to information technology. Results revealed that only the senior managers were involved.

4.4 Information Technology and Sustainable Competitive Advantage at Department of Civil Registration

The study established whether use of IT assisted the department in achieving competitive advantage. All the key informants affirmed that use of IT assisted in achieving sustainable competitive advantage. In elaborating their answer, they stated that use of IT enhanced service delivery to the Kenyan citizens as well as reduce delays experienced in the issuance of birth and death certificates.

Further, the study sought to establish whether the civil registration department uses various IT applications and if yes what are the benefits. First is the Electronic Data Interchange (EDI) application. The informants stated that the EDI application was not in use at their department since most of the stakeholders involved in civil registration use manual methods of registration and transmission of data. This include the chiefs who co-work with community health workers (who record births and deaths that occur at homes), and the hospital staff (who record births and deaths that occur at hospital facilities). The rest of the key informants stated yes. In their explanation they

stated that the district register uses the civil registration and vital statistics system (CRVSS) to relay information to the civil registration departments.

However, the informants went ahead to explain that the optimal benefits of the CRVSS have not been realized due to implementation challenges and bureaucracy. Nevertheless, since its launching the system has helped to curb some of the challenges that were existent in the past such as fraudulent registrations and unreliable vital statistics. Additionally, the system provides the government with vital information about the populations and can thus facilitate the government to offer targeted services ranging from health, social and protection services, and research.

Second is the Enterprise Resource Planning (ERP) system. All the informants stated that their department used this system. However, they were keen to explain that “*the use of ERP in our department is indirect in that it is mostly used at the Ministry of Interior and Coordination of National Government which is responsible for spearheading the activities of our department*”. The benefits accruing from its use include cost reduction, improved efficiency, data security, better reporting and planning and increased transparency.

Third is the E-procurement system. All the informants stated that their department uses e-procurement though indirectly. In their explanation they stated that the Ministry of Interior and Coordination of National Government uses IFMIS system which encompasses E-procurement as one of its functionalities. They outlined the benefits of E-procurement to include cost reduction, process efficiencies, spending controls and compliance.

Fourth is the Radio Frequency Identification (RFID) system. All the informants stated that their department did not use the system. They explained that the system is not popular among government institutions with only few institutions, such as NTSA who introduced digital driving licences, having implemented it in the recent past. However, the respondents were hopeful that this system would also be implemented in their department.

The study sought to establish the ways in which the various IT systems (EDI, ERP, and E-procurement) enhanced development of sustainable competitive advantage at the department of civil registration. To start with, results revealed that EDI application at the civil registration department enhanced development of sustainable competitive advantage in various ways. The informants also stated “*the EDI application enables continuous and consistent transmission of data from the district register to the civil registration office*”. The informants reiterated that “*use of the EDI application in the department has speeded up the process of birth and death certificate issuance*”. “*We have moved on from the error of never ending delays, this days one has an assurance of the duration of time they are to wait for the certificates to be processes. In some urgent cases our department ensures that the certificates are processes even faster*” they added. The informants answered “*the use of EDI application in our department has helped to weed out the problem of loss of documents during transportation as they information is now relayed electronically*”.

Second was the ERP application. All the informants agreed that the ERP application enhanced development of sustainable competitive advantage in various ways. The informants reiterated that “*through the ministry of Interior and Coordination of*

National Government our department has achieved optimal resource allocation and thus we are able to make the most of the available resources”. They also stated *“use of the ERP application has enabled our department to reduce fraud and corruption and improve transparency and accountability to a certain extent”*. *“However, adoption of technology in our department should be coupled with a lot of restructuring since and most employees are resistant to change in addition to having taken up corruption as a culture of doing things”* they added.

Third was the E-procurement. The respondents also agreed that the application also plays a great role in the development of sustainable competitive advantage in various ways. They stated that E-procurement enabled their department, through the ministry, to reduce on the costs of operations, enhanced transparent spending and ensured efficiency in service delivery. In addition, they stated that use of this technology eliminated lots of paperwork which was at times erroneous and tedious. However, they stated that adoption and use of the application has not been without challenges due to the corrupt nature of most government operations. However, they were positive that this would change as continuous adoption of technology helps to seal all the loopholes give room for corruption.

