# TOTAL QUALITY MANAGEMENT AND OPERATIONAL PERFORMANCE OF CONSTRUCTION COMPANIES IN NAIROBI

**BY**

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## DECLARATION

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

Signature …… Date …….

Simion Seda Oyiro D61/79276/2015

This project has been submitted for examination with my approval as the university supervisor:

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## DEDICATION

This work is dedicated to my family for their support in all aspects.

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## ABSTRACT

Construction industry has been growing and expanding over the last 20 years, quality management and proper operational performances is an inevitable necessity for survival. Quality has forced many construction companies to re-evaluate their operating strategies to enable them to gain competitive advantage, remain relevant and successful in the industry. TQM strategy promises tremendous benefits in operational performance and enriches organizational culture. TQM is positively linked to firm's operational performance in terms of quality, speed, dependability, flexibility, and cost. This study sought to gather knowledge of TQM practices and their implications on operational performance in the construction firms based in Nairobi County. The study was guided by resource based view (RBV) institutional theory and market based view theories. The target population consisted of 167 registered construction firms in Nairobi County, Stratified Sampling method was adopted in this study, and this study used 100 manufacturing firms as sample size. Semi structured questionnaires were used to collect primary data. A "drop and pick later" method was used to administer questionnaires to the managers of the construction companies. This is to ensure respondents have enough time to fill in the required information. Data analysis was descriptive and inferential statistics. Correlation and regression analysis was used to determine the relationship between the dependent and independent variables. Statistical Package for Social Sciences (SPSS) was used to generate both descriptive and inferential statistics. The study concludes that customer focus, continuous improvement, top management commitment and supplier partnering practices all had a significant positive impact on operational performance of construction companies in Kenya, therefore the study recommends that construction companies should adopt customers focus culture within the organisation; this will help to the firm to indentify the needs and expectations of the customers accurately, produce high quality reliable products, and deliver products timely manner. Construction companies should continuously embrace continuous innovation practice in delivery of their products, adopts the continuous improvement approach will see immeasurable benefits, including: increased productivity improved quality , lowered costs decreased delivery times, improved employee satisfaction/morale and reduced employee turnover rate thus promoting operational performance. Since strong leadership was found to improve operational performance, this study therefore recommends that top leaders in construction companies should demonstrate willing and portray great enthusiasm in all implementation of organisational process, leaders should encourage employees to participate in decision-making and that construction companies should build strong supplier partnerships, this will help the firm achieve greater Improvement of products through contributions to product design, technology, or ideas for producing new products, achieve

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## LIST OF ABBREVIATIONS

**ISO:** International Organization for Standardization

**KEBS:** Kenya Bureau of Standards

**MBV:** Market Based View

**NCA:** National Construction Authority

**RBV:** Resource Based View

**SEM:** Structural Equation Modeling

**SPSS:** Statistical Package for Social Sciences

**TQM:** Total Quality Management

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the study

Quality has forced many construction companies to re-evaluate their operating strategies to enable them to gain competitive advantage, remain relevant and successful in the industry. According to Barnes, (2008) operational performance is defined as a measure in which performance is evaluated in terms of operations. There are five objectives checked on operational performance namely; flexibility, speed, cost, dependability and quality.

As the construction industry has been growing and expanding over the last 20 years, quality management and proper operational performances is an inevitable necessity for survival. With the recent issues that have been seen in the construction industry such as poor workmanship in terms of fine finishes to the worst cases of building collapsing, most companies have shifted their focus and attention to total quality management and proper operational performances so as to be competitive by implementing modern techniques and tools such as ISO certification, Benchmarking, Supplier Partnering, Six Sigma, Gantt chart, Inspections, Parento Chart, flow charts and control charts amongst many others (Lamka, 2015).

As stated by Smith (2013) quality management tools and procedures are outlined based on the assessment of various writings. One of the objectives of the study was based on the review of writings. It was one of the objectives of the study to verify and confirm the level to which the tools and procedures were important in the setting of the construction industry in Kenya.

### 1.1.1 Total Quality Management

Corner (2009) observes that (TQM) is an organized valuable improvement method for organizational management to improve performance in relation to profitability, quality, customer satisfaction and productivity. Quality is the predictable degree of uniformity and reliability at a cost that will deliver a price that the customer is willing to pay for or suited to the market (Low, 2010). Quality is the fitness for purpose that the customer sees value in a product or service. Deming identified fourteen principles that promote productivity and performance of the organization. Appropriate integration of these principles delivers quality in the organization. In other literatures, TQM is defined as a philosophy for quality improvement grounded on ideologies on elimination of waste, continuous enhancement and the involvement of all employees. The implementation of TQM in the construction business has been applauded by some literatures. (Johnson, 2011; Mageto 2012 & Suzuki 2014). Nowadays, ISO certification is a drift in most businesses together with construction business. The standard ISO 9001 certification is being revised a number of times. There are five major parts for the application of the ISO 9001; measurement, analysis, and improvement, resource management, product realization, management responsibility and quality management system.

According to Fong (2008) TQM perceives quality as a basis for competitive advantage. It is founded on the certainty that quality requires to be well-defined from the client's view and that in pursuing it; improvements on corporate performance will be seen. As such, Tabak (2006) says that quality needs to be achieved tactically and that entails organization-wide commitment and long-term perspective. Quality is viewed as a never ending goal that has to

be always pursued. Total Quality management requires a blend of three elements in any firm, namely; management infrastructure, operating system and mindsets or behaviors and capabilities. Augustyn & Pheby (2012) posits that a good TQM strategy promises tremendous benefits in operational performance and enriches organizational culture. The successful adoption of TQM requires taking a systematic view of the production system, outside it as well as within it. It involves working with suppliers to resolve quality hitches, and with customers to determine how the institute can improve to better meet their needs. It will most certainly involve workers performing their own inspection and testing, using techniques like statistical process control charts.

Most of the ideas of TQM derive from the application of advice of the various quality gurus like W. Edwards Deming and Genichi Taguchi, (Augustyn, & Pheby, 2012). However, their writings tend to be both extensive and sometimes divergent. As Oakland (1993) puts it, they are talking the same language but different dialects. As such, there is no one agreed best way to implement TQM.

### 1.1.2 Operational Performance

Operational performance involves activities aimed at establishing organizational and operational goals. The organization must monitor progress toward achieving these goals by making appropriate adjustments. It is in this aspect that we can define Operational performance as the criterion used to evaluate performance of operations (Tabak, 2006). It is also the measurement of the organization's performance against approved pointers of value, efficacy, and environmental responsibility such as, regulatory compliance, cycle time, productivity and waste reduction. Furthermore, operational performance could also be termed

as the capacity of a firm to attain such goals as good financial performance, high quality products and use of relevant strategies to survive in the competitive environment. According to Fong (2008) Organizational Performance can be evaluated in terms of either operational or financial performances.

Augustyn and Pheby (2012) indicated that the mode through which a firm safeguards, organizes and utilizes its assets determines the degree to which the performance goals can be successfully pursued. There are five performance objectives; flexibility, cost, dependability, quality and speed that should be observed. The cost of production should be low not compromising on the quality that should be in accordance with the specifications and in a timely manner. The firm should also have the capability to convey goods and services in agreement with the assurances made to the clients in terms of quotations and published information.

Outshining in these operational performance goals can present an opportunity for the firm to pursue a business policy based on the equivalent competitive element (Barney, 2011). Nevertheless, it is significant to realize that the significance of any business policy or strategy depends on the chances for the operations to result to excellence in terms of the performance goals, but critically on customers regarding the selected reasonable factor based on the business goal.

### 1.1.3 Construction Companies in Kenya

There are over 481 registered construction companies in Kenya according to National construction authority which is the governing body. It investigated and found that contractors are still not registering their projects with the authority. After conducting various site visits across the country, only a few were registered. This means that at least a third of the buildings coming up are not approved for quality. About 52 per cent of the buildings in the capital of Nairobi have a problem and are not safe for occupation. (Wafula, 2016).

