INFLUENCE OF FIRM TECHNOLOGY ON PERFORMANCE AT GENERAL ELECTRIC

AMINA DEBORAH ISAAC

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN MARKETING SCHOOL OF BUSINESS UNIVERSITY OF NAIROBI.

2018

DECLARATION

This research project is my original work and has not been submitted for presentation in any other institution of higher learning.

Amina Deborah Isaac

Reg No. D65/87430/2016

Sign..... Date.....

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

Sign..... Date.....

Supervisor: Dr. Victor Ndambuki

Department of Business Administration

School of Business

University of Nairobi.

DEDICATION

I dedicate this project to my family, my friends, my daughter and all those who supported me during this period until completion of this project.

ACKNOWLEDGEMENTS

My profound gratitude goes to my supervisor Dr. Victor Ndambuki for his invaluable support and guidance towards this project. I would like to thank my moderator Dr. Joseph Owino for his insights and positive criticism.

I would also like to thank key people at General Electric Kenya who created time to be interviewed and volunteered more information outside the questionnaires. Special thanks go to the proposal and project presentation panel for the corrections.

Finally, I thank the Almighty God for giving me the strength and capability to undertake this study. I extend my appreciation to everyone whom I may not mention in person for moral support during this project and the MSC journey.

ABSTRACT

The world is at this moment undergoing a revolution in the information technology landscape and this has radically altered different aspects of the human life including economy, industries, education, entertainment and politics Technology has become very vital to all organizations that intend to remain competitive in the market. Therefore, organizations have embraced the usage of technology. The primary concern of this study was to establish the influence of technology on performance at General Electric Company. This study was based on two theories, that is, resource based theory and diffusion of innovation theory. The research design was a case study, it focused on the relationship between technology and performance at General Electric. The researcher used primary data for this study. Personal interviews with an interview guide were used to gather primary data for the study. Since the collected data was qualitative, a content analysis approach was chosen to evaluate response, draw conclusions and to come up recommendations. The study concludes that General Electric Company's adoption and usage of the technology is influenced by the firm strategy, market trends, technological capability and technological relevance. Also the study concluded that General Electric Company has greatly invested in research and development to keep up with the ever emerging innovations. The company updates its technology regularly and the employees are trained on the new technology once it's developed. The study also concluded that the use of technology at General Electric has increased its competitive position in the industry, increased sales, efficiency in distribution of products, market share and reduced costs. The technology further has enhanced customer purchase of products creating customer satisfaction and loyalty. The analysis showed that there was a positive relationship between General Electric's performance and use of technology. The study recommends that General Electric to involve the employees more in the development of technology especially the customer facing employees since they get first hand feedback from the customer and also to improve the rate of technology adoption internally. The study also recommends that further study to be carried out on challenges facing technology adoption in Kenya.

TABLE OF CONTENTS

CHAPTER ONE: INTRODUCTION

1.1 Background

The rapid development of technology has led to a growth of a current discipline referred to as the internet marketing. Technology has changed ways of conducting business globally. It has brought integration, interactivity, individualization, independence of location; an informed strategy that is intelligence and industry restructuring that is redrawing the marketing map. Ajayi (2002) outlined that changes in technology has been a great mark of economic development. Companies have embraced technology strategies to achieve a competitive advantage. Going with the definition of Kumar et. al (1999) technology has two key components: The first is a external part which consists of things, such as, items, tooling, hardware, diagrams, systems, and forms; and furthermore the informative segment which comprises of knowledge in running, promoting, creation, quality regulator, unwavering quality, skilled work and practical territories. Performance of a firm can be defined in monetary and non-monetary performance and external non-monetary performance (Becker &Gerhart, 1996).

Private sector endeavor for good fiscal results whereas public strive for non-financials like delivering good public service to citizens. The performance of a firm requires measurement of key variables that can allow the firm to evaluate and monitor its competitive position in the industry. Financial performance can without much of a stretch be estimated quantitatively (Cole, 2005). Thompson(2007) noticed that utilizing financial estimates alone to determine the performance of a firm neglects the manner in which that what enables an association achieve or pass on better budgetary results, the achievement of key targets that enhance its amount and market worth.

The study was based on two theories. The resource-based theory that helps explains that a firm has strategic resources which when exploited the firm is able to achieve competitiveness. The theory further explains that the having this resource a firm is has a high value, not easy to copy, rare, and irreplaceable. According to the resource-based theory organizations should explore the company to find the resources that will give it a competitive advantage. The second theory was the diffusion of innovation. This theory explains time, and a social system how, why, and the rate at which new insights and innovation move from one person to another. Everett Rogers, a communication professor distributed the hypothesis in his book Diffusion of Innovations; or, in other words the fifth release (2003).

There is a notable productive interaction between technological capability and firm's performance. A firm requires capacity to innovate; the more firms invest in their technological capability, the greater the output. The proportion of advanced technology items has been declining given the level of Research and Development (R&D) use as detailed in the Economic Commission of Africa (ECA, 1998). Kenyan-beginning electric items have stayed at the base of the innovation. Kenyan creation is packed in the low esteem Segments of the electric items producing with lacking supplies to the market. This has led to the emergence of the multinational companies such as General Electric Company venturing in the country to meet this demand of the high value electric products. General electric has been in Kenya since 2011. The Kenya office is the headquarters for General Electric Africa's Sub-Saharan with the offices located in Nairobi. The company has been distributing a number of electric products in Kenya such as the boeing dreamliners engines for the Kenya airways, engines that are used for

training at the Technical University of Kenya for Aviation Technical Training; healthcare equipment such as the 4D ultrasound machine, X-ray Machine, Positron Emission Tomography (PET) CT scanner and Cyclotron and MRI machine.

