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Effect of Knowledge Management Strategies on Competitive Performance of Large Manufacturing Firms in Kenya

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Abstract

This study was carried out to examine the effect of knowledge management strategies on performance of large manufacturing firms in Kenya. The objectives of this study were therefore to examine the effect of human resource management strategy, orgarnizational processes strategy and technology management strategy on competitive performance for large manufacturing firms in Kenya. The study used a descriptive research design. The target population was 34 manufacturing firms in Kenya. Purposive sampling was used to select 102 managerial participants from the selected firms. A semi structured questionnaire was used to collect data. Pilot study was done to evaluate the validity and reliability of the research instruments through content validity and Cronbach's alpha technique respectively. Data was analyzed using qualitative and quantitative techniques. A multiple regression model was used to test the relationship between the study variables. The study hypothesis was tested at 95% level of significance. The study findings indicated that knowledge acquisition strategy has a positive and significant effect on competitive performance of manufacturing firms in Kenya (Beta = .293, Sig = .030, < .05) ; HR management strategy has a positive and significant effect on competitive performance of manufacturing firms in Kenya (Beta = .299, Sig = .006, < .05) ; innovation technology management as a strategy has a positive and significant effect on competitive performance of manufacturing firms in Kenya (Beta = .343, Sig = .001, < .05) and organizational processes strategy has a positive but not significant effect on competitive performance of manufacturing firms in Kenya (Beta = .158, Sig = .389, > .05). It was recommended that to enhance their competitive performance, manufacturing firms need to improve knowledge management strategies by investing more in knowledge acquisition practices as well as innovation technology management practices and also improving their HR management strategies as well as organizational processes strategies.

Key Words: *Human Resource Management Strategy, Orgarnizational Processes Strategy, Technology Management Strategy, Competitive Performance, Large Manufacturing Firms In Kenya*

Introduction

Knowledge based economies have today placed importance on effective management of human capital to ensure that workers continue to create the right value in the economy (Olubumni, 2015). Olubumni notes that gross domestic product (GDP) growth is nowadays determined by among other factors the quality of knowledge stock harnessed and applied in the production sectors of the economy. This perhaps explains why knowledge management good practices have thus been considered important in improving organizational effectiveness. Thomas (2014) defines knowledge as information combined with understanding and capability. Knowledge provides a blend of experience, insight, expertise, intuition and judgment that exist in someone mind.

Knowledge management on the other hand according to Omototayo, (2015) is the practice of creating, aquiring, capturing, sharing and using knowledge to enhance learning performance in an orgarnization. Orgarnizations can make knowledge management part of their institutions by having knowledge acquisition activities that faciliate continous acquisition of knowledge (Meyer and Rowan, 1977).

According to Decarolis and Deeds, (1999), knowledge has been considered a fundamental strategic resource for enhancing an orgarnizations competitiveness due to its rarity, preciousness and complicated to replicate. These authors further add that knowledge provides a level of predictability usually stemming from the recognition of patterns. Research evidence has identified various knowledge management strategies in manufacturing firms that will be used as study variables in this study in a bid to evaluate knowledge management strategy and competitive performance in manufacturing firms. These strategies are discussed in the following subsection.

Firms Competitive Performance

Any improvement in an organization cannot occur unless there is a way of getting feedback. For organizations, its work unit performance is the relationship between decisions and organizational goals. According to John Hagel, (2010) performance measures in a firm can be grouped into two based on the results (outputs, or outcomes such as competitiveness or financial performance), those that focus ion determinants of the results (inputs, such as quality, flexibility, resource utilization and innovation). Performance measurement as per Hagel, is thus build around the concepts of results and determinants.

According to Godrick, (2016) measures of firm performance embrace fie fundamental but interlinking areas that include; profitability, output in put relationships, customer emphasis, innovation and adaption to change, as well as human resources. This measures of performance in this study will constitute firms competitiveness.According to Porter (1990), the competitiveness of a firm has been defined in several ways. This includes (1) the ability of a firm to successfully compete in a given business environment, (2) ability of a firm to do better than benchmark companies in terms of profitability, sales or market share. In the same way, Buckley, Pass and Prescott,consider competitiveness to be synonymous with a firms long – run profit performance,it's ability to compensate employees and generate superior returns for shareholders. Competitiveness in manufacturing sector is thus denots the ability of a firm to consistently supply goods in the market in relation to other firms. This study is of the view that this ability is affected by the extent to which a firm puts her knowledge management strategy in place.

Knowledge Management Strategies

Various knowledge management strategies used in manufacturing industry and focused by this study include; Codification, personalization, target costing and IT infrastructure. Codification strategy according to Greiner (2007), seeks to obtain and store knowledge in explicit form to used, transferred or shared by employees. In order to implement codification strategy, Kuo, (2009) firms should have information technology (IT) database or electronic repository search engines, and intelligent filters that support implementation of codification strategy. Personalization strategy links people to communicate with each other and share tacit or explicit form of knowledge across the organization.

Unlike codification strategy Jasimuddin (2007) indicates that the strategy requires moderate to low degree of usage if IT infrstructure for sharing and communication of tacit knowledge. Target costing system (TCS) is a cross departmental strategy used in manaufacturing firms to realize personalization strategy. It is applied during the development and design stages of a product. Functional managers responsible for product development influence the activities of the fuctional managers in the subsequent and and preceding stages (Garesh, 2011). This anables them to achieve targets on costs and quality as well as timely introduction of new products in the market. Knowledge sharing in TCS is also exhibited during product planning and cost meetings that promote interactions among functional managers or members of various departments, these interactions enable members of many departments to share knowledge and values. While, knowledge management strategies provide reliable approaches through which manufacturing firms can management their knowledge, it is perhaps the effectiveness of these strategies that may affect the overall competiveness of a firm, a relationship that is hardly evaluated from previous research and that the current study seeks to establish.

Competitive Strategies

Competitive strategies are firm's way of completion in the market, and determines its relative position in its industry, whether its profitability is above or below industry average. Competitive strategies enable firms to attain long run sustainable competitive advantage which is a basis for above average profitability of a firm. According to Porter (2012) firms can attain two basic types of competitive advantage that is low cost or differentiation. These are attained through various competitive strategies identified as cost leadership, differentiation and focus strategies. Lynch (2012) defines differentiation as selection one or criteria used by buyers in the market and placing the business uniquely to meet that criterion.

This strategy as Porter, (2008) notes usually associated with a premium price for the product often to reflect higher production costs and extra- added features provided for the consumer. These authors thus agree that differentiation is about charging premium price that more than covers the additional production costs and about giving customers clear reasons to prefer the product over other less differentiated products.

Under cost leadership strategy, firms attempt to become the lowest cost producers in an industry. (Parnell, 2012). Many (perhaps all) market segments are supplied with the emphasis of minimizing costs and thus a firm focusing on this strategy place emphasis on cost reduction in every activity in the value chain. In differentiation focus strategy, a business aims to differentiate within just one or a small number of target market segments (Porter, 2008).

The special customer needs of the segment mean that there are opportunities to provide products that are clearly different from competitors who may be targeting a broad group of customers. Porter further notes important issue of businesses adopting this strategy is to ensure that customers really do have different needs and wants and thus there exists a valid basis for differentiation and the competitor products are not meeting those needs. Under cost focus strategy, businesses seek to lower cost advantage in just small number of market segments (Parnell, 2012). Kim et al (2015) indicated that in the cost focus strategy, the product will be basic and perhaps similar to product priced featured market leader, but acceptable to sufficient customers.

The foregoing discussion probably bring out well articulated processes and systems that manufacturing firms should adopt in order to acquire the ultimate goal of being competitive in the market. It is probably, firm's precision in managing how things are done, what skills are applied, what strategies should be adopted and what technological systems to be installed that produces the much needed value in terms of competitive performance. This level of precision calls for firms to cast their attention on knowledge management in the quest to find out the effective points within which it generates value for the firm.

Problem Statement

Kenya's manufacturing sector is increasing facing performance problems occasioned by increased sector regulation, compliance, production development and innovation. According to Kenya National Beareau of Statistics (KNBS) the sector recorded a 3.5% growth in 2014, and 2.3% growth in 2015, which on everage was lower than the economy which expanded by 5.6% in 2015. Manufacturing firms have to deal with the fast changing market and technological situation in order to maintain their performance, while cutting out their niche in industry through attaining competitive advantage. In order to attain some level of precision in execution of competitive strategies, that is low cost or differentialtion, knowledge management in the manufacturing sector is viewed as one of the ways in which attaining sustainable performance.

