

Strategic Management Factors Affecting Performance of Thermal Power Generation Companies in Kenya

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ABSTRACT

Electricity has played a central role in the economic development of countries since the wake of industrialization of nations and the demand for this strategic commodity and input has undergone a significant growth. This has caused researchers to become more focused on the factors affecting price and production costs and seek solutions to increase the efficiency in power generation. The general objective of this research study was to establish the strategic management factors affecting performance of thermal power generation companies in Kenya. Four key strategic management factors were selected for this study that affects performance of thermal power companies in Kenya which formed the specific objective of the study, they include; cost of fuel, customer relationship management (CRM), quality management and competitive strategy. The finding of this study was to assist shareholders in decision making process in terms of the investment to engaged in, government in reviewing and formulating policies in the energy sector and managers in focusing on their competitive areas while seeking solutions in there weaker areas in terms of performance. Literatures and theories were reviewed to seek various opinions and views from different authors in the area under study. Three theories of resourced based view, Stakeholder and resource dependency theories were considered. The conceptual frame work presents the relationship that exists between dependent and independent variables. The study criticized some of the literatures and presented the research gap where this study seeks to fulfill. The research study applied a descriptive research design. The target population was the 80 employees of Rabai Power Limited comprising of the four departments of operation, maintenance, procurement and administration. The sample size of 67 respondents out of the total population was obtained using the Slovin's formula for sample determination. This was equivalent to 84% of the target population which was drawn using simple stratified random sampling technique to promote the need for efficiency and representativeness from various departments. Both primary and secondary data technique was used to collect data for the purpose of analyzing these factors that affect performance.

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Introduction

The primary data was collected using self-administered questionnaire procedure and was administered to the selected respondents through drop and pick later method, while secondary data was obtained from dispatch report, logbook, and handover reports and work orders that were available within the company premises. Data was analyzed by use of multiple regression analysis with the aid of Statistical Package for Social Science (SPSS) version 20. The correlation between the four strategic management factors were evaluated by using various statistical tools and instruments. The finding revealed that that strategic management factors had a positive influence on performance of thermal power generation companies. The overall results indicated that there was a positive linear relation between CRM, quality management and competitive strategy while cost of fuel had negative relationship. The study recognized strategic management factors as some of the tools that propel performance.

It therefore recommended to thermal power generation companies to embrace the adoption of these factors.

The demand of electricity in the world has been increasing rapidly in developing countries which have posed a great challenge to meet such demand, with the ever increasing emphasis on minimizing the impact on the environment (Zhou, et al., 2010). These challenges can be addressed by focusing on the right mix of strategies which will ensure that demand is met while maintaining level of competitiveness in the market. Industry players employ pricing strategies that seek to satisfy demand and at the same time sustain their operation. The pricing strategy is dependent on the prevailing government policy and regulatory framework (Xu & Chen, 2006). Due to factors other than internal operative conditions, companies are forced to develop and implement competitive strategies in order to match industry environment and enhance performance. This involves strategic investment in both customer relationship management and human resources so as equip the company in meeting its set objectives.

The power sector in Kenya has been developing with the installed capacity expected to rise to 5000MW as envisaged in the vision 2030 aspiration (ERC, 2013). The country has heavily relied on hydro power plants that are affected by changes in the climatic conditions forcing the government to resort to liberalize the energy sector (Government of Kenya, 1996). This led to growth of thermal power plants that are run by Independent power producers (IPPs) and to the extreme circumstances, emergency standby diesel power suppliers are used. Due to the need to reduce the impact of power demand on the environment, the sector has welcomed investment in renewable energy that has led to growth in the geothermal, wind and solar power companies.

As a result of the changing power industry environment and increasing demand from consumers, it has become necessary for the industry to implement a strategic management approach in their operations that focus on increasing organization performance. This will be reflected in the overall plant profitability, sales growth, market share, better specific fuel oil consumption (SFOC) and in the bottom line increase in availability, reliability and utilization factor

Overview of Kenya energy Sector

The energy mix in Kenya can mainly be defined by three sources biomass, petroleum and hydropower. 68% of the energy consumption in Kenya comes from biomass, while petroleum and electricity account for 22% and 9% respectively. Among all this hydropower generation dominates the electricity sub sector with a margin of 57%, followed by fossil based thermal at 32%, geothermal at 11% and while other forms of renewable energy accounts for 1% i.e. biogas, wind, micro hydro, solar (Mwangi M. , 2005). Since the country largely depends on hydropower generation, electricity in Kenya has become unreliable due to unreliable rain patterns. This has caused great drawbacks to the economy as companies, industries and organization suffers lack of electricity for long hours.

Electricity supply structure industry in Kenya can be traced back during the reforms that were introduced in the power sector in the mid-1990s. In the year 1996, a policy paper on economic reforms Government of Kenya (1996) liberalized power generation as part of power sector reform effort. According to Onuonga (2012), the reforms in the power sector lead to the separation of power generation and marketing. Further reforms attracted a number of independent power producers (IPPs) who constituted important new players alongside the state owned utility at the generation and distribution level. The advent of the thermal power generation companies that are managed, maintained and operated by the independent Power Producers (IPPs) can be traced back when power generation was liberalized. The country had experience power shortages due to the impact of prolonged draught that nearly crippled the economy (Wainana & Kagiri, 2009).

