

**RELATIONSHIP BETWEEN INFORMATION, COMMUNICATION AND  
TECHNOLOGY STRATEGY AND COMPETITIVE ADVANTAGE AMONG  
COMMERCIAL BANKS IN NAIROBI COUNTY**

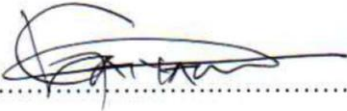
**GEORGE BENJAMIN LAIYAN**

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
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BUSINESS ADMINISTRATION (STRATEGIC MANAGEMENT) IN THE  
DEPARTMENT OF BUSINESS ADMINISTRATION AT KENYA METHODIST  
UNIVERSITY**

**SEPTEMBER 2019**

## DECLARATION

I declare that this thesis is my original work and has not been presented in any other university.

Signed.....

Date.....22/09/2019

**George Benjamin Laiyan**

**BUS-3-2518-2/2010**


This thesis has been submitted for examination with our approval as university supervisors.

Signed.....

Date.....25/09/2019

**Dr. Evangeline Gichunge**

**Kenya Methodist University**

Signed.....

Date.....25/9/2019

**Dr. (Eng.) Thomas Senaji**

**Kenya Methodist University**

## **DEDICATION**

I would like to dedicate this thesis to God the Almighty for bringing me this far.

## **ACKNOWLEDGEMENT**

I thank the Almighty God for His guidance and providence of good health which enabled me to undertake this study which was too involving in terms of time and resources.

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## ABSTRACT

Commercial banks have continued to implement Information, Communication and Technology (ICT) in order to keep up with the competition and changing consumer needs and wants in the competitive business environment with the aim of gaining competitive advantage. Integration of ICT with the organization's strategies has become a driving force of competition among financial institutions in Kenya towards achieving improved service efficiency and effectiveness. The study aimed to evaluate the relationship between ICT strategy and competitive advantage among commercial banks in Nairobi County. The study identified four research variables IT-Business alignment, IT-driven innovation, business intelligence and IT-Business process re-engineering that have significant influence on competitive advantage. The research design used in this study was descriptive survey where qualitative analysis was put into use by use of closed-ended questionnaires. The research study employed purposive sampling a subset on the the target population in this study that comprised the 43 registered commercial banks in Nairobi County. Data analysis was done using a multivariate regression model in the Statistical Package for Social Sciences (SPSS). From the findings, IT-business alignment, IT-driven innovation, business intelligence and IT-business process re-engineering significantly influenced competitive advantage. ICT strategies were developed with employee competence in mind and aimed at supporting the overall organizations goals. ICT strategy promoted innovations besides focusing on meeting the changing customer needs and facilitating creation of new applications that provided direct strategic advantage. Business intelligence systems enhanced accuracy on strategic reporting besides improving speed and accuracy of strategic decision making. The study recommends that commercial banks knowledge management ought to be promoted by ICT strategy embracement, ICT strategy ought to promote human resource response to business strategy and commercial banks ought to recognize ICT related opportunities that supported business strategy. The study further recommends that IT innovation strategy ought to provide room for persuasions of new clients to the organization and IT innovation strategy ought to allow for timely commercialization of innovations. The business intelligence systems ought to enhance accuracy on strategic reporting, commercial banks business intelligence systems ought to improve speed and accuracy of strategic decision making.

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## **LIST OF ACRONYMS**

ATM	- Automated Teller Machine
BI	- Business Intelligence
BPR	- Business Process Re-engineering
CBK	- Central Bank of Kenya
CRB	- Credit Reference Bureau
DOI	- Diffusion of Innovation
DTM	- Deposit-Taking Microfinance Institution
ICT	- Information, Communication and Technology
IT	- Information Technology
OLAP	- Online Analytical Processing
SAM	- Strategic Alignment Model
SPSS	- Statistical Package for Social Sciences

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background Study**

The dynamic shifts in the business environment has majorly been attributed to some forces like rapid advancement in technologies and the demand for quality services from the customers. The operations of commercial banks have been reshaped due to these forces within the environment. Information and Communication Technology (ICT) is at the center or core of all these dynamic changes. The role played by ICT as far as competitive positioning of the firm is concerned can be ignored for organizations that have both local as well as global operations. ICT has majorly played an important role as far as the drive for innovation in the firm is concerned besides business strategy alignment (Dewett & Jones, 2001).

Commercial banks have relied on ICT strategies for the purpose of gaining competitive advantage given the nature of competition in the industry. ICT has resulted into a number of changes in the way banking institutions organize and arrange for relationship with various stakeholders. Currently, there exists various innovation tools that aim at improving the quality as well as speed of the operations in organization while at the same ensure improving the provision of services to customers (Campbell, 2000). Additionally, ICT has turned out as an important tool for supporting improvement and development, promoting of innovation as well as ensuring there is growth in the firm which are key ingredients for the firm that seeks to remain competitive. Among commercial banks, ICT has improved efficiency and effectiveness within bank

operations through business process re-engineering, has enabled innovative products and services, has improved service delivery channels and it has enhanced their ability of managers to make decisions and collaborate for better performance of the firm (Cooper & Schindler, 2003). The need to survive, remain relevant at the global levels and the need to maintain the market in place have remained as key forces for commercial banks to come up with competitive gameplans in order to remain viable in the financial business sector.

Business success is dependent on successful alignment of business and IT strategies and their corresponding infrastructure components. Hence, IT-Business alignment can be considered as the extent which the plans, objectives and mission of ICT are in line with the plans, vision and mission of the business (Reich & Benbasat, 2000). This alignment can in effect improve the overall performance of the banks' core functions through provision of clear and explicit goals to both the ICT and business employees subsequently prompting to integration of both entities in order to accomplish a common goal (Ritchie & Bridle, 2005).

Furthermore, application of ICT by banks has helped enhance IT-driven innovation that provide direct strategic advantage through introduction of unique products and services, improvement of the current ones and development of uniquely efficient ways to produce them. IT-driven innovation is the utilization of ICT competencies on activities that are aimed at adding new beneficial services, expansion of the existing services and/or improvement of the service delivery process with an aim of creating new markets and enhancing competitive advantage (Berry, Shankar, Parish, Cadwallader & Dotzel, 2006).

This IT-led innovation has been evident in deploying ICT based services and products of commercial banks for instance the use of ATMs and internet services (Juma, 2012).

In addition, increasing standards in automation, and technologies have led to improvements in ICT's business intelligence (BI). This BI is considered as the firm's ability to ensure that all capabilities and processes are brought together including technology as well as capacity. It also helps in ensuring that these capabilities are converted to knowledge which result into the required information at the required time (Kumari, 2013). These BI systems facilitate collection, storage and analysis of real-time data into knowledge on the internal and external industry environment conditions. This improves speed and quality of strategic and operational decision making, enhances communication among the bank's departments and improves the speed of response to the industry conditions. Moreover, BI has a positive impact on customer satisfaction as it facilitates comprehensive analysis about behaviours of a firm's clients to better fulfil their demands leading to increased loyalty and also providing better customer support hence leading to enhanced competitiveness of a business (Radonic & Curko, 2007).

Moreover, for proper survival of the firm in its environment, ICT has been an important tool for changing the operations of the firm. Based on this, most firms have leveraged on ICT to drive innovation and generation of new products. ICT has also been useful in improving the operations and processes in the firm. The term BPR in the context of ICT is seen to involve gaining knowledge on the current state of operations in the firm, the best way of redesigning these operations and how change initiatives can be well implemented to realize results in the firm. All these are done with the aim of achieving

high level of performance drastically in terms of speed, the level of quality as well as the overall costs (Ya-Ching, Pin-Yu & Hsien-Lee, 2011). This in turn increases a firm's competitiveness due to increased employed worker and customer satisfaction, improved quality, and productivity while decreasing time to market and also enhancing quality of decision making and management activities contributing to an improvement in internal efficiency and functional effectiveness.

Hence, this study endeavoured to evaluate empirically how commercial banks have been effecting ICT strategy which include; IT-business Alignment, IT-driven innovation, business intelligence and IT-business process re-engineering; with the objective of an achievement of competitive advantage.

### **1.1.1 Information Communication and Technology (ICT) Strategy**

According to Richie and Bridley (2005), ICT plays a significant and major role in assorting digital platforms and technologies for proper collection, organization, analysis, storage, processing and sharing of information. The key components of ICT include the hardware as well as software and media and network. All these platforms play an important role in collecting, processing, storage as well as processing and presenting of digital information technologies. These information is conveyed in terms of video, images as well as texts (World Bank, 2013). ICT also encompasses other technologies such mobile and wireless technologies, telecommunications, security and intelligence systems. Langdon and Langdon (2006) contends that managers cannot disregard ICT because it plays a critical role in today's contemporary businesses. They further argue that ICT affects competition in a number of ways and its application makes a business to

reach its goals through improved efficiency and co-ordination of the processes within the business.

A strategy is the means of providing a course of action a business is to use through understanding the current options available, creating new options and choosing the most optimal options to use to navigate through the hostile business environment (Brodbeck, Rigoni & Hoppen, 2009). Therefore, ICT strategy can be viewed as the technological framework and direction of a company's principles and priorities set out in its strategic blueprint. In order to achieve a competitive edge using ICT, the firm has to fully integrate, align and match its ICT capabilities and resources to its business strategies. Hence, ICT is an important feature when it comes to gaining of competitive advantage among the firm (Jorfi, Nor & Najjar, 2011).

Previous research study has shown that integration and utilization of ICT strategy by a firm has the capability of creating competitive advantages to a business as investments in ICT help businesses achieve competencies that play an important role in low costs, value addition, customer service as well as agility and speed (Daneshvar & Ramesh, 2010). Furthermore, Juma (2012) argues that ICT plays a critical role in the performance of core functions of financial firms as it positively influence the ability of managers to make decisions, the mechanisms of planning and the nature of product offering in the market.

### **1.1.2 Competitive Advantage**

Competitive advantage can be described as the capacity of an organization to have unique features in terms of the product offering which distinguish the firm from others.

Competitive advantage is generated on the basis of the degree and level of rivalry in the industrial environment that the firm operates in (Porter, 2001). Competitive advantage is a business firm's capability to function in forms that are very hard to replicate at the present and in the future. However, competitive advantage is not permanent due to a firm's competitors always seeking ways to duplicate its competitive advantage. Hence, a firm is continuously looking for new competitive strategies through optimal utilization of its internal resources and capacities to take advantage of external opportunities in order to generate superior incentives and value for its clients and unrivaled revenues for itself (Kotler & Amstrong, 2009).

ICT plays a major role in enhancing competitive advantage by supporting the firm's strategic objectives which include the increased enhancement of products, services and capabilities. Integration of ICT resources and capabilities in the business can enhance its ability to deal with the bargaining power of end consumers and suppliers, the risks associated with substitute products and services, and positioning of the industry competitors. Huge ICT investments by a firm can enhance the entry barrier of rivals into the market, can be useful in the creation of cost advantages by minimizing the costs of internal business processes, customers and that of suppliers (Raynor & Michael, 2007).

### **1.1.3 Commercial Banks of Kenya**

The financial sector in Kenya is under supervision and regulations of the Central Bank of Kenya (CBK), that plays a key role in formulating and implementing monetary policies directed to lifting controls towards the management and equitable services while supporting the economic policy of the Government (Central Bank of Kenya, 2015).



Among their participants in the banking industry include the commercial banks (43), offices representing banking institutions (8), Microfinance entities (12), forex bureaus (18), credit referencing institutions (3) and providers of money remittance services (15) (Central Bank of Kenya, 2015). The commercial banks are the dominant players of the financial sector in Kenya and hence they contribute immensely in economic growth.

The banking industry being a highly information intensive industry implies that accuracy and accessibility of information is of paramount importance. This necessitates banks to have a heavy reliance in ICT systems for core banking activities thus translating to huge financial investments in order to acquire and improve on ICT resources with the hope of enhancing performance and competitive advantage (Hoppe, Füller & Matzler, 2008).

## **1.2 Statement of the Problem**

Firms operate in a business environment whose constant dynamism brings about uncertainty and hence firms need to come up with competitive strategies in their pursuit of survival and success (Yokoyama, 2007). The environmental dynamism is brought about by changes in technology, globalization, competition, regulation, and dynamism in consumer needs and wants. Financial organizations operating in this dynamic business setting have to adopt variety competitive strategies for them to stay afloat (Yokoyama, 2007).

Previous research studies on topics related to ICT have mostly concentrated on the adoption level of ICT by firms and the influence of ICT on the performance of a firm. Neirotti and Pesce (2019) looked at innovations driven by ICT and their influence on competitiveness. The study established that technology is an important facet as far as

competitive advantage is concerned. Yunis, Tarhini and Kassar (2018) looked at the role played by ICT in innovation and performance of the firm. It was established that ICT is a key factor when it comes to innovation among firms. In Kenya, Ziraba and Okolo (2018) studied the influence of ICT policies on competitive position. It was established that through ICT, an organization is able to create new products, improved decision making and survival of the firm. Kamau, Senaji, Eng and Nzioki (2019) studied IT capability and its influence on competitive advantage of Kenyan banks. The study noted that there was a positive linkage between the variables.

A review on the determinants of ICT adoption among hotels in Kenya by Obonyo (2016) concludes that appropriate ICT adoption is influenced by ICT needs, hotel's capacity to acquire and maintain the ICT system and lastly its environmental factors such as location and ownership. Past research studies concerning ICT on performance include a study by Njuki, Okoth, Mutua and Mwangómbe (2013) on analysis of ICT on service innovation and competitive advantage among commercial banks in Kenya, they come to decision that service innovation serves as a motivation factor in the ICT and performance relationship. Additionally, a study by Mwanja and Muganda (2011) on information technology conceptualization and bank performance concludes that financial innovations brought about by ICT adoption have a significant contribution to bank's performance in Kenya. Lastly, according to a study done by Kamau (2010) there shows a positive correlation between ICT and bank performance where bank turnover and profits as variables in the study were used as measures of financial performance.

However, no study has been done on the relationship between ICT strategy and competitive advantage among banks in Nairobi County. Therefore, this study endeavoured to explore empirically this correlation because adoption of ICT is not enough on its own as a source of enhancing business competitiveness. The ICT strategy variables chosen for the study were IT-business Alignment, IT-driven innovation, business intelligence and IT-business process re-engineering.

### **1.3 Purpose of the Study**

The overall objective of the study was to determine relationship between strategies of information communication and technology on the competitive advantage of commercial banks in Nairobi County.

#### **Objectives**

This study was guided by the following objectives:

- i. To establish the effect of aligning IT with business on competitive advantage of commercial banks in Nairobi county.
- ii. To determine the effect of use of innovation driven by IT on competitive advantage of commercial banks in Nairobi county.
- iii. To examine the effect of application of business intelligence on competitive advantage of commercial banks in Nairobi county.
- iv. To assess the effect of utilization of business process re-engineering on competitive advantage of commercial banks in Nairobi county.

