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

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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 random sampling a subset of probability sampling 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.

Key Words: *information, communication, technology, strategy, competitive advantage, commercial banks, Nairobi County*

INTRODUCTION

The current business environment has become very dynamic and it undergoes rapid unpredictable changes as a result of improvements in technological innovation, increased awareness and demands from customers. The banking industry has found itself operating

inside this complex and competitive environment in which information communication and technology (ICT) is at the centre of it. Manangers cannot ignore ICT as it has been regarded as major element in enhancing sustainable competitive advantage, both locally and globally, through innovation development and business strategy alignment (Dewett and Jones, 2001).

The application of ICT strategies to banking services has become a subject of fundamental importance and concern as it has continued to change the way banks and their corporate relationships are organized worldwide and the variety of innovative devices available to improve the speed and quality of service delivery (Campbell, 2000). Furthermore, ICT has become a very useful and powerful instrument in driving development, supporting growth, promoting innovation, and enhancing competitiveness among commercial banks, it 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 managerial decision making and workgroup collaborations (Cooper and Schindler, 2003).

This quest for survival, global relevance, maintenance of existing market share and sustainable development has pushed commercial banks to continually find ways of coming up with new competitive strategies arising from exploitation of ICT resources and capabilities. Hence, this study endevoured to evaluate empirically how commercial banks have been effecting ICT strategy with the aim of gaining competitive advantage.

Information Communication and Technology (ICT) Strategy

According to Richie and Bridley (2005) ICT comprises of an assortment of digital technologies designed to collect, organize, analyze, store, process and share information. ICT is made up of infrastructure such as hardware, software, networks and media intended for collection, processing, transmission, storage and presentation of digital information in the form of text, images, voice and video (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 ignore ICT because they play a critical role in contemporary organization. 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 (Wendy, 1997; Chandler, 1998). Therefore, ICT strategy can be viewed as the technological framework and direction of a company's principles and priorities set within its strategic plan. 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 has become intertwined with the business firm in an

inextricable manner and when it is used in organizations intensively can result in longterm competitive advantages (Jorfi *et al*., 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 lead to achieving low cost, added value, speed, agility, and customer service (Daneshvar and Ramesh, 2010). Furthermore, Juma (2012) argues that ICT plays a critical role in the performance of core functions of financial firms as it directly affects how managers decide, how they plan and what products and services are offered in the banking industry.

Competitive Advantage

Competitive advantage is a strategy undertaken in the pursuit for a favourable competitive position in an industry with an objective to establish a profitable and sustainable position against the forces of competition in that industry (Porter, 2001). Competitive advantage is an organization's capability to perform in ways 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 capabilites to exploit external opportunities in order to create superior value for its customers and superior profits for itself (Kotler and Amstrong, 2009).

ICT plays a major role in enhancing competitive advantage by supporting the firm's strategic objectives which include the development 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 customers and suppliers, the threat of 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 used to create cost advantages by reducing the costs of internal business processes, customers and that of suppliers (Raynor and Michael, 2007).

Commercial Banks of Kenya

The financial sector in Kenya is regulated by the Central Bank of Kenya (CBK). The CBK is responsible for formulating and implementing monetary policies directed to lifting controls towards the management and equitable services while supporting the economic policy of the Government (CBK, 2015). The major players in the industry are the 43 commercial banks, eight representative offices of foreign banks, twelve Deposit-Taking Microfinance Institutions (DTMs), eighty Forex Bureaus, fifteen money remittances providers and three Credit Reference Bureaus (CRBs) (CBK, 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 necessiates 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 *et al*., 2008).