Thermal Power generation companies are facilities that produced electrical energy which is a secondary energy source by using the primary energy sources; it is a complex engineering system which provides electric power for domestic, commercial, and industrial use. It is argued by Kuria (2013) that the energy generated by this power plant is delivered practically on real time and there is no convenient method to store it. This makes necessary to maintain a continuous and almost instantaneous balance between production and consumption of electricity in power systems.

The increasing competition by other players in the power industry has made thermal power generation to decline as a percentage of the total output even as installed generation capacity and power output have increased significantly. Due to this rapid change, thermal power companies needs to employee strategic management approach in their operations in order to match the ever increasing industry environment and enhance the overall organization performance. This study therefore seeks to assess the factors affecting performance of thermal power generation companies in Kenya with view of analyzing four key strategies on cost of fuel; customer relationship management, quality and competitiveness on overall organization performance.

Overview of Rabai Power Limited (RPL)

Rabai power limited is a 90MW thermal heavy fuel oil (HFO) power plant located in Rabai, 20km from Mombasa, it is a joint venture between Aldwych International (34.5%), Burmeister & Wein Scandinavian Contractors AS (BWSC-25%), and Industrialization Fund for Developing Countries (IFU) of Denmark (20%) and the Netherlands Development Finance Company (FMO). The power plant consist of five 17.5MW W18V46 Wartsila 4-stroke medium speed diesel engines (MSD) each coupled to a generator. The engines provide dependable power production and high availability by ensuring optimal plant performance (Wadeson, et al., 2007)

The power plant is one of the most energy efficient and cleanest thermal fuel plants in East Africa as it uses the heat energy, a by-product of the engines' exhaust gases to drive a steam turbine generator to produce an extra 8.5MW of power to the national grid. The plant provides a firm supply of electricity that assist KPLC stabilizing the grid dynamics and meets the increasing demand for reliable and affordable power, thus contributing to economic growth by combating power shortages in Kenya (Eberhard & Gratwick, 2011)

As one of the largest Thermal IPP (Independent Power Producers) Power Generation Company in the country, Rabai Power Limited is a major milestone in the Kenyan Government's long-term energy plan. It provides a thermal, cost-effective and reliable power supply to meet the country's increasing demand for electricity through the Power Purchase Agreement (PPA) that was signed between Rabai Power Limited (RPL) and the Kenya Power & Lighting Company (Ministry of Energy, 2011)

Production from Rabai Power plant ended power rationing in the coastal region of the country as the full plant provides power for up to 400,000 households and businesses. The plant allows for the partial displacement of less efficient plants and back-up generators which has been dormant for period of years. Rabai Power Limited as a thermal IPP plant not only relieves government from financial burden of capacity of expansion in the power sector, but also leads to more competition, higher efficiency and ultimately lower electricity rates to the final consumers (BWSC, 2010)

Kenya being a developing country is faced with challenges in the energy sector similar to those faced by other global energy sectors. The challenges of government policies and regulation, underdeveloped infrastructure, price volatility of fossil fuel, lack of adequately trained human resource and general facility operation challenges have affected the overall performance of the industry. It is therefore necessary for the industry players to employ a strategic management approach in managing the dynamic and unpredictable environment.

According to the International Energy Agency (2013), electricity system cannot function without its distribution and transmission networks as they determine the cost-efficiency and reliability of the overall electricity systems (generation, transmission and distribution). Inadequate electricity infrastructure remains a major obstacle toward Kenya achieving its fully economic growth potential. Karekezi and Kithyoma (2002) argued that, Kenyan grid contributes to a large portion of operational challenges which in turn affects thermal power generation. Power thefts, weak distribution network, aging installation and illegal connections characterize the grid. Interference with the transformers destabilized the grid leading to outages and blackouts.

On the other hand, the government of Kenya affected a number of policies to govern the energy sector. The country embarked on fundamental reforms in the energy sector after mid 1990s following the enactment of the Electric Power Act of 1997 and the energy Act of 2006 (Institute of Economic Affairs, 2015). Onyango, Njeru, and Munga (2009) argues that the reforms in the energy sector essentially involves vertical separation and gradual deregulation of competitive segments, from those that were regarded to have natural monopolistic characteristics and subject to price, network access, service quality and entry regulations. The expectation was that the regulatory mechanisms would provide more powerful incentives for regulated firms to reduce energy generation cost improve service quality in a cost effective manner and stimulate the introduction of new products and services in the market (Government of Kenya, 2015). However, the attainment of the above expectations faces several constraints and challenges. For instance, high power tariff has remained amidst continue domination in regulated and unregulated segments, difficulty in comparing stated owned companies with private sector players, weaknesses in institution and legal frameworks, limited and uncoordinated enforcements, inadequate technical capacities and external economic conditions.