## **1.4 Research Questions and Hypotheses**

### **Research Questions**

The research thesis was guided by the following questions:

- i. Does IT-business alignment have a relationship with competitive advantage of commercial banks in Nairobi county?
- ii. Does IT-driven innovation have any effect on competitive advantage of commercial banks in Nairobi county?
- iii. Does business intelligence have a relationship with competitive advantage of commercial banks in Nairobi county?
- iv. Does IT-business process re-engineering have any effect on competitive advantage of commercial banks in Nairobi county?

### **Research Hypothesis**

The study was guided by the following research hypothesis:

H<sub>01</sub>: IT-business alignment has no significant effect on competitive advantage of commercial banks in Nairobi county.

H<sub>A1</sub>: IT-business alignment has a significant effect on competitive advantage of commercial banks in Nairobi county.

H<sub>02</sub>: IT-driven innovation has no significant effect competitive advantage of commercial banks in Nairobi county.

H<sub>A2</sub>: IT-driven innovation has a significant effect competitive advantage of commercial banks in Nairobi county.

H<sub>03</sub>: Business intelligence has no significant effect on competitive advantage of commercial banks in Nairobi county.

H<sub>A3</sub>: Business intelligence has a significant effect on competitive advantage of commercial banks in Nairobi county.

H<sub>04</sub>: IT-business process re-engineering has no significant effect competitive advantage of commercial banks in Nairobi county.

H<sub>A4</sub>: IT-business process re-engineering has a significant effect competitive advantage of commercial banks in Nairobi county.

## **1.5 Justification of the Study**

The justification for studying the relationship between ICT strategy and competitive advantage is explained by the fact that adoption and use of ICT has been demonstrated to be among the main determinants of competitiveness in the services sectors domain. Strong competition in the commercial banking sector influences the banking firms' rivals to direct their efforts to find newer and innovative ways of survival in the unpredictable business habitat to keep the commercial banks in operation (Anyim, 2010). Hence, in the light of this issue there was a significant longing to look into this research topic aimed towards identifying the relationship between ICT strategy and competitive advantage.

## **1.6 Scope of the Study**

This research study sought to study the impacts of ICT strategy on competitive advantage of commercial banks in Nairobi county. The study focused on commercial banks within the Nairobi county. The choice for focusing on the Nairobi county was based on the notion that it is the capital city of this country and most, if not all registered commercial banks in Kenya have a presence in the Nairobi county.

## **1.7 Limitations of the Study**

This research study's focus was constrained to commercial banks which were only situated in Nairobi county, hence it may be challenging to apply the research findings to commercial banks in other counties in Kenya. This problem could be overcome by conducting more research concerning this area of study to commercial banks in other counties within Kenya in the near future.

## **1.8 Delimitations of the Study**

The research data was based on structured questionnaires issued to ICT department's top-level management of legally registered commercial banks found within Nairobi county. The choice of this study was on the relationship between ICT strategy and competitive advantage which focused on IT-business alignment, IT-driven innovation, business intelligence and IT-business process re-engineering as variables available to respondents in interpreting their perspectives on how they effected the competitive advantage of their banks. The decision to focus only on the ICT departmental top-level

management within the banks is because they were responsible for formulation, oversight and implementation of ICT strategies within their banks.

### **1.9 Significance of the Study**

The research discoveries and conclusions from this study would be useful to the top management of commercial banks in Nairobi county as they would be in a better position to make the right decisions in allocating resources for implementation of the competitive strategies that would improve the internal business processes and help attract and retain customers. Furthermore, from this research findings the government would have data on adoption and extent of ICT and hence it would be able to come up with updated regulatory framework for ICT in the banking industry. Lastly, this study would add more knowledge and it would help the academics in the creation of suitable syllabuses for students of strategic management programme and for use by today's digital economy entrepreneurs.

### **1.10 Operational Definition of Terms**

**ICT** – It stands for Information Communication and Technology. ICT refers to an assortment of computerized and automated technologies for information gathering, organization, analysis, processing, storage and sharing. (Richie & Bridley, 2005).

**ICT Strategy** - Information communication and Technology (ICT) strategy defines the technological framework and direction of a company's standard's and priorities set within its plans of strategy (Brodbeck et al., 2009). In this study, ICT strategy was the

composite independent variable that was being evaluated empirically to determine how it influenced competitive advantage.

**IT-Business Alignment** – This is considered as the degree that the plans, objectives and mission of ICT are in line with the overall goals and objectives of the firm (Reich & Benbasat, 2000). IT-business alignment was the first independent variable, a subset of ICT strategy, that would help the study to do an investigation of the correlation between ICT strategy and competitive advantage among commercial banks in Nairobi County.

**IT-driven Innovation** – This is the utilization of ICT competencies on activities that are aimed at addition of new services, expansion of existing ones and/or improvement of process of service delivery with an aim of creating new and unique markets geared towards enhancing the competitive advantage (Berry et al., 2006). IT-driven innovation was the second independent variable, a subset of ICT strategy, that would help the study find out the relationship between ICT strategy and competitive advantage among commercial banks in Nairobi County.

**Business Intelligence (BI)** – It describes how the firm can be able to collect all the capabilities as well as processes so that they are converted to knowledge. This is important is ensuring that there is proper information for informed decision making (Kumari, 2013). In this study business was the third independent variable, a component of ICT strategy, that would help the study undertake an investigation of the correlation between ICT strategy and competitive advantage among commercial banks in Nairobi County.



**IT-Business Process Re-engineering** – It is the basic rethink and radical transformation of business processes using information technology (IT) within and between organisations that is aimed towards exponential improvements in the critical and modern performance measures that include cost, quality, service and speed (Ya-Ching et al., 2011). In this study, it was the fourth independent variable, a subset of ICT strategy, that would help the study to do an investigation of the relationship between ICT strategy and competitive advantage among commercial banks in Nairobi County.

**Competitive Advantage** – This term refers to a product or service that the clients of a business firm esteem more profoundly than their rivals' comparable offers. (Porter, 2001). Competitive advantage was the dependent variable that the study endeavoured to establish if it was being influenced by ICT strategy undertaken by commercial banks in Nairobi County.

**CBK** – An abbreviation standing for Central Bank of Kenya. It is the country's main bank that regulates the financial sector inclusive of commercial banks in Kenya through formulation and implementation of monetary policies (Central Bank of Kenya, 2015).

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This section reviews the literature relevant to the study on the relationship between ICT strategy and competitive advantage among commercial banks in Nairobi county. It attempts to identify the diverse concepts of the subject matter using literature from past studies carried out by other researchers within similar subject matter. This chapter begins with an exploration about a number of theories related to ICT strategies and, a discussion on ICT and the advantages got from embracing this technology. Finally, it highlights the empirical review and critique of past studies and the research gap, and lastly the conceptual and operational frameworks of this thesis.

#### **2.2 Theoretical Review**

The thesis aimed to review a number of theories related to ICT strategies which were the Business-IT Strategic Alignment, Diffusion of Innovation, Business Intelligence and Business Process Re-engineering that provided an important framework for explaining the relationship between ICT strategy and competitive advantage among commercial banks in Nairobi county.

##### **Business-IT Alignment Theory**

The underlying fundamental importance of developing ICT strategy is to ensure that business strategy of a firm can be achieved through its re-alignment with technological investments. Aligning IT strategy with the overall strategy of the firm is a key issue among businesses and executives today in the ever changing business environment.

Business IT alignment refers to the extent which the overall vision and mission statements of the firm are in line with the goals guiding IT in the firm (Reich & Benbasat, 2000). According to Ward and Peppard (2002), business IT alignment has emerged as a critical factor for businesses since it directly impacts on firm performance. This is facilitated by the alignment of a business firms' ICT strategy with its business strategy with the main aim of realization of the vision of the business firm.

Various frameworks currently exist for the assessment of business-IT alignment on diverse criteria and specifications, aid in gaps identification and come up with technological guideline procedures and budgets. The strategic alignment model (SAM) that was advanced by Henderson and Venkatraman (1999) is among the most well-known and extensively utilized frameworks for describing business-IT strategic alignment. This framework is concerned with the inter-relationship between a business organization's IT strategy and infrastructure and its strategic business objectives and infrastructure. There are two main focus and areas of integration by this model; strategic fit as well as functional integration. The essence of strategic fit is to ensure that there is harmony in the external as well as internal domains of the firm as far as IT capability is concerned (Henderson & Venkatraman, 1999).

Besides the strategic fit, there is also the functional integration that aims at determining how the formulated objectives for the business influence the resources, governance and objectives that guide IT domains. Furthermore, the functional integration plays an important role in examining IT capability for shaping as well as supporting the decisions made at the business level (Henderson & Venkatraman, 1999).

In business-IT strategic alignment the role and performance of the IT function is very critical in the formulation and the shaping of strategies by ensuring that the targeted focus is not just on organizational realization of success but also on strategic achievement (Ward & Peppard, 2002). These achievements are realised through the coordination of actions and activities transversing across IT and non-IT areas of expertise within the organization in ways that are inclined towards enhancing the quality of business processes, create new services and improve decision-making processes and hence promoting the business financial worth of the firm. In essence, business-IT strategic alignment identifies that business success is dependent on continuous and successful alignment of business and IT strategies and their corresponding infrastructure components.

Additionally, the improvements in internal communication, skills of employees and scope in the ICT architecture within SAM strategically contributed highly to the enhancement in the successful alignment of business and IT strategies. This in turn had a positive effect on the improvement of the business functions therefore enhancing business performance and its competitiveness (Brodbeck et al., 2009). Furthermore, this improvement did not arise from the adopted technology itself but it was realized through the this alignment of business strategy with IT strategy.

Furthermore, Nyandoro (2013) further argued that for businesses to realize this alignment of their business and IT strategies, there was need for ICT department executives to ensure that responsibilities are delegated and shared with the senior

personnel across other different departmental fields. This in turn improved the ability of the firms to remain competitive in the industry of operation.

Moreover, from the studies done by Afandi (2017) there was an acknowledgement that alignment in IT-business was increasingly getting attention from practitioners as it had impacted positively to the firms' performance. This was made possible through the alignment of the business processes and operations with the relevant IT systems so as to improve on their financial performance and gain a competitive edge. Hence, this proved that the alignment between IT and business was indeed essential to survival and success of businesses. However, the relevance of IT systems to the business was of paramount importance because poor choices by managers on IT systems to adopt would have negative consequences that may include loss of customers evidenced by their dissatisfaction, ballooning of production costs and very expensive and redundant delays in costs directed towards support of needs so the business. Therefore, this theory supports the IT-Business Alignment strategy which if implemented could result to a source of competitive advantage to a firm.

### **Diffusion of Innovation Theory**

Diffusion of innovation theory is key in explaining the need for firms to adopt technologies and the flow of IT innovation in the social system (Rogers, 2003). The theory argues that an innovation is considered as a new idea which is aimed at changing the way operations are carried out in the firm. It is through the diffusion process that a given form of innovation flows and get spread within the social system.

Diffusion of innovation theory further highlights key attributes that influence successful spread of IT innovations. These attributes include observability, trialability, complexities, compatible as well as the relative advantage of the system. Relative advantage is the extent that a new concept or an idea is considered to be more exceptional as compared to the superceded idea. Compatibility is a feature that indicates how a given innovation is in line with the values of the firm. Complexity is the degree to which a given form of innovation is beleived to be too challenging in understanding as well as use. Trialability is the extent to which an innovation can be tried up or rather, experimented on a bounded scale. Finally, observability is the extent to which an innovation outcomes and aftereffects are noticeable and perceivable to other people (Rogers, 2003).

IT innovations tend to diffuse more rapidly and extensively when users have positive perceptions that it is better off and aligned with the overall values (Rogers, 2003). It is for this reason that Dodgson and Salter (2003) idealises that before IT innovations can fully take shape in a market, their inputs and outputs should be seen to be measurable and satisfactory to the users. In addition, the IT innovation should be relatively easy to use and thus be able to attract the users. This means that IT innovations must have benefits for them to be successfully adopted by their intended users.

Diffusion of innovation theory is important and pertinent to this research as it explains the process of diffusion of IT innovations in a social set up. Henderson and Divett (2003) reveal that IT innovations obviously result to improved versions of products and services which are cost effective thus improving profitability of banks. Furthermore,

innovations in IT tend to offer more channels through which clients of banks can access financial services and for more hours in a day. For instance, ATMs, mobile banking and internet banking have facilitated customers to transact for 24 hours resulting in increase in the amount of transactions being handled per day. This in effect has resulted to increase in income to commercial banks from the costs being charged for each bank transaction. Furthermore, ATMs, mobile banking and internet banking have improved profitability to the banks due to increase in distribution channels and reduced administrative costs due to improved efficiency of service delivery to customers (Kamau, 2010).

Moreover, through harnessing the power of IT, firms can enhance efficiency and this increase their profits due to cost savings. According Dodgson and Salter (2005) benefits of IT innovations are in two folds: one it is a cost saving means for the financial institutions and second is a tool for market and product development. This means that IT innovations tend to attract more customers to the firms' products and it also saves the banks a huge deal in administrative costs.

Furthermore, according to Muyoka (2014) innovations in ICT such as online banking, electronic payments, security investments, information exchanges, online banking, electronic payments, mobile banking, security investments, information exchanges have led to improvements in delivery of quality services towards banks' clients. This improvement in service delivery is evident in the enhancement on meeting the needs of the customer by not only increasing the hours of service, but also providing a more efficient, cheaper means of delivering the services.

Additionally, Kariuki (2005) further adds that investments in ICT by the banks have led to the rise in the variety of new, efficient and low-cost banking services through service innovation. This service innovation was made possible by the fact that the banks viewed ICT as a value creation tool as it holds the key in the strategic attainment of competitiveness. Furthermore, this service innovations brought about increased productivity due to decrease in costs attributed to the continually evolving innovations in ICT. Moreover, Gathu (2017) claims that ICT brought about flexibility advantage that resulted in the enhancing innovation levels through creation of new and unique mobile products and services, new information and discovery of new and untapped markets that provided strategic advantage to the businesses. Furthermore, this strategic advantage was further pegged on the level of the alignment between their business strategy to their their ICT strategy of the business firm.

According to Mohammad (2018) innovation strategies that incorporate IT lead to a sustainable competitive advantage and he further adds that huge investments in market innovation by business in turn aid in the increase in the level of market share and sustainable competitive advantage. Additionally, ICT innovation has the capacity to improve on competitiveness of businesses as it offers them advantageous improvements in learning capability, market capability, resource allocation capability, manufacturing capability and strategic planning capability. The conclusion derived was that ICT was an essential factor to businesses as it brought about innovations that lead to improvement of



the levels of quality of a business' products with the aim of realization of a competitive edge over rivals.

In conclusion, information processing is critical for business firms to remain competitive. Nowadays, much emphasis has been placed on innovative deployment of IT as a crucial source competitive survival and success (Henderson & Divett, 2003). These new technologies have remarkably changed the nature of innovation process through accomplishing creative tasks and defining new ways of creating, sharing and using knowledge. Hence, this theory supports the IT-driven Innovation strategy which if implemented can be a source of competitive advantage to a firm.