Deseouza (2011) views knowledge (KM) management as a highly priced asset in manufacturing firms. Klaus (2017), noted that many enterprises harvested knowledge management benefits in relation to employee performance with results showing improved financial results and innovation. Almatayo (2015), indicated that knowledge management has been widely recognized as a foundation of industrialized economy.In Martensson (2000),KM was deemed an important aspect of orgarnizations survival and competive keenness. Martensson underscored the importance of managers and executives to consider KM as an important prerequisite for higher productivity, and flexibility in both private and public sectors.

While the importance of KM, cannot be underestimated, many companies, find the acquisition of KM benefits ellusive as the process has been related to several fundamental as well as specific problems, this in particular has been the case in manufacturing companies. According to Oltra (2013), most manufacturing firms have available knowledge that remains unused because it is not well structured, employees are unaware of the knowledge availability or lack training on how to use it their daily work. Garrido,(2010) adds that knowledge management strategies are more often than not, imposed top down particualry within the manufacturing industry with little reflection on the specific needs and problems. This puts a threat to sustainability of firms competitiveness.Given the nature of manaufacturing, continued availability of sustainable knowledge is perhaps one of the strategic measures that firms in the industry can take towards sustainable competiveness. This is particulary, the case for Kenya which has notably recorded a donward growth trend in her manufcturing sector (KNBS,2015). Despite this observations a review of the study background shows little evidence on studies carried out to examine the effect of knowledge management on sustained competitiveness for Kenya's manufacturing firms. It is therefore against this background that this study was carried out.

Objectives of the Study

i. To examine the effect of knowledge acquisition strategy on competitive performance of large manufacturing firms in Kenya
ii. To examine the effect human resource practices strategy on competitive performance of large manufacturing firms in Kenya
iii. To evaluate the effect of organizational processes strategy on competitive performance of large manufacturing firms in Kenya
iv. To find out how innovation technology management strategy affect competitive performance for large manufacturing firms in Kenya

Theoretical Review

Knowledge Based View

Knowledge based theory of the firm is premised on the view that knowledge is the most strategic and significant resource of a firm, knowledge based resources are difficult to imitate and are socially complex, heterogeneous knowledge bases and capabilities are therefore crucial determinants of sustained competitive advantage and superior firm performance. Knowledge is carried through multiple entities, including organizational culture and identity, routines, policies, documents, systems, and employees.

Knowledge management strategy requires that organization identify and mine key knowledge sources within itself and ensure the same knowledge circulates within the and is well applied to constitute competitive advantage. The theory is thus critical marking of key strategies that an organization will need to adopt in in the quest to sustain their competitiveness. The change from material – based production to information-based production has created a reevaluation of firm worker.

As a result, knowledge workers are at the core of organizational functions, while other workers are at firm's periphery (McGrath, 2002). In order to act with efficacy in today's economy, it has become imperative for firms to become knowledge organizations. Knowledge based view perspective therefore, become consistent with organizations culture according to Jenkins, 2003). Putting in mind that organizations are conceptualized as cultures, they are supposed to learn through the activities they are involved in, a process that allows them to acquire, to change and to preserve organizational capabilities.

Resource Based View

Resource based view is a managerial framework that is used to determine the strategic resources, with the potential to deliver comparative advantage to a firm. These resources are exploited by a firm in order to maintain competitive advantage. Resource based view focusses attention on organizations internal resources as means of organizing processes and obtaining competitive advantage.

According to Barney (2011), resources hold potential as sources of sustainable competitive advantage, because they are valuable, are and imperfectly imitable and not substitutable. Resource based view thus focusses attention on organizations internal resources as a means of organizing processes. The theory suggests that organizations must develop unique, firm specific core competences that will allow them to outperform competitors by doing things differently. While there are many areas that could be considered resourceful to organizations, key among these firm resources, financial, legal, organizational, informational and relational resources that the process of knowledge management seeks to acquire for the sake of firm's competitiveness.

Previous studies underscore knowledge as a key resource in achievement of a firm's sustainable competitive advantage. Resource based view therefore offers strategies as means of evaluating potential factors that a firm can capitalize in to achieve competitive advantage. Sustaining of any competitive advantage depends on the extent to which resources, can be imitated or substituted. Resource based view requires that a firm selects a strategy or a competitive position that best exploits, the internal resources and capabilities of a firm relative to external opportunities. Knowledge management therefore becomes one of the key areas that can be analysed from the potential to provide competitive advantage to a firm. Though resource-based view of a firm recognizes the role of knowledge in firms, proponents of knowledge based view argue that resource based perspective treats knowledge as a generic resource, rather than having special characteristics, It does not distinguish between different types of knowledge based capabilities.

Empirical Review

Knowledge Acquisition strategy

Knowledge is an essential element in KM, without knowledge there would be no knowledge management. According to Baloh (2011), knowledge is a collection of information that could be embedded in theories, processes, systems, or voiced in form of opinions, ideas and analysis. While there has been different typologies developed about knowledge, there is overall consensus that knowledge is not just mere data and information Wang and Noe (2010, p 117) define knowledge as information processed by individuals including ideas, facts, expertise and judgement for individual team and organizational performance. The practical use of information and data to create value in

an organization is an essential element of knowledge. According to Ekundayo (2011), knowledge is the insights, understandings and practical know how that people possess, a fundamental resource that enables them to function intelligently. Organizations that realize the importance of knowledge as an intangible asset, place considerable efforts in acquisition of knowledge. Various studies have been carried out to examine the practice of knowledge acquisition as a component of knowledge management.

Knowledge acquisition according to Gamble & Blackwell, (2001) refers to knowledge that a firm gets form external sources. External knowledge sources are important as they provide a holistic view of value chain from firm's stakeholders such as suppliers, competitors, partners, customers and external experts. Studies have revealed that there are various ways in which knowledge is acquired in organizations. In Sarros, Cooper & Santora, (2008), innovation was viewed as one of fundamental organizational activities of acquiring knowledge. The study defined innovation as a method or process of introducing something new product or process or new ways in an organization. Sorros et al (2008) noted that organizations innovation in terms of developing new products and process was an important source of sustainable competitive advantage and superior performance.

It is important that manufacturing firms acquire especially tacit knowledge. According to Maurer (2010) knowledge acquisition can increase the success of research and development projects. In study focussing on the relationship between tacit knowledge acquisition and realization of research and development projects, survey data was obtained from 62 polish manufacturing companies from Lubuskie region and from 23 German manufacturing companies from Brandenburg region. The study finding indicated that implementation of knowledge acquisition and transfer methods in organizations led to improvement in realized project (Wangare et al, 2013). Knowledge storage was especially important in cases of merger and acquisitions by other companies, opening of nee of similar units, suspension of business, loss of possession due to natural disasters or political conflicts and many others.

In Gasik (2011), it was noted that regular knowledge acquisition prevented the occurrence of information gaps that could save a firm from the effects of a loss of key specialist. According to Tabaszewska (2008) collection and sharing of knowledge was found to facilitate achievement of business benefits, result mainly from reduction in process duration, few complaints, faster implementation of new knowledge workers, external consultation, training reduction time, optimal choice of technologies and material flows. In South Africa, an IEEE (2015) study established that manufacturing firms have only three things to compete for that is people, processes and technology. The study sought to develop a knowledge management framework that worked in manufacturing firms and identify activities that promoted knowledge creation, transfer and use. The study findings identified, research and development as activities crucial in acquisition of knowledge.

Knowledge acquisition in Kenya's manufacturing firms is a practice that has been given substantial research. According to Were, (2016) in a report analyzing Kenya's manufacturing sector identifiifed the inablity of Kenyan firms to attract highly skilled managers. This he explained is because the sector is too small and experience low skills as because of low managerial capacity. African Development Bank Group, (2014) indentified slow growth in Kenya's manufacturing sector because firms found it difficult to develop niche management expertise due to manufacturing different types of products. He noted that some firms choose to mobe into manufacture of new products instead of scaling up existing manufacturing knowledge. Evaluation the relative advantage of product diversification over developmment of knowledge, Klaus, (2018) underscores the important of developing managerial expertise among manafacturing firms. He explains that though diversisfication of a product may buffer firms performance in certain product market, spread of good may negatively affects a firms ability to develop niche managenent expertise.

From the aforementioned studies, it would be logical to conclude that knowledge aquistion is a critical elements in establishing an effective knowledge management strategy. How orgarnizations integrate the process of aquiring knowledge may as well determine the essence of the practice, obviously, an orgarnization will not embark on managing knowledge that has not been acquired. This study sought to examine how acquisition of knowledge in large manufacturing firms is carried out and how this translates to competive perforance of the firms.