Kenya Government introduced competition in commercial segments of electricity and petroleum sub-sectors through the Competition Act 2009 which empowers ERC and Competition Authority to implement and promote competition within the electricity sector (Onyango, Njeru, & Munga, 2011). Similarly the Kenya Ministry of Energy and Petroleum (2015) argues that the established reforms created a competitive electricity market for public and private generators, transmissions companies, distributors and sales players. The Kenya government has also shaken off over-reliance on climate-vulnerable hydropower and the expensive diesel power generators through diversification of energy sources. This diversification led to the influx of renewable energy such as geothermal energy, wind and solar power, which have created a competitive market structure for the expensive thermal power generators.

This study therefore seeks to fill this knowledge gap by analyzing this strategic management factors which affect performance of thermal power generation companies in Kenya.

Objectives

- 1) To assess the effect of customer relationship management on performance of thermal power generation
- 2) To determine the effect of quality management on performance of thermal power generation companies
- 3) To determine the effects of competition on performance of thermal power generation companies

- 4) To establish the effect technology on performance of thermal power generation companies

Related Literature

Theoretical framework

The pursuit of competitive advantage is indeed an idea that is at the heart of much of the strategic management literature. Understanding sources of sustained competitive advantage has become a major area of study in strategic management (Baldin & Eruola, 2011). Therefore strategic management theories emanates mainly from system approach, contingency approach and information technology approach. This study will concentrate on three theories; resource based theory, stakeholder theory and the resource dependency theory.

Resource Based View Theory (RBV)

The resource-based view of the firm (RBV) focuses on the firm's internal environment as a driver for competitive advantage (Wang, 2014). Similarly Baldin and Eruola (2011) argues that the resource-based theory specifies that in strategic management, the essential sources and drivers to firms' competitive advantage and superior performance are mainly associated with the attributes of their resources and capabilities which are valuable and costly to copy. According to Raduan, Jegak, Haslinda, and Alimin (2009), a link exists between firm resources and sustainable competitive advantage. They further classified firm resources into six categories: physical resources, financial resources, human resources, technological resources, organization process and reputation. When these resources are rare, valuable, durable, imperfectly imitable, protected against transferability and non-substitutional, they become the capabilities that would gain an organization the sustained competitive advantages.

According to Fahy (2000), the resource-based theory of the firm has already made an important contribution to the field of strategic management. However this theory has been criticized as it lacks substantial managerial implications (Priem & Butler, 2001). It seems to tell managers to develop and obtain valuable, rare, inimitable, non-substitutable resources and develop a sustainable competitive advantage, but it is silent on how it should be done (Cannor, 2002; Miller, 2003). Gibbert (2006) argues that RBV's applicability is too limited and the notion of resource uniqueness, the melding of heterogeneity and immobility denies the RBV any potential for generalization. Critics further argued that RBV logic are ironically filled with contradiction and ambiguities. Its logic has produced seemingly incompatible implications and managerial scholarship and practice (Baldin & Eruola, 2011). Therefore the applicability of this theory in this study is to enable thermal power generation companies to address the issue of competition by focusing and strengthening their internal resources in order to attain a sustainable competitive advantage

Stakeholder Theory

The stakeholder theory focuses on how stakeholders' value can be applied to improve corporate performance and efficiency (Mwangi & Ngugi, 2014). They argued that the theory legitimizes the claims of stakeholders on the grounds of stake holding as an effective means to improve profitability, efficiency, competition and economic success. According to Freeman, Wicks, and Parmar (2004), the cooperation of stakeholder groups such as customers, suppliers, lenders, employees, and management are increasingly and vitally important in determining business success and corporate survival, therefore, corporate strategy

needs to ensure that the stakeholder interests are incorporated into, rather than ignored. Cooper & Owen (2007) claims that stakeholders have implications for the strategic direction of social enterprise, their representation at board level is beneficial because it encourages using broader range of sources in strategy development.

Mason, Kirkbride, and Bryde (2007) criticized the stakeholder theory as being incompatible with corporate governance since it allows accountability to more than one group. This raises the issue of identifying and prioritizing stakeholder groups, so it is important that it is clear to whom managers and directors are to be held accountable. According to Wagner, Alves, and Raposo, (2011), stakeholder theory creates incomplete interlink between the internal and external variable since it does not sufficiently explain the process. Further criticism by Key (1999) suggested that the theory incorrectly approaches the environment as something static focused upon the company and made up of stakeholder group. The applicability of this theory is to address the issue of customer relationship management through enhancing collaboration and merger strategy with other industry players such as KPLC and KETRACO to develop better working relationship and further enhance performance.

Resource Dependence Theory (RDT)

The theory seeks to explain how an organization's strategy, structure, and survival depend on its resources and dependency relationships with external institutions (Mathew & Ronald, 2005). They further argued that the theory stresses the impact of external forces on how organizations operate and proposes two broad principles: one is that organizations are constrained and depend on other organizations that control critical resources, and two that organizations attempt to manage their dependencies on external groups in order to maintain autonomy. According to Halebian, Devers, McNamara, Carpenter, and Davison (2009), RDT offers externally focused perspective of why a firm might acquire or merge with other organization. If an organization can join forces with another similar or complementary organization, there are many more resources available to the new entity. This reduction in competition and interdependence is the main reason for mergers or acquisitions.