STATEMENT OF THE PROBLEM

Firms operate in a dynamic business environment which 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 changing consumer needs and wants. Financial organizations operating in this dynamic business environment 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. Past research studies leaning on adoption include a study by Mokaya (2012) on the adoption of ICT by small enterprises in Thika concludes that there is a low level of ICT adoption by small businesses as financial capacity of a business determines the adoption level. In addition, a study 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 *et al*. (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 catalyst in the ICT and performance relationship. Additionally, a study by Mwania 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 using bank turnover and profits as a measure of performance. However, adoption of ICT is not enough on its own as a source of enhancing business competitivenes. Business success is dependent on successful alignment of business and IT strategies and their corresponding infrastructure components. This alignment can in effect improve the overall performance of the banks'core functions through provision of clear and specific goals to both the ICT and business employees hence leading to integration of both entitities to achieve a common goal (Ritchie and Bridle, 2005). Furthermore, application of ICT by banks has helped enhance innovation that provide direct strategic advantage through introduction of new products and services, improvement of the existing ones and development of new efficient ways to produce them. This has been evident in the deployment of ICT based banking products and services such as automated teller machine (ATM), internet banking, mobile banking solutions, point of sale terminals, computerized financial accounting and reporting and human resources solution among others (Juma, 2012). In addition, increasing standards in automation, and technologies have led to improvements in ICT's business intelligence (BI) systems. 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 customers' behaviour to better satisfy their needs and provide better customer support hence enhancing competitiveness of a business (Radonic and Curko, 2007). Moreover, in order to survive in highly competitive business environments, companies have to continuously change their business processes. In the light of this, business process re-engineering (BPR) has often been employed, and ICT is a frequently utilized approach used to improve business processes. BPR generally involves learning how business processes currently operate, how to redesign these processes and how to implement the process changes with the view of eliminating wastage and redundancy and improve efficiency in order to gain competitiveness (Davenport, 1993). This competitive advantage arises due to increased employee and customer satisfaction, quality, and productivity while decreasing time to market and also improved decision making and management activities contribute to improved internal efficiency and functional effectiveness. In conclusion, the ICT strategy variables chosen by the study were IT-business Alignment, IT-driven innovation, business intelligence and IT-business process re-engineering. Hence, it is the aim of this study to explore empirically the correlation that exists between ICT strategy and competitive advantage of commercial banks in Nairobi County.

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.

RESEARCH OBJECTIVES

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

THEORETICAL REVIEW

Business-IT Alignment Theory

Alignment of IT strategy with business strategy has been ranked among the major issues facing business and IT executives today. Business-IT alignment is the degree to which the ICT mission, objectives, and plans support and are supported by the business mission, objective, and plans (Reich and Benbasat, 2000). According to Ward and Peppard (2002) business-IT alignment has been an important concern to the business community as it not only helps firms realize the potential benefits accrued from ICT investments but also improves business performance through aligning a firm's organizational and technological infrastructure.

Strategic alignment model (SAM) proposed by Henderson and Venkatraman (1999) is among the most well-known and widely used frameworks for describing business-IT strategic alignment. This framework is concerned with the inter-relationship between a firm's IT strategy and infrastructure and its strategic business objectives and infrastructure.

This model's main focus is on the business-IT alignment that is based on two levels of integration within a fourfold framework of the organization's business and IT strategy components and their corresponding administrative structures. The first level of integration, the strategic fit, addresses the need for a dynamic relationship between the organization's internal and external domains both in the area of business and IT (Henderson and Venkatraman, 1999).

The second level of integration, the functional integration, measures how the choices made in the area of business affect the objectives, governance and resources in the IT domain, and vice versa. In addition, the functional integration examines capability of IT to both shape and support business decisions and while emphasizing the importance of internal harmony between the requirements and expectations of business and IT capability (Henderson and Venkatraman, 1999).

In business-IT strategic alignment the IT function plays a critical role in the formulation and the shaping of strategies by ensuring that the focus is not just on organizational achievement but also on strategic achievement (Ward and Peppard, 2002). These achievements are realised through the coordination of activities across IT and non-IT domains within the organization in ways that are likely to improve business processes, create new services and improve decision-making processes and hence increase the business value of the firm. In essence, business-IT strategic alignment identifies that business success is dependent on continous and successful alignment of business and IT strategies and their corresponding infrastructure components. This theory supports the IT-Business Alignment strategy which if implemented can lead to a source of competitive advantage to a firm.