1.1.1 Firm Technology

Technology as a concept varies due to its dynamic nature. Lan and Young (1996) states that the meaning of innovation changes as indicated by creators and the setting of orders. Using the frameworks point of view Afriyie (1988) describes innovation as comprising: the essential information sub-framework; the dedicated passionately helpful network (programming); and the capital-epitomized innovation (equipment). The latest meaning given by Mascus (2003) has augmented the possibility of advancement where development is described as 'the information vital to achieve a particular creation result from particular techniques for joining or getting ready picked inputs which consolidate age shapes, intra-firm authoritative structures, organization procedures, and strategies for back, promoting methods or any of its combination'.

Firm technology can be described as everything connected to computing technology, which includes software, hardware, the internet, networking or the individuals that operate these technologies internally. According to Daft (1997), technology refers to the software, hardware, telecommunications, database management and other processing technologies that are utilized in the storage, development, and conveyance of information. It is normally adopted to assist managers in their management role in business functions, personnel as well as other resources. As administrators manage resource management and apportionment, it can be a challenge to attain coordination of business functions through several projects.

Hobday (2000) asserts that firm technology is one of the key improvements that is regularly applied to support this process. In their study, Peansupap and Walker (2005) ascertain that the execution of technology facilitates communication, improve integration, and improve productivity and delivery of service. As firms change and develop, they tend to rely more and more on technology for their continued existence (Feeny & Willcocks, 1998). In today's world, firms device and utilize technology to discover solutions to problems in the business environment, compete for emerging markets in the advent of globalization and enhance quality and productivity of their operations (Porter & Millar, 1985). Furthermore, technology can be perceived as a driving force that allows for the opening of exciting business opportunities for the firm to accomplish its mission and goals in an efficient manner. For that reason, the leadership in firms need to obtain an overall appreciation of the potential of technology and the connect the achievement and application of technology to the mission and objective of the firm (Hacker& Saxton, 2007).

This investigation uses the Kumar et. al (1999) definition which expresses that technology contains two vital sections : external part which contains things, such as, items, tooling, gear, outlines, systems, and forms; and the instructive segment which comprises of know-how in management, promoting, generation, quality management, reliability, skillful and hands-on zones. By investigating the technology explanation, there are two fundamental parts that can be acknowledged: 'information' or method; and 'getting things done'. Innovation is continuously associated with getting certain results, resolving certain matters, concluding certain errands exploiting specific abilities, using information and resources.

1.1.2 Performance

Richard et al. (2009) explains performance of a firm comprises three major parts including fiscal performance i.e. profits, return on investment (ROI), and return on assets (ROA); shareholder return i.e. total shareholder return, economic value added, and product market performance i.e. sales and market share. Firms measure the performance using the balanced scorecard method. Balanced scorecard tracks measure performance using measurements such as customer service, employee output, social responsibility, and financial performance. Firm performance can also be described as a proportion of a company's execution that may not just rely upon the effectiveness of the organization itself yet additionally available where it works.

Organizational performance can be described as the firm's ability to meet stakeholder's needs and its own needs for survival (Griffin, 2003). Organizational performance also includes manufacturing of products and services, how the different business units in the firm function, the employees' performance and the outcome of these employees. Firm performance can also be viewed in as a part of the business development of the firm. Business development is a direct outcome of the firm's performance that is the efficiency of the firm's operations which includes effective organizational performance and the employees' performance for a positive business development. Efficiency of the employees' performance affects the firm's performance.

The performance of a firm can be affected by the strategies that a firm chooses. Organization performance would require measurement of key variables that would effectively allow the firm to discover, evaluate and monitor its competitive position in the business.

Thompson (2007) states that using financial methods only oversees the point that what facilitates a business realize better financial outcomes from its setups is the accomplishment of planned goals that improve its competitive position in the market.

1.1.3 General Electric Company

General Electric Company is an American multinational company that is based in Boston and is incorporated in New York. As of 2018, General Electric Company have commenced operations in the following businesses; healthcare, power, digital, aviation, lighting, renewable energy, additive manufacturing, venture capital and finance, transportation, and oil and gas.

General Electric Kenya has been in operations since 2011. The office is based in Nairobi and is the headquarters for the Africa's Sub-Saharan region with over 140 employees. General Electric Kenya operates different business which are geared into assisting Kenya achieve the Vision 2030 objectives. In 2012, General Electric signed an innovatory Memorandum of Understanding agreement with the government of Kenya to grow developments in important sectors, which is healthcare and power. The company has greatly supported Kenya Airways on its taskforce development platform with a large number of its aircraft engines being motorized by innovative engines from General Electric. In 2012, Kenya airways chose the GEnx-1B engines for powering the nine Boeing Dreamliners that it had firmly ordered. Recently, in April 2017, the company provided the Technical University of Kenya with engines for use in Aviation technical training, which enables the students to hand a firsthand experience on a real-life engine.

The Hewa Tele Oxygen plan that was launched in Siaya in November 2014 is a product of a partnership between the General Electric Foundation, Assist International and the Center for Public Health and Development (CPHD) as part of the Access to Medical Oxygen program that was initiated by the General Electric Foundation. The main objective of the program is to increase the supply of oxygen to hospitals and health centers at an affordable cost and to offer incessant training of medical practitioners on appropriate use and administration. At the beginning of the year in 2015, the Ministry of Health Kenya chose General Electric Healthcare Kenya as their designated firm in the delivery of radiology infrastructure in 98 hospitals across the country. The Healthcare Training Institute in Nairobi was launched by General Electric in June 2016 to support a program that sought to modernize healthcare delivery. Another initiative, the Gorge Farm Energy Park plant which was also launched in 2015 is powered by engines from General Electric. This is the largest bio digester plant of its king in East Africa; it utilizes sunshine and organic waste to create renewable power of up to 2.2MW.