There are several scholars supporting the usefulness of the RDT for studying organizational behavior. However, some scholars criticize the RDT. Nienhuser (2008) criticized RDT based on the lack of empirical testing of its basis premises, he argued that it is difficult and almost impossible to test all the hypotheses stated by the RDT. On the other Hillman, Michael, & Brian (2009) criticized RDT empirical work as focusing on dependence of one actor on another rather than on reciprocal interdependency. They further argued that it lacks discrimination between power imbalance and mutual dependence. The applicability of this theory is to address the issue of quality by enabling thermal power companies obtain quality fuel and genuine spares parts for its operation since these are critical resources that are controlled by external organizations.

Conceptual framework

According to Mugenda (2008), conceptual framework is a detailed description of the phenomenon under study accompanied by graphical representation of the major variables of the study. It is a diagrammatical representation that shows relationship between dependent variables and independent variables. The proposed framework integrates both resources and competitive environment as a source of

performance and drivers of strategy. The framework is summarized as follows.

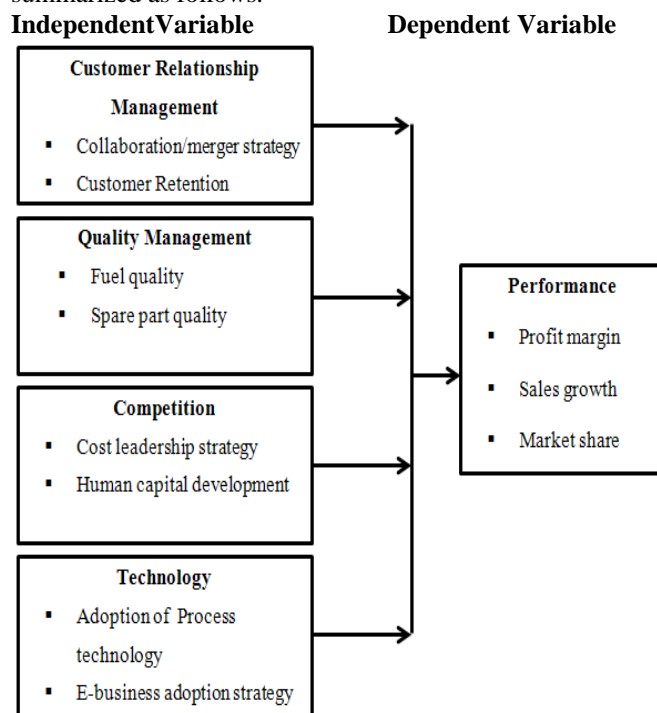


Figure 2.1. Conceptual Framework.

Customer relationship management (CRM) and performance of thermal power companies

Customer relationship management is a strategic management concept which has changed the way businesses are carried out (Obwongi, Namusonge, & Mzera, 2014). Chen & Popovich (2003) argues that CRM combines people, process and technology that seek to understand a company's customers. It is an integrated approach for managing relationship by focusing on customer retention and relationship development.

According to (Verhoef, 2003), a positive relationship exist between customer relationship management and organization performance because CRM is a comprehensive strategy for acquiring, partnering and retaining selected customers in order to improve quality for the company and customer. Coltman (2007) also suggested that CRM improves performance through its various processes because it enables companies to evaluate their efficiency in serving customers. Thermal power generation companies therefore have a duty to identify customer needs in order to plan how to satisfy them. This will create a successful working relationship with the customers and give thermal power companies a competitive advantage.

The primary goal of CRM according to (Fozia, Shiamwama, & Otiso (2014), is to improve long term growth and profitability through a better understanding of customer behavior. CRM aims to provide more effective feedback and improved integration to better gauge the Return on Investment (ROI). For thermal power generation companies to enhance CRM strategy, there is need for them to employ collaborative strategy to enhance performance. This will be achieved through partnering up with Kenya Power, KETRACO and other industry players to develop- upgrade the country aging electricity infrastructure.

Clay and Norris-Tirrel (2010) argue that when collaboration is used strategically, it produces positive impacts by strengthening organizations to effectively work together.

On the other hand, Weiss & Hughes (2005) affirm that collaboration allows firms to leverage employees' talents, to coordinate knowledge, and to respond more quickly to global opportunities. This strategy gives thermal power companies a competitive edge thereby enhancing their performance in the generation mix.

Another strategy that can be used to enhance CRM is customer retention which entails customer satisfaction, thus thermal power companies need to measure customer satisfaction regularly. (Lyu, 2000) Claimed that a highly satisfied customer stays longer, buys more, and promote the company which in turn improves overall company performance. In this study, the stakeholder's theory will improve corporate performance, efficiency, and customer relation management among industry players.

Quality Management and performance of thermal power companies

Quality in managerial terms is defined as a self-contained entity or process that is planned, managed controlled with the help of technical and managerial knowledge (Kelemen, 2006). Kuria (2013) define quality as the total features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs.

The generation process in thermal power companies has a great effect on the quality of the final product generated by each plant. A high level of quality control of the whole generation system process ensures thermal power companies attain competitive advantage (Wanyiri, 2010). Here the essence of competitive advantage is not simply pursuing product quality and process quality, but also performance of the whole energy generation system. Therefore quality of electricity is subject to fuel specification, procedures, quality spare part and quality operations (Kuria, 2013).