Human Resource Management Strategy

People are second important component of knowledge management. They are sources organizational knowledge. Deseouza ,(2011) notes that competitive value of an orgarnization is obtained in the ability of her employees to think creatively and uniquely coupled with experiences and talents. In Dul,(2011) people are said to be creator and consumers of knowledge. As individual consume and create knowledge from various sources,human resource department begins to consider how to integrate them in the knowledge management strategy and implementation. As people face emerging knowledge needs as a result of daily assiggmet and routine, HR, practices provide an anabling environment in which orgarnizational tools, processes, systems and protocal are integrated to apply knowledge. Drucker (1999) indicated that workers need to be able to seek out knowledge, experiment with it and learn from it and also teach others how to promote new knowledge creation. All these process, encompass the peoples aspect of knowledge management.

Various studies have been carrioed out to examine human resource management practices incorporate knowledge managenent aspect in employees and how this in turn affects firms competitive advantage. In a study Chivu, (2008) indicated that the human resource management function has fundamentally changed from HRM as a bureaucratic management operation to development of HRM functions

over rhe past few decades. This integration has been done to support competive advantage and more strategic thrust for firms. In Kamhani (2012), it was establsihed that the resource based view of a firm require orgarnizations to combine distinctive, sustainable and superiour assets including source of knowledge and information with complementary competences in leadership and human resource management in order to fully realize the value of knowledge.

According to Koenig, (2013) human resource management issues in orgarnizations should be structured to promote knowledge creation and mobilization and how to develop a culture and set HRM policies and practices that harness knowledge and meet orgarnizational strategic objectives. In this context, Koenig, note that human resource management roles are those of human capital steward, knowedge facilitator, relationship builder and rapid deployment specialist.

The role of human resources in designing a workable formular that will accommodate knowledge managenent culture in an orgarnization can perhaps not be underestimated.In a conference on knowledge management and innovation in Macedonia, Aziri, (2013) established that human resource managenent dealt with design of formal systems in orgarnizations in order to ensure effective and efficient of talent in accomplishing orgarnizations goals. The report suggested that the management of human resources meant that indivudual must be recruited,compensated trained and developed.

Adding on to this observation, Wiklund, (2013) indicated that human resource management can contribute to knowledge management simply because knowledge is shared between people. The role of human resource managent therefore in this context is to ensure that the orgarnization's has intellectual capital it needs. This could be achieved through practices that ensure that they have a knowledge focus and reinforce orgrnizations overall knowledge development goals.

Internationally, human resource management strategies have been linked with orgarnizational performance in different perpectives. In Fey (2012) a study on human resource management practice and firm performance in Russia was carried out. The study objectives were accomplsiehd by developing and testing a model using HR outcomes (motivation, retention and development) as mediating variables between HRM practices and firm performance. The findings indicated that non technical training and high salaries had a positive imapct on HR ourcomes while job security was the most important predictor of HR outcomes for employees. Inferences from this studies reveal the role HR plays particulary in development and motivation of employees which on one way or another is linked to knowledge acquisition and consequently performance of a firm.

Locally, studies have also been done to examine the effect of human resoruce management practices and firm performance. Godrick (2016) did a study on human resource management practices and firm efficiency of consumer good manufacturing firms in Kenya. Based in resource based theory, the study conceptualized the independent and depended variables as HRM practices and firm efficiency respectively. A cross sectional survey of 65 firms was used. The results of the findings indicated a significant association between HRM practcies and firm efficiency. From this, study, one can note that HRM whose core task in an orgarnization is critical in determining the extent to which efficiency in an orgarnization is achieved. This may perhaps be an indicator of the importance of integrating HRM practice and knowledge management in orgarnizations as strategy for creating competitive advantage.

Agoi (2016) carried out a study to examine the influence of human resoruce management practices on employee satisfaction in sugar manufacturing firms in Western Kenya. The practices examined in this study included recruitment, reward management, training practices and talent management. The study was used a mixed research design. The study findings showed that training practices, rewarding managemet practices and talent management practices had positive and significance influence on employee satisfaction. The author underscored the importance of orgarnizations instituting processes for integrating different sources and types of knowledge in order to strengthen orgarnizational capability as well as mobilizing talented people for best opportunities.One important observation that can be infered from this study is the way recruitment, training and talent management practices affect employee satisfaction. It can be said, that human resource management practices not only benefit the orgarnization but also unleash the potential that there is for employees to release and share their knowledge fo greater orgarnizational goal.

Organizational process strategy

Processes is another component of knowledge management. According to Baloh, (2011), processes are mechanical and logical facts that guide how work is conducted in organizations. Process is critical to functioning of organizations since they govern work. Daud, (2010) notes that processes might be made of and executed by human, machines or a combination of the two. He notes that a critical requirement of knowledge managenent is the ability to understand work processes and how to map them, by doing that, inputs, outputs, personnel resources and maping of processes helps to depict what is really going on in the orgarnization and how tasks are being accomplished.

Knowledge necessary to accomplish tasks can be articulated and requisite technology or human intervention deployed to meet needs with the goal of increasing effectiveness and efficiency in the orgarnization. Various research efforts have been put towards examing the link between managing of orgarnizational processes and firms performance. In a study to examine the relationship among knowledge management structures, orgarnizational agility and firm performance, in Spanish companies, Juan, (2016) established that supporting effectiveness of a specific set and sequence of knowledge managenement processes affected the extent of performance in a firm.

In united State Robert, (2014) examined the effect of corporate culture on sustainability on multiple facets of corporate behaviorus and performance outcomes. The study used a sample of 180 companues.The results established that corporations that voluntariry adopted environmental and social policies many years ago were termed as highly sustainable companies, these firms exhibited a fundamnatlly different characteristic from a matched sample of firms that did not have a culture on how to do things. The study further established that the board of directors of highly sustainable companies were more likely to be responsible for sustainability and that to excutive incentives were more likely to be a function of sustainability metrics.

Sustaianble firms had orgarnizzed procedures for stakeholder engagement, were more long term oriented and exhibited more measurement and disclosure of non financial information. Further, the study provided evidence that highly sustainable companies significantly outperformed their counterparts over long term, both in terms of stock market and accounting performance. The out performance was stronger in sectors where customers were individual consumers instead of companies.

From this study, it can be infered that established the way a process is carried out is just but the work of all members of an orgarnization. In manaufacturing firms, processes, are not only composed of how products are made but also how all other stakeholders in an orgarnixation are engaged. A positive performance in a firms as result of managing process knowldles may be a major contribiuting factors towards orgarnizational competitive performance.

Studies from Asia countries indicate some level of focus on processes as part of knowledge management strategy. In a 10 country survey by Talisayan (2016), it was found that in india, ICT processes and support sytems were highly managed, with an availability of national knowledge management commision in place. In Korea, knowledge management was ebbeded in business processes of many companies. Singapore was found to be one the early adopter of national knowledge management strategy with applications done for both production processes and innovation. An impotant inference from this survey is how governments in Asian countries are involved in management of knowledge in firms processes. As a result of this practices, countries such as india, Singapore, Taiwan and Malaysia are referenced as leading in knowldele management which is believed to lead to sustainable competitiveness for their firms.

Kenya's manufacturing sector has had its share of challenges in knowledge management practices particulary on her processes, In Mosoti and Meshaka (2010) study to find out how knowledge management had been implemented, it was established that many orgarnizations experience a challenge on how to implement knowledge management culture. Sixtty five percent (65%) of the organizations examined indicated that they experienced significant resistance when implementing knowledge managenent practices. Processes play an important role in essuring product quality is maintained and therefore conistency in customer satisfaction. A challenge may howeever, exist if an orgarnization lacks the a structural framework that ensures processes that deliver excellent products are retained while poor quality processes are filtered out of an orgarnizations operations.

In Ogare and Otieno (2010) study, it was found that Kenyan firms have litte conversion of human capital (tacit) into structural capital (explicit knowledge) in delivery of veterinary services. The study recommended a need for orgarnizations to strive to convert human capital (Tacit knowledge into structural capital (explict knowledge) to ensure information that is relevant to delivery of quality services is retained. Cosmas Kemboi Cheruiyot (2012) in a study to investigate institutionalization of knowledge management in manufacturing enterprises in Kenya underscored the need for orgarnizations to institutionalize knowledge management.