Diffusion of Innovation Theory

Diffusion of innovation theory is a popular model used to explain the adoption of information technologies (IT) and how IT innovations spread within a society (Rogers, 2003). According to this theory, innovation is an idea, process, or a technology that is perceived as new to individuals within a particular social system. Diffusion is the process by which the information about this innovation flows from one person to another over time within the social system.

Diffusion of innovation theory further highlights key attributes that influence successful spread of IT innovations. These attributes include relative advantage, compatibility, complexity, trialability, and observability. Relative advantage refers to the degree to which an innovation is perceived as better than the idea it supersedes. Compatibility is defined as the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. Complexity is described as the degree to which an innovation is perceived as difficult to understand and use. Trialability is identified as the degree to which an innovation may be experimented with on a limited basis. Finally, observability is the degree to which the results of an innovation are observable to others (Rogers, 2003).

IT innovations tend to diffuse more rapidly and extensively when they are perceived as being better than previous options (relative advantage) and consistent with the existing values, experiences and needs of potential adopters (compatibility), if they are easy to understand (complexity), testable via limited trials (trialability) and their results are visible (observability) (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 relevant to this study 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 customers can access banking 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 is 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).

Morever, 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.

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 and 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) defines business intelligence (BI) as a broad category of skills sets, processes, technologies, applications and practices used to improve enterprise operation effectiveness and support better decision making. BI is also defined by Kumari (2013) as the ability of the organization to bring together all its processes and capabilities, both human capacity and IT, and converting this into knowledge. Hence, BI facilitates in getting right information for the right people and the right time.

BI includes IT software applications that are primarily focused on reporting, querying, and analysis of organizational data residing in a firms' data warehouse in order to provide actionable information that organizations need in order to make enlightened decisions (Kumari, 2013). These data depositories contain components capable of monitoring time critical processes that allow for formulation of tactical and strategic decisions in line with the firm's strategy.

Currently, increasing standards, automation, and technologies have led to vast amounts of data becoming available. This involves taking the raw data and using software applications to create meaningful data sources in form of visualizations that each division can use to positively impact business. BI tools let business leaders sift through subsets of data and examine interrelated components that can help drive business and can also be used to look at the statistics of business processes including how they relate to one another. For instance, business owners can compare shipping times in different facilities to look at which processes and teams work most efficiently (Berson et al., 2002).

According to Cui *et al* (2007), BI is not just IT but it's a powerful new management approach that when done right, it can deliver knowledge, efficiency, better decisions, and profit to almost any firm that uses it. The complexity of today's financial environment requires a firm to be agile and proactive in relation to decision-making processes and this has led to adoption and integration of BI systems by commercial banks in their business processes.

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 tend to maximize profit 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 customers and still retain its old customers with value-added products (Cui *et al*, 2007).

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 and 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 satisfy their needs and provide better customer support hence enhancing competitiveness of a business. Furthermore, Moss and Atre (2003) view BI as one of the sources of competitive advantage for businesses, because operational data is turned into a business asset for strategic decision making. This theory supports the Business Intelligence strategy which if implemented can lead to a source of competitive advantage to a firm.

Business Process Re-engineering (BPR)

In order to survive in highly competitive business environments, companies have to continuously change their business processes. In the light of this, business process reengineering has often been employed, and ICT is a frequently utilized approach used to improve business processes. Business Processs Re-engineering (BPR) generally involves learning how business processes currently operate, how to redesign these processes and how to implement the process changes with the view of eliminating wastage and redundancy and improve efficiency in order to gain competitiveness (Davenport, 1993). According to Ya-Ching *et al*. (2011) BPR concerns with seeking to devise new ways of organising tasks and human resource, and redesigning IT systems so that the processes support the realization of the organisation's objectives.

Business process is simply described as a structured, measured set of activities designed to produce a specified output for a specific customer or 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 radical rather than incremental as it tries to avoid being trapped by the way things are currently done and this radical change is driven by rapid ICT innovation and increasingly intensive global competition. The radically re-visioned processes drive the shape 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 design is then implemented by IT specialists and change management experts to put the new processes in place throughout 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 work could be ignored and underestimation of the scope of the problem (Lee *et al*., 2009).