1.2 Research Problem

Advancement in technology can have a sudden and sensational influence on the performance of a firm. Firstly, technological advances can essentially change the interest of industry's items or administration (Barnat, 2005, and Business teacher, 2012). In addition, propels in innovation can influence an association's activities too its products and services. Barnat (2005) additionally expresses that these progressions may influence preparing strategies, crude materials, and advertising and administration conveyance. Consequently, advertisers should monitor the progression and development in technology, nature of changes in technical condition and the decent variety in firm

technology. Osuagwu, (2009) contended that organizations that stand their powerlessness to these outer natural components must have numerous phenomenal qualities including a versatile and adaptable administrative style, a balanced portfolio of products, and an all-around created insight and data framework intended to screen and envision ecological changes. Moreover, Ansoff (1988) recommends that the more turbulent the environment, the more forceful the firm should be as far as competitive techniques and entrepreneurialism or change introduction on the off chance that it is to succeed.

Studies have been conducted both internationally and locally on advances of technology. Internationally; Lancot and Teegen (2000) did a research on the influence of the acquisition of technology externally and internal research and development on the expected firm performance. Ahuja and Katila (2006) carried out a research on how firms can increase their innovation performance by using mergers and acquisition approaches to increase their technical acquaintance. Venkatraman & Ramanujam (2010) suggest that a firm that employs technology alliances strategy can really enhance their technological knowledge base and increase the innovative output. One of the main proof of the effect of innovation has been seen originating from the firm-level examination that is affirmed to various developed nations (Cohen & Levinthal, 2010).

Locally Ouma (2011) conducted a research on the influence of information and communication technology alignment to business strategy among commercial banks in Kenya. Muthoni (2013), researched on the influence of brand extension strategies on the performance of pharmaceutical firm in Kenya and established that local pharmaceuticals use brand extension to build brand knowledge. Kimwele (2017), conducted a study on technology acquisition strategies and the performance of companies who import and

distribute pharmaceutical products in Kenya and established that for the pharmaceutical firms to succeed technology acquisition strategy is one the strategy that has been adopted. There are limited studies that have specifically investigated the impact of technology on the firm performance of global firms as seen above. A majority of the studies have a very general scope looking broadly at business or marketing environmental factors from an external point of view without giving much depth and breadth to adequately and comprehensively analyze the technological influences and the firm performance. What is the effect of firm technology on the on the performance of General Electric?

1.3 Research Objective

The main goal of the study was to establish the relationship between the firm technology and the performance at General Electric Company.

1.4 Value of the Study

This study will add to the existing body of knowledge on the understanding of the linkage between firm performance and technology. This will be insightful to managers in designing the appropriate strategy that will take into consideration the IT capabilities of the firm into improving the performance.

Technology strategy adopted by electric products multinational will guide policy makers, government, regulatory bodies and other stakeholders to come up with policies and programs that will actively promote the growth of firms dealing with electric products in the country and develop guidelines that the companies can adhere to.

The study findings will also enlighten the management and stuff of the companies dealing with electric products on the importance of harnessing the technology resource especially in this internet and the competitive advantage they gain while doing so.

This study will provide background information to other researchers and scholars who may have an interest in carrying out further research to have a better understanding of the influence of technology on the firm's performance of the companies dealing with electric products.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this chapter, we reviewed the theoretical foundation of the study, explanation of each concept and the relationship between the two concepts and the empirical studies on the topic.

2.2 Theoretical Foundation

This section explained the two theories and how they relate with the two concepts that is firm performance and firm technology.

2.2.1 Resource Based Theory

This theory talks about the ability of a firm to focus and identify assets, capabilities and competencies that can be explored so as attain a competitive advantage. The theory proposes that firm can employ a range of strategies because it has varied resource combination which is costly to copy (Bowman & Ambrosini, 2009). The theory argues that if all firms had similar collective resources and capabilities, there would be no competitive advantage in the particular industry as these firms would not create varied value (Peteraf, 2009).

The resource Based Theory suggests that these resources and capabilities that cannot be copied by competitors since they are expensive are key factors to achieving a sustainable competitive advantage and result in increased firm performance. These resources should have value, should improve efficiency and effectiveness, should be unique and should be easily imitated. Resources that are within the firm are key in achieving the firm's profitability and strategic advantage.

The theory emphasis that Firms should plan and execute different action plans so as to achieve a competitive advantage so as to be ahead of the competition and eventually the returns will be highest in the specific industry of operation (Besanko, 2010).

2.2.2 Diffusion of Innovation Theory

The Diffusion of Innovation theory was developed by Everett Rogers and it explains how, why and the rate at which new ideas and technology spreads in a social system. Rogers explains that diffusion is whereby an innovation is passed on among people over a period of time in a social system. According to Rogers four elements impact the innovation itself, time, the spread of a new technology, communication channels, and a social model for example opinion leaders, social media and globalization. Rogers emphasis that technology adoption can be accredited to various variables such as relative advantage and ease of use. He went further to state that the future of technology adoption research must look at how other factors impact on usefulness, ease of use and user acceptance.

2.3 Empirical study and Knowledge gaps

Advances in technology can have an impact on a firm's operations as well its products and services. Barnat (2005) further states that these changes might affect production process, marketing and service delivery. Technology has become a very powerful tool as far as competition is concerned and is changing how the business is being run across industries. Galliers (2004) suggested that due to the speed in which technology is advancing and the impact this has the competitive environment, firms are driven to strategically relook at their management of information and technology resources if they are to meet the set out goals.

The advancement in technology has led to expansion of its applications and thus led to enhanced operations in different departments of the firms. One of the main proof of the effect of technology has been seen originating from the firm-level investigation that is affirmed to various developed nations (Cohen & Levinthal, 2010). The majority of the examinations did utilize a mix of development bookkeeping techniques and econometric models to inspect tests of ventures and firms. For instance in his study of firm-level information from the Australian business longitudinal overview, Gretton (2002) discovered positive and noteworthy connections between the utilization of technology and development in both assembling and administration industry.