This emphasis could particulary be necessary for orgarnizational processes that are key in production of products and services that define the ultimate path of creating value for a firm. Cosmas et al (2012) urged orgarnizations to be cognizant of the factors that influence the success of institutionlaization of knowledge management initiatives, these factors he indentified as right incentives and rewards to encourage employees to share. He added that orgarnizations keen on managing knowledge have strategies for capturing lessons learned as well as picking out best practices from orgarnizational processes, in order to avoid repetitive mistakes. At the core of orgarnizational processes in terms of knowledge management is the ability of a firm to rally its employees towards creating a super process that gives it a competitive edge over other firms. This is created through a conciously planned efforts to select best practice process through coming up with a strategy on how the selection, will be carried out while not compromising the intellectual contribution of employees. While some focus has been cast on maufacturing firms, it is not yet clear how they manage knowledge in their process and how this affects competive performance for this firms.

Technology Management Strategy

The forth component of knowledge management and a key construct in this study is technology management. According to Aziri, (2013) technology is a critical enabler and fundamental to knowledge management plan. Information communication technologies era provides an opportunity to use technology driven solutions in knowledge management. While technology can be a key enabler in KM, Sun and Scott (2005) indicates that technlogy does not make orgarnizations share knowledge, it faciliates and increase the scope of knowledge sharing. According to Daud, (2010) the succes of knowledge management initiatives using ICT depends on social – cultural factors that inhibit people's willingness to share knowledge such as conflict, trust, time or concerns about loss of power or status. Intrested in the relationship between technology, knowledge management and firms competitiver performance, various studies have been carried out.

Most organizations acknowledge knowledge as a strategic resource for gaining firms competitive advantage. This would me that there has been efforts done to exploit the potential that there is in managing available knowledge in order to tap into firms competitiveness. In a study on the relationship between knowledge management, information technology and internal performance, in Malaysia, Bavarsad, Mansouri, Derikvandi, & Hozhabri, (2015) in a empirical study of 180 banks indicates that knowledge is a strategic resource and a key competency in orgarnizations. In this study, technplogy was indentified as one of the major aaspects of knowledge management other than human and orgarnizational structure. Inference from this study puts into focus the place of technology in managing knowledge, it further underacores the relatinship that exists between technonoogy, human and orgarnizational structure.

In a study to examine knowledge management through information technonogy in hospitality orgarnizations, Okumus, (2013) through syntesis of prevous literatire found thhat KM helped hospitality orgarnizations create and sustain competive advantage. The study demonstrated that through use of IT applications, orgarnizations can create, store, transfer and use tacit and explicit knowledge. Various IT tools that hopistality industry could use as per the study included competecny data based, decision support systems, online search systems, expert networks, email, groupware, teleconfrence, intranet, document management systems, data warehousing and workflow software. Infering from this study is the need to look at technology not only from operational but also from a strategic perspective. This therefore would call for organizations to come up with a culture that motivates their members to manage knowledge through IT applications.

Understanding the concept of knowledge mananagement and how it integrates with technology is said to be critical in achieving success in the use of technology in KM. In a study examining the use of technology in knowledge management trends in Australia, Zyngier, (2001) provides a view use of technology in management of knowledge was viewed in different corporate corridors. Among the findings in her report indicated that technology was viewed as a tool to capture data and information in order to manage knowledge, collection of proceses that govern creation, dissemination and utilization of knowledge to fulfil orgarnizational objectives, a situation where no visible processes were used but simplpy ability to manage knowledge and taking the form of documents and information bases. The study reveals different ways in which orgarnozations can blend Information communication technologoies and knowledge management. Perhaps, an imporant observation for this study would be to establish of the aspect of technology has been given attention in knowledge management and how this contributes to firms competitive advantage.

In manufacturing sector, Eric Wang & Gary Klein,(2006) in a study to examine IT support in manufacturing firms claims that technology is applied in many setting of knowledge management. The study howver indicated that direct links from investment in IT to orgarnizations has always been elusive. The indicates thar by using a capability model, an orgarnization can respond effectively to changes in environment while leveraging on performance.Technology suport of knowledge management was found to indirectlty benefit 500 manufacturing orgarnizations in Taiwan. The study recommeded firms to align IT support to strategic needs.

In Kenya, use of technology is considered as one of competive strategies that manufacturing firms can leverage on. Investment in technology is one of the ways in which manufacturing firms can redcued oeprational costs. In a study to examine the effect of competitive strategies on the performance of manufacturing firms, Rukia (2015) reveals cost reduction through investment in technology was one of the ways in which manufacturing firms created competive advantage. The study did not link knowledge management with use of technology.

Conceptual Framework

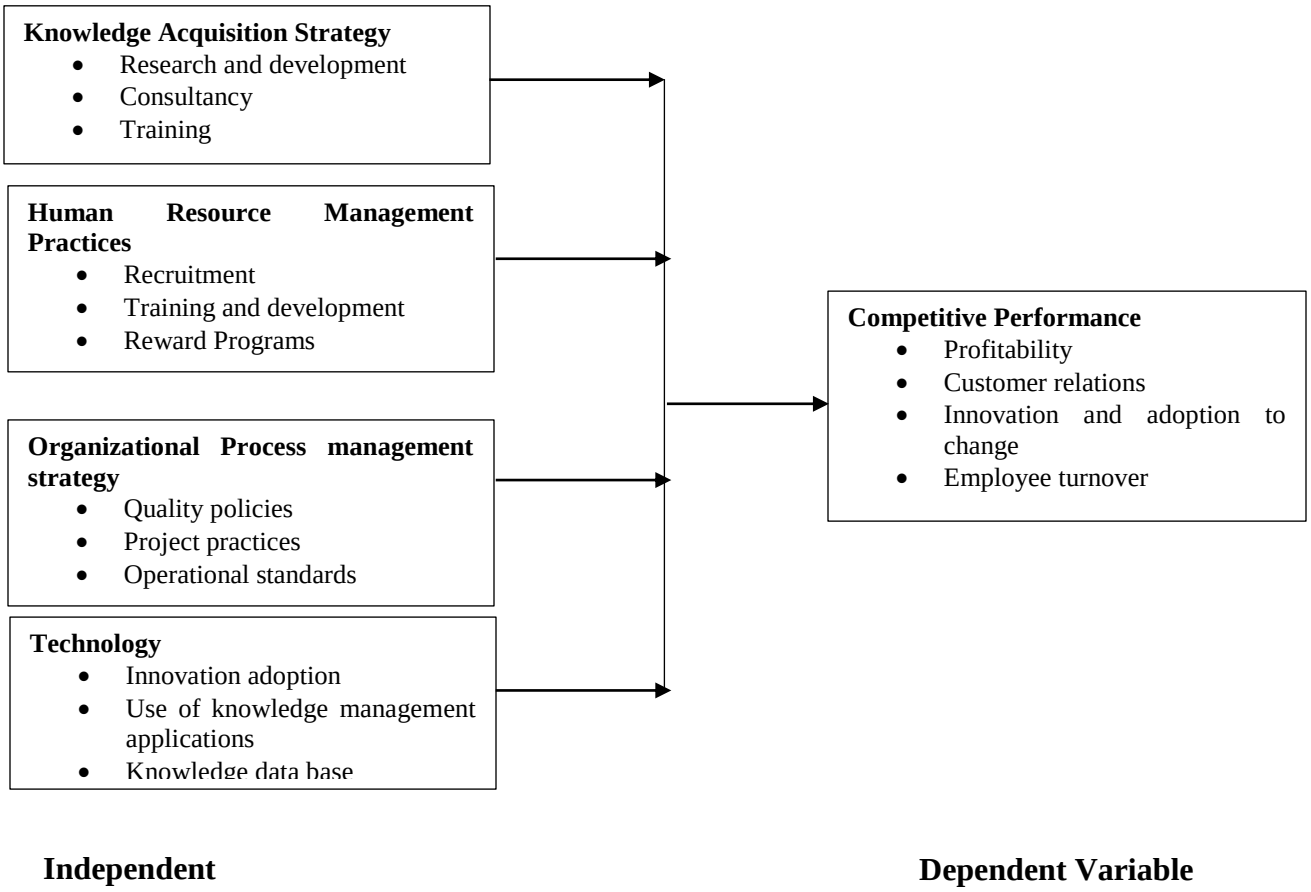

Figure 1 Conceptual Framework

Research Methodology

This is the overall approach that the researcher will use to integrate different components of the study in a systematic and logical manner (Creswell, 2007). Research design is described as the outline, the plan or the scheme that is used to generate answers to the research objectives (Orodho, 2005). The study adopted a descriptive research design to determine the effect of knowledge management strategies on competitive performance for large manufacturing firms in Kenya.