Lee *et al*. (2009) further adds that businesses that undertook major process change initiatives reported success in cost saving, quality breakthrough, better customer services, time reduction and revenue increases. BPR transforms a business from one based on functions, such as accounting, marketing and manufacturing, to one based on processes, such as order processing, cutting across the boundaries of departments (Margherita and Petti, 2010).

ICT plays a major role in BPR as it facilitates firms to gather and analyse information, develop strategic visions, find the best approach for process redesign and allow collaborative teamwork. Innovations in ICT are a major cause of BPR initiatives in that new technologies usually effect how an organisation does business and may require some organisational process restructure (Lee *et al*., 2009).

According to Sungau (2011), IT-enabled BPR improves organizational performance through restructuring of core services in the business processes therefore enhancing their 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. In conclusion, this theory supports the IT-BPR strategy which if implemented can become a source of competitive advantage to a firm.

EMPIRICAL REVIEW

Aligning IT with Business and Competitive Advantage

Several studies have been conducted on the effect of aligning IT with business on competitive advantage. For instance, Nyandoro (2014) on strategic alignment and competitive advantage of major beverage soft drink firms in Kenya sought to establish relationships between IT-business strategic alignment and competitive advantage. The study employed an exploratory research design and descriptive statistics for analysis. The study found that that there exist relationships between IT-business strategic alignment, and leadership, structure and process, service quality, values and beliefs, and sustainable competitive advantage. The study recommended that executives in the IT systems realm should share responsibility with senior executives in other fields, because strategic alignment has been proven to improve organizational performance.

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 help them achieve a competitive advantage in today's market place where competition has become intense and severe. The study adopted a case study research design and descriptive statistics for analysis. 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 adopted 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 positive impact on firm's performance. The analysis results revealed that alignment between IT and business was indeed important 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 sustainable competitive advantage of information and communication technology firms in Mombasa County, Kenya. The study adopted 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) on the role of innovation in building competitive advantage in horticultural processing and export companies in Nairobi Kenya sought to investigate the effects of IT incorporation in the business. The study adopted a survey research design and descriptive statistics for analysis. 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 study employed a descriptive research design and descriptive statistics for analysis. 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) carried out a research on the role of technological innovation capabilities in the competitive advantage of companies in the Campinas, Brazil. The study employed a case study research design and descriptive statistics for analysis. The findings revealed 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 critical factor for a company's success because if the use of certain raw materials tend to grow in the industry, the level of quality required of the products by customers grows more strongly and the only source of quality information is through it.

Application of Business Intelligence and Competitive Advantage

Research has been carried out on the effects of application of business intelligence on competitive advantage. For instance, Mukuche (2015) carried out a study on business intelligence and competitive advantage in insurance firms in Kenya. The study adopted a descriptive survey research design and descriptive statistics for analysis. The study found that business intelligence application in the organization led to a competitive advantage for the organizations but there were some challenges experienced in its application. The study recommended that more awareness should be created on the use of Business Intelligence (BI) systems in the insurance sector and that insurance firms in Kenya need to explore various ways they can leverage more on these systems.

Ongalo (2014) investigated on the effectiveness of business intelligence in strategic marketing using a case of Athi River Mining (ARM) Ltd. 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 study adopted a descriptive research design and descriptive statistics for analysis. The study found that ARM had adopted business intelligence 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) conducted a study on business intelligence and the performance of Kenya Power. The study acknowledged that organizations today are facing the challenge of managing intra-organizational information and monitoring a vast reservoir of information from the external environment. The study adopted a descriptive research design and descriptive statistics for analysis. The study found that Kenya Power had adopted business intelligence and 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. The study acknowledged that business Intelligence helps firms sustain and develop distinct competitive advantages by using the entire organization and its networks to develop actionable insights. A case study research design was adopted. The study found that telecommunication industry in Malaysia had adopted business intelligence for competitive advantages. The study concluded that organizations that practice good business intelligence governance with solid financial and moral support from upper management are likely to realize the dream 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