The firm’s achievement can be described by its performance over a duration of time. Researchers have explored measurements of firm performance. Firm performance measurement enables a firm to compare the performance over a period of time and help the management to make strategic decisions as far as performance is concerned. Firm performance methods include; Accounting-based measurements. This method is an effective pointer of the firm’s profitability for a short period of time when a comparison is drawn with the benchmark rate of return equivalent to the risk adjusted weighted average cost of capital. The second technique is Market-Based Measurements. This kind of estimation is viewed as long term. Dissimilar to the record based this strategy has a forward-looking angle and furthermore reflects the investor's desires concerning the future performance of the firm dependent on past or current performance. The organization of market estimation of value may demonstrate the company's resulting development openings which could start outside of administrative decisions. Market-based expectations for firm performance may result in administration motivating force to

change their property based on future performance's expectation. Furthermore, the third technique is others Measurements. Some estimation can't be classified under bookkeeping or promoting estimation, for example, yield per staff, cost per benefit gave and cost per client served.

Brynjolfsson and Hitt (2000) investigate firm-level data from the United States and proved that technology impacts the productivity of firms. Experts and scholars in the firm field have proven that employing technology has an impact on the performance of a firm. Ravichandran and Lertwongsatien (2005) suggests and found that differences in firm performance can be explained by how well the firm has explored its technology capability and has been able to employ it to support firm's core competencies. They also found that the ability of a firm to effectively use technology to support its core competencies will depend on the nature of relationship between the human resource and technology. The outcome shows that there is a direct relationship between employing technology in core operations of a firm and the potential to enhance the performance of the firm. This can only be achieved if the technology capabilities are channeled to develop particular firm competencies.

From the review of literature covered in this section, it is evident that studies have been done on the need to embrace technology in firm's operations. Collombo & Robbiaso, (2014) conducted a research to examine the technological similarity on a firm's post-acquisition performance and he concluded that technological comparison destructively affects post acquisition innovation performance. Rodrigo,(2013) also carried out a study on technological variables and absorptive capacity's influence on performance through corporate entrepreneurship and found out that making full use of technologically skilled

people has a positive impact on the performance of corporate entrepreneurship. Kimwele, (2017) did a research on technological acquisition strategies in pharmaceutical firms in Kenya and concluded that firms needed to continuously enhance the technological knowledge base conduct research on the new technologies if they were to remain competitive and ensure it is a technology that would be costly to copy. The studies conducted have shown importance of information sharing in a firm in areas such as production, financial operations, marketing and service. Some researchers have shown that firms are looking for competitive success through exploring technology capabilities across departments. However there are limited studies on how the technology has impacted specific firms and the specific impact on the performance of these firms in a given industry. Therefore there is need to do research on the impact of firm technology on specifically the performance of firm's dealing with electric products.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter explained the manner in which the study was carried out. It contains the following areas: research design, data collection and data analysis.

3.2 Research Design

The research design that was adopted for this study is a case study, which concentrated on the firm technology in General Electric Company. According to Robinson (2013), a case study refers to a detailed assessment of an individual, phenomenon, or institution. This research approach allows a researcher to gather exhaustive material, deeper when compared to cross-sectional studies with a purpose of attaining a better understanding of occurrence or circumstance. Case studies assist in exploring the diversity of interrelated factors to come up with the distinctive appeal of the topic that is being studied. A case study places more emphasis on a comprehensive background analysis of fewer conditions or events and their relationship (Cooper & Schindler 2006).

3.3 Data Collection

The mode of data collection was a personal interview which was guided by an interview guide. This interview guide was thought suitable for this study so as to achieve deeper understanding of the influence technology has on performance at General Electric Company. The study adopted structured interview guide to be used in directing the interviews and entailed open-ended questions. The respondents were the head of departments in the firm who are involved in the company strategy formulation, implementation and evaluation.

They included the team leaders from Mombasa, Nakuru, Nairobi and Kisumu region, director of service, finance manager, business operations manager, IT Manager, human resource manager, sales and marketing manager and customer operations leader.

3.4 Data Analysis

The data was qualitative in nature thus content analysis was used to assess the answers from the respondents, eventually came up with conclusions and developed recommendations. Content analysis entailed reading and re-reading the interview answers looking for matches and dissimilarity in order to find subjects and to develop categories. According to (Kothari, 2004) content analysis entails examining the contents of written materials such as books, magazines, newspapers and content of all oral materials which can either be spoken or printed. Further Hsieh & Shannon, (2005), asserts that content analysis is the organized qualitative description of the structure of the objects or materials of the study.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSION.

4.1 Introduction

This chapter entails analysis of the data collected and discussions. The study's objective was to investigate the relationship between firm technology and firm performance at General Electric. A broad interview guide was used to collect primary data and it was administered to the managers who are directly involved in the company strategy formulation, and implementation. Secondary data was collected from General Electric's website. The data was then analyzed using content analysis built on the objective of the study and the outcomes were presented based on the different subjects highlighted below.

4.2 Background Information.

The research established that that majority of the participants had worked in General Electric for over two years therefore they are familiar with the technology used in General Electric and the company's financial and non-financial performance and therefore the researcher was confident with the quality of the responses. The respondents have more experience and comprehend the market forces that General Electric faces and hence the importance of technology acquisition as a strategy so as to improve performance. The study also established that the company has been in Kenya for over five years with over 140 employees that means it has been in Kenya long enough to know the changes that have taken place in the industry and the importance for General electric to pursue the firm technology as a strategy to be competitive in the market and thus improve the company's performance.

4.3 Firm Technology

The results show that majority of the respondents were males who had achieved masters level of education. .The responses show that all the respondents agreed that General Electric Company had embraced technology and use of technology services which had improved the performance of the company considerably.