Fourth was the RFID application. The informants stated that the application has its benefits and can be helpful in developing sustainable competitive advantage in as much as they do use it at the civil registration department. Some of the benefits that they cited included rapid exchange of information, allows for storage of data in electronic form and that data stored using the RFID is readily available when needed. They also added that use of this application enhances data security.

4.5 Discussion of Findings

The study investigated the influence of information technology on development of sustainable competitive advantage at the department of civil registration in Kenya. The study sought to establish the level of adoption of information technology at the department of civil registration. Results revealed that the civil registration department has adopted information technology but on a rather sluggish pace. The particular IT applications that the department had adopted included EDI, ERP and E-procurement. These findings support the report by the GOK (2016) that over the last decade, the department of civil registration has been faced with dysfunctional circumstances in its processes, operation and activities. However, more effort has been made to modernize the department through information technology so as to deliver their mandate and offer efficient services.

Further, results revealed that use of information technology at the department has come in handy with various advantages which included reduced costs of operation, improved efficiency, data security, better reporting and planning and increased transparency. They also added that use of IT enhanced service delivery to the Kenyan citizens, reduce delays experienced in the issuance of birth and death certificates and curd the menace of fraudulent registrations and unreliable vital statistics. These findings also support the report by the GOK (2016) that the Kenyan government has successfully implemented various information technology projects in the department of civil registration to enhance service delivery. These projects include eCitizen that enables citizens and foreigners to access government to citizen services, Integrated Financial Management Information System (IFMIS) which is an online public

financial management system and Government Human Resource Information System (GHRIS).

Secondly, the study sought to establish the ways in which the various IT systems (EDI, ERP and E-procurement) enhanced development of sustainable competitive advantage at the department of civil registration. Results revealed that use of these IT systems enhanced development of sustainable competitive advantage. These findings also reveal that through the use of IT, the department of civil registration was able to receive awards from the President for being the best performing department at Huduma centres thereby achieved increased funding. IT enhances competitiveness and efficiency by promoting better interaction and communication with customers.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the research findings, draws conclusions and makes recommendations.

5.2 Summary of Findings

The main objective of the study was to establish the influence of information technology on development of sustainable competitive advantage at the department of civil registration in Kenya. To start with, adoption of information technology at the department of civil registration. Results revealed that the civil registration department has adopted information technology but on a rather sluggish pace. This is due to the high level of bureaucracy among government organizations as well as resistance to change by the employees.

The particular IT applications that the department had adopted included EDI, ERP and E-procurement. Further, the results revealed that use of information technology at the department has come in handy with various advantages which included reduced costs of operation, improved efficiency, data security, better reporting and planning and increased transparency. They also added that use of IT enhanced service delivery to the Kenyan citizens, reduce delays experienced in the issuance of birth and death certificates and curd the menace of fraudulent registrations and unreliable vital statistics.

Secondly, the study sought to establish the ways in which the various IT systems (EDI, ERP and E-procurement) enhanced development of sustainable competitive advantage at the department of civil registration. Results revealed that EDI application at the civil registration department enhanced development of sustainable competitive advantage in various ways. This were enhanced continuous and consistent transmission of data from the district register to the civil registration, speeded up the process of birth and death certificate issuance, and helped to weed out the problem of loss of documents during transportation as they information is now relayed electronically.

Results also revealed that the ERP application enhanced development of sustainable competitive advantage in various ways. This included enhanced optimal resource allocation, reduction of fraud and corruption and improve transparency and accountability to a certain extent. Further, results revealed that E-procurement plays a great role in the development of sustainable competitive advantage in various ways. The key informants stated that E-procurement enabled their department, through the ministry, to reduce on the costs of operations, enhanced transparent spending and ensured efficiency in service delivery. In addition, they stated that use of this technology eliminated lots of paperwork which was at times erroneous and tedious.