National Construction Authority (NCA) established under Act No. 41 of 2011 is delegated to organize construction companies and make a new inventory of builders authorized to work in Kenya. This action plan was implemented to improve on quality of constructions and postponement in project completion. It is because of this, that accidents in this industry have a common denominator that affect directly or indirectly.

A mishap is defined as an unexpected happening that led to people getting hurt or injured, loss of property, environment, plants and materials. A periodic subject is that people get killed in easy, repetitive work and in many scenarios they lack planning which contributes to the calamity. However, safety and safeguard of life has been lacking in the Kenyan real estate and construction industry (Ndirangu, 2009). A fundamental view is that most of the accidents are not only caused by inconsiderate labors but by letdowns in quality control which eventually is the accountability of management.

## 1.2 Research Problem

As observed by Ismyrlis Moschidis (2015) Total Quality Management application has been a debated topic for many years. On the other hand, the construction sector is viewed to have poor quality in comparison to other sectors like the manufacturing and those sectors that offer services. Many criticisms have been bound to the construction companies for by and large poor workmanship. The final product is subjected to disapprovals nonetheless among others they include material, processes and peoples are under incredible burden for improved quality in construction.

The quality issue is important especially since there are various demands from different performers in the market. These demands come from a larger number of stated quality concerns like the regular collapse of structures which causes deaths and bad injuries. In Kenya for instance, several houses have collapsed in Nairobi in the recent past, claiming many lives due to quality issues. Recently, a Seven-storey building collapsed in Embakasi, Nairobi in June 13th 2017 killing more than 10 people and injuring others. There is evidence that the performance of the construction companies in Kenya is poor as time and cost performance of projects are to the extent that over 70 per cent of the developments initiated are likely to increase with time with a scale of over 50 per cent and over 50 per cent of the projects likely to go up in cost with a margin of over 20 per cent (Nyangilo, 2012).

Report by standard digital 2017, states that many buildings that collapse are as a result of poor supervision, examination, construction techniques and inspection. Most organizations have raised concerns on how to implement operations management policies in order to curb the failures that have developed. Therefore, the construction sector has to be established in

different parts beginning from having a formal approach, getting a perfect understanding of the TQM approach and significant business procedures, staff training and observation, and measurements on performance. The implementation of the TQM method in the Kenyan marketplace should be made better so that they can give back quality tasks, increase in productivity and profitability, staff and customer satisfaction and augment business reputation by being capable to contest worldwide with high standards.

Locally, previous studies have been on paper about TQM and its role in improving operational performance in other fields but not in construction industry. TQM is positively linked to firm's operational performance in terms of quality, speed, dependability, flexibility, and cost (Bell & Omachonu, 2011). Casadesus, Marimon, & Heras (2008) stated that the significance of TQM cannot be overemphasized because it is such an important aspect of performance improvement in a firm. The study sought to answer the following questions: How has total quality management impacted the operational performance of Construction companies in Nairobi? To what extent has TQM been implemented in the industry?

### 1.3 Research Objectives

The primary goal of the study was to gather knowledge of TQM practices and their implications on operational performance in the construction firms based in Nairobi County.

The precise purpose of the study are:

i. To determine the extent of TQM implementation in the construction companies.

ii. To determine the effect of TQM on operational performance.

## 1.4 Value of the Study

The research outcome and endorsement of this study would be beneficial in educational literature and encouraging more research on TQM and operational performances. They would add to enactment of TQM in Construction Firms and related organizations.

It is also aimed to benefit the Government through the National Construction Authority (NCA) and the Kenya Bureau of Standards (KEBS) in policy formulation. The study is considered to help NCA in formulating and enacting policies that would oversee quality operations at the industry's level to avoid the several substandard jobs done by contractors and the collapse of buildings.

Finally, the findings and recommendations would be useful academicians and researchers because it will assist in background knowledge gasps and benefit them in carrying out a similar exercise by using it as a reference point.

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# CHAPTER TWO: LITERATURE REVIEW

## 2.1 Introduction

The association between TQM and operational performance has been studied by various researchers in the past in different contexts. This particular study examines TQM and its effect on operational performance in the construction industry. The literature review therefore covers relevant literature concerning the theories underpinning the study, performance in construction industries, performance indicators and TQM. It also covers the conceptual framework and a summary.

## 2.2 Theoretical framework

TQM and operational performance are discussed in three broad theories. These are; resource based view (RBV) that is an approach to attain competitiveness through the company's own resources, market based view (MBV) where the companies align themselves strategically based on the current prevailing market trends and lastly institutional theory which is basically the company's inner cycle influence in policy formulation. These theories are relevant to the study as they will help understand the issues that surround TQM and their effects on operational performance.

### 2.2.1 Resource Based View

RBV is an approach of strategy formulation aimed at attaining competitive advantage based on an organization's resources. Under this view, Organizations look for competitive advantage within themselves as opposed to looking for competitive environment outside (Barney J, 1990).The theory suggests that capabilities are a critical contributor to

organizational performance (Tippins & Sohi, 2003). Capabilities are defined as the ability for a firm to assemble, deploy and integrate esteemed resources (Amit & Schoemaker, 1993). Firms should concentrate in their core competencies to edge out competitors by creating products that are difficult to copy.) Resources based view is a vital, critical and an inside-out management perception that is beneficial in coming up with a successful strategy (Connor, 2002). Conversely, concerning the input/output model the resource based theory views that an organization's inner setting on the center of incomes and capabilities is more significant to the resolve of tactical action compared to that in the outer environment. There are two types of resources; tangible and the intangible. Capabilities are embedded in business routines and processes.

Grant, (1995) pointed out that an organizations source of competitive advantage thrives on sustainability and appropriateness. He pointed that for it to be valuable to the investors; organizations have to generate and sustain their competitive advantage but also be able to collect income from the activity. The kind of fee being charged is being opposed by customers, employees, shareholders and the firms.

Resource based theory also generates a plan for the managers to think over their strengths and weaknesses comprehend issues on marketing that could help in improving the performance of the firm. (Falkenreck, 2010). A model developed by Barney described the source of competitive advantage to be residing in resources both tangible and intangible that must be heterogeneous and immobile, not imitable and non-substitutable with great effort. TQM can lead to good performance by supporting the establishment of different specific assets, have composite relations which have been advanced through history and the way of

life of the firm together with generating implicit knowledge (Barney, 1991). Additionally, TQM can continue with the establishment of a couple of routines and form the fabric of behavior in the firm, which lead to a process of gaining knowledge and skill in the firm itself (winter, 1994). Thus, TQM makes a fortune of characteristic capabilities within the firm that inspire a more operative, real and efficient establishment of the operations in the firm. The result is the generation of competitiveness and improved performance in the organization.

### 2.2.2 Market Based View

Market based view of strategy formulation designs the firm policies and strategic action on the basis of developments and the nature of the industry's environment. Market based view of policy aids the firm in identifying and selecting their competitive scopes and also be able to promote the administration so as to get the right winner (Poser, 2003). To make a difference and establish the required strategy, the firm uses available resources in market based view that is fairly actual to evaluate the effect of external environment over the operation of an industry (Poser, 2003). Market based view of strategy is also accommodating in the growth plan for the firm and for this reason, different factors have to be considered; political factors, clients, social and market condition to accomplish the strategy.

### 2.2.3 Institutional Theory

The institutional theory explained institutions as being comprised of regulative elements, cultural cognitive and normative together with related happenings and resources, be responsible for institutional stability and significance to social life. It recognizes the existence and embedment of institutional "actors" in a social environment. These "actors" could be individual persons, organizations or the national state. Established philosophers

proposed that organizational activities and practices are determined by their performers in order to explain and justify their actions. In this view, formulation of strategy and its implementation is reasonably accounted for by institutional performers and rooted in the normative and social context that inspires performers to seek validity (Dacin, Oliver et al, 2007).