Several studies have been conducted on the effects of utilization of business process re-engineering on competitive advantage. Magutu (2017) investigated on business process reengineering for competitive advantage a case of Wringley Company Kenya. The study adopted an exploratory research design and descriptive statistics for analysis. 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 first understand the need for changing the organization and then ensure they adopt the key success factors for implementation of 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 study adopted a case study research design and descriptive analysis. 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 study adopted a descriptive research design and descriptive statistics for analysis. The findings revealed 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, A., Onwuchekwa, C and Nwoye, O. (2018) conducted an investigation on business process reengineering (BPR) and competitive advantage in a recessed economy a case of selected brewing firms in Anambra state, Nigeria. An exploratory research design was used and descriptive statistics adopted for analysis. 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. The study recommended that management of the focused firms should lead the change processes by example as this will motivate their followers to buy into the idea.

RESEARCH METHODOLOGY

Research Design

Research design is defined as the overall conception of the study including description of all concepts, variables and categories, the relational propositions and the methods of data collection and analyses (Mugenda and Mugenda, 2008). According to Kotler and Armstrong (2001) descriptive survey research design was best suited for gathering descriptive information; where the researcher wants to know about people‘s feelings, attitudes or preferences concerning one or more variables through direct query, hence determining the relationship between the independent and dependent variables. This study adopted descriptive survey research design to collect data from the target population. This research design was chosen because it was suitable for assessing opinions and trends from the respondents concerning the relationship between ICT strategy and competitive advantage among commercial banks in Nairobi County, Kenya. 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 extracted and comparison made for the purpose of clarification and provision on basis of making decisions.

Target Population

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

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 and Mugenda, 2008). The research study used purposive sampling technique in the selection of only the top-level management 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.

Data Collection Procedure

Data collection was carried out using questionnaires (Appendix II) 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 and 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 ensure 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 and Mugenda, 2008). To ensure validity of the research instrument, the researcher consulted experts in research methodology to make critism 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).

Methods of Data Analysis

Data analysis refers to the process of bringing order, structure and meaning to the information collected that involves the processes of editing, coding, classifying and tabulation of data for better and efficient analysis (Mugenda and 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 and 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 to test the hypotheses relevant for 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; ε - Coefficient of error term

After analysis of the input data, the output information was presented using charts, tables and cross tabulations.

RESEARCH RESULTS

The main purpose of the study was to determine how strategies of information communication and Technology impact on the competitive advantage of commercial banks in Nairobi county. The specific objectives of the study were to establish the effect of aligning IT with business on

competitive advantage of commercial banks in Nairobi county, to determine the effect of use of innovation driven by IT on competitive advantage of commercial banks in Nairobi county, to examine the effect of application of business intelligence on competitive advantage of commercial banks in Nairobi county and to assess the effect of utilization of business process re-engineering on competitive advantage of commercial banks in Nairobi county.

IT-Business Alignment Strategy and Competitive Advantage

The study was guided by the following null hypothesis; **H_{01}:** 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 $p<0.05$, thus the null hypothesis is rejected in favor of the alternative hypotheses; **H_{A1}:** IT-business alignment has a significant effect on competitive advantage of commercial banks in Nairobi county. From descriptive statistics, although ICT strategy has promoted knowledge management in the bank (M=4.26), ICT strategy has however not significantly promoted development of innovative financial services in our Bank (M=3.06).

The study etablished that 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. Respondents agreed that 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.

The study further established that commercial banks had changed objectives of ICT to align them with the changing business objectives, ICT strategy had resulted in new information to align the bank competitively, commercial banks modified technology to conform to strategic change and ICT strategy had facilitated creation of new market segments in commercial banks. The study further shows that ICT strategy had promoted knowledge sharing in the Bank and ICT strategy had promoted development of innovative financial services in our Bank. 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.