Descriptive research design is suitable for this study as it addressed how different knowledge management strategies affect competitive performance, it aided in gathering of bulk information which can be analyzed and help describe attitudes towards an issue (Kumar, 2011). This technique enabled the researcher to collect data that describes the state of affairs as they exist at present. Descriptive research is a systematic data gathering using individual contacts or interviews and questionnaires (Pandey and Pandey, 2015), hence the researcher preferred it as it allows for quantitative analysis of data. This study collected data using questionnaires.

The population of interest in this study was all registered manufacturing firms in Nairobi County according to the Kenya Association of Manufacturers report 2017. The researcher however considered thirty four large manufacturing firms drawn from different sectors. The units of observation were individuals holding different management positions in the firms selected. This population was deemed suitable

for the study owing to experiences about the operations and challenges facing the manufacturing sector in Kenya.

Table 1 Target Population

Economic sector	Number of manufacturing firms
Beverages	6
Agricultural Processing	10
Fast Moving consumer Goods (FMCG)	12
Building and Construction	6
Total	**34**

Source: Kenya Association of Manufacturers (KAM) 2017

This study used purposive sampling to select sample participants. In purposive sampling, (Kothari,2013) indicates that it seeks to select study participants based on their level of understanding, experience and expertise about the study subject. In this study, at least one manager in each category (top, middle and lower level management) was selected from large manufacturing firms to form the study sample. This formed a sample size of 102 participants. This is due to their understanding and involvement in knowledge management practices and their implications on performance of the firm. Table 2 provides a description of the study sample.

Table 2 Sample Size

Economic sector	Number of manufacturing firms	Sample
Beverages	6	18
Agricultural Processing	10	30
Fast Moving consumer Goods (FMCG)	12	36
Building and Construction	6	18
Total	**34**	**102**

For the proposed study, semi structured questionnaire were used to collect data. There was a cover letter (Appendix I) attached to the questionnaire to introduce the researcher and provide the respondents with brief information on the study. The questionnaire (Appendix II) comprised of both closed ended and open-ended questions constructed to cover the three research objectives. The questionnaire contained six sections namely: Sections A, B, C, D E, and F. Section A had questions on respondent background information, while section B, C, D had questions on knowledge management strategies that included knowledge acquisition strategy, human resource practices strategy, orgarnizational processes strategy and innovation technology management. Part E had questions on competitive performance which the study's dependent variable is. The questionnaires were delivered physically to respondents and output of each respondent's questionnaire were logged on an excel data table indicating the option indicated against each question. The quality of the questionnaire was assured through pilot test that was done for the sake of testing validity and reliability.

A pilot was carried out before the actual study so as to establish and readdress in case there is a need the reliability or validity of data collection instruments. For the sake of this study, the sample size for the pilot was 10% of the study sample, as recommended in Connelly (2008), ten managers not in the study sample were therefore identified for sampling. A questionnaire, similar to the one to be used in the real study was issued for the respondents to fill. The researcher used the responses provided to examine the reliability and validity of the questionnaire items Validity describes the extent to which a research instrument measures what it purports to measure. According to Twycross (2004), it is the extent to which the interpretations of the results are warranted which depends on the particular use the test is intended to serve. For the sake of this study, content and construct validity was used. The researcher carried out a pilot study by administering a few questionnaires to respondents who did not form part of the respondent for the study.

The data collected using the questionnaire was subjected to a reliability test. Reliability is the measure of degree to which research instruments yields consistent results or data after repeated trials (Fairchild, 2002). According to Mugenda and Mugenda (2003) data with reliability coefficient of 0.80 or more implies a high degree of reliability. Field (2005) observes that a Cronbach's a > 0.7 implies the instrument provides a relatively good measurement tool hence reliable. The questionnaire was subjected to Cronbach's alpha test and a threshold of 0.7 was adopted to be reliable. The study collected both primary and secondary data.

According to Kothari (2004), Primary data is directly obtained from the respondents or through direct observation by the researcher. Secondary data is obtained from existing sources such as text books, journals and previous research reports (Bell, 1999). It was suitable to create comparison between the primary findings to establish any similarities or differences.

For secondary data, the researcher read journal articles, text books and related reports as guided by the study objectives. All relevant information was documented based on various study themes to be later compared with findings from the primary data. For primary data, a self-administered questionnaire was used. The researcher got a letter of introduction entailing the objectives of the study from the institution before embarking on data collection. She then delivered the questionnaires to the different respondents. Where possible scanned copies of the questionnaires were sent through email to the respondents. Telephone contacts were also made to some of the respondents for face to face interviews with them.

After data collection, data was coded and input into SPSS computer program. It was then cleaned, that is assessed for any double entries, wrong spellings of data labels or unmatched codes. It was then analyzed to generate both descriptive and inferential statistics. Under descriptive statistics, parameters such as mean, standard deviation, frequency and percentages were generated. Under inferential statistics coefficients of regression were obtained to determine the relationship between data variables. Inferences were drawn from common observations based on the research themes. Quantitative data analysis entailed summarizing of study responses using numerical figures to generate statistical parameters such as mean, percentages, frequency, standard deviation and correlation analysis. Qualitative analysis technique was used to analyze open ended questions. This was achieved through grouping the study responses into themes and discussion common themes emanating from the responses. A regression analysis was used to undertake a regression output examining the extent and strength of the relationship between the study variables. The following was the proposed regression model;

$$Y= \beta_0+\beta_1(X1) +\beta_2 (X2) +\beta_3 (X3) +\beta_4 (X4) + e$$

Y = Dependent variable (Competitive Performance)

X_1 = Knowledge Acquisition Strategy

X_2 = Human Resource Practices Strategy

X_3 = Orgarnizational Processes Strategy

X_4 = Innovation Technology Management

e = Error term

(β_0, β_1, β_2, β_3, β_4) are regression coefficients

Strength of the relationship was determined by the value of r^2. The value of r^2 ranges from 0 to 1.Values of 0 show no relationship, while 0.5 show moderate relationship and values above 0.7 show strong relationship. The overall model fit was determined through ANOVA test that uses the value of F. The statistical test of significance was performed at the 95% confidence level. The output of the study findings was presented in form of tables and charts. The results of the numerical data was then interpreted based on the research objectives and thereafter conclusion and recommendations made.

Regression Diagnostic Tests

Before undertaking the regression analysis, data was checked if it met the assumptions for linear regression analysis. These assumptions were ; linearity, homoscedasticity, multicollinearity and normality. Linearity test checks whether the data has a linear relationship. In order to test for the assumption, dependent variables were plotted against independent variables in a scatterplot. Any data value causing non-linearity was supposed to be removed or another dummy variable included. Multicollinearity is a phenomenon or regression problem of very higher inter- correlations among independent variables. This renders statistical inferences unreliable if present in the data. To determine if data suffers multicollinearity, linear regression analysis was conducted with collinearity diagnostic shown by Variance Inflation Factor (VIF). If the VIF values fall between 1- 10, then the data is said to have no multicollinearity. In case of multicollinearity correction is done by transforming the variable or dropping it if it is neither significant nor theoretically valid, hence likely to cause omitted variable bias.

The data was also be tested for heteroscedasticity, normally caused by the presence outliers. Heteroscedasticity was conducted using Breusch Pagan test. In order to correct heterosdasticity, standardized error terms are used in running the regression model. Normality tests were also carried out to ensure that data has normal distribution. The study used Shapiro Wilk test since the observations were less than 2500 observation as recommended.

RESEARCH FINDINGS AND DISCUSSION

Response Rate

The study targeted top management employees from each of the selected manufacturing firms totaling to 102 respondents. Therefore, a total of 102 questionnaires were issued to 34 manufacturing firms. Out of the number, a total of 73 questionnaires were properly responded to which gives a response rate of 72% as shown in Table 3. This response rate is satisfactory according to Creswell (2012) who indicated that a response rate above 50% is satisfactory for a descriptive survey.

Table 3 Response Rate

	Frequency	Percentage
Response	73	72
Non-Response	29	28
Total	**102**	**100**

Demographic Characteristics

The study population was described in terms of their demographics ranging from gender, age bracket, current level of management and duration in their position. The findings for each of the characteristics are presented in the sub sections below.

Respondent's Gender

The study described the gender of the respondents who participated in the study. The main aim of establishing the gender was to find out role distribution along gender in the manufacturing sector in Kenya in comparison with the constitutional requirements. The study findings in Table 3 indicates that majority of the employees in management positions among manufacturing firms were male (58.9%). However, this figure was not more than the constitutional requirements of two thirds. Therefore, it can be argued that the manufacturing firms in Kenya have complied with the constitutional requirements that not more than two thirds of employees are from the same gender.