5.3 Conclusion

The study established that adoption of information technology at the department of civil registration. Based on the study findings the study concluded that the civil registration department in Kenya has adopted the use of information technology. The particular IT applications that the department had adopted included EDI, ERP and E-

procurement. As a result, the departments had accrued various benefits which included reduced costs of operation, improved efficiency, data security, better reporting and planning, increased transparency, enhanced service delivery and reduced delays.

The study sought to establish the ways in which the various IT systems (EDI, ERP and E-procurement) enhanced development of sustainable competitive advantage at the department of civil registration. Based on the findings the study concluded that adoption of the various information technology application has led to the development of sustainable competitive advantage. Sustainable competitive advantage was realized through enhanced optimal resource allocation, reduction of fraud and corruption, and improve transparency and accountability to a certain extent. In addition, adoption of IT led to reduction of the costs of operations, ensured efficiency in service delivery and elimination of lots of paperwork which was at times erroneous and tedious.

5.4 Recommendations

The study recommends that policy makers in the government should come up with mechanisms, for use by regulators in various arms of the government, geared towards speeding up adoption of IT so as to enhance sustainable competitive advantage and service delivery. This would help to form the framework for achievement of economic growth and development goals of vision 2030. The study recommends that the government should take the initiative to encourage adoption of IT among government organizations that have not yet considered adopting. This can be achieved through benchmarking programs which will expose these organizations to the benefits of adoption of IT.

The study recommends that the government ministries should realize the benefits of adopting IT. This will form a foundation for implementing an effective information technology system in other ministries in the government. Hence, this would help the Government of Kenya to formulate and implement policies for operational efficiency.

5.5. Limitations of the Study

This study experienced various limitations. To begin with, there was trouble in accessing the targeted respondent. The limitation was moderated by contacting the respondents beforehand and making appointments with them on the appropriate time to conduct the interviews. Additionally, the researcher experienced hesitance by respondents to give their feedback as they feared it would be used against them. To mitigate this, the researcher acquired a letter of introduction from the university that guaranteed the respondents that the feedback would be utilized for scholarly purposes and would be held in confidence.

5.6 Suggested Areas of Further Research

The study recommends that a similar study be conducted but focus on a different department in the Ministry of Interior and Coordination of National Government for comparison purposes. Being that this study was qualitative, the study suggests that a quantitative study should be conducted so as to measure the magnitude of influence of the adoption of various IT applications on sustainable competitive advantage. The study also suggests that a study seeking to establish the impact of adoption of information technology on service delivery since it's the main measure of effectiveness among government institutions.

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APPENDICES

Appendix I: Interview Guide

I would like to request you to give me information on the effect of information technology on developing sustainable competitive advantage at the department of civil registration.

The purpose of this interview is to:

- i) Determine the level of information technology adoption at the department of civil registration.
- ii) Establish the effect of information technology on development of sustainable competitive advantage at the department of civil registration

PART A: MANAGER OR REPRESENTATIVE PROFILE

- 1) What is your current position in the department?
- 2) What is your highest qualification?
- 3) For how long have you been in senior level management of the department?
- 4) Are you involved in information technology decisions of the department?

PART B: LEVEL OF INFORMATION TECHNOLOGY ADOPTION AT THE DEPARTMENT OF CIVIL REGISTRATION

- 5) Can you indicate applications of IT in the department of civil registration?
- 6) Has IT assisted the department in achieving competitive advantage?
- 7) Do you use any of the following IT systems in the department?

- i) Electronic data interchange
- ii) Enterprise resource planning system
- iii) E-procurement
- iv) Radio frequency identification system

8) In your view, what are some of the benefits of an EDI?

9) In your view, how has ERP been useful in the department?

10) In what ways has e-procurement been useful in your department?

11) Can you conclude that the RFID has been useful in the department?

**PART C: INFORMATION TECHNOLOGY AND SUSTAINABLE
COMPETITIVE ADVANTAGE**

16) In what ways do you think electronic data interchange enhances development of sustainable competitive advantage?

17) In what ways do you think use of an enterprise resource planning system impact on sustainable competitive advantage?

15) What are some of the ways through which e-procurement impact on sustainable competitive advantage?

16) In what ways do you think radio frequency identification systems impacts on sustainable competitive advantage?

Thank you for your co-operation