IT-Driven Innovation Strategy and Competitive Advantage

The study was guided by the following hypothesis; **H_{02}:** 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_{A2}:** 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), the ICT in the organization has however not significantly facilitated improvement on current products/service features (M=3.30).

The study established that respondents agreed that 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. 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.

The study further found out that majority of the respondents agreed that ICT facilitated faster creation of solutions in response to dynamic customer needs, majority of the respondents moderately agreed that IT innovation strategy provided better options to existing systems, focused on improving internal efficiency and facilitated improvement on current products/service features. The study further established that correlation analysis asserts that IT innovation strategy had a moderate negative correlation (r = -0.425) with competitive advantage. The findings of regression analysis (coefficient = -0.308) established that IT innovation strategy significantly influenced competitive advantage.

Business Intelligence Strategy and Competitive Advantage

This objective was informed by the following null hypothesis; **H_{03}:** 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_{A3}:** 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), the organization however did not significantly use ICT to collect business intelligence from the market (M=3.45).

The study established that majority of the respondents agreed that commercial banks business intelligence systems had improved intra-departmental data and information sharing and respondents agreed that commercial banks used ICT to bring about effective data warehouses. The study further found out that respondents agreed that business intelligence systems had enhanced accuracy on strategic reporting; respondents agreed that their commercial banks business intelligence systems had improved speed and accuracy of strategic decision making.
The study further established that respondnets moderately agreed that commercial banks used ICT to collect business intelligence from the market and respondents moderately agreed that 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 (r = 0.048) an indication that the variable had a weak relationship with

competitive advantage. The findings of regression analysis (coefficient = 0.240) established that business inteligence had a significant influence on competive advantage.

IT-Business Process Re-engineering Strategy and Competitive Advantage

The following null hypothesis informed the study; **H_{04}:** 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 $p<0.05$, thus the null hypothesis is rejected in favor of the alternative hypotheses; **H_{A4}:** IT-business process re-engineering has a significant effect competitive advantage of commercial banks in Nairobi county. In a nutshell, although IT-enabled Business process reengineering has brought about better customer service in our organization (M=4.09), only few banks have reengineered their business processes for competitive advantage (M=3.51).

The study established that respondents agreed that 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. Majority of the respondents agreed that commercial banks had introduced new devices as a way of organizing tasks through ICT strategy and had improved efficiency through business process reengineering.

The study further established that majority of the respondents agreed that commercial banks had reengineered its business processes for competitive advantage and majority of the respondents moderately agreed 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 had a strong positive correlation (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.

INFERENTIAL STATISTICS

The study carried out correlation and multiple linear regression to determine how strategies of information communication and Technology impact on the competitive advantage of commercial banks in Nairobi county.

Correlation Analysis

The study carried out correlation analysis to establish the relationship between strategies of information communication and Technology impact on the competitive advantage of commercial banks in Nairobi county. The findings are as shown in Table 1.

Table 1: Correlation Analysis

		Competitive Advantage	IT-Business Alignment	IT-Innovation Strategies	Business Intelligence	IT-Business Re-Engineering
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		
	Sig. (2-tailed)	.790	.395	.075		
	N	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 findings of correlation analysis are established in Table 4.10. Huber (2004) held that in the interpretation of results for the linear relationships in the study, for a weak correlation, "r" ranges from ±0.10 to ±0.29; in a moderate correlation, "r" ranges between ±0.30 and ±0.49; while in a strong correlation, "r" ranges from ±0.5 and ±0.9.

The study established that IT-business alignment had a Pearson correlation of -0.512 an indication of a negative strong correlation with competitive advantage. IT-innovation strategies had a Pearson correlation of -0.425 an indication of a negative moderate correlation with competitive advantage. Business intelligence had a Pearson correlation of 0.048 an indication of a weak correlation with comptitive advantage. The study further established that IT-business re-engeenering had a Pearson correlation of 0.680 an indication of a strong correlation with competitve advantage.

The findings in Table 1 show that IT-business re-engeenering had the strongest correlation with competitive advantage, followed by IT-Business alignment strategy, IT-driven innovation strategy and business intelligence strategy consequetively.