Table 3 Respondent's Gender

Category	Frequency	Percent
Male	43	58.9
Female	30	41.1
Total	**73**	**100**

Respondent's Age Bracket

The study also described the respondents' age bracket to determine how the employees in the management positions in the manufacturing sector are distributed. The findings presented in Table 4 indicated that there was even distribution of the employees across the age groups where majority of the participants were aged between 31 and 35 years (39.7%), followed by 26 and 30 years (31.5%) while the remaining percentage that is 28.8% were aged above 36 years. These findings imply that distribution of top management positions in the manufacturing industry in Kenya is not biased along the age bracket.

Table 4 Respondent's Age Bracket

Category	Frequency	Percent
26-30 Years	23	31.5
31-35 Years	29	39.7
36-40 Years	14	19.2
41-45 Years	7	9.6
Total	**73**	**100**

Respondent's Management Positions

The study also described the respondents' along their management positions since the groups targeted were top, middle and low level management positions. The main reason for this description was to establish whether there was representative response along the targeted cadre. The findings presented in Table 5. The findings indicated that as targeted, there was representation of respondents from the three positions. Majority of the respondents were however from the lower level position (41.1%) followed by those from the middle level positions (39.7%). The least were those from the top level position (19.2%) and that can be used to explain their busy schedules. However, it can be concluded that there was representativeness in the respondents along their positions.

Table 5 Respondent's Management Positions

	Frequency	Percent
Top Level	14	19.2
Middle Level	29	39.7
Lower Level	30	41.1
Total	**73**	**100**

Respondent's Work Experience

The study further described the respondents' work experience in their current positions at the time of the study. The study findings are presented in Table 6.The findings revealed that those that had been in their current positions for a period between 6 and 10 years were the majority forming 50.7% of the total response rate followed by those that had been in their current positions for a period between 11 and 15 years who were 28.8% of the respondents. The findings imply that those who participated in the study had high institutional work experience and were in a position to give information about their firms.

Table 6 Respondent's Work Experience

	Frequency	Percent
0-5 Years	15	20.5
6 -10 Years	37	50.7
11 - 15 Years	21	28.8
Total	**73**	**100**

Descriptive Statistics

The main aim of the study was to examine the effect of knowledge management strategies on competitive performance for large manufacturing firms in Kenya. The respondents were asked to rate statements on a likert scale structured per objective. This section presents the descriptive findings per objective.

Descriptive Statistics of Knowledge Acquisition Strategy

The first objective of the study was to examine the effect of knowledge acquisition strategy on competitive performance of large manufacturing firms in Kenya. The respondents were first asked to rate statements on knowledge acquisition strategy on a five point likert scale ranging from 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree and1 = Strongly Disagree. Based on the response, a mean and standard deviation were obtained and presented in Table 7.

The findings indicated that the respondents agreed that their firm has research and development department (Mean = 4.74), there is sufficient budget allocation for research and development (Mean = 4.40), acquisition of new knowledge is encouraged through market intelligence and market surveys (Mean = 4.77) and that their firms engages external experts in areas where we have no in-house specialist (Mean = 4.42). The findings also indicated that the respondents agreed that employees are continuously trained in their areas of specialty (Mean = 4.27), the firm promotes talent development and adoption of new ideas (Mean = 4.18) and that knowledge acquisition has enhanced the competiveness of their firms (Mean = 4.49). On average, there was an agreement on adoption of knowledge acquisition strategy among manufacturing firms (Average Mean = 4.47). A standard deviation of 0.62 indicates that the responses were not highly varied.

Table 7 Descriptive Statistics of Knowledge Acquisition Strategy

Statement	Mean	Standard Deviation
Our firm has research and development department	4.74	0.50
There is sufficient budget allocation for research and development	4.40	0.72
Acquisition of new knowledge is encouraged through market intelligence and market surveys	4.77	0.43
Our firm engages external experts in areas where we have no in-house specialist	4.42	0.88
Employees are continuously trained in their areas of specialty	4.27	0.71
The firm promotes talent development and adoption of new ideas	4.18	0.61
Knowledge acquisition has enhanced the competiveness of our firm	4.49	0.50
Average	**4.47**	**0.62**

Descriptive Statistics of Human Resource Practices Strategy

The second objective of the study was to examine the effect human resource practices strategy on competitive performance of large manufacturing firms in Kenya. The respondents were first asked to rate statements on human resource practices strategy on a five point likert scale ranging from 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree and1 = Strongly Disagree. Based on the response, a mean and standard deviation were obtained and presented in Table 8.

The findings indicates that the respondents agreed that recruitment is largely based in merit and employees ability to learn (Mean = 4.85), employees are continuously trained on their profession and emerging issues (Mean = 4.49), firm encourages job rotation in order to promote sharing of knowledge (Mean = 4.18), well performing employees are teamed with less performing one for mentorship purposes (4.48) and that their firms have sufficient budget for employee training and development (Mean = 4.60). The respondents also agreed that employees are rewarded for innovations and new ideas (Mean = 4.22), intellectual ideas are protected, and credit awarded to those coming up with the ideas (Mean = 3.90) and that human resource practices have enhanced competitive performance of their firms (Mean = 4.27). On average, it can be agreed that there is human resource practices strategy among manufacturing firms in Kenya (Average Mean = 4.38). A standard deviation value of 0.82 indicated that there was less variation in the answers.

Table 8 Descriptive Statistics of Human Resource Practices Strategy

Statement	Mean	Standard Deviation
Recruitment is largely based in merit and employees ability to learn	4.85	0.43
Employees are continuously trained on their profession and emerging issues	4.49	0.58
Firm encourages job rotation in order to promote sharing of knowledge	4.18	1.08
Well performing employees are teamed with less performing one for mentorship purposes	4.48	0.90
The firm has sufficient budget for employee training and development	4.60	0.72
Employees are rewarded for innovations and new ideas	4.22	1.02
Intellectual ideas are protected, and credit awarded to those coming up with the ideas	3.90	1.06
Human resource practices have enhanced competitive performance of our firm	4.27	0.77
Average	**4.38**	**0.82**

Descriptive Statistics of Organizational Processes Strategy

The third objective of the study was to evaluate the effect of organizational processes strategy on competitive performance of large manufacturing firms in Kenya. The respondents were first asked to rate statements on organizational processes strategy on a five point likert scale ranging from 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree and1 = Strongly Disagree. Based on the response, a mean and standard deviation were obtained and presented in Table 9.

The findings presented indicated that the respondents agreed that they have quality policy that all processes in their firms must adhere to (Mean = 4.60), all employees must adhere to set processes and standards (Mean = 4.44), all employees are first trained to internalize firms processes and standards in any task they undertake (Mean = 4.49) and that any new process in the firm must be approved by the management (Mean = 4.85).

It was also established that the respondents agreed that ideas generated from new processes are patented (Mean = 4.55), they generate new processes through initiating short term project (Mean = 4.59) and that managing organizational processes has enhanced competitive performance of their firms (Mean = 4.66). On average, the findings indicated that organizational processes strategy is practiced by manufacturing firms in Kenya (Average Mean = 4.60). The standard deviation of 0.52 indicates that there was less variation in the responses on organizational process strategy.

Table 9 Descriptive Statistics of Organizational Processes Strategy

Statement	Mean	Standard Deviation
We have quality policy that all processes in our firm must adhere to	4.60	0.49
All employees must adhere to set processes and standards	4.44	0.50
All employees are first trained to internalize firms processes and standards in any task they undertake	4.49	0.58
Any new process in the firm must be approved by the management	4.85	0.49
Ideas generated from new processes are patented	4.55	0.62
We generate new processes through initiating short term project	4.59	0.50
Managing organizational processes has enhanced competitive performance of our firm	4.66	0.48
Average	**4.60**	**0.52**

Descriptive Statistics of Innovation Technology Management Strategy

The forth objective of the study was to find out how innovation technology management strategy affects competitive performance for large manufacturing firms in Kenya. The respondents were first asked to rate statements on innovation technology management strategy on a five point likert scale ranging from 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree and 1 = Strongly Disagree. Based on the response, a mean and standard deviation were obtained and presented in Table 10.