Majority of the respondents said that General Electric Company uses technology in all its operation. The employees are conversant with the technology; every new technology introduced the company takes time to train the employees. The employees had official laptops each with installed applications that were relevant to each employees' job description. The laptops are replaced after every two years and the employees are provided with laptops with updated operating systems and processors that could handle any new application and systems developed. The respondents confirmed that the employees were also provided with mobile phones that can as well handle the same applications installed on the laptops thus if it's a meeting the employees could join in via skype from their mobile phones.

The respondents revealed that the technology has enabled the company deliver modern equipment with superior operational specs such as the cyclotron ,giving value for money and access to the most current technology to the end customer with an uptime of over 95% a quarter.

The responses also showed that the employees had been provided with Virtual networks so as to be able to access the company's systems securely anywhere the employee might be not necessarily in the office. Each employee is provided with a safaricom broadband modem to be to access internet since all operations are system based.

This had made it possible for employees across the world to share information and also ensured there was uniformity in the way of working for instance if the Kenya commercial manager was on leave the south African commercial manager can comfortably step inn without having to be in Kenya.

Most of the participants confirmed that the technology has led to enhanced and modern products that consumers are ready to pay a higher price for and solutions that solve global problems like healthcare, power and generally improve lives of the public. General Electric manufactures Innovative products, better technology than competitors. For instance, it was the fast company to manufacture part of jet engines made of carbon fiber composite reducing the weight of the engine and thus the fuel consumption of the engine. The responses showed that General Electric uses technology across all operations such as analyzing the market, determining cost and price, doing technical customization, doing documentation, holding trainings, marketing and holding meetings.

The respondents said that the company updates its technology frequently. The company's research and development is constantly coming up with a new innovation. The technology needs constant updating to remain relevant as the market keeps changing. For Example A costing tool needs to be updated constantly because of the changing prices of labour, foreign exchange rates. It takes up a lot of investment to develop or update technology therefore products are more expensive and it can be hard to convince a customer to buy our solutions if they are not interested in spending more than their budgeted amount. These innovations are prompted by the market trends, forces of demand and competition thus the need to stay relevant in the market.

The respondents said that General Electric has invested heavily in building and growing its technology for both employee and customer use as compared to other companies. General Electric has 9 technology centers around the world driving advanced technologies for all of General Electric's industrial businesses. General Electric has a store that helps combine technologies from all General Electric businesses, which helps to transfer technical knowledge from one business to another.

The respondents said that General Electric stored all its data in the cloud for ease of access and protection of data in case of theft of devices, such as, laptops and phones. This has helped in retrieving of data from a computer in case the computer crashes ensuring that the employee will comfortably pick up from where they left from during the crash.

4.4 Performance

The findings revealed that technology advancements have enabled General Electric to stay relevant in the markets that they participate in, in today's ever changing world. General Electric has become known as one of the world leaders in their use of advanced technology in their products. It is a technological industrial leader. This has led to the growth and diversification into varied business sectors.

Majority of the respondents explained that they are able to tell the outcome of using technology the company's financial reporting tools such as the profit and loss statements. All the company's activities have a line item on the profit and loss statement thus any innovation can be analyzed to establish if its loss making or profit making. This helps the management in quick decision making.

The results showed that technology enabled General Electric increase its competitive positioning. Technology has led to increased productivity of the company, increased company sales, increased efficiency in distribution of the products to the consumers and improved customer satisfaction and loyalty.

Majority of the respondents said that use of technology had improved performance at General Electric. Use of technology had improved data and knowledge management, employee's efficiency, company accountability, improved service delivery to the customers. Use of technology had attracted investors and partners. Use of technology had enhanced monitoring and evaluation of the company's targets and achievements. Use of technology had made it easy to produce performance reports for the customers and thus provide a accountability to the customers and therefore enhance loyalty. Pulling of the reports from a system enhances accuracy as opposed to manual kind of tracking. The respondents confirmed that use of technology had helped the General Electric to track the set objectives and targets and thus ensure the company was on track as far as achievement of these objectives are concerned.

The respondent said that the use of technology had enabled General Electric to respond to customers faster, anticipate customer needs and work with the customer to find solutions. General Electric is not only able to manufacture equipment, but it helps the customer define solutions from the design stage(helps customer to design products with advanced tools), manufacturing(manufactures product with state of the art equipment with good quality management systems), installation, operations and maintenance (use of real time analysis to predict, avoid and resolve future failure problems). This has led to increased sales both in products and the service delivery.

The respondents also said that use of technology has led to reduced costs, increased market share. The technologies also enhanced customer purchase of products since it was possible to demonstrate the functionality of the products even before purchase creating customer satisfaction and loyalty.

Majority of the respondents confirmed that most customers prefer to buy a product from General Electric despite the high prices than buying from its competitors this is because the electronic products are made from modern technologies. Majority of the respondents gave the example of the ultrasound machine from General Electric which can perform 4D-examinations.

The respondents said that more information is consolidated and can be stored in one accessible place. Tools have been developed to help design and customize the technical aspects. System based processes have been put in place to help calculate costs and prices of products faster so as to respond to the customer faster when quoting for the products. System based tools that enable analyze the market and help determine market projections have been put in place. There are also tools that enable virtual training across the world. This cuts on the cost required to travel to get the training in another country.

Majority of the respondents confirmed that the value of General Electric as a brand is higher compared to its competition in the same industry this can be attributed to the fact that all the products and services use technology.

4.8 Discussion

As a company that has been in existence since 1892,General Electric has been involved in all aspects of human life from lighting, household equipment, power, healthcare. These have been through research and development helping General Electric rise to one of the biggest industrial companies in the world. General Electric in Kenya has established its niche in Healthcare competing with companies such as Phillips, Siemens to provide healthcare high end products. General Electric Healthcare business offers healthcare digital solutions in diagnostic imaging, performance improvement solutions and biopharmaceutical manufacturing technologies. Among the services offered in the company's Healthcare Systems is a variety of services and technologies such as clinical systems and diagnostic imaging. The company's diagnostic imaging system provides computed tomography, digital mammography, magnetic resonance, surgical, x-ray, and molecular imaging technologies that make it possible for health professionals to have a more clear picture of the inside of the human body. Moreover, healthcare segment provides services including remote repair and diagnostic services for medical equipment manufactured by the company as well as equipment from other companies.