### **Business Intelligence (BI) Theory**

Ranjan (2009) describes business intelligence (BI) as a composition of skills that determine and influence the firm to improve the operation effectiveness and support better decision making. BI is also defined by Kumari (2013) as the firm's ability to collect all capabilities as well as processes and ensuring that they are properly converted into knowledge. Through BI, an organization is assured of the receiving accurate and secure information as and when required. BI includes IT software applications that are primarily focused on reporting, querying, and analysis of organizational data residing in a firm's data warehouse in order to provide actionable information that organizations need in order to make enlightened decisions (Kumari, 2013). These data depositories contain components that are equipped with monitoring of time critical processes that allow for formulation of tactical and strategic decisions in line with the firm's strategy.

Currently, the need to increase automation and standards has resulted into increased availability of data of all types. In this context, raw data is taken up and some application softwares are used to create proper sources of data like virtual pictures which are keys in improving performance of the firm. It is through BI that leaders of the firm are able to filter various data sets in place so as to come up with profitable components to the firm (Berson, Smith & Thearling, 2002). According to Cui, Damiani and Leida (2007), BI is not merely an IT enabled tool but rather, it is a relative new concept in management which when correctly done, can lead to more profits and flow of information and knowledge across the various units in the firm. The financial environment has remained so complex hence requiring firms to be so complex as well as proactive so as to make proper decisions while improving on the processes in the firm. Furthermore, added advantages related to utilization of BI tools by financial firms include reduced dispersion of information, ease of access of information, improved availability of information in real-time and finally, enhanced versatility and flexibility of the firms's adaptation to the dynamic industry environment. Naturally, financial firms trend is to actualize profit maximization of through sale of services and with the help of BI the firms can comprehend systematic sales information and guide trade policies to the specific needs of customers. Hence, the firm is both able to attract new clients while at the same time aiming to retain its old and loyal customers with value-added products (Cui et al., 2007).

In addition, Gichobi (2015) asserts that business intelligence can help in improving a performance of the a hence enhancing its competitive edge in the industry. This

improvement comes about as business intelligence tools assist in ways that include and are not limited to cost reduction, increase to motivation of employees and enhancement in customer service delivery. This has been made possible through business intelligence technologies are able to efficiently capture and manage information flows from the industry environment of the businesses.

According to Kowalkowski & Brehmer (2008) BI provides a strategic advantage to banks. This is made possible due to the fact that BI tools are efficiently and effectively able to capture real-time industry data on preferences of clients, current innovations, and rivals actions. This in effect leads to enhancement in speed and quality of decision making in the strategic and operation levels, effortless intra-departmental communication and a boost in the response to the dynamic industry environment and customer preferences.

To further add on the importances of BI is that it has helped on the improvement of customer satisfaction as asserted by Radonic & Curko, (2007). This has been made possible through the improvement in efficiency and productivity, and the speed and ease evident in the handling and analysis customer needs and behaviours. This is aimed towards to better satisfy the need of the clients through providing better customer care and support all towards the goal of the achievement of a sustainable competitive advantage.

In conclusion, BI enables firms to gain a competitive edge as it facilitates collection of real-time data on the internal and external industry environmental conditions. This improves speed and quality of strategic and operational decision making, enhances

communication among the bank's departments and improves the speed of response to the industry conditions and customer preferences (Kowalkowski & Brehmer, 2008). Radonic and Curko (2007) further argue that BI has a positive impact on customer satisfaction as it facilitates comprehensive analysis about customers' behaviour to better meet and appease to their needs and provide better customer service support hence enhancing competitiveness of a business. Furthermore, Moss and Atre (2003) view BI as one of the sources of competitive advantage for business firms due to operational data being transformed into a business asset that is useful for actualization of strategic decision making. This theory supports the Business Intelligence strategy which if implemented could result to a source of competitive advantage to a firm.

### **Business Process Re-engineering (BPR)**

For firms to survive in the business environment that is so competitive, firms are forced to change the way they carry out processes and activities. In realization of this, business process re-engineering has remained an important mechanism. Firms rely on ICT to improve on operations and processes for better performance. Business Process Re-engineering (BPR) is generally associated with the knowledge of finding out how business processes currently operate, how to recreate and transform these processes and how to implement the process changes with the view of eliminating wastage and redundancy and improve efficiency in order to increase and improve on competitiveness (Davenport, 1993). According to Ya-Ching et al., (2011) BPR concerns with seeking to discover and invent new ways of organisation of tasks and human resource, and

overhaul and upgrading of IT systems so that the processes reinforce the realization of the organisation's objectives.

Business process is considered as a set of tasks and/or activities that are structured that are aimed to producing specific level of outputs within a predetermined timeframe and market. A business process might consist of more than one activity which can be handled with and depends on each other. A change through BPR is more of a radical procedure rather than an incremental one as it tries to evade from being trapped in the trends of how things are currently being done and this radical change is driven by rapid ICT innovation and increasingly intensive global competition. The radically redesigned and revised processes drive the envisioned and modelled structure of the organisation, rather than current structures (Davenport, 1993).

However, the modern approach to BPR involves business managers taking an existing business process as a starting point and redesigning it into an alternate process unlike in the traditional the "blank page" approach to BPR. The new process configuration is then implemented and executed by IT experts and change management professionals to put the new processes in place all over the organisational structure. The disadvantages of the "blank page" approach to BPR included creation of inefficient system, loss of valuable knowledge from current system, processes that properly function could be overlooked and neglected leading to the underestimation of the problem's scope (Lee, Chu & Tseng, 2009).

According to Sungau (2011), IT-enabled BPR improves organizational performance through intelligent reorganizational of core services in the business processes this in turn

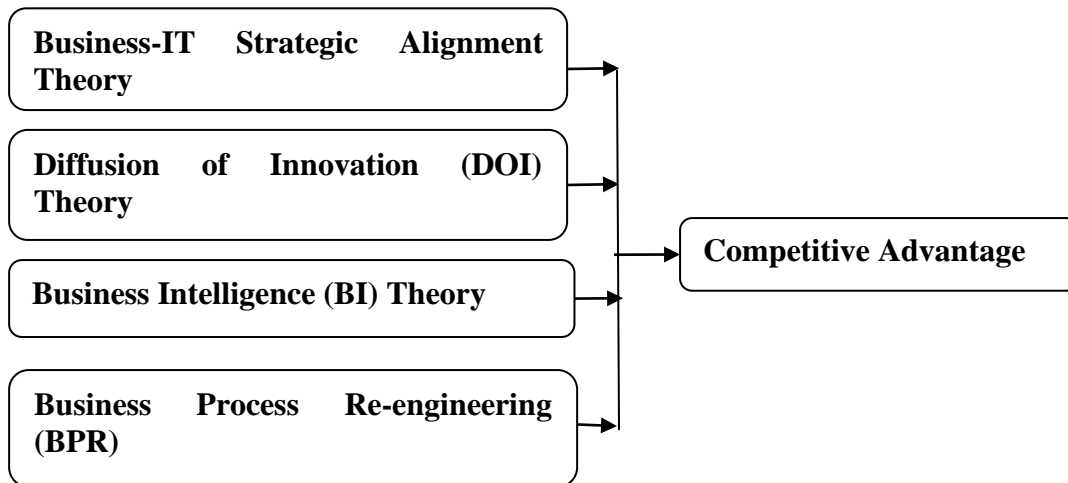
leading to their enhancement in efficiency and effectiveness. This in effect means that IT plays a major role at enabling BPR in firms towards simplifying and improving tasks and redesigning the organization. Ganesh (2000) argues that BPR bouyed by ICT leads to improvements in process thrust and customer focus.

Additionally, Sungau (2011) argues that the process of BPR using IT has an effect of improving the performance in productivity of a firm hence enhancing its sustainability advantages. These advantages are made possible through IT-led BPR intelligent restructuring of the business core services in the production processes hence enhancing their efficiency and effectiveness. He further concludes that IT is a major enabler of the business process re-engineering in business firms as it plays a key role towards simplification and improvements of the firms' task and overall redesigning of the organizations. In his conclusion, he asserts that the key to a successful accomplishment of BPR by firms is a thorough comprehensive understanding of the main organization's processes to change, support and initiative from the top level management and then the adoption of key implementational factors.

Wanjiku (2015) further asserts that business process re-engineering can also lead to the improvement of a firm's contemporary measures performance that include quality, cost, speed and service. The use of business process re-engineering with the major boost from ICT led to improvements in the speed and agility of provision of services, simplification of the operational processess and a higher level of co-ordination between intra-branch based services. This in turn leads to an enhancement in service operations efficiency and effectiveness and a better and accurate provision of end results. In conclusion, this

theory supports the IT-BPR strategy which if implemented can become a source of competitive advantage to a firm.

**Figure 2.1: Theoretical Framework**



**Source: Author, 2019**

### **2.3 Empirical Review**

This section endeavours to discuss on previously undertaken studies by diverse scholars that are related to this study's variables. It is arranged in the order conforming to the study's objectives.

#### **Aligning IT with Business and Competitive Advantage**

There is a body of literature that discusses on the topic of aligning IT with business on competitive advantage. For instance, Nyandoro (2013) sought to determine the link between strategic alignment and the ability of firms to remain competitive with reference to businesses that engage in production of soft drinks. The study employed an exploratory research design in order to achieve the formulated objectives. The study found that that there exist relationships between IT-business strategic alignment and the

ability of the firms to remain competitive in the industry of operation. One of the recommendations suggested by the study was the need for IT system executives to ensure that responsibilities are delicated and shared with the senior personnel across various other fields. This is because strategic alignment has been linked with improved performance of the firm.

Koskei (2016) conducted a study on strategic alignment and information technology on the performance of east African Portland Cement Company Ltd. in Kenya. The study acknowledged a lot of organizations have adopted information technology as a tool to enable them successfully realize a competitive advantage in the contemporary market place where competition has become intense and severe. The study embraced a case study research design and descriptive statistics for scrutiny and inquiry. The study revealed that alignment of organization's internal and external strategies with its IT platform gives the organization a competitive advantage if only there is adequate scanning of the firm's present day operating environment and identifying the threats and opportunities that exist in the market. The study recommended that organizations should come up with a policy that is top-down that involves all employees in the implementation of the same strategy.

Ngaira (2015) carried out an assessment on information technology alignment and performance at KCA University, Western campus. The study recognized that IT is very important for an organization's operations and its strategic capabilities as it enhances the way of doing business leading to a competitive advantage for those who has adopted it. A case study research design was endorsed and descriptive statistics used for analysis.



The study revealed that IT is used in exams processing, internet connectivity is good, and that IT alignment has improved registration and data accuracy. The recommendation was that trainings be conducted on a regularly to the users encourage various departments adopt use of IT and functional areas.

Afandi (2017) investigated on the impact of strategic IT-business alignment taking a case of Saudi private small and midsize enterprises. The study acknowledged that IT-business alignment is increasingly getting attention from practitioners as it has impact that had a positive boost on firm's performance. The analysis results revealed the fact that the alignment between IT and business was indeed essential and led to success of SMEs in Saudi Arabia. The study recommended that businesses should align their operations with IT so as to improve their financial performance and make them gain competitive advantage in the increasing competitive world. IT managers should adopt IT technology that is relevant as wrongful application can impact negatively.

### **Innovation Driven by IT and Competitive Advantage**

Various studies exist on effects of use of innovation driven by IT and competitive advantage. For example, Mohammad (2018) conducted a study on innovation strategies and their influence on sustainable competitive advantage. The research chose to endorse a cross sectional descriptive survey and descriptive statistics for analysis. The findings revealed that innovation strategies that incorporated IT led to a sustainable competitive advantage and that if an ICT firms wants to increase the level of sustainable competitive advantage in the county, they invested more in market innovation. The study

recommended that creation of awareness should be done on market innovation as it expands the firm's market share and sustains a competitive advantage.

Auma (2014) looked at innovation and the role it plays as far as enhancing of competitive advantage is concerned. The focus of the study was on export and horticultural firms in Kenyan context. The design used in the study was descriptive. The study found that incorporation of IT in product innovation led to increase in the competitiveness of the companies as sources of information on new ideas, market and products improvement were readily available which the companies adopted. The study recommended that horticulture companies should adopt IT driven innovations in order to remain competitive in this extremely competitive world through new product innovations and market innovations.

Gathu (2017) investigated on small and micro enterprises (SMEs) adoption of ICT for competitive advantage. The study acknowledged that as a result of increased competition in the global market, most businesses have adopted ICT as a catalyst to help them innovate on their businesses for them to remain relevant and enjoy the benefits that come with innovations. The type of design adopted was descriptive and the analysis was carried out descriptively. The findings revealed that most SMEs in Nairobi County had not adopted ICT in their innovations. Most innovations of new products were manual and the new products did not translate to increased sales as there was no sufficient marketing online which can be done well by incorporating ICT. The study recommended the need for SMEs to build in internal competencies in the use of ICT.

Vitorino, Filho and Moori (2018) focused on Brazilian firms to determine the connection between technological innovation and competitive positioning. The design adopted was descriptive. It was shown that technological innovation capabilities enhanced the competitive advantage of the companies as it gave them learning capability, market capability, resource allocation capability, manufacturing capability and strategic planning capability. The study recommended that companies need to adopt information technology as it is a key factor for a business firm seeking to have a profitable success in its industrial sector of operation. Technology is an important factor for consideration among firms seeking to improve on the level of quality of the products.

### **Application of Business Intelligence and Competitive Advantage**

There is literature on business intelligence and its influence on competitive advantage. For instance, Mukuche (2015) used a case of Kenyan insurance entities to determine the link between business intelligence and competitive positioning. The design endorsed for this study was descriptive. It was shown that application of business intelligence results into competitive advantage for the organizations but there were some challenges experienced in its application. The recommendation put forward by the study was the need for insurance firms to leverage on business intelligence systems for gaining of competitive advantage.

Ongalo (2014) looked at how effective is business intelligence as far as strategic marketing is concerned. The study leveraged on the case of Arthi River Cement. The study acknowledged that the power of business intelligence is combining various data of the business into a single version mainly referred as an enterprise data warehouse hence

the data is readily available to be pooled and turned into information. The design used by the study was descriptive. The study found that ARM had adopted business intelligence and it helped it in exploring ways of increasing profitability through the use of information and analyzing the market potential in terms of sales forecasting. The study recommended business intelligence as it enhanced effective strategic marketing in the organization to support timely, accurate and reliable reporting.

Gichobi (2015) looked at business intelligence and its influence on firm performance with focus on Kenya Power. It was established that firms are currently facing challenges in management of information flow from the forces of the environment. The design embraced in this study was descriptive. There was evidence showing that business intelligence had been adopted at KPLC and this has positively influence performance. This is because it helped in cost reduction, employee motivation, and efficiency in customer service. The study recommended that Kenya Power should adopt other business intelligence enhancements such as data warehousing and big data solutions.