Organizations assume normalcy by adopting strategy implementation that validates them as part of the organizational field. Traditional institutional theory believes that organizational fields become structured by powerful influences among organizations. The adoption of a system such as strategy implementation was highly dependent on the extent to which it is institutionalized by legitimacy. Legitimacy concerns lead organizations to adopt practices that "conform to the mandate of the institutional environment" (Kraatz & Zajac, 2006). Institutions are accepted by official firms, governments and by culture, that which gives significance to the habit and the conservativeness in daily life. Institutions are also managed by people, and give accounts of the societal and legal structures of personal identity (Friedland & Alford, 1991). Institutional theory argued that all organizations took the shape they do because they "draw from the culture around them value-based notions of how things should be organized" (Tolbert & Zucker, 1996). To this end therefore institutional theory affected TQM and hence performance in that the "actors" were seen to be influenced by the cultures around them due to the fact that TQM is by itself a culture.

## 2.3 Total Quality Management

Research by Flynn et al (1995) identified the most influential elements of TQM as intangible and behavioral. Additionally, the study found TQM as a soft variable comprising of customer focus, leadership and human resource. They are unseen but have an effect on the firm's operations (Flynn et al, 1995; Powell, 1995). Following a deep understanding of the literature it was eminent that most of the researchers evaluated TQM through six variables. These variables were; information and analysis, process management, customer focus, strategic planning, leadership and people management (Terziovski and Samson, 1999).

Most successful elements of TQM were staff empowerment, top management support and customer focus (Mehmood, Qadeer & Ahmad, 2014). Talib (2013) claimed no research explicates the key elements of TQM. It becomes hard to identify the exact elements of TQM based on the above criteria (Hoang et al, 2006). Nevertheless, most of the studies done agreed that the most important elements of TQM were customer focus, top management commitment, supplier partnering and continuous improvement.

The study used these four most significant elements of TQM in order to examine their association with operational performance.

## 2.4 Operational Performance

Operational performance determines organizational performance. The operations in a construction firm should be efficient and effective in order to achieve the company goals. Effectiveness is the extent to which customers' needs are fulfilled whereas efficiency is a measure of how economical the organizations resources are utilized.

In order to enable the accurate assessment and evaluation of operational performance, the correct measurement approaches must be designed, implemented and well maintained by the users of the particular process. They may identify necessity of measuring the processes effectiveness, its efficiency, its quality impact and overall productivity (Oakland, 2000). A systematic performance measurement system should be in place in order to achieve operational excellence in the construction companies.

### 2.4.1 Customer focus and firms performance

A research study was carried out by Kagumba and Gongera (2013) to identify ISO certification was beneficial on organizational performance, internal operations and processes, employee performance and inflow of revenue in Kenyatta University. The study findings found out that gratitude and partaking in ISO certification lead to enhanced organizational performance, high firm's outcomes and consequently, high revenue flows needed for development. This resulted to the university's management making internal changes in the institution. Nevertheless, the study did not put into consideration other aspects like continuous improvement and intermediating variables which includes organizational capability, which the current study intends to take into account.

Anyango, Wanjau and Mageto (2010) Also did a study and concluded that non-conformance, financial resource management and organizational performance and are main contributors of firm performance. Pearson Correlation Coefficient displayed the importance of the link between performance and quality management practices. The study also discovered that there was improved performance after becoming ISO certified. It established that practices aimed at quality management had a positive influence to the financial resource management and

organizational performance. The study final findings indicated that practices addressing quality management practices had a affirmative impact on the performance of manufacturing companies' through good financial resource management and organization performance. This research concentrated on financial actions on performance, whereas the present research dealt in performance in terms of perceptual measures, which included, organizational performance, increased productivity, employee happiness and satisfaction and effectiveness.

Similarly, Owino (2010) carried out a research study which concluded that ISO certification enhanced operational performance in government corporations. Mungara (2010) did a local study which established that ISO certification would be the prime element for enhanced efficiency, good organizational performance, restructured operations, minimized wastage and better business performance. The research study by Macharia (2010) proved that Kenya's public sector had the highest rate ISO certification. The study was aimed at improving the performance of the public sector. Even though the research by Macharia (2010) and Mungara (2010) established that the ISO certification would be a major cause of high business performance, they had shortcomings in explaining how the performance of manufacturing companies was impacted by practices on quality management practices upon incorporation of variable moderation in the operating environment.

Singels, Ruel and Henny (2002) figured out that the manufacture process, investment made and employee motivation had an optimistic influence on performance. The study used questionnaires for data collection and respondents from the production and service companies. The response rate was 20 percent making conclusions that ISO certification had a bigger influence to better performance of firms and employee drive. The research was carried

out on both production and service segments in an industrialized country and the 20 percent response rate was very low to get dependable deductions. Chi and Gursoy (2008) claimed that there is a connection between employee fulfillment and organizational performance and it has comportment on the achievement of an organization's financial performance. The study used the service-profit-chain framework as the hypothetical foundation and examined four major relations: employee satisfaction, the direct association between the performance of an organization operations and financial part; the direct association between organization performance and the direct association between financial performance and employee satisfaction.

The data for the research study was collected from staffs, clients and directors with a structural equation modeling (SEM) using a two-step approach which was exploited to closely examine the planned propositions and associations amongst the concepts. The research established that a company's performance resulted to optimistic significant influence on financial performance and that workforce satisfaction has no impact on financial performance. Multiple regressions were used to find out the association amongst the variables in the study. It relied on perceptual measures and methods of performance. Aslanertik and Tabak (2006) study wanted to find out the effect of organizational performance, reduction in cost and incorporation with suppliers on the financial performance of the proficient businesses and determined that application of ISO had a substantial influence on the operational performance of proficient companies. Singh et al. (2006) did a study to evaluate the advantages of being ISO and found that there was an improvement in procedures and processes in the section. Aslanertik (2006) and Singh et al. (2006) studies

exhibited the significance of ISO certification on a firm's performance but did not encompass the effect of the same on the production sector, so creating an information gap to be filled. This study tackles this gap.

### 2.4.2 Continuous Improvement and Firm Performance

Psomas and Kafetzopoulos (2012) did a research on the influence of Quality Management Practices as seen on operational performance of service businesses in Greece. Variables used were prevention of non-conformities, continuous improvement and company's performance plus financial performance as an interceding variable. The research used a sample of 100, ISO certified service firms. The data were gotten from quality executives using an organized questionnaire. The hypothesis was analyzed using multiple linear regressions. The results discovered that the quality management practices and operational performance of the service firms were positively and considerably influenced by the effectiveness of the ISO certification, and that financial performance has a direct influence to operational performance, whereas the influence of ISO's effectiveness is secondary through its important correlation with operational performance. This research paper was carried on the service subdivision, whereas the present research was on the manufacturing and production sector together with the operating setting used as a mediating variable.

Kaziliunas (2010) research affirmed that realization elements for quality management systems include people and systems, continuous improvement of processes, education and training, top management, motivational factors, reward systems and teamwork. The findings construed that there is an association between the values and necessities specified above, thus supporting practices on quality management, strategic scope of the firm and standard.

Kaziiunas (2010) concluded that education and training of staffs is an additional way of providing the workforce with the information and aids to achieve set targets and personal goals. If done regularly and emphasized in the place of work by doing updates, educating and training, a strong base can be built for non-stop improvement. The study findings were that the executives had to show full commitment to safeguard and communication strategy to achieving quality across the firm. The executives have to create a setting in the company that focuses on non-stop improvement and good results. Nevertheless, this study did not tackle the controlling effect of the functioning in an environment or intervening effect of firm capability on the association between ISO certification and performance.

Quazi and Jacobs (2004) did a research on the effect of ISO 9000 certification on training and activities related to development. This study was exploratory study and it tried to figure out the influence of ISO certification on training and human resource development doings using a population of ISO certified companies. The analysis showed an improvement on employee training requirements, design used for training and training delivery. The findings, however, was inhibited by the small number of respondents and that it was relatively unmapped. This total sample used was 102 respondents, which was enough to make study conclusion (Mugenda & Mugenda 2003). The study also used descriptive and explanatory research design to establish the association between ISO certification and performance of manufacturing companies in Kenya.