Spare part quality plays a critical role in determining the efficiency of the generators. During the research development and design stage, the generators were approved for the market using their original spare parts during the initial test (Ngatia, 2013). With liberation of the world market, companies have introduced alternative spare that are less expensive. These spares end up displaying flaws in attributes such as temperatures and fatigue. This lead to breakdowns hence unplanned outage which is a cost element in generation and thus affects the overall performance

On the other hand calorific value determines the energy inherent in the fuel (Graus, Voogt, & Worrell, 2007). Thermal power generation companies must use the fuel that has passed quality test since it will determine the maximum output from the generators. Omission on inspection compromises quality delivery. Poor oil specification leads to underutilization of the generators hence poor performance (Kuria, 2013). Transportation may also affect fuel quality. For instance transportation of fuel to the generation plant is sometimes marred by unscrupulous business people where part of fuel is sold and be replaced by water; if this goes unnoticed it will automatically lead system failure which will affect the overall plant performance. To address the issue of quality there is need for thermal power generation companies to establish dependency relationship with external suppliers to ensure quality goods or services are being delivered.

Competition and performance of thermal power companies

Attaining a position of competitive advantage and enhancing a firm's performance relative to its competitors are two main objectives that organizations should strive to

achieve (Alamin, Raduan, Haslinda, & Uli, 2010). In order for a firm attain a competitive advantage, business organizations must first understand the relationship between the internal strengths and weaknesses of their organization as well as the potential effects on their firm's competitive advantage and performance. Obwongi, Namusonge, & Mzera (2014) claim that organization that desire to perform must select strategies that give them competitive advantage over their competitors based on their core competencies.

The Kenya electricity sector has traditionally consisted of vertically integrated and government owned monopoly utilities, where KenGen a state owned utility generates the vast majority of electricity which accounts for almost 72% of the total generation mix and the remaining 28% are made up of the IPP's (Hofer, Hujber, & Koch, 2002). In general the Kenya electricity industry is still dominant by fully integrated companies operating more or less on each level of the value chain

The increasing competition in the electricity sector is as a result of new other players in the electricity generation market such geothermal power; wind power and solar power that have created stiff competition and significant implications on thermal power plant performance; it therefore requires thermal power companies to think in strategic and economic rather than purely technical terms (Wright, Shin, & Trentmann, 2013).

As a result of competition from other form of generation mix, thermal power companies should employ a low cost leadership strategy and gain competitive advantage by reducing the economic costs below the cost of its competitors (Valipour, Birjandi, & Honarbakhsh, 2012). The low cost leadership strategy will attempt to increase market share for the thermal power company by emphasizing low cost relative to competitors. Allen and Helms (2006) argues that to achieve cost leadership it may require a high relative market share which compels heavy capital investment in equipment, research and design, aggressive pricing, as well as the work a workforce that is committed to the low cost strategy.

Another strategy that thermal companies can employ is the human capital development strategy which is instrumental in increasing productivity and sustaining competitiveness. According to (Stiles & Kulvisaechana, 2003), there is evidence that demonstrates linkages between the development of human capital and organization performance. The emphasis on human capital in organization reflects the view that market values depend largely on intangible resources, particularly human resource. For thermal power companies to attain competitive strategy, they should not depend only on the bases of natural resources, technology or economies of scale which are increasingly easy to imitate. Rather, they should attain competitive advantage in accordance to the resource based view which depends on valuable, rare and hard to imitate resources that reside within the organization.

Technology and performance of thermal power companies

The accelerating pace of technological changes has made technology a major factor for many organizations. Some firm respond defensively, seeing technology as a problem while others through strategic use of technology gain permanent advantage (Eschenbach & Geistauts, 2009). In present global economic scenario, organizations who fail to advance technologically are at potential risk of lagging behind competitively as well as in terms of productivity (Shoeb,

2014). Thus thermal power plants just like any other organization have been forced to look for new sources of competitive advantage one of which was the use of technology. This is due to the current dynamic environment which demands that all organization to change both radically and incrementally.

Every organization uses different form of technology for their business which has a basic effect on the nature, design, structure and work of an organization. The scope of technology that an organization can adapt or employ is vast, ranging from something simple such as buying of personal computer to investing in the latest state of the art computer aided manufacturing machinery. The disparity amongst organization is observed due to competencies in different technology (Dasgupta, Gupta, & Sahay, 2011).

With the current dynamic environment and increased in competition in the energy sector, thermal power companies today integrated new process technology to gain competitive edge over others in terms of production and services. With the help of technology, there are remarkable changes in process like marketing, production, human development. Technology is useful in accurate decision making time and money saving. Moreover it has played a major role in conducting financial analysis and control (Shoeb, 2014). According to Dawson (2007) technology reduces cost, increases productivity, quality and reduces dependence on skilled labor.

Although, there are several implications of technology, two implications have the most influence in organization today. First one is the automation or new technology and the other one is the information technology (Sheridan, 2002). Automation, information technology or combination of both of these as termed as high technology (Shoeb, 2014). Communication technology enables organization to benefit from technical skills of employ around the globe whereas modern production system use computer based technology to integrate various aspects of manufacturing process in a better and improved manner to allow quick and cost efficient modification.