General Electric company has developed over the years because of the strategies laid out to direct the growth; this therefore suggests that for a company to prosper it must put in place strategies that match the current business environment demand. One of the strategies put in place by the firms is technology acquisition strategy. The adoption and usage of any acquired technology is however dependent on several factors that were found to include market trends, technology capability of the company, technological relevance and finances and human resources.

Other factors that were found during the study were the absorptive capacity of the company, firm customers and competitors and perceptions of the firm's employees. The findings of the study were found to be the same as with the study by Cohen and Levinthal (2010) that established that key factors influencing technology acquisition in many firms are firm strategy, market trends, technological capability and technological relevance. These are the primary factors, which also are affected by factors internal to the firm, such as the firm's finances and human resources, and the immaterial factors relating to the uncertainty associated with the acquired technology, and the experience level and perceptions of the firm's employees.

The growth of technologies has enabled General Electric Company to be innovative and lessen dependence on external technology. The innovativeness of the company has strengthened employee communications in the company leading to a cohesive working environment. The results were found to be in line with Hagedoorn (2009) findings that internal innovations strengthen the relations among individuals in an organization. Investing in internal research and development brings about new innovations, as well as development in the flow of novel scientific knowledge into firms.

Veugelers and Cassiman (2012) noted that a robust knowledge base is the key to positive improvements in technology. The base for new technological developments is the in-house knowledge base of a firm. The aggressiveness in increasing competition is a factor that has contributed to continuous innovation in General Electric and continuous update of technology. Challenged with ever changing technological environments firms need to possess the ability to constantly update their technological knowledgebase in order to survive.

General Electric has been able to utilize the resources that would have been used in technology innovation in core technological competencies. The findings of the study were found to be consistent with Jones et al.,(2011) findings that external technology acquisition enables firms to acquire the best technology that is available, minimize time to market, and concentrate their capabilities and resources on core technological competencies. Haspeslagh and Jemison (2011) findings were that the external acquisition of technology in firms makes it possible to concentrate on the core competencies while depending on firms from outside for corresponding skills and capability. In addition, the acquisition of technology offers flexibility in terms of strategic decision making for technology development.

Today's business environment is changing at a higher rate than in the past. A combination of internal research and development and external technology sourcing through alliances positively reinforces firms' innovative output. The input of acquiring external technology to firm performance rises with the level of internal research and development efforts. The combination of external technology sourcing and internal research and development can be beneficial to firms in the long run. As General Electric faces pressure from increased competition, growing product complexity and shortening product life cycles, the company is finding the need to change the way it develops new technologies, products and services.

In the modern world, technology is not only a tool for processing data and recording transactions, but also a competitive tool that can be used to alter the structure of an industry. The electronic industry has seen increased usage of technology by the firms in order to have a competitive edge over other players in the industry.

The study proven that the firm's technology has seen General Electric increase their competitive position in the industry, increase sales, efficiency in distribution of products, market share and reduced costs. The technologies further enhance customer purchase of products creating customer satisfaction and loyalty. The findings of the study were found to be agree with Brynjolfsson and Hitt (2003) findings that technology has a strong influence on productivity and on the performance of the organization's activities.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The chapter covered summary, conclusions and recommendations of the study. The study focused on influence of technology on performance at General Electric Company.

5.2 Summary of Findings

General Electric Company is in over 180 countries in the world with products and services ranging from power generators, aircraft engines, and oil and gas production equipment to medical imaging, financing and industrial products. General Electric's business include Capital, Power, Oil & Gas, Aviation, Renewable Energy, Healthcare, Transportation, and Energy Connections & Lighting. All these segments use technology in building the products and provision of services. General Electric technology transforms livelihoods; each traveling person getting home safely, every sick person who attains better health and every moment energy is needed, General Electric is there.

The study established that General Electric uses the customer relationship management system to record and track customer activities, what products they have, payment history, previous issues raised. The customer relationship management system is also linked with call management system which provides the call center agents real time summary to help handle the customer call satisfactorily. The broadband Connectivity to the equipment in the field, enables remote connection do initial troubleshooting and actually fix over 25% of reported cases without onsite intervention. Environment monitoring with modern technology and internet connection, we are able to monitor power, humidity, temperature that are critical for correct functioning of the equipment. Thus able to mitigate risks in

good time hence ensuring optimal up times for the customer's equipment. Strategic inventory management with a robust warehouse management system that is connected to the customer relationship management informs and thus only the more frequently consumed parts based on history and predictable future failures are stocked. This helps to better manage our inventory as a key metric for business reporting.

All the above have led to increased efficiency , effectiveness, time management ,cost cutting, customer satisfaction and retention which eventually has given General Electric a competitive edge; led to increased market share and has led to strong brand equity.

5.3 Conclusion of the Study

Challenged with the fast transformation in the technological environment and increasing international competition, General Electric Company continuously updates its technology knowledge base in order to survive. Firm strategy is one of its greatest influences in deciding to update the company’s technology but also market trends, technological capability and technological relevance has strongly influence the decisions made. Internal research and development has allowed the company to achieve a in depth indulgent of current internal and external knowledge, and consequently help the firm create new technological advances.

The study concludes that it is unavoidable for firms to use internal research and development to enhance their innovative capabilities. The findings evidently show that internal technology is important for firms’ technological capabilities and long-term competitive advantage. It is paramount for firms to invest on internal research and development for technological renewal and long term competitive advantage

The study concludes that technology acquisition was important for General Electric Company as it has enabled them to increase their competitive position in the industry, increase sales, increased employees effectiveness, efficiency in distribution of products and offering of services, increased market share and reduced costs. The technology further enhances customer purchase of products creating customer satisfaction and loyalty. All these are measures of performance thus technology has actually led to improved performance at General Electric.