### 2.4.3 Top management commitment and firm performance

Javed (2015) steered a research study with the aim of practically investigating the effect of the commitment level of the executives in the success of quality management. The study did

the study using ARL Company in Islamabad. Sample used consisted of directors and managers who were functional and operational heads. Sampling method used was judgmental sampling. The tool used or data collection was a questionnaire. Correlation analysis done showed the positive relationship between top executives and good quality management. This means top management had a positive effect to good quality management in a given firm. In the present study, the scholar used the objective sampling method while Javed (2015) used judgmental sampling technique. Judgmental sampling seems to be too bias.

Wahid and Corner's (2009) carried out a study on companies in Malaysia which have the ISO certification. The findings found that companies mentioned ISO certification as a major element for its good performance. Interviews were used as the main data collection methods with the concerned respondents with verse information on ISO implementation. Qualitative data was collected and analyzed using thematic analysis where various factors of ISO 9001 implemented were mentioned. Those elements were rewards systems, performance measurement, top management commitment, teamwork, employee participation and involvement, non-stop improvement, comprehension of ISO 9001 and communication. The research classified the support and participation of the top directors as a significant factor. The conclusion made from the outcomes of the respondents (83.33%) interviewed detailed that the achievement and sustainability of ISO 9001 is influenced by top executives. The research further recognized the three aspects that were well thought-out in the execution of ISO 9001, which were seen from the fraction of respondents who aired out their views during the interview. The most significant elements were support from top executives and involvement, comprehension of ISO, and non-stop improvement. Thematic technique was

used to analyze data collected based on the one on one interviews of the respondents. The present study used questionnaire as a data collection tool.

Implementation of ISO certification was another study done by Kanji (2008). It was mainly aimed at Egyptian companies. Exploratory research design was used to collect data on management attitudes or insights towards ISO: 2000 through a well-structured mail survey. The questionnaires were mailed to the respondents in the 200 manufacturing firms, giving a 35 percent response rate. Results indicated that Egyptian manufacturing companies knew about ISO certification and knew the relevant importance of it. The major promoters for seeking ISO certification were to increase competence of the quality of products and services offered to achieve a company's performance. The important advantages noted from executing the certification were advanced documentation and quality productivity of the whole system. Nonetheless, the respondents thought that lack of commitment from the top directors and lack of qualified staff was a major barrier to competence of implementation of the ISO.

Chin and Choi (2003) research study was aimed on the effect of ISO and the company's performance determined that the most vital element was how the ISO certification was considered by the top executives. If the executives perceive the certification seriously, then they provide full support to it. The top executives direct the implementation of quality management systems by providing the required resources. This act as major factors in non-stop improvement include systems suitable to satisfy client's expectations, objectives, values and be able to improve the performance of the organization. The study findings were that the top executives' commitment played a vital role on the quality of performance of the given

firm. Other studies should be carried out to determine whether ISO certification is motivated within or externally.

### 2.4.4 Supplier Partnering Practices

According to Goetsch and Davis (2006) partnering for suppliers is a common practice that occurs all over the world. Manufactures work with parts and suppliers on order to produce quality products at the location where the supplier is located. This could mean direct participation in operations by the supplier, that is, staff from the manufacturing company may work at the suppliers' office or provide any other technical assistance. This could result to a close working association resembling a partnership rather than a formal business relationship which includes transactions between two unfamiliar companies.

Ismyrlis and Moschidis (2015) shows that one technique to partner with suppliers involves sharing statistical tools. Globally, manufacturers have turned to outsource as a way of reducing costs of production. This has increased emphasis on quality on the side of the manufacturer for the final product to be of quality. Quality matters that need to be tackled concerning the manufacturer-supplier association are unpredictable quality levels from suppliers, even from varied plants of the same supplier. To solve this challenge most companies especially the automobile industry, manufacturers are overpowering the supplier difficulties by aiding the suppliers meet quality standards (Prado & Carlos, 2007). Wachira (2013) claims that other aspects of partnering of suppliers means that the manufacturer is seriously seeking feedback from the supplier on how the previous operations can be made better.

## 2.5 Conceptual Framework

Customer focus, top management commitment, continuous improvement and supplier partnering practices are the independent variables in this study while operational performance is the dependent variable.

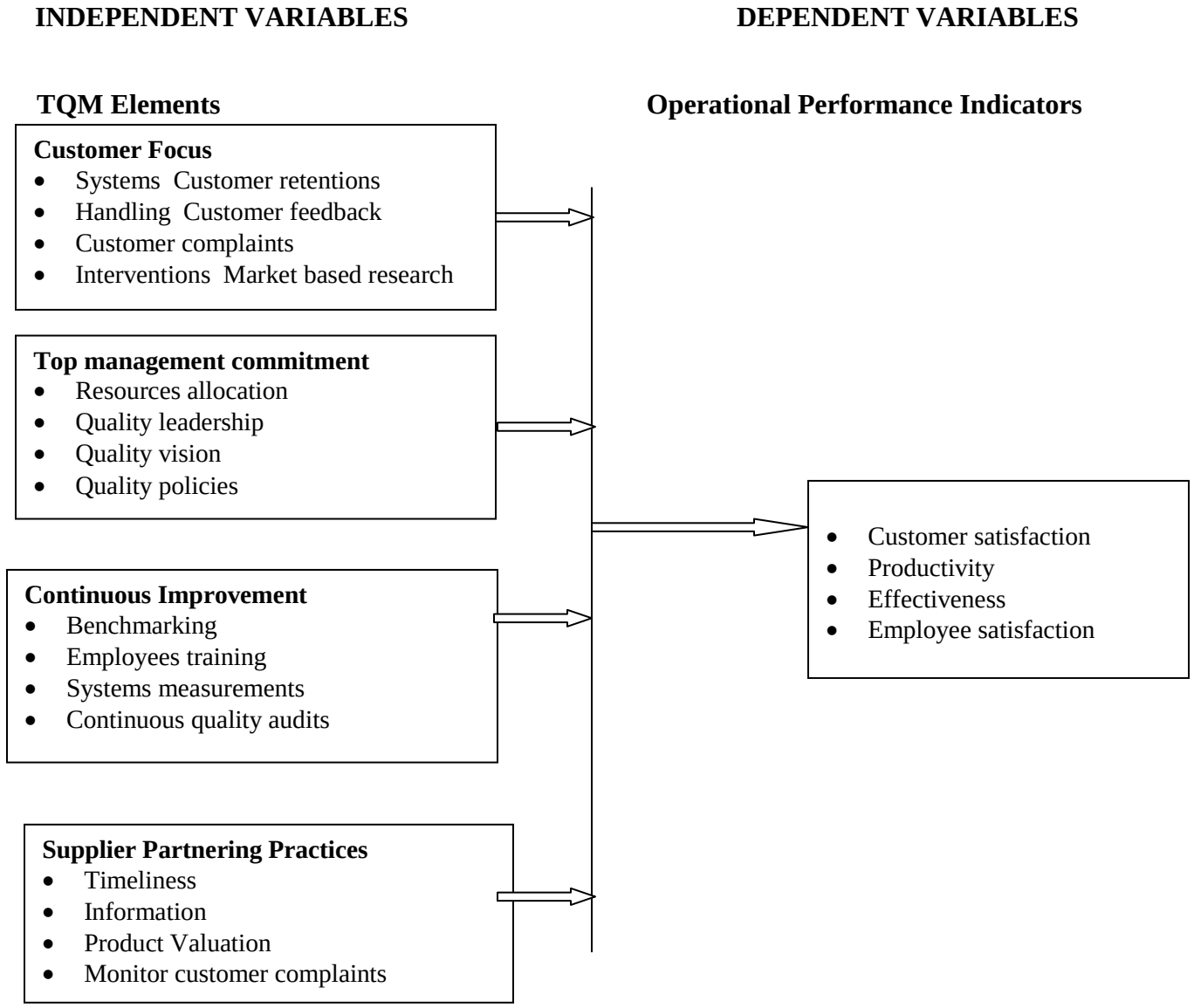


**Figure 2.1 Conceptual Model**

**Source: Own Compilation**

## 2.6 Summary of Literature Review

Total quality management tactic is to safeguard and ensure companies are able to manage quality on all functional areas of operations without giving lapses in processes of operation. This philosophy is good and permits contribution of all individuals to improve quality for the development of the organization. This ideology is directed to satisfying clients and all concerned stakeholders since the implementation will add value to the organization.