Technological research suggests that there organizational and technological factors that limit the use of technologies. Indeed there is evidence that numerous aspects such as organizational size, resources, management support and innovation history influence the extent of technology adoption (Dawson, 2007). Despite this, organization must welcome technology enthusiastically to survive in today's turbulent business scenario.

Performance of thermal power companies

Performance varies according to the various elements of the organization including, strategy, structure, environment, organization learning and resource (Weeks & Namusonge, 2016). According to (Obwongi, Namusonge, & Mzera, 2014), organization performance is generally concerned with the overall productive in an organization in terms of profitability, market share, sales growth and stock turnover. The economic global competition has intensified the necessity of organization to identify the drivers for sustainable performance. These drivers are no longer restricted to tangible factors but also include intangible ones.

Richard, Devinney, Yip, and Johnson (2008) claimed that organization performance incorporates three specific areas of firm outcomes: namely (1) financial performance (profits, return on assets, return on investment); (2) market performance (sales, market share); and (3) shareholder return

(total shareholder return, economic value added). They further argued that organization performance provide a useful potential to make meaningful comparison across firms and industries.

In this study, performance metrics will be measured in terms of financial performance on profit margin, sales growth and market share. The study opted for this metric since there is need for thermal power generation companies to undertake financial performance measurement because of its values to shareholders and managers. Additionally financial measurement will provide indicator of an organization success, sustainability and reason for its existence and will also portray the ability of an organization to operate above all costs (Obwongi, Namusonge, & Mzera, 2014).

Methodology

This study adopted a descriptive research design. A descriptive study is concerned with determining frequency with which something occurs on the relationship between variables (Byrman & Bell, 2015).

The research involves a total sample of 67 respondents from the targeted population. The researcher selected a sample of 67 respondents due to manageability and ensures more accuracy in data analysis. Sample size was obtained using the Slovin's formula

Research Findings

The study sought to establish the effects of strategic management factors on performance of thermal power generation companies in Kenya. The factors under this study were; customer relationship management, quality management competition and technology. The respondent were requested to indicate the extent to which these factors affects performance using a 5-point Likert scale whereby 1 was accorded to 'strongly agree', 2 points to 'disagree', 3 points to 'neither agree or disagree', 4 points to 'agree' and 5 point to 'strongly agree'.

A summary of tables for components of these factors has been discussed and presents an analysis of the mean and standard deviation of the various components.

Descriptive Analysis of Customer Relationship Management

The first objective sought to determine the effect of customer relationship management on performance of thermal power generation companies in Kenya with a specific interest in Rabai Power Limited. From the research findings in table 4.6 on customer relationship management, the result revealed that most of the respondents agreed that maintaining high customer retention, customer satisfaction and customer quality leads to high performance as shown by a mean of 4.04 and a standard deviation of 0.75. The company management also seeks to employ new technique of service delivery to enhance performance as shown by a mean of 3.80 and standard deviation of 1.03. This is a clear strategy that thermal power companies should focus on to have continuous improvement in terms of improving customer services. Adoption of collaboration/merger strategy to enhance performance had a mean of 3.65 and a standard deviation of 0.97 whereas majority of the respondent agreed that by tracking customer behavior through the sale cycle enhanced performance and was ranked the highest with a mean of 4.09 and standard deviation of 0.85.

Descriptive Analysis of Quality Management

The Second objective sought to determine the effect of quality management on performance of thermal power generation companies in Kenya with a specific interest in

Table 4.6. Customer Relationship Management.

	N	Mean	Standard Deviation
Company seeks to maintain high customer retention customer satisfaction, customer quality	54	4.04	0.75
Management employs new techniques of service delivery.	54	3.80	1.03
Adoption of collaboration/merger strategy to enhance CRM.	54	3.65	0.97
We strive to track customer behavior through the sales cycle.	54	4.09	0.85

Rabai Power Limited. Results in table 4.7 shows that most of the respondent agreed that using quality of fuel enhance smooth operation, efficiency and performance of a thermal power company with a mean of 4.39 and standard deviation of 0.79. Majority of the respondent strongly agreed that by using quality and genuine spare parts for maintenance work was ranked the highest with a mean of 4.46 and a standard deviation of 0.72. This signifies that thermal power companies need to use quality and genuine spare parts to avoid unnecessary breakdowns and downtime. Most of respondent agreed that by using quality tools to carry out maintenance work ensures smooth operation in all areas of power generation with a mean score of 3.87. Majority of the respondents strongly agreed that through research and development program product quality and service delivery will improve and was ranked with a mean score of 4.02 and standard deviation of 0.88.

Table 4.7. Quality Management.

	N	Mean	Standard Deviation
Company uses quality fuel to ensure smooth operation.	54	4.39	0.79
Use of quality & genuine spare parts for maintenance work.	54	4.46	0.72
Company has quality strategy in place.	54	3.78	0.95
Company uses quality tools to ensure smooth operation in all areas of power generation	54	3.80	0.98
We engage in research & development to improve quality of product & service	54	4.02	0.88

Source: Research Data (2017)

Descriptive Analysis of Competition

The third objective sought to determine the effect of competition on performance of thermal power generation companies in Kenya with a specific interest in Rabai Power Limited. Results in table 4.8 revealed that by offering low prices of the product, the company seeks to increase its sales volume with a mean score of 4.04 and a standard deviation of 0.80. Majority of the responded believed that by improving labor productivity through training, education and development program will improve overall performance shown by a mean of 4.19 and standard deviation of 0.75. Most of the respondent agreed that the company targets a specific market and prioritizes to meets the needs of its customer with a mean of 4.02 and standard deviation of 0.88.