The findings indicated that the respondents agreed that their firm is keen on new innovations in the market (Mean = 4.86), they constantly update their technology based on the market needs (Mean = 4.56), they have development knowledge data base for all key aspects in their organization (Mean = 4.40) and that technology has been a facilitating tool in managing their firms knowledge data base (Mean = 4.33). The findings also revealed that their firm promotes sharing of technological knowledge among her employees (Mean = 4.34) and also use technology to enhance competitiveness of their firms (Mean = 4.29). The findings revealed that on average, the manufacturing firms in Kenya have adopted innovation technology management strategy (Average Mean = 4.46). The findings also showed a standard deviation value of 0.73 which reveals that the responses were not varied greatly.

Table 10 Descriptive Statistics of Innovation Technology Management Strategy

Statement	Mean	Standard Deviation
Our firm is keen on new innovations in the market	4.86	0.38
We constantly update our technology based on the market needs	4.56	0.62
We have development knowledge data base for all key aspects in our organization	4.40	0.86
Technology has been a facilitating tool in managing our firms knowledge data base	4.33	0.76
Our firm promotes sharing of technological knowledge among her employees	4.34	0.77
Use of technology has enhanced competitiveness of our firm	4.29	0.98
Average	**4.46**	**0.73**

Descriptive Statistics of Competitive Performance

The respondents were first asked to rate statements on competitive performance on a five point likert scale ranging from 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree and 1 = Strongly Disagree. Based on the response, a mean and standard deviation were obtained and presented in Table 11.

The study findings indicated that the respondents agreed that the profitability of their firms has been increasing annually (Mean = 4.59), their firm has expanded its operation in the last five years (Mean = 4.48) and that they have introduced new products in the market (Mean = 4.79). The findings also indicated that the respondents agreed that their market capitalization has increased (Mean = 4.79), value of their shares has increased (For listed company) (Mean = 4.19) and that they have received performance awards in the last five years (Mean = 4.78). On average, the respondents indicated an agreement that their performance improved with the adoption of knowledge management strategies (Average Mean = 4.61).

Table 11 Descriptive Statistics of Competitive Performance

Statement	Mean	Standard Deviation
Our profitability has been increasing annually	4.59	0.68
Our firm has expanded its operation in the last five years	4.48	0.82
We have introduced new products in the market	4.79	0.41
Our market capitalization has increased	4.79	0.41
Value of our shares has increased (For a listed company)	4.19	1.05
We have received performance awards in the last five years	4.78	0.63
Average	**4.61**	**0.67**

Correlation Analysis

The study conducted a correlation analysis to establish the association between knowledge management strategies and competitive performance. A correlation analysis indicates the direction and strength of the relationship between variables (Creswell, 2012). The study adopted Pearson correlation analysis since the data was analyzed on the mean of statements representing each variable. The findings are presented in Table 12.

The study findings indicated that knowledge acquisition strategy has a positive and significant effect on competitive advantage of manufacturing firms in Kenya ($r = .525$, Sig = .000, < .05). This means that an increase in knowledge acquisition strategy leads to an increase in competitive advantage of manufacturing firms in Kenya. The findings are consistent with the findings of a study by Maurer (2010) which revealed the importance of knowledge acquisition on competitive performance by increasing the success of research and development projects.

It was also established that HR management strategy has a positive and significant effect on competitive advantage of manufacturing firms in Kenya ($r = .547$, Sig = .000, < .05). This means that an increase in HR management strategy leads to an increase in competitive advantage of manufacturing firms in Kenya.

The findings are consistent with the findings of a study by Fey (2012) conducted on human resource management practice and firm performance in Russia and revealed positive relationship.

The correlation findings indicated that organizational process strategy has a positive but not significant effect on competitive advantage of manufacturing firms in Kenya (r = .179, Sig = .130, > .05). This means that an increase in organizational process strategy leads to an increase in competitive advantage of manufacturing firms in Kenya although the increase is not significant. The findings are consistent with the findings of a study by Mosoti and Meshaka (2010) which established that many orgarnizations experience a challenge on how to implement knowledge management culture and thus its effect was still not significant on performance.

The findings also showed that Innovation Technology Management strategy has a positive and significant effect on competitive advantage of manufacturing firms in Kenya (r = .554, Sig = .000, < .05). This means that an increase in Innovation Technology Management strategy leads to an increase in competitive advantage of manufacturing firms in Kenya. The findings are consistent with the findings of a study by Zyngier (2001) which indicated that information technology adoption had helped orgarnizations create and sustain competive advantage.

Table 12 Correlation Analysis

		Knowledge Acquisition Strategy	HR Management	Organization Processes	Innovation Technology	Competitive Performance
Knowledge Acquisition	Pearson Correlation	1				
	Sig. (2-tailed)					
HR Management	Pearson Correlation	.487**	1			
	Sig. (2-tailed)	0.000				
Organization Processes	Pearson Correlation	0.121	0.128	1		
	Sig. (2-tailed)	0.306	0.281			
Innovation Technology	Pearson Correlation	.425**	.395**	0.11	1	
	Sig. (2-tailed)	0.000	0.001	0.355		
Competitive Performance	Pearson Correlation	.525**	.547**	0.179	.554**	1
	Sig. (2-tailed)	0.000	0.000	0.13	0.000	
	N	73	73	73	73	73

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

Regression Model Diagnostic Tests

Before using a regression model, the study first tested the assumptions of classical linear regression model for suitability of an ordinary least square regression model. Under the section, the study presents the diagnostic tests including normality test, linearity test, homoscedasticity test and multicollinearity test to determine whether the use of a regression model does not violate the assumptions of classical linear regression.

Normality Test

The study used Shapiro Wilk test to test the normality of the dependent variable. The null hypothesis for this test is that the data is normally distributed while the alternative hypothesis is that the data is not normally distributed. If the statistic is not significant (greater than 0.05), it implies that the null hypothesis is not rejected meaning that the data is normally distributed (Connelly, 2008). The findings

in Table 13 indicate that the statistic was not significant (Sig = 0.061, > .05) meaning that the data on competitive performance was normally distributed.

Table 13 Shapiro Wilk test of Normality

Tests of Normality

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Competitive Performance	3.247	73	0.053	4.763	73	0.061

a Lilliefors Significance Correction

Linearity Test

The study tested for linearity of the relationship between knowledge management strategy and competitive performance before running a regression model. Since the study intended to adopt a linear regression analysis, this test was essential. The four independent variables were combined into knowledge management strategy and then a plot established against the dependent variable. A scatter plot was adopted as shown in Figure 2. The findings showed that the line fit well and the scatter took an oval shape which is an indicator of linearity (Fairchild, 2002). It was also established that knowledge management explains up to 41.1% of competitive advantage which is a good fit. Therefore adoption of a linear regression analysis was justified.

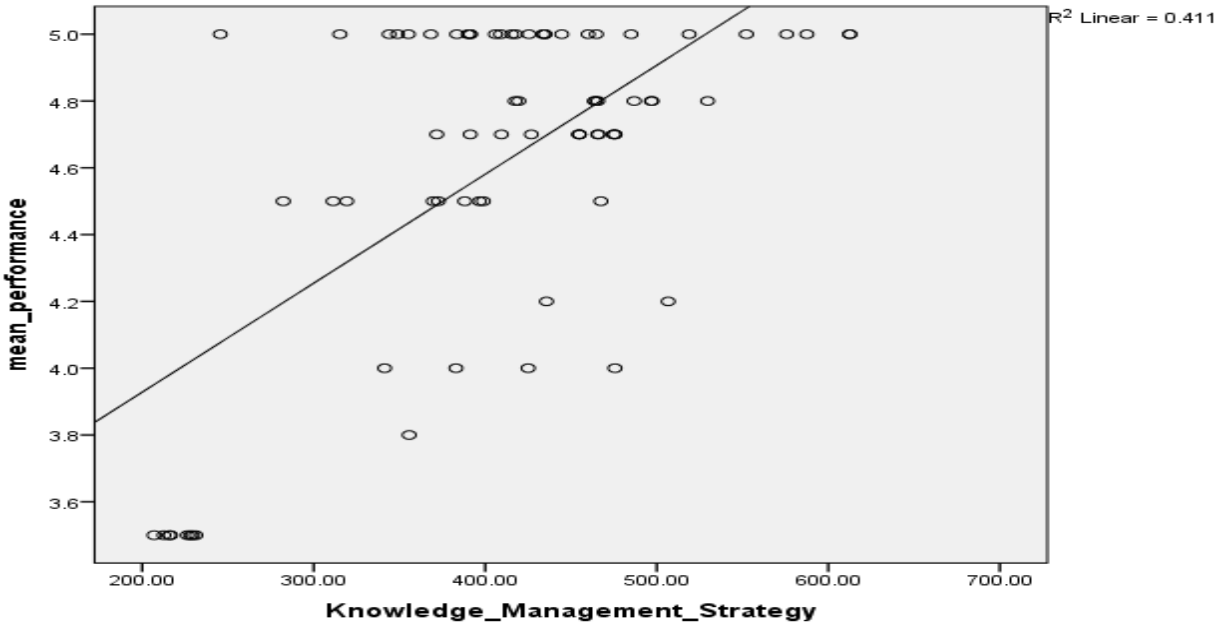

Figure 2 Linearity Test

Homoscedasticity Test

The study established whether the variation in the error term was constant among the independent variables if a regression model was to be used. This is a critical assumption of using a linear regression model and hence it was conducted using Breusch Pagan test. The null hypothesis for test is that the variance is constant (Homoscedasticity). This is not rejected when the significance (Prob > $Chi^{2)}$ value is greater than .05 (Bell, 1999).