Ahmad (2015) investigated on business intelligence for sustainable competitive advantage in Malaysia. It was shown that through business intelligence, an organization is able to cultivate and strengthen clear competencies for competitive advantage. For this study, the design used was case study. The study found that telecommunication industry in Malaysia had adopted business intelligence for competitive advantages. The study concluded that organizations that practice concise business intelligence governance with substantial financial and moral backing from upper management are likely to realize the

desired objective of having a competitive advantage over the others. The study recommended business intelligence should be provided with sufficient support, commitment, funding and implementation for it to lead to competitive advantage.

### **Business Process Re-engineering and Competitive Advantage**

Magutu (2010) investigated on business process reengineering for competitive advantage a case of Wringley Company Kenya. The two types of design adopted in the study included descriptive and explonatory. The findings revealed that Wrigley Company had implemented business process re-engineering that made it gain a competitive advantage. The study recommended that organizations that want to undertake BPR initiatives should foremostly understand the urgency for changing the organization and then ensure they adopt the key implementational factors for a successful business process re-engineering.

Njonjo (2014) conducted an assessment on the application of business process reengineering at Kenya airways. The study acknowledged that business process re-engineering ensures that output is maximized using the least resources possible. The design adopted by the study was a case stuidy as well as descriptive. The findings revealed that Kenya Airways had a ten-year strategy that was being driven by business process re-engineering and it was both pro-active and re-active. The study recommended that Kenya Airways should study on the ways their regional carrier rivals and successful models across the world were using business process re-engineering in their operations and try to adopt those successful models.

Wanjiku (2015) researched on business process re-engineering and operational performance at UAP insurance company. The study acknowledged that business process re-engineering aims at improving the contemporary measure of performance that is quality, cost, speed and service. The research embraced a descriptive research design and descriptive statistics for analysis. The revelation from the findings was that business process re-engineering helped UAP improve in the turnaround timelines for provision of services, achieve customer promise, operational processes become simple and better coordination between branch based services and head office based services. The study recommended that BPR should be adopted in order to enhance efficiency in operations of services and provision of better results.

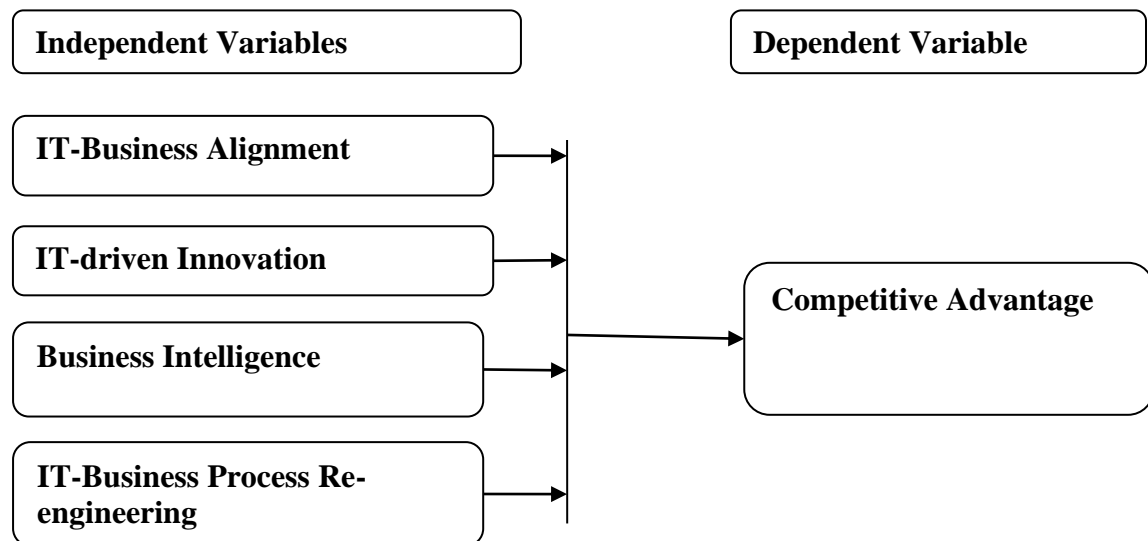
Ikon, Onwuchekwa, and Nwoye (2018) did a study to determine the role played by business process re-engineering (BPR) on the ability of the firm to remain competitive. The emphasis of the study was in Nigeria's context and descriptive statistics were used. An exploratory research design was used and descriptive statistics adopted for analytical scrutiny of data. The study found that management of the firms were committed to business process re-engineering and this led to innovative strength which helped in gaining a competitive advantage over their peers in other countries. As one of the recommendations, the study pointed out the need for management to set good examples when driving change initiatives in their organizations.

## **2.4 Conceptual Framework**

Conceptual framework is a pictorial representation of the study variables and how they interrelate with each other in the study. The essence of the research study was to provide

concrete proof of the link between ICT strategies and competitive advantage with reference to Kenyan commercial banks. The ICT strategies which make up the independent variables include IT-Business Alignment, IT-driven Innovation, Business Intelligence and IT-Business Process Re-engineering. Competitive advantage acted as the study dependent variable while ICT strategy was the independent variable. The information is well illustrated in Figure 2.2.

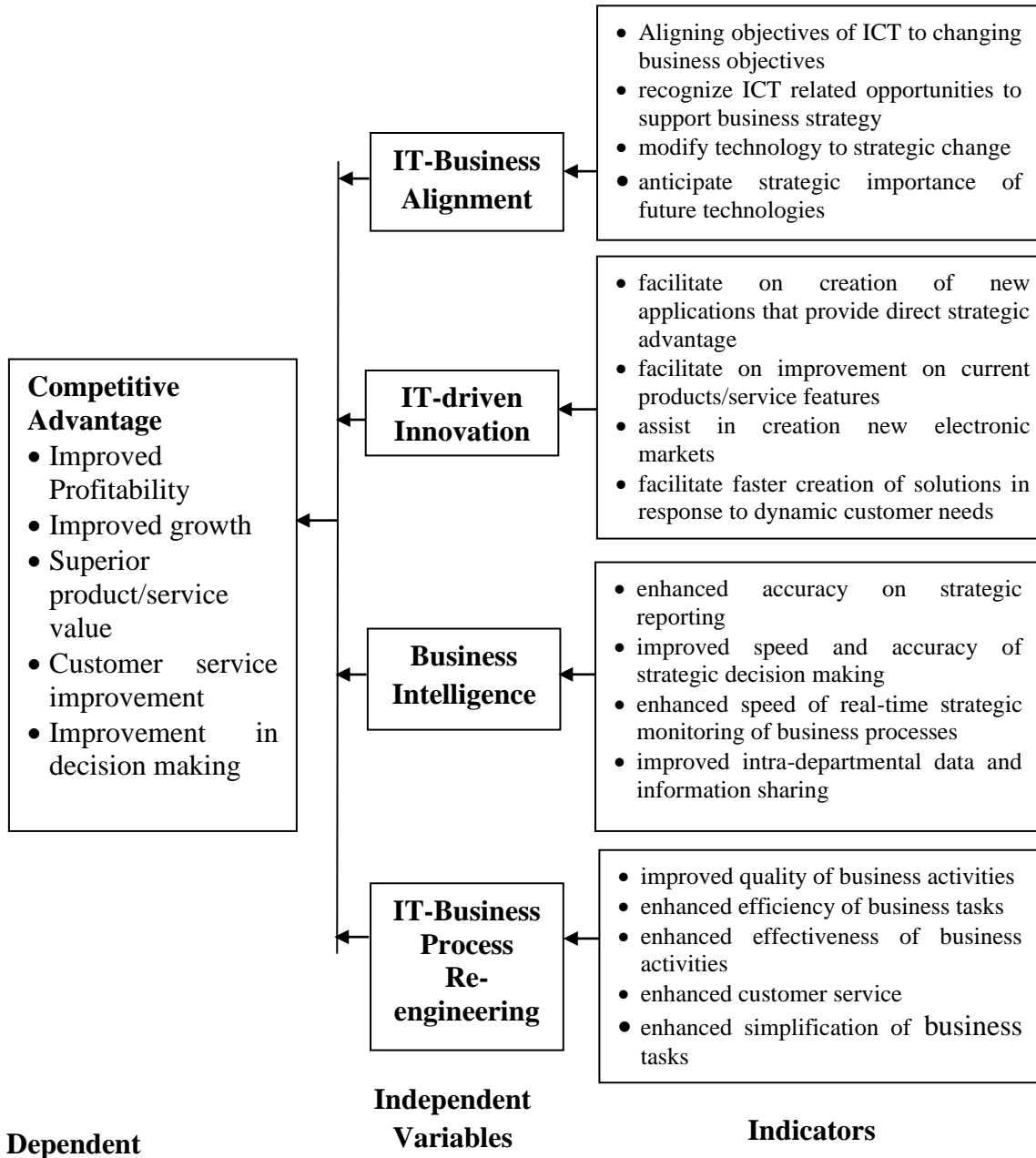
**Figure 2.2: Conceptual Framework**



Source: Author, 2019

## 2.5 Operationalization of Variables

Figure 2.3: Operational Framework



Source: Author, 2019



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter was concerned with the description of the research design and methodology which was used to address the questions put forward by the thesis, namely, research design, target population, sampling procedure and size, instrumentation, preparation of data collection instruments/instrumentation, data collection procedures, operational definition of variables and methods of data analysis.

#### **3.2 Research Design**

Research design is simply a framework that guides how data for the study is collected and analyzed to establish the findings (Mugenda & Mugenda, 2008). Kotler and Armstrong (2001) argue that a descriptive survey design is ideal is well suited in situations where the study is interested in knowing about the feelings, preferences as well as feelings of people.

The type of design adopted in this study was descriptive and it was ideal for determining the connection between ICT strategies and competitive advantage. A five-point Likert scale survey questionnaire was developed for field research in order to obtain the data concerning this study where the questions were issued through the drop-and pick-later method. The questions in the structured questionnaire focused towards finding out the relationship between the dependent variable, competitive advantage, and the independent variables that included IT-business alignment, IT-driven innovation, business intelligence and IT-business process re-engineering. The intention was to

determine opinions about how ICT strategy impacted on the competitive advantage of commercial banks in Nairobi county by finding out the relationship between the dependent variable that is, competitive advantage, and the independent variables that included IT-business alignment, IT-driven innovation, business intelligence and IT-business process re-engineering. Later, that data was to be analysed, patterns observed obtained and correlation of the variables made for the purpose of clarification and provision on basis of making decisions.

### **3.3 Target Population**

A target population is described as any set of persons or objects that share at least one common characteristic that is specific to the researcher' area of study (Mugenda & Mugenda, 2008). The target population in this research study comprised of the managers working in the ICT department of the 43 commercial banks fully registered by CBK situated in Nairobi County (Appendix IV). The main reason for choosing the managers in the ICT department is that they were responsible for formulation, oversight and implementation of ICT strategies within their banks.

### **3.4 Sampling Procedure**

The sampling procedure consists of selecting a smaller representative unit/group from a larger target population for the purpose of data collection in order to determine the truths about that population (Mugenda & Mugenda, 2008). The research study used purposive sampling technique in the selection of only the top-level managers in the ICT departments in all the 43 commercial banks fully registered by CBK. Therefore, the

study's sample size comprised of 43 senior managers chosen from each bank where each respondent was the head of their ICT department in their respective banks.

### **3.5 Data Collection Procedure**

Data collection was carried out using questionnaires (Appendix III) which contained closed-ended questions to avoid bias. The questionnaires was divided into two sections. The first section was mainly background information while the second section was on the various ICT strategies undertaken to influence on competitive advantage among commercial banks. The reasons for using closed-ended questionnaire in this research study was to ensure quick responses, improved consistency of responses, clarity of questions, uniformity, easier comparison with other respondents and, finally easier, quick and less costly coding and statistical analysis (Mugenda & Mugenda, 2008). The questionnaires were physically administered during the working days which ensured higher availability of respondents and progress in filling the questionnaires and any queries were done through the telephone. The questionnaires were collected from the respondents after one week for coding and data analysis.

A pilot study was conducted to provide the guarantee that respondents understand the instructions, the questions being asked and the terminologies used in order to enhance the clarity of the research instrument. According to Kothari (2004), respondents in the pilot study can be 1-10% of the population. Pre-testing was conducted among 5 Micro Finance Institutions operating in Nairobi Central Business District. The MFIs were selected because they operate on the same model as commercial banks and they are also regulated by the Central Bank of Kenya. This pilot test was done to ensure the reliability

of the instrument prior to actual data gathering and it took into considerations all forms of comments, suggestions, ideas, proposals, corrections and views which helped to improve the level of reliability of the questionnaire to ensure effectiveness in soliciting information intended (Mugenda & Mugenda, 2008).

The researcher then went further to do a consultation with the experts in research methodology to provide guarantee to the validity of the research instrument, through criticism on the formats, contents and other related issues of the research instrument. The validity test ensured that the contents of the research instrument were relevant to the purpose of the study and the instrument actually measured what it actually claimed to measure. The reliability test was measured using the Cronbach's Alpha whose threshold is 0.7 (Mugenda & Mugenda, 2008).

### **3.6 Methods of Data Analysis**

Data analysis is the process of transformation of the collected data from the field into meaningful information that can be comprehended. Once information has been sought from the field, it is cleaned and then entered into SPSS software (Mugenda & Mugenda, 2008). The Data collected using the questionnaire was inspected and cleaned for better and efficient analysis. Then the researcher undertook coding of the items in the data collection instrument which was entered into the Statistical Package for Social Sciences (SPSS) computer application. The analysis of data was carried out through quantitative descriptive method which generated results in form of percentages,

frequencies, standard deviations and measures of central tendencies (Mugenda & Mugenda, 2008).

An econometric model has been developed for the study for the purposes of testing the correlation between the Competitive Advantage (dependent variable) and the ICT strategies (independent variables) and further more for conducting an inquiry into the hypotheses related to the study which was represented in the form of the multivariate regression equation as shown:

$$Y = \alpha_0 + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_3) + \beta_4(X_4) + \varepsilon$$

Where: Y – Competitive Advantage

$\alpha_0$  - Intercept

$X_1$  – IT-Business Alignment

$X_2$  – IT-driven Innovation

$X_3$  – Business Intelligence

$X_4$  – IT-Business Process Re-engineering

$\varepsilon$  - Coefficient of error term

After analysis of the input data the final presentation format of the output information was to be done using charts, tables and cross tabulations.

### **3.7 Ethical Considerations**

In a research study it is of utmost importance to consider ethical considerations which can be explained as the criteria, code, requirements or principles for conduct that regulate or steer moral choices about our behaviour and our relationships with others. They are useful in determining the realization between acceptable and unacceptable behaviors during the conduct of a research study. The main objective of ethics in research was to ensure that no participant in the study suffered harmful consequences from research activities that include data collection, analysis and reporting of the findings from the research study (Saunders, Lewis & Thornhill, 2009). The researcher ensured confidentiality was upheld for the participants by ensuring anonymity through ensuring that no names appeared in the questionnaires and their answers were treated as strictly confidential to ensure no one can be identified based on the answers on the questionnaires.