Nonetheless, total quality management is a static trait. It target changes with time since it represents a happy client. As the clientele expectations rise, the quality also needs to be good. This ideology indicates the principle of non-stop improvement and every new ways to improve every month which must be well-thought-out and implemented. Furthermore, this non-stop improvement should be aimed at the inputs and the processes involved and not the outputs; the ones that a manager can directly control.

The firm identifies that the majority of challenges are initiated by individuals who are doing the wrong deeds right. They do work that should not be done even they do they do it very well and efficiently. Total quality management, enables a company to identify the problems it faces which are possibly caused by non0functional systems and processes. The identification extends to make individuals believe that those people who do a given amount of work are the only people able to fix the challenges that occur in the systems and processes. For the hidden talents to be unleashed, individuals have to be given opportunities to gain new skills and be able to practically exercise the skills. The firm also has confidence that the

opportunity presented will give people the willingness to take part in planning the future of the company.

This study shows that managers and supervisors in most companies should stop being unwilling to modify their actions to maintain the critical company effort of executing TQM. They should not think of it as a difficult way of implementing changes but as a way of progress. They should strive to change their management style and behavior.

# CHAPTER THREE: RESEARCH METHODOLOGY

## 3.1 Introduction

The chapter outlines the research design and the methodology employed in this study. This includes the research design, population of study, sampling design, collection of data and data analysis techniques.

## 3.2 Research Design

A descriptive research was used by the study. This is a research design type with a major objective on accurate description of the subject situation, population or to estimate proportions of population that has certain characteristics (Malhotra, 1996). Descriptive study was chosen because it assisted in identifying trends in the application of total quality management practices and operational performance of construction firms.

## 3.3 Population

The target population consisted of 167 registered construction firms in Nairobi County. The list of the firms was obtained from the National Construction Authority which is the governing body.

## 3.4 Sampling Design

Stratified Sampling method was adopted in this study. This is a sampling technique where the researcher is required to divide the entire population into different subgroups of strata and then randomly conduct a selection of the samples in each of the stratum. Stratified sampling was selected because it helps to ensure that the sample accurately reflects the entire

population. This method was also used by Rwoti (2005) and Mauti (2012) who were both conducting a study on manufacturing firms in Kenya.

In selection of sample size the Cooper and Schindler (2008) formula which was used by Mauti (2012) was used. This is whereby 10% of the population is taken as the sample size, hence 17 respondents. However, guided by Rwoti (2005) and Mauti (2012), not all intended respondents will respond to the study therefore an extra 2.5% will be provided. Their studies involved 57 manufacturing firms. However, Mbeche (2005) and Nyamwange (2005) conducted a study on manufacturing firms in Kenya and used a sample of 100 firms that was considered large enough to avoid bias; this study therefore used 100 construction firms as sample size.

### 3.5 Data Collection

Questionnaires were used to collect primary data. A "drop and pick later" method was used to administer questionnaires to the managers of the construction companies. This is to ensure respondents have enough time to fill in the required information. The questionnaire had two sections; Section A: data on the general information of the responded and section B: Total quality management practices. To allow for uniformity of responses, closed ended questions was used; while unstructured (close ended) questions were also used to give the respondent freedom to respond in an open manner. This enabled the researcher to enhance credibility of data collected.

### 3.6 Data Analysis

Descriptive and inferential statistics were used. Descriptive statistics are measures of central tendency (mean and standard deviation). The results were presented in tables. Correlation and regression analysis was used to determine the relationship between the dependent and independent variables. Statistical Package for Social Sciences (SPSS) was used to generate both descriptive and inferential statistics. The study used Pearson's product correlation to examine total quality management practices and operational performance of construction firms in Nairobi County. Correlation was done between the dependent variable (operational performance) and independent variables (customer focus, continuous improvement top management commitment and supplier partnering practices).

The regression model is

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4} + e$$

Where; Y= Operational Performance

$X_1$= Customer focus

$X_2$= Continuous Improvement

$X_3$= Top management commitment

$X_4$= Supplier Partnering Practices

$\beta_0 \beta_1 \beta_2 \beta_3 \beta_4$ are the coefficient of the explanatory X variables.

$e$ is the error term

# CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS

## 4.1 Introduction

The chapter deliberates on the interpretation and discussion of the findings obtained from field work. It also presents the background information of the respondents and findings of the analysis done based on the objectives of the study. Descriptive and inferential statistics have been used to discuss the findings of the study.

## 4.2 Response Rate

The study targeted a sample size of 100 respondents and of the issued feedback forms, 89 were returned duly completed making a response rate of 89%. The rate of response was satisfactory to draw conclusions for the study as it acted as a good representative. Mugenda and Mugenda (2003) stated that a response rate of about 50% is satisfactory for analysis and commentary; a rate of around 60% is good and a response rate of 70% and above is tremendous. Based on the statement, the response rate was excellent.

## 4.3 Background Information

The study started by investigating the respondent's background information. Specifically this includes number of years which the company operated in Kenya, respondent's position in the organization, period worked with the current employer and period of service in the construction companies.

### 4.3.1 Period which the Company has operated in Kenyan market

The study sought to determine the period which the company had operated in Kenya. Results are analysed in Table 4.1

**Table 4.1: Period which the company had operated in Kenya**

| Period of operation | Frequency | Percentage |
|---|---|---|
| 0-5 years | 4 | 4.5 |
| 6-10 years | 6 | 6.7 |
| 11-15 years | 11 | 12.4 |
| 15-20 years | 16 | 18.0 |
| 21-25 years | 28 | 31.5 |
| Over 25 years | 24 | 27.0 |
| Total | 89 | 100 |

***Source:*** *Research Data*

Based on the analysis, the study revealed that most of the companies (31.5%) had operated in Kenya for a period of 21 to 25 years, 27.0% had operated in Kenya for Over 25 years 18.0% had operated in Kenya for a period of 15-20 years, 12.4% had operated in Kenya for a period of11-15 years, 6.7 % had operated in Kenya for a period of 6-10 years 4.5% had operated in Kenya for not more than 5 years. This shows that most of the construction companies had operated in Kenya for a significant period of time which denotes that they were in a position to give reliable information relations to the environment within which they operate.

### 4.3.2 Respondents position in the organization

Respondents were requested to indicate their current job positions in the organisation. From the research findings, respondents indicated that they held position of either operational manager, assistant manager or chief manager. This implies that managers in different managerial levels were fairly engaged in this research.

### 4.3.3 Period which the respondent had worked with the current employer

The study sought to determine the period which the respondent had worked with the current employer. Results are analysed in Table 4.2

**Table 4.2: Period Which the Respondent Had Worked With the Current Employer**

| Period | Frequency | Percentage |
|---|---|---|
| 0-5 years | 12 | 13.5 |
| 6-10 years | 11 | 12.4 |
| 11-15 years | 36 | 40.4 |
| 15-20 years | 30 | 33.7 |
| Total | 89 | 100 |

***Source:*** *Research Data*

Results obtained show that most of the respondents (40.4%), had worked with the current employer for a period of 11 to15 years, 33.7% of them had worked with the current employer for a period of 15 to 20 years, 13.5% worked with the current employer for period not exceeding 5 years 12.4 % of them had worked with the current employer for a period of 6 to 10 years. This indicates that most of respondents had been with the current employer for more than eleven years.