The findings shown in Table 14 indicates that the significance (Prob > $Chi^{2)}$ value was 0.0558whichis greater than .05 and hence the null hypothesis of Homoscedasticity was not rejected therefore it was suitable to use a linear regression model.

Table 14 Homoscedasticity Test

Breusch-Pagan / Cook-Weisberg test for Heteroskedasticity	
Ho: Constant variance	
Variables: fitted values of Competitive Performance	
$Chi^2(1)$	3.99
Prob > Chi^2	0.0558

Multicollinearity Test

This test was conducted to ascertain whether the independent variables had a high correlation among themselves. The danger of multicollinearity is that it inflates the error term and gives spurious coefficients. A variance Inflation Factor (VIF) test was conducted whereby, VIF values above 10 are considered to be indicators of the problem of multicollinearity (Bell, 1999). The findings presented in Table 15. The findings indicated that the VIF value for Knowledge Acquisition Strategy was 1.435, that of HR Management Strategy was 1.396, that of Organization Processes Strategy was 1.024 and that of Technology Adoption Strategy was 1.296 which were all below 10 meaning that there was no problem of multicollinearity. It was hence suitable to use a regression model.

Table 15 Variance Inflation Factor Test of Multicollinearity Test

	Collinearity Statistics	
	Tolerance	**VIF**
(Constant)		
Knowledge Acquisition Strategy	0.697	1.435
HR Management Strategy	0.716	1.396
Organization Processes Strategy	0.977	1.024
Technology Adoption Strategy	0.771	1.296
Dependent Variable: Competitive Performance		

Regression Analysis

After testing the assumptions of OLS and ensuring that none would be violated, the study established the effect of knowledge management strategy on competitive performance using a multivariate regression model. The regression model summary in Table 16 indicated that the R-square value was 0.48 which indicates that the four knowledge management strategies that is Innovation Technology Management, Organization Process, HR Management and Knowledge Acquisition jointly explain up to 48% of the variations in competitive performance. This implies that knowledge management strategies are important in improving competitive performance of manufacturing firms.

Table 16 Regression Model Summary

R	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
.693	0.48	0.449	0.362
Predictors: (Constant), Innovation Technology Management, Organization Process, HR Management, Knowledge Acquisition			

The study also established the regression model fitness using ANOVA findings in table 17. The findings showed that the F statistic value was significant at 5% level of significance (Sig = .000, <.05). This implies that it was suitable to use the regression model to predict competitive performance of manufacturing firms since it was a good fit and significant.

Table 17 Regression Model ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	8.213	4	2.053	15.666	.000
Residual	8.913	68	0.131		
Total	17.127	72			

Dependent Variable: Competitive Performance
Predictors: (Constant), Innovation Technology Management, Organization Process, HR Management, Knowledge Acquisition

The study lastly established the regression model coefficients to show the relationship between the study variables. The findings presented in Table 18 revealed that knowledge acquisition strategy has a positive and significant effect on competitive performance of manufacturing firms in Kenya (Beta = .293, Sig = .030, < .05). This implies that increasing knowledge acquisition practices by one unit leads to a significant increase in competitive performance of manufacturing firms in Kenya by .293 units. The findings are consistent with the findings of a study by Tabaszewska (2008) which revealed that collection and sharing of knowledge was found to facilitate achievement of business benefits, result mainly from reduction in process duration, few complaints, faster implementation of new knowledge workers, external consultation, training reduction time, optimal choice of technologies and material flows.

The findings also showed that HR management strategy has a positive and significant effect on competitive performance of manufacturing firms in Kenya (Beta = .299, Sig = .006, < .05). This implies that increasing HR management practices by one unit leads to a significant increase in competitive performance of manufacturing firms in Kenya by .299 units. The study findings are consistent with the findings of a study by Godrick (2016) on human resource management practices and firm efficiency of consumer good manufacturing firms in Kenya and revealed a positive and significant relationship between the variables.

It was also established that innovation technology management as a strategy has a positive and significant effect on competitive performance of manufacturing firms in Kenya (Beta = .343, Sig = .001, < .05). This implies that increasing innovation technology management by one unit leads to a significant increase in competitive performance of manufacturing firms in Kenya by .343 units. The findings are consistent with the findings of a study by Cosmas Kemboi Cheruiyot (2012) and indicated the need for orgarnizations to institutionalize knowledge management which was still a challengeamong manufacturing firms and its effect wasthen not significant.

The findings further showed that organizational processes strategy has a positive but not significant effect on competitive performance of manufacturing firms in Kenya (Beta = .158, Sig = .389, > .05). This implies that increasing organizational processes strategy by one unit leads to an increase in competitive performance of manufacturing firms in Kenya by .158 units although the increase is not significant. The findings are consistent with the findings of a study by Zyngier (2001) which indicated that information technology adoption had helped orgarnizations create and sustain competive advantage.

Table 18 Regression Model Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
Predictors	**B**	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	-0.269	0.935		-0.288	0.775
Knowledge Acquisition	0.293	0.132	0.233	2.221	0.030
HR Management	0.299	0.105	0.294	2.84	0.006
Organizational Processes	0.158	0.182	0.077	0.867	0.389
Innovation Technology Management	0.343	0.103	0.33	3.316	0.001

Dependent Variable: Competitive Performance

Conclusions

The study concluded that knowledge acquisition strategy has a positive and significant effect on competitive advantage of manufacturing firms in Kenya. An increase in Knowledge Acquisition Strategy such as increasing research and development, consultancy and training leads to a significant improvement in competitive performance of manufacturing firms in Kenya. The study also concluded that human resources practices strategy has a positive and significant effect on competitive advantage of manufacturing firms in Kenya. An increase in human resources practices strategy such as recruitment, training and development and reward programs leads to a significant improvement in competitive performance of manufacturing firms in Kenya.

Another conclusion by the study is that organizational processes strategy has a positive but not significant effect on competitive advantage of manufacturing firms in Kenya. An increase in organizational processes strategy such as enhancing quality policies, project practices and operational standards leads to an insignificant improvement in competitive performance of manufacturing firms in Kenya.

The study also concluded that innovation technology management strategy has a positive and significant effect on competitive advantage of manufacturing firms in Kenya. An increase in innovation technology management strategy such as innovation adoption, use of knowledge management applications and knowledge data base leads to a significant improvement in competitive performance of manufacturing firms in Kenya.

Recommendations

Based on the findings that knowledge acquisition strategy has a positive and significant effect on competitive advantage of manufacturing firms in Kenya, the study recommends the manufacturing firms in Kenya as well as other firms which seek to improve their competitive performance to invest more in Knowledge Acquisition Strategy through research and development, consultancy and training.

Since the study findings showed that human resources practices strategy has a positive and significant effect on competitive advantage of manufacturing firms in Kenya, the study recommends firms which seek to improve their competitive performance to practice better human resources management strategy ranging from recruitment, training and development and reward programs so as to keep the best employees to drive the agenda of the firm forward.

Since it was established that organizational processes strategy has a positive but not significant effect on competitive advantage of manufacturing firms in Kenya, the study recommends manufacturing firms to enhance adoption of organizational processes strategy such as enhancing quality policies, project practices and operational standards to a higher extent so as to improve its effect on competitive performance to significant levels.

Based on the findings that innovation technology management strategy has a positive and significant effect on competitive advantage of manufacturing firms in Kenya, the study recommends manufacturing firms in Kenya to enhance adoption of innovation technology management strategy by investing in innovation adoption, use of knowledge management applications and knowledge data base as to improve their performance significantly.

Conflict of Interest

No potential conflict of interest was recorded

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