The participants were informed about the objectives and benefits of this research, and that the findings in the research were used for academic purposes only. The participants' consent was given freely and under no pressure of any kind to participate in this research study. The participants were also be informed on the significance of their input during data collection to ensure the success of the research study. Lastly, permission to continue with the collection of data from the target population for the study was sought from the Kenya Methodist University and informed consent from the targeted commercial banks to ensure that the researcher carried out the study to a successful completion.

## CHAPTER FOUR

### RESULTS AND ANALYSIS

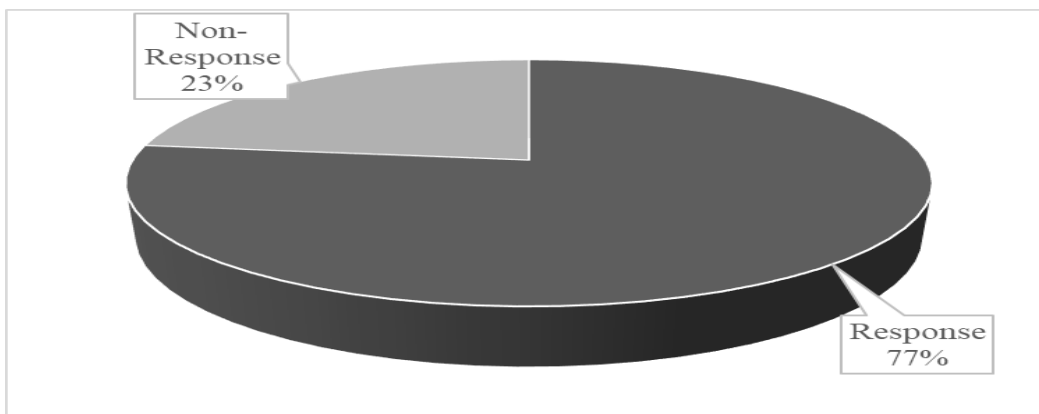
#### 4.1 Introduction

This chapter is aimed at presenting the findings of the study as per the objectives of the study. Broadly, the study's intention was to determine how strategies of information communication and technology impact on the competitive advantage of the firm. The findings are indicated in subsequent sections.

##### 4.1.1 Response Rate

The researcher went ahead and handed out 43 questionnaires to the top-level ICT managers of commercial banks fully registered by CBK situated in Nairobi County. The respondents duly filled and returned 33 questionnaires to the researcher hence yielding a response rate of 77%. The response rate was consistent with Mugenda and Mugenda (2003) who established that reaction rates or levels of 70% and above provided sufficient support to the research study. The findings are as shown in Figure 4.1.

**Figure 4.1: Response Rate**



### 4.1.2 Reliability Test

Reliability of the study instruments was established by Cronbach Alpha as shown in Table 4.1.

**Table 4.1: Reliability Test**

<b>Variable</b>	<b>Number of Items</b>	<b>Cronbach Alpha</b>
IT-Business Alignment Strategy	5	0.795
IT-driven Innovation Strategy	5	0.798
Business Intelligence Strategy	5	0.854
IT-Business Process Re-engineering Strategy	5	0.789
Competitive Advantage	5	0.897

From Table 4.1, all the variables of the study had Cronbach Alpha coefficients above 0.7; this shows that the scale used in the study was reliable. The findings agree with Mugenda and Mugenda (2008) who assert that the threshold of 0.7 is sufficient for a study.

## 4.2 Demographic Information

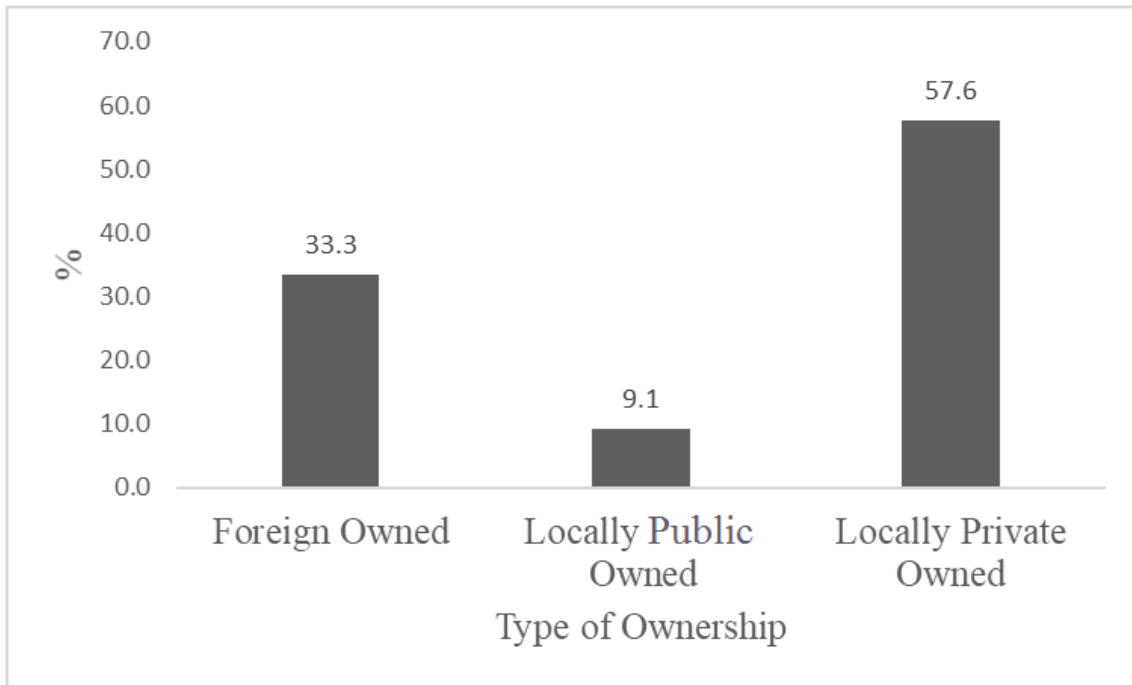
The researcher carried out demographic information of the study to establish the appropriateness of the participating respondents in the study. The findings regarding: type of ownership and length of existence are as shown in subsequent sections.

### 4.2.1 Type of Ownership

The researcher asked the respondents to indicate the type of ownership of their company, the findings are as shown in Figure 4.4.



**Figure 4.2: Type of Ownership**

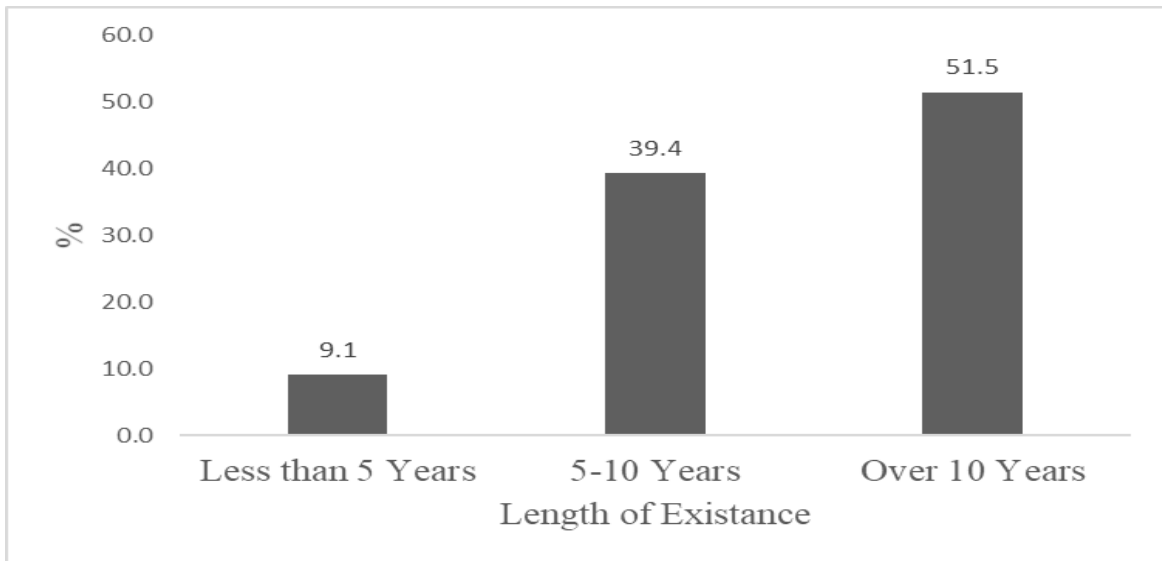


The study established that majority of the respondents 57.6% type of bank ownership was locally private owned, 33.3% established that their banks were foreign owned and 9.1% of the respondents indicated that their banks were locally public owned. The study therefore established that majority of the commercial banks were locally owned.

#### **4.2.2 Length of Firm Existence**

Respondents were asked to establish for how long has their firm being in existence, the findings are as indicated in Figure 4.5.

**Figure 4.3: Length of Firm Existence**



The study established that 51.5% of the respondent's firm had being in existence for over 10 years, 39.4% firm's existence was between 5-10 years and 9.1% of the respondent's firm's existence was less than 5 years. This lead to the conclusion that the majority of the study participants had worked in their organizations for a lengthy duration of time and thus knowledgeable.

### **4.3 Descriptive Statistics**

The research study went further to conduct descriptive statistics to determine the variables influence on the study. The findings are indicated in subsequent sections.

#### **4.3.1 IT-Business Alignment Strategy and Competitive Advantage**

Table 4.2 gives the findings of IT business alignment strategy and its influence on competitive advantage.

**Table 4.2: IT-Business Alignment Strategy and Competitive Advantage**

	Mean	Std. Dev
Our organization changes objectives of ICT to align them with the changing business objectives.	3.63	.783
Our organization recognizes ICT related opportunities that support business strategy.	4.06	.863
Our organization modifies technology to conform to strategic change.	3.42	.662
Our organization anticipates strategic importance of future technologies.	3.90	.879
All our ICT strategies are support the overall organizations goals	3.75	1.39
All our ICT strategies are developed with employee competence in mind.	3.84	1.14
ICT strategy in our organization has promoted innovations	3.66	1.19
ICT strategy has promoted development of innovative financial services in our Bank	3.06	1.19
ICT strategy has facilitated creation of new market segments in our Bank	3.36	1.51
ICT strategy has resulted in new information to align the bank competitively	3.51	1.48
ICT strategy has promoted knowledge management in the bank	4.26	.478
ICT strategy has promoted knowledge sharing in the Bank	3.21	.415
ICT strategy has promoted knowledge transfer in the Bank	3.90	1.33
ICT strategy has promoted human resource response to business strategy	4.21	.960

It was shown that the organization changed objectives of ICT to align them with the changing business objectives (M= 3.63 SD= 0.783). The organization recognized ICT related opportunities that support business strategy (M=4.06 SD=0.863). There was neutrality among the respondents on whether the organization modified technology to conform to strategic change (M=3.42 SD=0.662). This is supported by Berry et al. (2006) who established that utilization of ICT results in enhanced operational efficiency, enhanced connectivity, reduced costs, increased access to local and global markets; contributing towards job creation, revenue generation and overall competitiveness of the country.

The organization anticipated strategic importance of future technologies (M= 3.90 SD= 0.879). All the commercial banks ICT strategies were supported the overall organizations goals (M=3.75 SD=1.39). Respondents agreed that all of the commercial banks ICT strategies were developed with employee competence in mind (M=3.84, SD= 1.14). This agrees with Ritchie and Bridle (2005) who established that the rise in ICT importance has seen many firms in all sectors of the economy making significant investments in ICT in order to align business strategies, enable innovativeness in functional operations and towards provision of extended and improved customer services. This is supported by Brodbeck et al. (2009) in his research study on the strategic alignment maturity in business and ICT found out that communication, employees skills and architectural scope had significant impact on the improvement of strategic alignment between business and ICT.

The study further established that respondents agreed that ICT strategy in commercial banks had promoted innovations (M=3.66 SD=1.19). ICT strategy had promoted development of innovative financial services in commercial Bank (M=3.06 SD= 1.19). ICT strategy had facilitated creation of new market segments in commercial Banks (M=3.36 SD=1.51). ICT strategy had resulted in new information to align the bank competitively (M=3.51 SD= 1.48). This agrees with Henderson and Venkatraman (1999) who found out that firms that pursued towards aligning both their business and ICT strategies recorded an improved performance on their business functions.

The study found out that majority of the respondents agreed that ICT strategy had promoted knowledge management in the bank (M=4.26 SD=0.478). ICT strategy had

promoted knowledge sharing in the Bank (M=3.21 SD= 0.415). ICT strategy had promoted knowledge transfer in the Bank (M= 3.90 SD= 1.33). ICT strategy had promoted human resource response to business strategy by a mean of 4.21 with standard deviation of 0.960. This is in agreement with Brodbeck et al. (2009) in his research study on the strategic alignment maturity in business and ICT found out that communication, employees skills and architectural scope had significant impact on the improvement of strategic alignment between business and ICT.

#### **4.3.2 Influence of IT-Business Alignment Strategy on Competitive Advantage**

Respondents were asked to indicate how IT-Business alignment strategy had an effect and sway on the competitive advantage of commercial bank among its competitors. The findings are as shown in Table 4.3.

**Table 4.3: Influence of IT-Business Alignment Strategy**

	<b>Frequency</b>	<b>Percent</b>
Neutral	11	33.4
Positively	15	45.5
Very Positively	7	21.2
Total	33	100.0

Table 4.3 pointed out that 21.2% of the respondents indicated very positively that IT-Business alignment strategy impacted on the Competitive Advantage, 45.5% of the respondents indicated positively and 33.4% indicated neutral. Thus, a vast majority of the respondents were in agreement that IT business alignment strategy and competitive advantage. . This agrees with Berry et al. (2006) who established that utilization of ICT results in enhanced operational efficiency, enhanced connectivity, reduced costs,

increased access to local and global markets; contributing towards job creation, revenue generation and overall competitiveness of the country.

### 4.3.3 IT-Driven Innovation Strategy and Competitive Advantage

Table 4.4 is a summary of the findings on IT-driven innovation strategy and its influence on competitive advantage.