Descriptive Analysis of Technology

The fourth objective sought to determine the effect of technology on performance of thermal power generation companies in Kenya with a specific interest in Rabai Power Limited. From the research findings in table 4.9, it was evident that majority of the respondents agreed that with the adoption of E-business will lead to sustainable competitive

Table 4.8.Competition.

	N	Mean	Standard Deviation
We seek to offer low prices of our product in order to increase sales volume.	54	4.04	0.80
Engaged in marketing promotion activities to increase sale volume	54	3.83	0.92
Improving labor productivity through training, education & development programs.	54	4.19	0.75
We constantly target a specific market & prioritizing in meeting our customer needs more than our competitors	54	4.02	0.88

Source: Research Data (2017)

Advantage and had a mean score of 4.04 and standard deviation of 0.73. For the thermal power company to remain effective and efficient there is need to adopt technology to enhance the business process. Most of respondents strongly agreed that investing heavily in research and development of any new upcoming technology that benefits the company and further enhance performance had a mean score of 4.13 and standard deviation of 0.78. since automation has become a resource for remaining competitive in the industry, most of the respondents agreed that process technology can be enhance better through automation since the company will benefit by improving on the performance of its business process and was shown with a mean score of 4.02 and standard deviation of 0.92.

Table 4.9. Technology.

	N	Mean	Standard Deviation
Adoption of E-business will lead to sustainable competitive advantage for the thermal power company	54	4.04	0.73
The company seeks to use automation to improve on its process technology and gain advantage	54	4.02	0.92
The company invest heavily in research and development of any new upcoming technology that will benefit them	54	4.13	0.78
We seek to modify our process technology to better our performance	54	3.93	0.91

Source: Research Data (2017)

Descriptive Analysis of Performance

From the research findings in table 4.10, the study sought to establish the influence of performance on the strategic management factors. Majority of the respondents strongly agreed that through better customer relationship management, the company has experience increased in profit margin as indicated by a mean score of 4.33 and standard deviation of 0.70. Most of respondent agreed that the company improved its overall performance through adoption of technology with a mean score of 4.20 and standard deviation of 0.79. Thermal Power Company needs to focus on strategic management factors that will give them competitive advantage over their competitors in order increase sale growth and achieve higher profit margin. Most of the respondents agreed that through better quality management, the company has experience improvement in its market share as shown by a mean of 4.06 and standard deviation of 0.88.

Table 4.10. Performance.

	N	Mean	Standard Deviation
The company has experienced increase in profit margin through better customer relationship management	54	4.33	0.70
Through competition the company has experienced increase in sales growth	54	4.07	0.75
The company has experienced improvement in market share through better quality management	54	4.06	0.88
The company has improved overall performance through adoption of technology	54	4.20	0.79

Source: Research Data (2017)

Correlation Analysis

Correlation is a technique that establishes relationship between independent variable and dependent variable. The study used Karl Pearson coefficient of correlation to show the relationship of the variables. From table 4.11 of Pearson's correlation, the results revealed customer relationship management has a strong positive effect on performance of thermal power generation company as given by coefficient of 0.790. The p-value obtain is 0.000 which is less than 0.05 and implies that the positive relationship is statistically significant. This is because CRM is a comprehensive strategy for acquiring, retaining and partnering with selected customers to improve quality for the company and customer (Obwongi, Namusonge, & Mzera, 2014).

The coefficient correlation between quality management and performance of thermal power generation company was 0.564 which indicates a positive linear relationship. The p-value obtained was 0.000 which is less than 0.05 and implies that the positive relationship is significant. Thus a company that implements quality management and a high level of quality control of the whole generation process seek to benefit from attaining competitive advantage (Wanyiri N. N.,

2010). This is because quality management enables a company to make operational its strategic objectives through the effective and efficient use of its resources.

The coefficient correlation between competition and performance of thermal power generation company was 0.866 which indicates a very strong positive linear relationship.

The p-value obtained was 0.000 which is less than 0.05 and implies that the positive relationship between competition and performance is significant at 95%. This means that thermal power company that desires to perform must select strategies that gave them competitive advantage based on their core competencies (Porter, 2004).

Technology and performance of thermal power generation company had positive relationship as indicated by the coefficient of correlation of 0.474. The p-value obtained was 0.000 which is less than 0.05 and implies that the positive relationship between technology and performance is significant. This implies that technology has become a core component of overall corporate strategy and to achieve competitive advantage thermal power company need to embrace the use of latest automation technology to enhance their processes.