### 4.3.4 Period which the respondent had worked with the Construction Company

Employee period of service is linked with the knowledge on organisational internal and external operations. To gauge the respondents understanding on organisational management processes, the study sought to determine the period which the respondent had worked in the construction Company. Results are analysed in Table 4.3

**Table 4.3: Period of service with Construction Company**

| Period | Frequency | Percentage |
|---|---|---|
| 11-15 years | 6 | 6.7 |
| 15-20 years | 12 | 13.5 |
| 21-25 years | 33 | 37.1 |
| Over 25 years | 38 | 42.7 |
| Total | 89 | 100 |

***Source:*** *Research Data*

From the analysis, the study revealed that (42.7%) of the respondents had worked in construction for a more that 25 years, 37.1% indicated to have worked for a period of 21 to 25 years, 13.5% indicated to have worked for a period of 15 to 20 years 6.7% indicated to have worked for a period of 11 to 15 years. The findings show that most of the respondents had worked with the worked in the Construction industry for a considerable period of time which implies that they were in a position to give credible information relating to this study.

### 4.4 Total Quality Management Practices

This section explored the extent to which the organisation had adopted total quality management practices. The respondents were asked to indicate the extent to which the various aspects of TQM were adopted on a scale of 1 to 5 where by 1 = very small extent and 5 = to a very large extent. The results are presented in table 4.6

#### 4.4.1 Customer Focus

In line with the first objective, the study investigated the extent to which the construction companies in Nairobi had adopted the following Customer focus strategies. Results are analysed in Table 4.4

**Table 4.4: Adoption of Customer focus practice**

| Customer focus | Mean | Std Deviation |
|---|---|---|
| Having a customer focus is usually a strong contributor to the overall success of a business | 3.85 | 0.18 |
| Having customer focus usually includes maintaining an effective customer relations and service program | 4.36 | 0.12 |
| appreciation and participation in ISO certification results in improved firm performance | 3.89 | 0.23 |
| Running a customer-focused business helps organizations build a loyal customer base | 3.99 | 0.17 |
| Customers are more willing to purchase from companies that they feel consider their needs when they create products and services. | 4.28 | 0.85 |
| The more loyal customers are to a business, the more likely they are to refer the products or services to friends, family and business associates. | 4.44 | 0.26 |
| Aggregate Mean | 4.14 | 0.30 |

***Source:*** *Research Data,*

The respondents were asked to indicate on what extent, customer focus practice had been adopted in construction firms in Nairobi. From the findings, it was established that customer focus had been adopted to a large extent by the various construction firms. This was indicated by a positive aggregate mean value (M=4.14, SD=0.30). Having customer focus usually includes maintaining an effective customer relations and service program (M = 4.36 SD = 0.12) and that clients will buy from firms that they feel consider their needs when they create products and services (M = 4.28, SD = 0.85). These findings are in line with the research by Kagumba and Gongera (2013) that operating a customer-focused organization helps organizations build a loyal customer base.

### 4.4.2 Continuous Improvement Practices

In line with the second objective, the study investigated the extent to which the construction companies had adopted the following continuous improvement practices. Results are analysed in Table 4.5

**Table 4.5: Continuous Improvement Practices**

| Continuous Improvement Practices | Mean | Std Deviation |
|---|---|---|
| Your firm works towards improving every face of the firm. | 4.44 | 0.31 |
| The firm caries research on construction industry at all levels. | 4.18 | 0.28 |
| The firm is able to achieve 100% customer satisfaction within construction industry. | 3.95 | 0.47 |
| Your firm observes quality improvement at all levels | 3.78 | 0.75 |
| Your firm has created an effective quality assurance team | 4.29 | 0.22 |
| Aggregate Mean | 4.13 | 0.41 |

***Source:*** *Research data,*

The study found that continuous improvement practices were adapted to a large extent by construction firms which was indicated by (M = 4.13, SD = 0.41). It was evident that the respondents agreed to a large extent that the firms worked towards improving every face of the firm (M = 4.44, SD =0.31) and has created an effective quality assurance team (M = 4.29, SD = 0.22), These findings are in line with the research by Kaziliunas (2010) Organizations should ensure provision of high quality services through by embracing continuous improvement in product development as this was linked with increase customer retention rates, attraction of new customers through, boosting of productivity, increased market share, lower operating costs, as well as positive performance in profitability.

### 4.4.3 Top Management Commitment

In line with the third objective, the study investigated the extent to which the top management of construction companies was committed towards the implementation of TQM practices. Results are analysed in Table 4.6

**Table 4.6: Continuous Improvement Practices**

| Top management commitment | Mean | Std Deviation |
|---|---|---|
| This organization has been setting up and serving on a quality committee | 4.26 | 0.11 |
| This organization has been formulating and establishing quality policies and objectives, | 3.75 | 0.18 |
| This organization has been providing resources and training, | 4.38 | 0.27 |
| This organization has been overseeing implementation at all levels of the organization | 3.91 | 0.45 |
| This organization has been evaluating and revising the policy in light of results achieve | 4.05 | 0.42 |
| Aggregate Mean | 4.07 | 0.29 |

***Source:*** *Research Data,*

The findings showed that a large extent of the respondents indicated by (M = 4.07, SD = 0.29) agreed that top management commitment had been adopted in construction firms in Nairobi. The respondents concurred that the construction companies have been providing resources and training (M = 4.38, SD = 0.27) and that the organization has been setting up and serving on a quality committee (M = 4.26, SD = 0.11). These outcomes are in line with the research by Anschutz (1996) that the success in implementation of TQM in an organisation relies on the ability of the top manager to successfully lead different teams and help them buy-in into a common goal of completing the TQM objectives.

### 4.4.4 Supplier Partnering Practices

The study sought to determine the extent to which construction companies had adopted the following Supplier Partnering Practices. Results are analysed in Table 4.7

**Table 4.7: Supplier Partnering Practices**

| Supplier Partnering Practices | Mean | Std Deviation |
|---|---|---|
| The firm works directly with suppliers to improve quality of service. | 3.88 | 0.28 |
| The Firm shares the use of statistical controls with Supplier partners. | 4.01 | 0.15 |
| The firm practice outsourcing to cut costs of service delivery. | 3.99 | 0.17 |
| The firm seek out feedback from suppliers | 3.92 | 0.85 |
| The firm maintains Contractors information data base. | 4.28 | 0.11 |
| Aggregate Mean | 4.02 | 0.31 |

***Source:*** *Research Data,*

From the findings, a large extent of the respondents indicated that indeed supplier partnering practices were adopted by construction firms in Nairobi. This was indicated by (M = 4.02, SD= 0.31). Further to this, the companies also maintained a contractors data base (M = 4.28, SD = 0.11) and the use of statistical controls with supplier partners was evident (M = 4.01, SD = 0.15). These findings are in line with the research by Tomasini and Wassenhove (2009) which states that strategic supplier relationship management is a very important move in improving performance across the supply chain, enabling the business to develop and generating greater cost efficiency.

### 4.4.5 TQM Practices and Operational Performance

This section investigated on operational performance of construction companies under the guidance of TQM Practices Results are analysed in Table 4.8

**Table 4.8**: **Operational Performance**

| Operational Performance | Mean | Std Deviation |
|---|---|---|
| Implementation of quality management systems has increased the firm performance. | 4.29 | 0.17 |
| Quality management systems have enhanced services which have contributed to Operational Performance | 3.95 | 0.25 |
| Effective implementation of quality management Systems has increased firm's competitiveness and resulted in customer satisfaction. | 3.81 | 0.37 |
| Implementation of quality management systems has ensured effective waste reduction in operations | 3.87 | 0.16 |
| Quality management systems improve operation efficiency thus reducing time taken to complete projects. | 4.08 | 0.75 |
| Implementation of quality management systems focuses on increased retention as a result of customer satisfaction | 4.25 | 0.29 |
| Aggregate Mean | 4.04 | 0.33 |

***Source:*** *Research Data,*

From the respondents feedback on operational performance of construction companies, a scale of 1 to 5 was used whereby 1 = strongly disagree and 5 = strongly agreeing. The aggregate mean of 4.04 shows significant improvements on operational performance as a result of implementing TQM practices. Further results also show most of the construction companies had implemented quality management systems (M = 4.29, SD = 0.17).