**Table 4.4: IT-Driven Innovation Strategy and Competitive Strategy**

	Mean	Std. Dev
IT innovation strategy focuses on meeting the changing customer needs	4.15	.905
IT innovation strategy focuses on improving internal efficiency	3.36	.742
IT innovation strategy is communicated through different channels	4.18	.808
IT innovation strategy allows for timely commercialization of innovations	3.81	1.28
IT innovation strategy provides room for persuasions	4.09	1.01
IT innovation strategy ensures consistency in systems	4.13	1.01
IT innovation strategy provides better options to existing systems	3.39	1.36
ICT in our organization facilitates creation of new applications that provide direct strategic advantage.	4.11	.712
ICT in our organization facilitates improvement on current products/service features.	3.30	1.01
ICT in our organization assists in creation of new electronic markets	4.03	1.33
ICT in our organization facilitates faster creation of solutions in response to dynamic customer needs	3.66	1.51

It was established that IT innovation strategy focused on meeting the changing customer needs (M=4.15 SD=0.905). There was neutrality in responses on whether IT innovation strategy focused on improving internal efficiency (M=3.36 SD= 0.742). IT innovation strategy was communicated through different channels (M=4.18 SD=0.808). IT innovation strategy allowed for timely commercialization of innovations (M=3.81 SD=1.28). This agrees with Chan and Reich (2007) who found out that improved

performance and competitive value from IT was realised by firms that aligned their business strategy with IT strategy and not from from the technology itself.

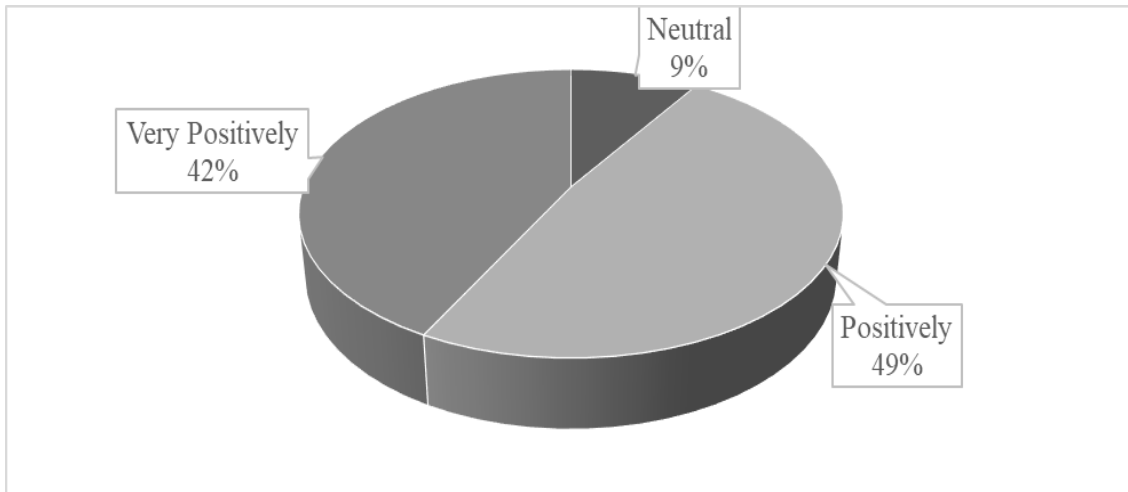
It was also established that IT innovation strategy provided room for persuasions (M= 4.09 SD= 1.28). IT innovation strategy ensured consistency in systems (M=4.13 SD= 1.01). There was neutrality among respondents on whether IT innovation strategy provided better options to existing systems (M= 3.39 SD= 1.39). ICT in respondents' commercial banks facilitated creation of new applications that provided direct strategic advantage (M=4.11 SD=0.712). This is supported by Bauer, Lokshin and van Gils (2008) who established that innovative performance is a combination of organizational and ICT skills by firms improved on innovation.

ICT in commercial banks facilitated improvement on current products/service features (M=3.30 SD= 1.01). ICT in respondent's organization assisted in creation of new electronic markets (M= 4.03 SD=1.33). ICT in commercial banks facilitated faster creation of solutions in response to dynamic customer needs (M= 3.66 SD= 1.51). This is supported by Huang (2009) who found that IT flexibility improved innovation through creation of innovative applications and services, new markets and new information that provide direct strategic advantage to business enterprises.

#### **4.3.4 Influence of IT-driven Innovation Strategy on Competitive Advantage**

Respondents were asked to indicate how IT-driven innovation strategy influenced competitive advantage of commercial bank among its competitors. The findings are as shown in Figure 4.5.

**Figure 4.4: Influence of IT-driven Innovation Strategy on Competitive Advantage**



The study established that 49% of the respondents indicated that IT-driven innovation strategy positively influenced competitive advantage of commercial bank, 42% indicated very positively and 9% indicated neutral. The study demonstrated that most of the respondents that included 30 (91%) agreed that IT-driven innovation strategy had a strong leverage on the competitive advantage of commercial banks. This is supported by Bauer et al. (2008) who established that innovative performance found out that a combination of organizational and ICT skills by firms improved on innovation. Similarly, Huang (2009) found that IT flexibility improved innovation through creation of innovative applications and services, new markets and new information that provide direct strategic advantage to business enterprises.



### 4.3.5 Business Intelligence Strategy and Competitive Advantage

The findings on business intelligence strategy and competitive advantage are indicated in Table 4.5.

**Table 4.5: Business Intelligence Strategy and Competitive Advantage**

	Mean	Std. Dev
Our organization uses ICT to collect business intelligence from the market	3.45	.616
Our organization uses ICT to bring about effective data warehouses	3.81	.768
Our organization's business intelligence systems have enhanced accuracy on strategic reporting.	3.72	.674
Our organization's business intelligence systems have improved speed and accuracy of strategic decision making	3.69	1.33
Our organization's business intelligence systems have enhanced speed of real-time strategic monitoring of business processes.	3.42	1.60
Our organization's business intelligence systems have improved intra-departmental data and information sharing.	4.27	.977

From the findings, commercial banks moderately used ICT to collect business intelligence from the market (M=3.45 SD=0.616). Commercial banks used ICT to bring about effective data warehouses (M=3.81 SD=0.768). The organization's business intelligence systems had enhanced accuracy on strategic reporting (M=3.72 SD= 0.674). This agrees with Kowalkowski and Brehmer (2008) who found out that utilization of BI tools created a strategic advantage to banks as they collect real-time data about innovation, customer preferences, competitors and environmental changes.

Commercial banks business intelligence systems had improved speed and accuracy of strategic decision making (M= 3.69 SD= 1.33). Commercial banks business intelligence had enhanced speed of real-time strategic monitoring of business processes (M= 3.42 SD= 1.60). This is supported by Turban, Sharda and Delen (2011) showed that the use of BI improved speed and accuracy of reporting, enhanced customer service, increased

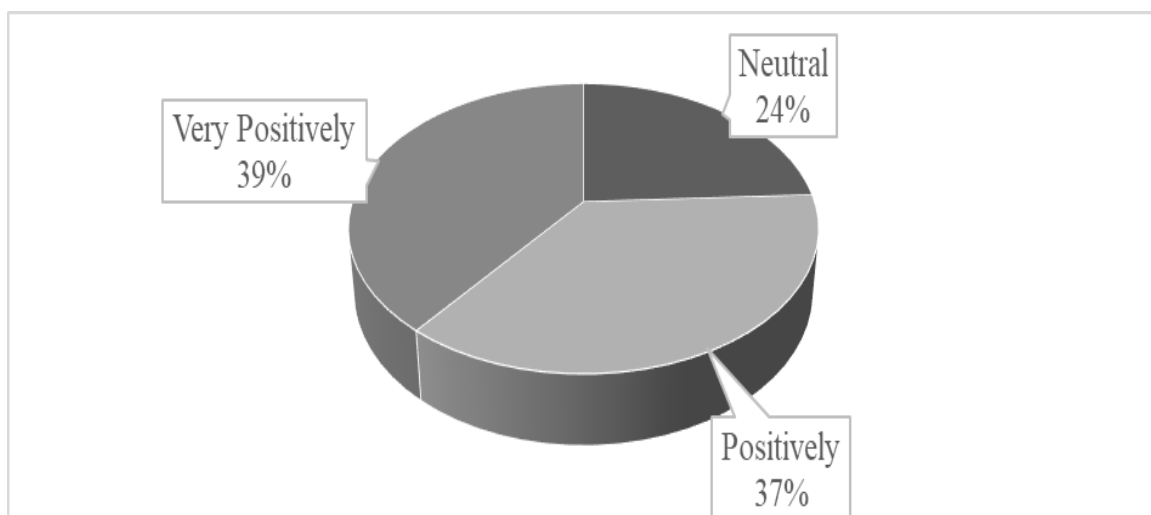
revenue, and led towards the enhancement of business efficiency and productivity. Commercial banks business intelligence systems had improved intra-departmental data and information sharing (M= 4.27 SD= 0.977). Radonic and Curko (2007) concluded that BI has a positive impact on customer satisfaction in the financial industry in that it helps in comprehensive analysis about customers' behaviour towards enhancing the satisfaction of their needs and also further towards provision of excellent customer care service support in order to achieve a competitive advantage.

#### 4.3.6 Influence of Business Intelligence Strategy on Competitive Advantage

The responding study participants were asked to indicate how business intelligence strategy influenced competitive advantage of commercial bank among its competitors.

The findings are as shown in Figure 4.5.

**Figure 4.5: Influence of Business Intelligence Strategy on Competitive Advantage**



The findings conclude that 39% of the respondents were of the view that business intelligence strategy influenced very positively on competitive advantage of commercial bank among its competitors, 37% indicated positively and 24% indicated neutral. The findings assert that a greater part of the respondents who numbered 25 (76%) were in agreement that business intelligence strategy had a major influence on competitive advantage of commercial banks. This is supported by Turban et al. (2011) who showed that the use of BI improved speed and accuracy of reporting, enhanced customer service, increased revenue, and improved business efficiency and productivity.

#### 4.3.7 IT-Business Process Re-engineering Strategy and Competitive Advantage

Table 4.6 is the summary of the findings on IT-Business process re-engineering and its influence on competitive advantage. .

**Table 4.6: IT-Business Process Re-engineering Strategy**

	Mean	Std. Dev
Our organization has reengineered its business processes for competitive advantage	3.51	1.17
Our organization has eliminated wastages through business process reengineering	4.06	.826
Our organization has improved efficiency through business process reengineering	3.63	1.16
Our organization has introduced new devise as a way of organizing tasks through ICT strategy	3.64	1.14
IT-enabled Business process reengineering has brought about cost saving in our organization	3.96	.769
IT-enabled Business process reengineering has brought about better customer service in our organization	4.09	.804
IT-enabled Business process reengineering has brought about increased revenue in our organization	3.24	1.87

It was shown that the organization had reengineered its business processes for competitive advantage (M=3.51 SD=1.17). It was shown that the organization had

eliminated wastages through business process reengineering (M=4.06 SD=0.826). The organization had improved efficiency through business process reengineering (M= 3.63 SD= 1.16). This is supported by Olalla (2000) who established that IT played a major role at enabling BPR in business enterprises towards simplifying and improving tasks and redesigning the organization.

The study further established that commercial banks had introduced new devise as a way of organizing tasks through ICT strategy (M=3.64 SD=1.14). IT-enabled Business process reengineering had brought about cost saving in commercial banks (M= 3.96 SD=0.769). This agrees Ya-Ching et al. (2009) who eatbalished that ICT adoption by businesses trigger changes on business processes which have an effect on workforce and business structure. Similarly, Sungau (2011) established that IT-enabled BPR is associated with possibility of improved performance. IT-enabled Business process reengineering had brought about better customer service in commercial banks (M=4.09, SD=0.804). IT-enabled Business process reengineering had brought about increased revenue in their commercial banks (M=3.24, SD=1.87). This is supported by Ganesh (2000) who established that the relationship between IT infrastructure and BPR showed a that there was a connection or link between process improvement thrust, network infrastructure components and focus on customer.

#### **4.3.8 Influence of IT-Business Process Re-engineering Strategy on Competitive Advantage**

The findings on how IT-Business process re-engineering strategy influenced competitive advantage of commercial bank among its competitors are indicated in Table 4.7.

**Table 4.7: Influence of IT-Business Process Re-engineering Strategy**

	<b>Frequency</b>	<b>Percent</b>
Negatively	4	12.1
Neutral	7	21.2
Positively	12	36.4
Very Positively	10	30.3
Total	33	100.0

The study established that 12.1% of the respondents indicated that IT-Business process re-engineering strategy negatively influenced competitive advantage of commercial bank among its competitors, 21.2% indicated neutral, 36.4% indicated positively and 30.3% indicated very positively. A great number of respondents, 22 (66.7%) agreed that IT-Business process re-engineering strategy influenced competitive advantage of commercial bank among its competitors. This agrees with Ya-Ching et al. (2009) who established that ICT adoption by businesses trigger changes on business processes which have an effect on workforce and business structure.

#### **4.3.9 Competitive Advantage**

Table 4.8 gives the findings on competitive advantage as the dependent variable of the study.

**Table 4.8: Competitive Advantage**

	<b>Mean</b>	<b>Std. Dev</b>
Competitive Advantage in our organization has improved profitability.	3.81	1.21
Competitive Advantage in our organization has improved growth.	4.00	.935
Competitive Advantage in our organization has enabled creation of superior product/service value.	3.42	1.17
Competitive Advantage in our organization has enabled customer service improvement	4.27	.626
Competitive Advantage in our organization has enhanced improvement in decision making.	3.57	.751

It was shown that competitive advantage in commercial banks improved profitability (M=3.81, SD=1.21). It was established that competitive advantage in commercial banks improved growth (M=4.00, SD=0.935). It was established that competitive advantage in commercial banks enabled creation of superior product/service value (M=3.42, SD=0.626). This agrees with Huang (2009) who found that IT flexibility improved growth and performance through creation of innovative applications and services, new markets and new information that provide direct strategic advantage to business enterprises. It was shown that competitive advantage in commercial banks enabled customer service improvement (M=4.27, SD=0.626). It was also revealed that competitive Advantage in commercial banks enhanced improvement in decision making (M=3.57, SD=0.751). This agrees with Ritchie and Bridle (2005) who asserts that the rise in ICT importance has seen many firms in all sectors of the economy making substantial investments in ICT in order to align and co-ordinate business and ICT strategies, empower innovative functional operations and provide and deliver extended and enhanced customer services.

#### **4.3.10 Influence of Competitive Advantage**

Table 4.9 gives the findings on the influence of competitive advantage on competitors of the studied banks.

**Table 4.9: Influence of Competitive Advantage**

	<b>Frequency</b>	<b>Percent</b>
Neutral	7	21.2
Very Positively	26	78.8
Total	33	100.0

The findings in Table 4.9 established that 78.8% of the respondents indicated very positively, 21.2% of the respondents indicated neutral. Hence, it is evident that most of

the respondents were in agreement on the statement of competitive advantage. The finding is consistent with Ritchie and Bridle (2005) who established that majority of the firms in the banking sector are highly investing in technologies so as to gain competitive advantage.

#### **4.4 The Relationship between ICT strategy and Competitive Advantage**

Correlation and multiple linear regression were used to determine how ICT strategy impacted on the improvement in the competitiveness of commercial banks in Nairobi county. The results of correlation analysis and multilinear regression are as indicated in subsequent sections.

##### **4.4.1 Strength of the Relationship between ICT strategy and Competitive Advantage**

In order to establish the link between ICT strategy and competitive advantage, correlation analysis was used as reported in Table 4.10.