5.4 Recommendations

The study found out that technology acquisition has enabled General Electric Company to improve performance; however the need and the kind of technology to be developed is only discussed with the managers yet they are not day to day users. This has led to slow uptake.It is recommended that the customer facing employees' insights to be sought during the process of decision making. This is because they get first hand feedback from the users and this would hasten adoption of the technology by the users.

The study also recommends that a better understanding by the employees of the relationship between technology and productivity will further aid in framing the right guidelines for the General Electric and increase the rate of new innovation adoption.

General Electric has many systems and applications some of which overlapping the mode of operation. It is recommended that more research to be done to reduce the number of systems and platforms that the company uses to conduct business can make the processes simpler and faster without jeopardizing the quality.

General Electric has had change of management within a short duration of time. Every new management comes up with new strategies and objectives without seeing through the predecessor's innovations. It is recommended that a new management to see through the initiated innovations without going back to the drawing board. This would reduce time taken to come up with a new innovation.

This study provides evidence for policy makers that technology acquisition into the country needs to be deliberate and properly regulated. This implies that firms' technology acquisition processes will not produce desired results if they are not tailored towards the unique needs of the company.

5.5 Limitations of the study

This research was a case study and therefore the research was limited to General Electric Company. Therefore the findings on the influence of firm technology on performance are limited to General Electric Company and hence cannot be generalized as solutions to other organizations.

The data collection was by use of in-depth interview guide, there were challenges in completion of the questionnaires at a go. The respondents were very busy executive team members and this being the last quarter of the year it was their busiest time. This meant that the process of data collection took longer.

5.6 Suggestions

Progressive study should be carried out to determine the other factors that have attributed to improved performance of General Electric Company other than the firm technology. Research can also be carried on other industries other than the electronic industry and also on other organizations besides General Electric.

The study employed interview guide as instrument to collect data therefore the conclusions were subjective to the opinions of each respondent. Therefore future studies, other instruments of data collection could be used.

REFERENCES

Ajayi,G.O (2002).African response to the information communication technology revolution. ATPS Special Paper No.8.

Becker, B. E., & Gerhart, B. 1996. The impact of human resource management on organizational performance: Progress and prospects. *Academy of Management Journal*, 39: 779-801.

Bjork, BC. (1999).Information technology in construction: domain definition and research issues.

Bowman, C. & Ambrosini, V (2009). How the resource-based and the dynamic capability views of the firm inform corporate-level strategy, *British Journal of Management*, 14. (4), 289-303

Brynjolfsson, E. and L. Hitt (2000). "*Beyond Computation: Information Technology, Organizational Transformation and Business Performance*," Journal of Economic Perspectives14(4): 23-48.

Cassiman, K.D & Veugelers (2006). Organizing for technological collaborations: A managerial perspective. R&D Management 28 (3): 199-212.

Central Bank of Kenya (2001). Kenya monthly economic review, August, Nairobi, Republic of Kenya.

Central Bureau of Statistics and Ministry of Finance and Planning (1996). Statistical abstract 1996,Nairobi, Republic of Kenya.

Cho, H & Pyung-Il,T (2010). Outsourcing and its impact on Operational objectives and Performance, *Mid-American Journal of Business*, 18 (2), 65-72.

Cohen,M & Levinthal, W (2010). Strategic procurement outsourcing: a paradox in current theory, *International Journal of Procurement Management*, 1 (1-2), 166-179.

Cole, G.A. Management Theory and Practice. Sixth Edition. TJ International, Padstow Cornwall, UK.

Colombo, M.G. & Rabbiosi, L.N (2014) Research Policy 43 (2014)1039–1054.

Cooper, D. R., & Schindler, P. S. (2006). Business Research Methods .9th edition. USA: McGraw-Hill.

Daft, R. L. (1997). Management. Orlando, FL: The Dryden Press

Daim,M. D & Kocaoglu, W (2008). Strategic models for the formulation of an effective make or buy decision, Management Decision, 35 (2),169-178.

Davis, F. D. (2009). Perceived usefulness, perceived ease of use, and end user acceptance of information technology, MIS Quarterly, 13(3),319-340.

Durani, G., Forbes, A.K & Carrie, O. (2008). Information Technology Implementation Strategies for manufacturing organizations. *International Journal of Operations and Production Management*,4(2) 77-100.

Evans, P. & Wurster, T. (2009). Strategy and the New Economics of Information. Harvard Business Review, 70-82.

Everett M. Rogers, Diffusion of Innovations, Fifth Edition 2003, Free Press, New York.

Feeny, D. F., & Willcocks, L. P. (1998). Core IS capabilities for exploiting information technology. Sloan Management Review, Spring, 39(3), 9-21.

Galliers, H.O. (2004). Accessing external sources of technology. Research Technology Management 39 (2): 48-56.

Gretton, H.W (2002). Swimming with sharks: Technology ventures, defense mechanisms and corporate relationships. Administrative Science Quarterly 53 (2): 295.

Hacker, D.,& Saxton, G.D. (2007). The strategic use of information technology by nonprofit organization: Increasing capacity and untapped potential. Public Administration Review, 67(3), 474-487.

Hagedoorn, J.R (2009). The core competence of the corporation, Harvard Business review, 68 (3), 79-93.

Haspeslagh. M & Jemison, G (2011). An analysis of the supplier selection process, *International Journal of Management Sciences*, 26 (6), pp. 739-750.

Hobday, M. (2000) The project-based organisation: an ideal form for managing complex products and systems?. Research Policy, 29 (7-8), 871-893.

Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. Qualitative Health Research, 15(9), 1277-128.