### 4.5 Correlation Analysis

The table below shows the relationship between total quality management practices and operational performance of construction firms in Nairobi. Regression analysis and correlation analysis was carried out.

**Table 4.9**: **Correlation Results**

| | | Operational Performance | Customer Focus | Continuous Improvement | Top Management Commitment | Supplier Partnering |
|---|---|---|---|---|---|---|
| Operational performance | Pearson Correlation | 1 | .828 | .810 | .626 | .772 |
| | Sig. (2-tailed) | | .000 | .016 | .001 | .000 |
| | N | 89 | 89 | 89 | 89 | 89 |
| Customer focus | Pearson Correlation | .828 | 1 | .042 | .132 | .786 |
| | Sig. (2-tailed) | .000 | | .530 | .045 | .000 |
| | N | 89 | 89 | 89 | 89 | 89 |
| Continuous improvement | Pearson Correlation | .810 | .042 | 1 | .912 | .151 |
| | Sig. (2-tailed) | .016 | .530 | | .000 | .022 |
| | N | 89 | 89 | 89 | 89 | 89 |
| Top management commitment | Pearson Correlation | .626 | .132 | .912 | 1 | .223 |
| | Sig. (2-tailed) | .001 | .045 | .000 | | .001 |
| | N | 89 | 89 | 89 | 89 | 89 |
| Supplier partnering practices | Pearson Correlation | .772 | .786 | .151 | .223 | 1 |
| | Sig. (2-tailed) | .000 | .000 | .022 | .001 | |
| | N | 89 | 89 | 89 | 89 | 89 |

***Source:*** *Research Data,*

From the findings, it was ascertained that TQM practices have a positive impact on operational performance. A strong correlation between customer focus and operational

performance was evident, r = .828, P < 0.000 which was statistically significant. To assess the relationship between TQM practices and the resulting operational performances gained, regression analysis was conducted and presented in Table 4.12.

### 4.6 Regression Analysis

Multiple regression analysis was carried out to determine how total quality management affects the operational performances of construction companies in Nairobi. For purposes of coding, entering and computing the variables of the multiple regressions for the study; Statistical Package for Social Sciences (SPSS V 21.0) was used. The summary of model is presented in the table below 4.10

**Table 4.10**: **Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .819[a] | .671 | .653 | .37290 |

The model had an R-value of 0.671 which implied that 67.1% of the variations in operational performance of construction companies in Kenya are explained by the independent variables understudy (customer focus, continuous improvement, top management commitment and supplier partnering practices). The unexplained variance is 32.9 % which implies that factors not covered by this study are responsible for explaining the remaining variance. Besides the significance level is at 0.000 which is less than the critical value of 0.05 hence this model was statically significant at 95% confidence level.

The study went ahead to test the significance of the model by use of ANOVA technique. The findings are tabulated in table 4.11.

**Table 4.11**: **Summary of One-Way ANOVA results**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 24.72 | 4 | 6.18 | 5.474 | .000[b] |
| | Residual | 94.836 | 84 | 1.129 | | |
| | Total | 119.556 | 88 | | | |

From the ANOVAs results the probability value of 0.000 was obtained which indicates that the regression model was significant in predicting the relationship between operational performance of construction companies and the predictor variables (customer focus, continuous improvement, top management commitment and supplier partnering practices) as it was less than $\alpha = 0.05$.

In addition, the study used the coefficient table to determine the study model. The findings are presented in the table below.

**Table 4.12**: **Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.776 | .127 | | 6.110 | .002 |
| | Customer focus $X_1$ | .617 | .096 | .607 | 6.427 | .001 |
| | Continuous improvement $X_2$ | .597 | .103 | .573 | 5.796 | .000 |
| | Top management commitment $X_3$ | .669 | .098 | .594 | 6.827 | .000 |
| | Supplier partnering practices $X_4$ | .689 | .11 | .558 | 6.264 | .002 |

Based on the results of the study as indicated above, ($\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_{4+} \varepsilon}$) becomes:

$Y = - 0.776 + 0.617X_1 + 0.597X_2 + 0.669X_3 + 0.689X_4$

The regression equation above has established that taking all factors into account constant at zero, operational performance will have an independent value of -0.776. The findings presented also show that taking all other independent variables at zero, a unit increase in customer focus would lead to a 0.617 increase in operational performance, a unit increase in continuous improvement would lead to a 0.597 increase in operational performance, a unit increase in top management commitment would consequently lead to a 0.669 increase in operational performance and finally a unit increase in supplier partnering practices would lead to a 0.689 increase in operational performance. All the variables were significant as the P-values were less than 0.05.

### 4.7 Discussion of the Findings

This study's main purpose was to establish the extent of TQM implementation in construction firms in Nairobi and its effect on operational performance. The findings of the study as indicated above ascertained that to a large extent, construction firms in Nairobi have adopted the TQM elements in their operations. This was evident as per the results whereby a descriptive analysis carried out on each and every variable, indicated that all the four TQM practices had a positive aggregate mean value an indication that they had been implemented in the construction firms in Nairobi.

From the findings, customer focus indicated an aggregate mean value of 4.14; continous improvement an aggregate mean value of 4.13, top management commitment indicated a mean value of 4.07 and supplier partnering indicated a mean value of 4.02. From these findings, it was an indication that the TQM practices had been implemented in the construction firms in Nairobi. Due to the positive values of the mean results that was obtained from the descriptive statistics it was noted that each and every practice holding all other factors constant would have an effect on the operational performance of the construction firms.

The second objective of the study was determine the effect of TQM on operational performance. To attain this, the study used correlation analysis to indicate the effect of TQM practices on operational performance in construction firms in Nairobi. From the results of the correlation analysis carried out, a positive relationship between TQM practices and operational performances of construction firms in Nairobi was evident. From the findings, it was ascertained that TQM practices had a positive impact on operational performance whereby: customer focus had a correlation of 0.828, continous improvement had a correlation of 0.810, top management commitment had a correlation of 0.626 and supplier partnering practices had a correlation value of 0.772. Hence all the TQM practices in the study affected operational performance in the construction firms in Nairobi.

Multiple regression analysis was carried out where the various TQM practices were regressed against operational performances. The regression analysis established that 67.1% of the operational performances of construction firms in Nairobi is affected by customer focus, top

management commitment, continuous improvement and supplier partnering practices. This indicated that the TQM practices had great impact on the operational performance. The ANOVA analysis indicated a 0.000 value as the significance level an indication that the model used was significant since the value is less than 0.05.

# CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

This chapter merges the entire report elements and contains a summary of the findings from the research, conclusions made from these results, what has been recommended and the suggestions for further study based on the research objectives.

## 5.2 Summary of Findings

The various findings in the study were discussed as follows;

### 5.2.1 Customer Focus

Based on the study results, it's evident that adoption of customer focus management practices enhanced operational performance of construction companies, it also noted considerable number of construction companies in Nairobi had highly adopted the customer focus management practices which include implementation of systems for customer retentions, enhanced handling of customer feedback and complaints and interventions on market based research. These findings are in line with the research by Woller, Dunford and Warner (2013), giving clients' quality service is important for success and continued growth in today's competitive market environment. Further results also show that the loyal customers are more likely to refer the products to their business associates and friends since they feel that the firms consider their desires when they create goods and services. These findings are in line with the research by Kagumba and Gongera (2013) that running a customer-focused business assists firms build a loyal customer base.

### 5.2.2 Continuous Improvement Practices

The study findings reveled that adoption of continuous improvement practices had a positive significant impact on operational performance of construction companies; considerable number of construction companies in Nairobi had adopted continuous improvement practices in their operations. Among the continuous improvement practices adopted included benchmarking, employees training, systems measurements and continuous quality audits. On the same note, the test regression results show that a unit increase in adoption of continuous improvement practices will promote the operational performance of construction companies. Descriptive results reaffirm that construction companies worked towards improving every face of the firm, most of the construction firms have created an effective quality assurance team. These findings are in line with the research by Kaziliunas (2010) Organizations should ensure provision of high quality services through by embracing continuous improvement in product development as this was linked with increase customer retention rates, attraction of new customers through, boosting of productivity, increased market share, lower operating costs, as well as positive performance in profitability.