**Table 4.10: Correlation Analysis**

		<b>Competitive Advantage</b>	<b>IT-Business Alignment</b>	<b>IT-Innovation Strategies</b>	<b>Business Intelligence</b>	<b>IT-Business Re-Engineering</b>
Competitive Advantage	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	33				
IT-Business Alignment	Pearson Correlation	-.512**	1			
	Sig. (2-tailed)	.002				
	N	33	33			
IT-Innovation Strategies	Pearson Correlation	-.425*	-.092	1		
	Sig. (2-tailed)	.014	.609			
	N	33	33	33		
Business Intelligence	Pearson Correlation	.048	.153	.314	1	
	Sig. (2-tailed)	.790	.395	.075		
	N	33	33	33	33	
IT-Business Re-Engineering	Pearson Correlation	.680**	-.208	-.365*	-.035	1
	Sig. (2-tailed)	.000	.245	.037	.847	
	N	33	33	33	33	33

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

The study established that IT-business alignment ( $r = -0.512$ ), an indication of a negative correlation with competitive advantage. IT-innovation strategies ( $r = -0.425$ ), an indication of a negative correlation with competitive advantage. Business intelligence ( $r = 0.048$ ), an indication of a weak correlation with competitive advantage. The study further established that IT-business re-engineering ( $r = 0.680$ ), an indication that it is correlated with competitive advantage. The results in Table 4.10 show that IT-business re-engineering had the strongest correlation with competitive advantage, followed by



IT-Business alignment strategy, IT-driven innovation strategy and business intelligence strategy consequetively.

#### 4.4.2 ICT strategy and Competitive Advantage

Regression analysis was used to establish the effect of ICT strategy on the competitive advantage. The subsequent sections detail the findings.

#### Model Summary

Table 4.11 is the model summary of the study.

**Table 4.11:Model summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.857 <sup>a</sup>	.734	.696	2.06772

a. Predictors: (Constant), business Re-Engineering, Business Intelligence, Business Alignment, Innovations Strategies

From Table 4.11, the value of R square is 0.696; this means that 69.6% change in competitive advantage is explained by changes in ICT strategies. Hence, there are other factors apart from ICT strategy with an influence on competitive positioning of the firm that should be of major focus in future studies.

#### Analysis of Variance

Table 4.12 is the findings of the ANOVA.

**Table 4.12: ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	331.014	4	82.753	19.355	.000 <sup>b</sup>
Residual	119.713	28	4.275		
Total	450.727	32			

a. Dependent Variable: Competitive Advantage  
b. Predictors: (Constant), Reengineering, Aligning IT, Business Intelligence, Innovation

Table 4.12 show the value of F calculated as 19.355; this shows significance of the overall model of the study.

## Regression Coefficients

Table 4.13 is the summary of the coefficients and p-values.

**Table 4.103: Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	19.613	8.957		2.190	.037
IT-Business Alignment	-.297	.062	-.497	-4.777	.000
IT-Innovations Strategies	-.308	.090	-.392	-3.431	.002
Business Intelligence	.240	.097	.263	2.486	.019
IT-Business Re-Engineering	.849	.210	.442	4.037	.000

a. Dependent Variable: Competitive Advantage

The regression analysis model becomes:

$$Y = 19.613 - 0.297(X_1) - 0.308(X_2) + 0.240(X_3) + 0.849(X_4)$$

Where: Y – Competitive Advantage

X<sub>1</sub> – IT-Business Alignment

X<sub>2</sub> – IT-driven Innovation

X<sub>3</sub> – Business Intelligence

X<sub>4</sub> – IT-Business Process Re-engineering

The results indicated that IT-Business Alignment had a p value of 0.000<0.05 an indication that the variable significantly influences competitive advantage of commercial banks. This agrees with Henderson and Venkatraman (1999) who found out that firms that pursued the alignment of both their business and ICT strategies recorded improved performance on their business functions. Similarly, Berry et al. (2006) who established

that utilization of ICT results in enhanced operational efficiency, enhanced connectivity, reduced costs, increased access to local and global markets.

The results indicated that IT-Driven innovation had a p value of  $0.002 < 0.05$  an indication that the variable significantly influences competitive advantage of commercial banks. This is supported by Bauer et al. (2008) who established that the combination of ICT skills in the firms improves innovation. Similarly, Huang (2009) found that IT flexibility improved innovation through creation of innovative applications and services, new markets and new information that provide direct strategic advantage to business enterprises.

It was shown that business intelligence ( $p = 0.019 < 0.05$ ); an indication of significant link. This agrees with Turban et al. (2011) who showed that the use of BI improved speed and accuracy of reporting, enhanced customer service, increased revenue, and improved business efficiency and productivity. Similarly, Radonic and Curko (2007) concluded that BI has a positive boost towards customer well-being on satisfaction in the financial industry in that it helps in comprehensive analysis about customers' behaviour to so as to offer quality services.

The study found out that Re-Engineering Strategy ( $p = 0.000 < 0.05$ ) an indication of significant influence. This agrees with Ya-Ching et al. (2009) who established that ICT adoption by businesses trigger changes on business processes which have an effect on workforce and business structure.

## 4.5 Hypotheses Testing

Table 4.14 presents the findings on the hypotheses and how they were tested.

**Table 4.14: Hypotheses Testing**

Hypotheses	p-value	Remark
<p><b>H<sub>01</sub></b>: IT-business alignment has no significant effect on competitive advantage of commercial banks in Nairobi county</p> <p><b>H<sub>A1</sub></b>: IT-business alignment has a significant effect on competitive advantage of commercial banks in Nairobi county.</p>	.000	p<0.05 hence reject null hypothesis in favour of the alternative hypothesis.
<p><b>H<sub>02</sub></b>: IT-driven innovation has no significant effect competitive advantage of commercial banks in Nairobi county.</p> <p><b>H<sub>A2</sub></b>: IT-driven innovation has a significant effect competitive advantage of commercial banks in Nairobi county.</p>	.002	p<0.05 hence reject null hypothesis in favour of the alternative hypothesis.
<p><b>H<sub>03</sub></b>: Business intelligence has no significant effect on competitive advantage of commercial banks in Nairobi county.</p> <p><b>H<sub>A3</sub></b>: Business intelligence has a significant effect on competitive advantage of commercial banks in Nairobi county.</p>	.019	p<0.05 hence reject null hypothesis in favour of the alternative hypothesis.
<p><b>H<sub>04</sub></b>: IT-business process re-engineering has no significant effect competitive advantage of commercial banks in Nairobi county.</p> <p><b>H<sub>A4</sub></b>: IT-business process re-engineering has a significant effect competitive advantage of commercial banks in Nairobi county.</p>	.000	p<0.05 hence reject null hypothesis in favour of the alternative hypothesis.

Thus, all the null hypotheses are rejected in favour of the alternative hypotheses.

Therefore, the study wraps up that IT-business alignment and competitive advantage are significantly linked. In essence, changes in IT-business alignment (independent variable) were associated with changes in the dependent variable which is competitive advantage. IT-driven innovation and competitive positioning are related in significant

terms. This meant that there was an correlation between changes in IT-driven innovation (independent variable) and shifts in competitive advantage of the firm.

Business intelligence has significant effect on competitive advantage of commercial banks in Nairobi county. This meant that there was a correlation between business intelligence and competitive positioning where a change in business intelligence variable would lead to improvement in competitive positioning. IT-business process re-engineering has significant effect on competitive advantage of commercial banks in Nairobi county. In essence, changes in IT-business process re-engineering (independent variable) would cause a shift in competitive advantage (dependent variable) of commercial banks in Nairobi county.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

The analyzed findings of the study are summarized as per the objectives. The chapter also covers the conclusion based on the findings. The recommendations are provided to inform policy as well as practice.

#### 5.2 Summary of the Findings

Broadly, the study focused on establishing how strategies of information communication and Technology impact on the competitiveness thrust of commercial banks in Nairobi county. Specifically, the focus of the study was on aligning IT with business, use of innovation driven by IT, application of business intelligence and utilization of business process re-engineering and their influence on competitive advantage.

#### **IT-Business Alignment Strategy and Competitive Advantage.**

The study was guided by the following null hypothesis; **H<sub>01</sub>**: IT-business alignment has no significant effect on competitive advantage of commercial banks in Nairobi county. From the findings, the p-value was .000 hence  $p < 0.05$ , hence rejection of the hypothesis. Correlation analysis shows that IT-Business alignment had a strong negative Pearson correlation ( $r = -0.512$ ) with competitive advantage and regression coefficient of  $-0.297$  established that the variable significantly influenced competitive advantage. From descriptive statistics, although ICT strategy has promoted knowledge management in the

bank (M=4.26, SD=0.478), ICT strategy has however not significantly promoted development of innovative financial services in our Bank (M=3.06, SD=1.19).

#### **IT-Driven Innovation Strategy and Competitive Advantage.**

The study was guided by the following hypothesis; **H<sub>02</sub>**: IT-driven innovation has no significant effect competitive advantage of commercial banks in Nairobi county. From the findings, the p-value was .002 hence  $p < 0.05$ , thus the null hypothesis is rejected in favor of the alternative hypotheses; **H<sub>A2</sub>**: IT-driven innovation has a significant effect on competitive advantage of commercial banks in Nairobi county. In summary, in as much as IT innovation strategy is communicated through different channels (M=4.18, SD=0.808), the ICT in the organization has however not significantly facilitated improvement on current products/service features (M=3.30, SD=1.01). The study further established that correlation analysis asserts that IT innovation strategy had a moderate negative correlation ( $r = -0.425$ ) with competitive advantage. The regression analysis (coefficient = -0.308) indicate that IT innovation strategy and competitive advantage are significantly linked.

#### **Business Intelligence Strategy and Competitive Advantage.**

This objective was informed by the following null hypothesis; **H<sub>03</sub>**: Business intelligence has no significant effect on competitive advantage of commercial banks in Nairobi county. The findings indicated that the p-value was .019 hence  $p < 0.05$ , thus the null hypothesis is rejected in favor of the alternative hypotheses; **H<sub>A3</sub>**: Business intelligence has a significant effect on competitive advantage of commercial banks in Nairobi county. In summary, in as much as the organization's business intelligence systems has improved intra-departmental data and information sharing (M=4.27, SD=0.977), the

organization however did not significantly use ICT to collect business intelligence from the market (M=3.45, SD=0.616). The study further established Business Intelligence Strategy had a weak positive Pearson correlation ( $r = 0.048$ ) an indication that the variable had a moderate relationship with competitive advantage. The findings of regression analysis (coefficient = 0.240) established that business intelligence had a significant influence on competitive advantage.

#### **IT-Business Process Re-engineering Strategy and Competitive Advantage.**

The following null hypothesis informed the study; **H<sub>04</sub>**: IT-business process re-engineering has no significant effect competitive advantage of commercial banks in Nairobi county. It was established that the p-value was .000 hence  $p < 0.05$ , hence rejection of the hypothesis. In a nutshell, although IT-enabled Business process reengineering has brought about better customer service in our organization (M=4.09, SD=0.804), only few banks have reengineered their business processes for competitive advantage (M=3.51, SD=1.17). Most respondents agreed that commercial banks had reengineered their business processes for competitive advantage and that IT-enabled Business process reengineering had brought about increased revenue in respondents commercial banks. The study further established that IT-enabled Business process reengineering is strongly and positively correlated with competitive advantage ( $r = 0.680$ ) with the competitive advantage. The findings of regression analysis (coefficient = 0.849) show that IT-enabled Business process reengineering had a significant influence on competitive advantage.

### **5.3 Conclusion**

Based on the findings of the study the conclusions are as follows:



### **IT-Business Alignment Strategy and Competitive Advantage**

IT-business alignment and competitive advantage are significantly and substantially related, this was attributed to the following; ICT strategies were developed with employee competence in mind, all ICT strategies were aimed to support the overall organizations goals and ICT strategy in respondent's organization had promoted innovations. Commercial banks knowledge management was promoted by ICT strategy embracement, ICT strategy had promoted human resource response to business strategy and commercial banks recognized ICT related opportunities that supported business strategy. Commercial banks anticipated strategic importance of future technologies and respondents further agreed that ICT strategy had promoted knowledge transfer in the Bank.

### **IT-Driven Innovation Strategy and Competitive Advantage**

IT-driven innovation and competitive advantage are significantly related; this was attributed to; IT innovation strategy provided room for persuasions of new clients to the organization, ICT assisted in creation of new electronic markets and IT innovation strategy allowed for timely commercialization of innovations. IT innovation strategy was communicated through different channels in the bank, respondents agreed that IT innovation strategy focused on meeting the changing customer needs, ensured consistency in systems and facilitated creation of new applications that provided direct strategic advantage. ICT facilitated faster creation of solutions in response to dynamic customer needs and IT innovation strategy provided better options to existing systems, focused on improving internal efficiency and facilitated improvement on current products/service features.

### **Business Intelligence Strategy and Competitive Advantage**

There exists a significant connection between business intelligence and competitive advantage. This was due to the following factors; commercial banks business intelligence systems had improved intra-departmental data and information sharing and commercial banks used ICT to bring about effective data warehouses. Business intelligence systems had enhanced accuracy on strategic reporting, commercial banks business intelligence systems had improved speed and accuracy of strategic decision making. Commercial banks used ICT to collect business intelligence from the market and business intelligence systems had enhanced speed of real-time strategic monitoring of business processes. The study further established Business Intelligence Strategy had a weak positive Pearson correlation an indication that the variable had a weak relationship with competitive advantage. The findings of regression analysis established that business intelligence had a significant influence on competitive advantage.

### **IT-Business Process Re-engineering Strategy and Competitive Advantage**

IT-business process re-engineering has a significant effect competitive advantage. This was attributed to the following; commercial banks had introduced new device as a way of organizing tasks through ICT strategy and had improved efficiency through business process reengineering. IT-enabled Business process reengineering had brought about better customer service in commercial banks, commercial banks had eliminated wastages through business process reengineering and IT-enabled Business process reengineering had brought about cost saving in commercial banks. Commercial banks had reengineered its business processes for competitive advantage and IT-enabled

Business process reengineering had brought about increased revenue in respondents commercial banks.

#### **5.4 Recommendations**

The following are the study recommendations:

##### **IT-Business Alignment Strategy and Competitive Advantage**

The study recommends that commercial banks knowledge management ought to be promoted by ICT strategy embracement, ICT strategy ought to promote human resource response to business strategy and commercial banks ought to recognize ICT related opportunities that supported business strategy. Commercial banks ought to change objectives of ICT to align them with the changing business objectives, ICT strategy ought to result in new information to align the bank competitively, and commercial banks ought to modify technology to conform to strategic change and ICT strategy ought to facilitate creation of new market segments in commercial banks. ICT strategies need to be developed with employee competence in mind, all ICT strategies need to be aimed to support the overall organizations goals and ICT strategy in commercial banks ought to promote innovations. Commercial banks ought to anticipate strategic importance of future technologies and ICT strategy ought to promote knowledge transfer in the Bank.