Regression Analysis

A regression model was applied to determine the effect of strategic management factors on performance of thermal power generation companies in Kenya

Model Summary

This model explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable. From Table 4.12 of model summary for thermal power plant performance and strategic management factors, the regression results reveals that overall performance had moderate explanatory power on strategic management factors in that it accounted for 36.3% of its variability (R square= 0.363) while 63.7% of variation are explained by other factors not included in the model.

Table 4.11. Pearson's Correlation.

		Performance	Customer Relationship Management	Quality Management	Competition	Technology
Performance	Pearson Correlation	1				
	Sig. (2-tailed)					
Customer Relationship Management	Pearson Correlation	.790	1			
	Sig. (2-tailed)	0.000				
Quality Management	Pearson Correlation	.564	.250	1		
	Sig. (2-tailed)	0.000	0.000			
Competition	Pearson Correlation	.866	.150	.459	1	
	Sig. (2-tailed)	.000	0.000	.000		
Technology	Pearson Correlation	.474	.307	.482	.552	1
	Sig. (2-tailed)	0.000	0.000	.000	.000	
	N	54	54	54	54	54

Source: Research Data (2017)

Table 4.12. Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.603 ^a	0.363	0.311	0.565	0.363	6.993	4	49	0.000

Source: Research Data (2017)

Analysis of Variance (ANOVA)

The study used ANOVA to establish the significance of the regression model. In testing the significance level of the overall model, the model was considered significant if the p-value was less or equal to 0.05. Table 4.13 the results revealed that the model was statistically significant in predicting the factors affecting performance of thermal power generation companies in Kenya as indicated by having a p-value of 0.000 which is less than 0.05. Based on the confidence level of 95%, the overall Anova results indicates that the model was significant at $F= 6.993$, $P=0.000$.

Table 4.13. Analysis of Variance (ANOVA).

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.928	4	2.232	6.993	.000b
	Residual	15.640	49	.319		
	Total	24.568	53			

Source: Research Data (2017)

4.6.3 Multiple Regression Analysis

The researcher conducted a multiple regression analysis to determine the relationship between the four strategic management variables and performance.

The regression equation was:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

$$Y = 4.657 + 0.148X_1 + 0.241X_2 + 0.592X_3 + 0.223X_4$$

Where:

Y = is the dependent variable which is performance

α = Constant term

$\beta_1, \beta_2, \beta_3, \beta_4$, and β_5 are the coefficients of the predictor variable and

X_1 = Cost Management

X_2 = Customer Relationship Management

X_3 = Quality Management

X_4 = Competition

ε = Error term

From table 4.14 of multiple regression analysis, the results revealed that all the four strategic management variables have a positive relationship with performance of thermal power company. The findings presented shows that by taking all independent variable at zero, a unit increase in customer relationship management will lead to 0.148 increase in thermal power company performance; a unit increase in quality management will lead to 0.241 increase in thermal power company performance; a unit increase in competition will lead to 0.592 increase in thermal power company performance and a unit increase in technology will lead to 0.223 increase in thermal power company performance.

The findings are consistent with those of an earlier studied by (Kurua, 2013) who carried out a research on operational challenges facing performance of thermal power plant in Kenya.

The author found that performance of the thermal power plant was mostly affected by internal factors such as quality, reliability, spare part procurement and efficiency.

Conclusions

The findings of this research project are consistent with research done by other scholar who undertook studies in similar related areas. The study sought to answer pertinent questions that were meant to meet the objective of the study. The questions were; to what extent does customer relationship management, quality management, competition and technology affects a thermal power generation company's performance? The objectives of the study helped in answering the questions. These objectives were to establish the effect of strategic management factors (CRM, quality competition and technology) on performance of thermal power companies in Kenya.

The study revealed a positive relationship between strategic management factors and performance of thermal power generation company with all independent variable having significant effect on thermal power company performance. Thus if this relationship is properly harnessed could be used to ensure efficient performance in this sector

Recommendations

Based on the findings and conclusions of the study, it was recommended that there is need for thermal power companies to employ/implement strategic management factors in their operation. This is because of the benefit that can be realized if fully implemented. Thermal power generation shall benefit out of implementation of these factors by improving on their availability, reliability and utilization factor concerns. Strategic management factors from this study have been found to have a great effect on improving organization performance.

In order to enhance positive competition in the energy sector, the study recommends system upgrade should be undertaken by eliminating the long time monopoly enjoyed by KPLC. The sector should embark on distributed generation system that will technically connect the whole country in line with the vision 2030.

The study also recommends that both employees and the stakeholders are made to understand the concepts and importance of strategic management factors through training as this help build the practices within the process which improves standards and subsequent organization performance

Suggestion for Further Research

The study focused on the effect of strategic management factors on performance of thermal power generation companies in Kenya with specific focus on Rabai Power Limited Company. Due to little research that has been undertaken in the area of strategic management factors on thermal power generation companies performance, the researcher suggest that more research should be carried out

Table 4.14. Multiple Regression Analysis.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.657	.905		.727	.000
	Customer Relationship Management	.148	.150	.125	.986	.001
	Quality Management	.241	.122	.282	1.977	.000
	Competition	.592	.194	.455	3.059	.000
	Technology	.223	.156	.220	1.424	.001

Source: Research Data (2017)

in this field and not only on a single thermal power generation company but should also cover entirely all thermal power generation companies in the country.

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