Regression Analysis

The study carried regression analysis to establish the effect of strategies of information communication and Technology impact on the competitive advantage of commercial banks in Nairobi county. The findings of Model Summary, ANOVA and Regression Coeffients are as shown below. The findings of coefficient of correlation R and coefficient of determination R^2 is as shown in Table 2.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.857[a]	.734	.696	2.06772

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

The findings show that coefficient of correlation R was 0.857 an indication of strong positive correlation between the variables. The adjusted coefficient of determination R^2 was 0.696 which translates to 69.6%, this shows that changes in dependent variable competitive advantage can be explained by the following independent variables; IT-Business Alignment Strategy, IT-driven Innovation Strategy, Business Intelligence Strategy and IT-Business Process Re-engineering Strategy. The remaining 30.4% can be explained by other factors affecting the current studies that were not involved in the study.

An ANOVA was carried out at 95% level of significance, the findings comparison between $F_{Calculated}$ and $F_{Critical}$ were as shown in Table 3.

Table 3: ANOVA

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

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

The study established that $F_{Calculated}$ was 19.355 and $F_{Critical}$ was 2.714, therefore $F_{Calculated} > F_{Critical}$ (19.355>2.714) an indication that the overall regression was significant for the study. The probability value was 0.00<0.05 an indication that at least one independent variable significantly influenced the competitive advantage of commercial bank among its competitors.

The study carried regression coefficients in order to establish the individual influence of the variables on competitive advantage of commercial banks. the findings are as shown in Table 4.

Table 4: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(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:

$$\mathbf{Y = 19.613 - 0.297(X_1) – 0.308(X_2) + 0.240(X_3) + 0.849(X_4)}$$

Where: Y – Competitive Advantage; X_1 – IT-Business Alignment; X_2 – IT-driven Innovation; X_3 – Business Intelligence; X_4 – IT-Business Process Re-engineering

The findings established that holding other factors constant, competitive advantage of commercial banks would be at 19.613. A unit increase in IT-Business Alignment holding other factors constant, would cause a mean decrease of 0.297 in competitive advantage of commercial banks. A unit increase in IT-Driven innovation while holding other factors constant, would make competitive advantage of commercial banks to decrease by a mean of 0.308. A unit increase in business intelligence while holding other factors constant, would cause an mean increase of 0.240 in competitive advantage of commercial banks. A unit increase in Re-engineering Strategy while holding other factors constant, would create a mean increase of 0.849 in competitive advantage of commercial banks.

The findings pointed out 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 their business strategy and ICT strategy 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; resulting in job creation, revenue generation and overall country competitiveness.

The findings pointed out 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 esatablished 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.

The study established that Business Intelligence had a p value of 0.019<0.05 an indication that the variable significantly influenced competitive of commercial banks. This agree 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 impact on customer satisfaction in the financial industry in that it helps in comprehensive analysis about customers' behaviour to better satisfy their needs and provide better customer support to achieve competitive advantage.

The study found out that Re-Engineering Strategy had a p value of 0.000<0.05 an indication that the variable significantly influenced competitive of commercial banks. This agrees with a study by Sungau (2011) established that IT-enabled BPR had a positive impact in improving organizational performance through restructuring of core services in the production processes therefore enhancing their efficiency and effectiveness. Similarly, Ya-Ching *et al.,* (2009) eatbalished that ICT adoption by businesses trigger changes on business processes which have an effect on workforce and business structure.

CONCLUSION

IT-Business Alignment Strategy and Competitive Advantage

IT-Business Alignment Strategy significantly influenced competitive advantage; 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 innovation strategy significantly influenced competitive advantage. 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

Business intelligence strategy significantly influenced competitive advantage. The was due to the following factors; comercial 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 inteligence had a significant influence on competive asdvantage.

IT-Business Process Re-engineering Strategy and Competitive Advantage

IT-enabled Business process reengineering significantly influenced competitive advantage. This was attributed to the following; commercial banks had introduced new devise 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.

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 comercial 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 devise 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.

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