##### **IT-Driven Innovation Strategy and Competitive Advantage**

The study recommends that IT innovation strategy ought to provide room for persuasions of new clients to the organization, ICT ought to assist in creation of new electronic markets and IT innovation strategy ought to allow for timely commercialization of innovations. ICT ought to facilitate faster creation of solutions in response to dynamic customer needs, IT innovation strategy ought to provide better

options to existing systems, focus on improving internal efficiency and facilitate improvement on current products/service features. IT innovation strategy ought to be communicated through different channels in the bank, IT innovation strategy ought to focus on meeting the changing customer needs, ensure consistency in systems and facilitate creation of new applications that provide direct strategic advantage.

### **Business Intelligence Strategy and Competitive Advantage**

The study recommends that commercial banks business intelligence systems ought to improve intra-departmental data and information sharing and commercial banks ought to use ICT to bring about effective data warehouses. The business intelligence systems ought to enhance accuracy on strategic reporting, commercial banks business intelligence systems ought to improve speed and accuracy of strategic decision making. Commercial banks ought to use ICT to collect business intelligence from the market and business intelligence systems ought to enhance speed of real-time strategic monitoring of business processes.

### **IT-Business Process Re-engineering Strategy and Competitive Advantage**

The study recommends that IT-enabled Business process reengineering ought to bring about better customer service in commercial banks, commercial banks ought to eliminate wastages through business process reengineering and IT-enabled Business process reengineering ought to bring about cost saving in commercial banks. Commercial banks ought to introduce new device as a way of organizing tasks through ICT strategy and improve efficiency through business process reengineering. Commercial banks need to reengineer their business processes for competitive

advantage and IT-enabled Business process reengineering ought to bring about increased revenue in commercial banks.

### **5.5 Suggestions for Further Studies**

The current study dealt with how strategies of information communication and technology helps firms to remain competitive. Studies are therefore recommended on other concepts like firm performance and growth. Furthermore, ICT strategy only explained 69.6% change in competitiveness; this has an implication that there are other factors with an influence on competitive advantage of the firm which future studies should focus on. In addition to primary sources of information, future studies should also incorporate secondary information.

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## APPENDICES

### APPENDIX I: INTRODUCTION LETTER

Dear Sir/Madam,

**RE: REQUEST FOR COLLECTION OF RESEARCH DATA**

The researcher is currently a student pursuing Masters of Business Administrations (MBA) at the Kenya Methodist University. The reasearch study is on the **“RELATIONSHIP BETWEEN ICT STRATEGY AND COMPETITIVE ADVANTAGE AMONG COMMERCIAL BANKS IN KENYA”**.

The researcher kindly requests for objectivity in responding to the questionnaire. The responses given in the questionnaire will be treated with utmost confidentiality and shall be solely used for the purpose of the study. Kindly support this study work by filling the few questions given in the questionnaire. It is hoped that, the findings obtained from this study will be useful to the commercial banks in Nairobi county.

I thank you in advance for your time and responses.

Yours Faithfully,

**George Benjamin Laiyan**

The Kenya Methodist University

## APPENDIX II: KEMU RESEARCH LETTER



### Kenya Methodist University

P.O. Box 267-60202  
Meru, Kenya  
Email: [info@kemu.ac.ke](mailto:info@kemu.ac.ke)

Tel: (+254-020) 2118423-7, 064-30301/31229  
Fax: (+254-064) 30162  
website: [www.kemu.ac.ke](http://www.kemu.ac.ke)

April 18 , 2018

Executive Secretary  
National Council for Science and Technology  
P.O Box 30623 – 00100  
**NAIROBI**

Dear Sir/ Madam,

**RE: GEORGE BENJAMIN LAIYAN – BUS-3-2518-2/2010**

This is to confirm that the above named is a bona fide student of Kenya Methodist University pursuing a Master of Business Administration.

George is undertaking a research study on “Relationship Between ICT Strategy and Competitive Advantage Among Commercial Banks in Kenya”. To successfully complete his research work, he requires relevant data in his area of study.

In this regard, we kindly request your office to issue him a research permit to enable him collect the data for his academic research work.

We thank you in advance for your cooperation.

Yours faithfully

Dr. Evangeline Gichunge  
Associate Dean, Research Development & Board of Postgraduate Studies

Nairobi Campus: Koinange Street, P.O. Box 45240-000100 Nairobi ~ Tel. +254-20-2118443/2248172/2247987/0725-751878. Fax +254-20-2248160. Email: [nairobicampus@kemu.ac.ke](mailto:nairobicampus@kemu.ac.ke)  
Nakuru Campus: Mache Plaza, 4th Floor. P.O. Box 3654-20100, Nakuru, Tel +254-51-2214456 Fax 051-2216446, Email: [nakurucampus@kemu.ac.ke](mailto:nakurucampus@kemu.ac.ke)  
Mombasa Campus: Former Oshwal Academy, P.O. Box 89983, Mombasa. Tel: +254-412495945/8, Fax 041-2495946. Email [mombasacampus@kemu.ac.ke](mailto:mombasacampus@kemu.ac.ke)  
Nyeri Campus: Sohan Plaza, 4th Floor. Tel: +254-61-2032904. Fax 254-61-2034100, Email. [nyericampus@kemu.ac.ke](mailto:nyericampus@kemu.ac.ke)

*The Future is Here!*

## APPENDIX III: NACOSTI RESEARCH LICENCE



### NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,  
2241349, 3310571, 2219420  
Fax: +254-20-318245, 318249  
Email: dg@nacosti.go.ke  
Website: www.nacosti.go.ke  
When replying please quote

NACOSTI, Upper Kabete  
Off Waiyaki Way  
P.O. Box 30623-00100  
NAIROBI-KENYA

Ref. No. **NACOSTI/P/19/59218/31708**

Date: **9<sup>th</sup> July 2019**


George Benjamin Laiyan  
Kenya Methodist University  
P.O. Box 267- 60200  
**MERU.**

#### **RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on "*Relationship between information and communication strategy and competitive advantage among commercial banks in Kenya.*" I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **5<sup>th</sup> July, 2020.**

You are advised to report to **the County Commissioner, and the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a **copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

  
**DR. MOSES RUGUTT, PhD, OGW.**  
**DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner  
Nairobi County.

The County Director of Education  
Nairobi County.

*National Commission for Science, Technology and Innovation is ISO9001:2008 Certified*



**APPENDIX IV: QUESTIONNAIRE**

**SECTION A: DEMOGRAPHIC INFORMATION**

1. Kindly indicate the name of the firm you are currently employed. (Optional)

\_\_\_\_\_

2. What is your position in the firm? \_\_\_\_\_

3. Is the firm a foreign or locally owned company: (Tick one)

Foreign owned [ ]

Locally Public owned [ ]

Locally Private owned [ ]

4. How long has the firm being in existence?

Less than 5 years [ ]

5 - 10 years [ ]

Over 10 years [ ]

**SECTION B: IT-BUSINESS ALIGNMENT STRATEGY**

5. This section contains statements regarding influence of IT-Business Alignment Strategy on Competitive Advantage among Commercial Banks in Nairobi county.

Kindly indicate your extent of agreement with a tick (√) or a cross-mark (x) using a scale of 1-5 where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree.

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Our organization changes objectives of ICT to align them with the changing business objectives.					
Our organization recognizes ICT related opportunities that support business strategy.					
Our organization modifies technology to conform to					

strategic change.					
Our organization anticipates strategic importance of future technologies.					
All our ICT strategies are support the overall organizations goals					
All our ICT strategies are developed with employee competence in mind.					
ICT strategy in our organization has promoted innovations					
ICT strategy has promoted development of innovative financial services in our Bank					
ICT strategy has facilitated creation of new market segments in our Bank					
ICT strategy has resulted in new information to align the bank competitively					
ICT strategy has promoted knowledge management in the bank					
ICT strategy has promoted knowledge sharing in the Bank					
ICT strategy has promoted knowledge transfer in the Bank					
ICT strategy has promoted human resource response to business strategy					

6. Overall how has IT-Business Alignment Strategy impacted on the Competitive Advantage of your bank among its competitors?

<b>Very Negatively</b>	<b>Negatively</b>	<b>Neutral</b>	<b>Positively</b>	<b>Very Positively</b>

**SECTION C: IT-DRIVEN INNOVATION STRATEGY**

7. This section contains statements regarding influence of IT-driven Innovation Strategy on Competitive Advantage among Commercial Banks in Nairobi county. Kindly indicate your extent of agreement with a tick (√) or a cross-mark

(x) using a scale of 1-5 where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree.

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
IT innovation strategy focuses on meeting the changing customer needs					
IT innovation strategy focuses on improving internal efficiency					
IT innovation strategy is communicated through different channels					
IT innovation strategy allows for timely commercialization of innovations					
IT innovation strategy provides room for persuasions					
IT innovation strategy ensures consistency in systems					
IT innovation strategy provides better options to existing systems					
ICT in our organization facilitates creation of new applications that provide direct strategic advantage.					
ICT in our organization facilitates improvement on current products/service features.					
ICT in our organization assists in creation of new electronic markets..					
ICT in our organization facilitates faster creation of solutions in response to dynamic customer needs.					

8. Overall how has IT-driven Innovation Strategy impacted on the Competitive Advantage of your bank among its competitors?

<b>Very Negatively</b>	<b>Negatively</b>	<b>Neutral</b>	<b>Positively</b>	<b>Very Positively</b>

**SECTION D: BUSINESS INTELLIGENCE STRATEGY**

9. This section contains statements regarding influence of Business Intelligence Strategy on Competitive Advantage among Commercial Banks in Nairobi county.

Kindly indicate your extent of agreement with a tick (√) or a cross-mark (x) using a scale of 1-5 where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree.

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Our organization uses ICT to collect business intelligence from the market					
Our organization uses ICT to bring about effective data warehouses					
Our organization’s business intelligence systems have enhanced accuracy on strategic reporting.					
Our organization’s business intelligence systems have improved speed and accuracy of strategic decision making.					
Our organization’s business intelligence systems have enhanced speed of real-time strategic monitoring of business processes.					
Our organization’s business intelligence systems have improved intra-departmental data and information sharing.					

10. Overall how has Business Intelligence Strategy impacted on the Competitive Advantage of your bank among its competitors?

<b>Very Negatively</b>	<b>Negatively</b>	<b>Neutral</b>	<b>Positively</b>	<b>Very Positively</b>

**SECTION E: IT-BUSINESS PROCESS RE-ENGINEERING STRATEGY**

11. This section contains statements regarding influence of the IT-Business Process Re-engineering Strategy on Competitive Advantage among Commercial Banks in

Nairobi county. Kindly indicate your extent of agreement with a tick (√) or a cross-mark (x) using a scale of 1-5 where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree.

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Our organization has reengineered its business processes for competitive advantage					
Our organization has eliminated wastages through business process re-engineering					
Our organization has improved efficiency through business process re-engineering					
Our organization has introduced devise new ways of organising tasks through ICT strategy					
IT-enabled Business process reengineering has brought about cost saving in our organization					
IT-enabled Business process reengineering has brought about better customer service in our organization					
IT-enabled Business process reengineering has brought about increased revenue in our organization					

12. Overall how has IT-Business Process Re-engineering Strategy impacted on the Competitive Advantage of your bank among its competitors?

<b>Very Negatively</b>	<b>Negatively</b>	<b>Neutral</b>	<b>Positively</b>	<b>Very Positively</b>

**SECTION F: COMPETITIVE ADVANTAGE**

13. This section contains statements regarding the influence of Competitive Advantage among Commercial Banks in Nairobi county. Kindly indicate your extent of agreement with a tick (√) or a cross-mark (x) using a scale of 1-5 where

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree.

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Competitive Advantage in our organization has improved profitability.					
Competitive Advantage in our organization has improved growth.					
Competitive Advantage in our organization has enabled creation of superior product/service value.					
Competitive Advantage in our organization has enabled customer service improvement					
Competitive Advantage in our organization has enhanced improvement in decision making.					

14. Overall what has been the impact of Competitive Advantage of your bank among its competitors?

<b>Very Negatively</b>	<b>Negatively</b>	<b>Neutral</b>	<b>Positively</b>	<b>Very Positively</b>

*Thank you for your time and effort in responding to these questions.*

**APPENDIX V: LIST OF COMMERCIAL BANKS IN KENYA**


	<b>Name</b>		<b>Name</b>
1.	African Banking Corporation Ltd.	23.	Giro Commercial Bank Ltd.
2.	Bank of Africa Kenya Ltd.	24.	Guardian Bank Ltd
3.	Bank of Baroda (K) Ltd.	25.	Gulf African Bank Limited
4.	Bank of India	26.	Habib Bank A.G Zurich
5.	Barclays Bank of Kenya Ltd.	27.	Habib Bank Ltd.
6.	CFC Stanbic Bank Ltd.	28.	Imperial Bank Ltd
7.	Chase Bank (K) Ltd.	29.	I and M Bank Ltd
8.	Commercial Bank of Africa Ltd.	30.	Jamii Bora Bank Limited.
9.	Consolidated Bank of Kenya Ltd.	31.	Kenya Commercial Bank Ltd
10.	Co-operative Bank of Kenya Ltd.	32.	K-Rep Bank Ltd
11.	Credit Bank Ltd	33.	Middle East Bank (K) Ltd
12.	Citibank N.A.	34.	National Bank of Kenya Ltd
13.	Development Bank of Kenya Ltd.	35.	NIC Bank Ltd
14.	Dubai Bank Kenya Ltd.	36.	Oriental Commercial Bank Ltd
15.	Ecobank Kenya Ltd	37.	Paramount Universal Bank Ltd
16.	Equatorial Commercial Bank Ltd.	38.	Prime Bank Ltd
17.	Equity Bank Ltd	39.	Standard Chartered Bank Kenya Ltd
18.	Family Bank Limited	40.	Trans-National Bank Ltd
19.	Fidelity Commercial Bank Ltd	41.	UBA Kenya Bank Limited
20.	Fina Bank Ltd	42.	Victoria Commercial Bank Ltd
21.	First community Bank Limited	43.	Housing Finance Ltd
22.	Diamond Trust Bank Kenya Ltd.		

**Source: (Central Bank of Kenya, 2015)**

**APPENDIX VI: JOURNAL PUBLICATION CERTIFICATE**

The Editorial Board Of  
**INTERNATIONAL ACADEMIC JOURNALS**  
Is hereby awarding this certificate to  
**George Benjamin Laiyan**  
In recognition of the publication of the paper titled  
**RELATIONSHIP BETWEEN INFORMATION, COMMUNICATION AND TECHNOLOGY  
STRATEGY AND COMPETITIVE ADVANTAGE AMONG COMMERCIAL BANKS IN  
NAIROBI COUNTY**  
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**Dr. Pramod Sharma**

  
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