Jones, K,. Lanctot, R. & Pizzurno, E (2011). The externalization of R&D activities and the growing market of product development services, R & D Management, 34(1), 65-75.

Jones.K.,Hickie, S. & Tang, G (2004) The Role of Information and Communication Technology in Supply Chain.

Kanuna, G (2013).Effects of Information communication technology on financial performance of document Handling Limited, Unpublished MBA Project, university of Nairobi.

Kennerle, M. and Neely, A., 2002, *A framework of the factors affecting the evolution of performance measurement systems*, *International Journal of Operations & Production Management*, Vol. 22 No. 11, 2002, pp. 1222-1245.

Kimwele, A (2017). Technology Acquisition Strategies And The Performance Of Companies Who Import And Distribute Pharmaceutical Product In Kenya Unpublished MBA Project, university of Nairobi.

Knack, S. and Keefer, P., 1995, Institutions and economic performance: Cross country tests using alternative institutional measures, Centre for Institutional Reform and the Informal Sector, The World Bank: Washington DC.

Kothari, C. R. (2004). Research Methodology: Methods and Techniques. 2nd Ed. New Age International Publishers. India.

Krishnaswami,O.R.,(2003).Methodology of Research in Social Science. Mumbai: Himalaya publishing House.

Kueng, P., Process performance measurement system: a tool to support process-based organizations, Total Quality Management, Vol. 11, No. 1, 2000, pp. 67-85.Modell, S., 2001.

Lanctot, M. & Teegen, V (2000). Outsourcing and its impact on Operational objectives and Performance, *Mid-American Journal of Business*, 18 (2), 45 -67.

Lin, C. (2011). An examination of board and firm Performance: evidence from Taiwan. *The International Journal of Business and Finance Research*, 5(4), 17–35.

Lin, Y.-F., Liao,Y.-C., & Chang, K.-C. (2011). Firm performance, corporate governance and executive compensation in high-tech businesses. Total Quality Management & Business Excellence, 22(2), 159–172.

Lin.W.& Wu(2010). Transfer of Technologies: A Cross-disciplinary Taxonomy. *The International Journal of Management Science*, 33, 189-202.

Mintzberg, J (1998). Framework for outsourcing manufacturing: strategic and operational implications, Computers in Industry, 49 (1), 59-75.

Moon, W. (2008). Technological paradigms and technological trajectories: A suggested Interpretation of the determinants and directions of technical change. Research Policy 11 (3):147-162.

Mugenda, O. M., & Mugenda, A. G. (2003). Research methods: Quantitative and Qualitative Acts Press, Nairobi.

Peansupap, V. &Walker, D. H. T. (2005) Factors affecting ICT diffusion: a case study of three large Australian construction contractors. Engineering Construction and Architectural Management, 12 (1), 21-37.

Porter, M. E., & Millar, V. E. (1985). How information gives you competitive advantage. Harvard Business Review, July-August, 63(4), 149-160.

Ravichandran, F.T & Lertwongsatien, R.D. (2005). Balancing internal and external knowledge acquisition: The gains and pains from R&D outsourcing. *Journal of Management Studies* 47 (8): 1483-1509.

Richard et al. (2009): Measuring Organizational Performance: *Towards Methodological Best Practice*. Journal of Management.

Rodrigo, M.F. (2013). Cooperatives and Technology Adoption. Evidence from Ethiopia.

Sˆderbom, M.and F. Teal (2000). Skills, investment and exports from manufacturing firms in Africa, *Journal of Development Studies* 37, pp.13-43.

Sekaran,J.E.&Bougie,M (2010). Methodology of Research in Social Science. Mumbai: Himalaya publishing House.

Thompson. A. (2007) Strategic Management: Concepts and Cases, Irwin, New York.

Venkatraman, N. and Ramanujam, V. (1986) Measurement of Business Performance in Strategy Research: A Comparison of Approaches. Academy of Management Review, 11, 801-814.

Veugelers,N.K & Cassiman, P. (2012). Product and process model of the technology sourcing decision. *Journal of Product Innovation Management* 20 (6): 485-496.

Wernerfelt, B. (2004). A Resource-Based View of the Firm, *Strategic Management Journal*, 5(2), 171-181.

Whisler. N (2000). The Impact of technology on Organizations, Praeger Publishers, NewYork, NY.

APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

University of Nairobi

School of Business

Nairobi,

Dated_____

Dear Sir/Madam,

Re: A Research Study on The Influence of Firm Technology on the Performance at General Electric Company.

I am a final year student at University of Nairobi studying masters of Science in Global marketing and am carrying a research study on the influence of Firm technology on performance at General Electric Company in Kenya.

I am collecting data on this topic and am conducting an interview on this study. The findings of the study will be used purely for academic purposes and it will be treated with utmost confidentiality. Your cooperation will be highly appreciated. Thank you.

Yours Sincerely,

Amina Deborah.

D65/87430/2016

APPENDIX II: QUESTIONNAIRE

SECTION A: **Demographic Information**

1. Which department do you work in
2. How long have you been in the company
3. For how long has this company been in Kenya for
4. On average how many employees are there in Kenya?

SECTION B: Firm Technology

1. What do you understand by the word technology?
2. What are the areas of operation does General Electric use technology?
3. How often does General Electric update the technology?
4. How favorably does General Electric technology compare with other companies?
5. What do you think are the factors that have influenced General Electric technology development?
6. How conversant are the General Electric employees with the technology?

SECTION C: **Firm Performance**

1. What do you understand by performance of a firm?
2. Has the use of technology changed the way of working in your department?
3. What do you think is the value that advances in technology has brought in General Electric as a company?
4. Would you say that use of technology has led General Electric to perform better in the market as compared to its competitors?

5. What are the challenges can you say you have faced in using the technology in General Electric?

Please give suggestions/recommendations on how else the use of technology has improved the performance in your company.

_____

_____

Thank You for Your Time and Cooperation.