### 5.2.3 Top Management Commitment

The findings investigating top management commitment reveled that commitment levels had a positive significant impact on operational performance of construction companies. This was commonly demonstrated in proper allocation of resources, provision of quality leadership, proper guidance in realization of organisational vision and quality policies. Test regression results show that a unit increase in management commitment level by top management on implementation of TQM will promote the operational performance of

construction companies in Nairobi. Descriptive results obtained show that the construction firms have been providing resources and training, most of the construction firms have been set up and serves on a quality committee. These findings are in line with the research by Anschutz (1996) that the success in implementation of TQM in an organisation relies on the ability of the top manager to successfully lead different teams and help them buy-in into a common goal of completing the TQM objectives.

### 5.2.4 Supplier Partnering Practices

The study revealed that construction companies in Nairobi had adopted supplier partnering practice as proposed by TQM, Test regression results show that a unit increase in adoption of supplier partnering practice will promote the operational performance of construction companies in Nairobi. Descriptive results obtained also show that the firm maintains contractors information data base, construction companies shares the use of statistical controls with supplier partners most of the construction companies practice outsourcing to cut costs of service delivery, considerable number of construction firms sought out feedback from suppliers, considerable number of construction companies worked directly with suppliers to improve quality of service. These findings are in line with the research by Tomasini and Wassenhove (2009) states that strategic supplier relationship management is an important step in improving performance across the supply chain.

### 5.2.5 TQM Practices and Operational Performance

The study revealed that implementation of quality management systems has increased the firm's performance, thus focuses on improved retention as a result of customer satisfaction, quality management systems improve operation efficiency thus reducing time taken to

complete projects, quality management systems have enhanced services which have contributed to operational performance, implementation of quality management systems has ensured effective waste reduction in operations and that effective implementation of quality management Systems has increased firm's competitiveness and resulted in customer satisfaction. These findings are in line with the research by Prajogo and Sohal (2004) that TQM helps in bringing out the needs of the market and that its application assists the firms to identify and meet the needs of the market in a better way.

### 5.3 Conclusion

Based on the research findings the study concludes that adoption of customer focus Strategies as proposed in TQM resulted to enhanced operational performance of construction companies in Kenya. Customer focus is certainly related to operational performance, when a firm knows the clients usual needs, expectations and complaints accurately and on a timely manner, it can invest in profitable areas and improve its market share and profitability.

The study concludes that there exist a significant relationship between Continuous improvement and operational performance of construction companies in Nairobi. Continuous quality improvement reduced the number of errors in construction process, increased Productivity, increased adaptability and staff morale.

The study concludes that Top management commitment and participation in TQM practices are the most important factors for the success of TQM practices. Managers of construction companies should show more leadership than traditional management behaviors to improve employees' awareness of best practice TQM.

The study concludes that building of supplier partnerships enhance the operational performance of construction companies, supply chain relationships promoted the companies' cost efficiencies and economic conveniences through sourcing and supply base building materials; working with helped to identify cost savings for both parties, helped suppliers improve their cost structures.

### 5.4 Recommendations

Construction companies should adopt customers focus culture within the organisation; this will help the firm to identify the needs and expectations of the customers accurately, produce high quality reliable products and deliver products timely manner.

Construction companies should continuously embrace Continuous innovation practice in delivery of their products. Adopting this approach will see great benefits, including: lowered costs, improved employee morale, improved quality, decreased delivery times, increased productivity and reduced employee turnover rate thus promoting operational performance.

Since strong leadership was found to improve operational performance, this study therefore recommends that top leaders in construction companies should demonstrate willing and portray great enthusiasm in all implementation of organisational process, leaders should encourage employees to participate in decision-making.

Construction companies should build strong supplier partnerships, this will help the firm achieve greater improvement of products through contributions to product design, technology, or ideas for producing new products, achieve, improvements in product quality.

## 5.5 Limitations of the study

The respondents being managers at busy construction sites, proved difficult to get them to fill the questionnaires because of confidentiality issues and actually declined to participate. To counter this, the researcher used an introduction letter from The University of Nairobi to solve this obstacle. Others took the questionnaires but never returned them.

The study was limited to total quality management within the construction companies and therefore the findings are limited to this industry and may not be applicable to other sectors of the economy. The study was done in Nairobi County and thus the findings may not be generalized to the whole country.

## 5.6 Suggestions for Further Research

The research sought to establish the barriers and the impact of total quality management on the operational performance of Construction companies in Kenya. The study variables; customer focus, continuous improvement, top management commitment and supplier partnering practices explained 65.3% variations in operational performance in construction companies in Kenya. The research recommends that other variables accounting for 34.7% need to be identified and their influence assessed as well.

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## APPENDICES

## APPENDIX I: INTRODUCTION LETTER

Simion Seda,
P.O Box 20925-00100,
Nairobi-Kenya.
Date: September 5, 2017

Dear Respondent,

**RE: REQUEST FOR DATA COLLECTION FOR COMPLETION OF AN MBA DEGREE.**

I am an MBA student at the University of Nairobi. I am currently doing a research study to fulfill the requirements of the Award of Master of Business Administration (MBA) on **TOTAL QUALITY MANAGEMENT AND OPERATIONAL PERFORMANCE OF CONSTRUCTION COMPANIES IN NAIROBI**

You have been randomly selected to participate in this research and by responding to all questions in the attached questionnaire as completely, correctly and honestly as possible. Your response will be treated with utmost confidentiality and will be used only for research purposes of this study only.

Thank you for your cooperation.

Yours Sincerely,

Simion Seda Oyiro.

## APPENDIX II: RESEARCH QUESTIONNAIRE

### SECTION A: GENERAL INFORMATION

1) Name of the Organization (Optional) _____

2) Number of years it has operated in Kenya

| | | | | | |
|---|---|---|---|---|---|
| 0-5 years | [ ] | 6-10 years | [ ] | 11-15 years | [ ] |
| 15-20 years | [ ] | 21-25 years | [ ] | Over 25 years | [ ] |

3) Your position in the organization _____

4) Number of years you have worked with the current employer

| | | | | | |
|---|---|---|---|---|---|
| 0-5 years | [ ] | 6-10 years | [ ] | 11-15 years | [ ] |
| 15-20 years | [ ] | 21-25 years | [ ] | Over 25 years | [ ] |

5) Number of years you have worked in the Construction companies in Kenya

| | | | | | |
|---|---|---|---|---|---|
| 0-5 years | [ ] | 6-10 years | [ ] | 11-15 years | [ ] |
| 15-20 years | [ ] | 21-25 years | [ ] | Over 25 years | [ ] |

### SECTION B: TOTAL QUALITY MANAGEMENT PRACTICES

6) Please indicate the extent to which you agree with the following statements on the Customer focus used by your firm. The scale below will be applicable: 1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent.

| **Customer focus** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| Having a customer focus is usually a strong contributor to the overall success of a business | | | | | |
| Having customer focus usually includes maintaining an effective customer relations and service program | | | | | |
| appreciation and participation in ISO certification results in improved firm performance | | | | | |
| Running a customer-focused business helps organizations build a loyal customer base | | | | | |
| Customers are more willing to purchase from companies that they feel consider their needs when they create products and services. | | | | | |
| The more loyal customers are to a business, the more likely they are to refer the products or services to friends, family and business associates. | | | | | |

7) Please indicate the extent to which you agree with the following statements on the Continuous Improvement Practices used by the firm. The scale below will be applicable: 1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent.

| **Continuous Improvement Practices** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| Your firm works towards improving every face of the firm. | | | | | |
| The firm caries research on construction industry at all levels. | | | | | |
| The firm is able to achieve 100% customer satisfaction within construction industry. | | | | | |
| Your firm observes quality improvement at all levels | | | | | |
| Your firm has created an effective quality assurance team | | | | | |

8) Please indicate the extent to which you agree with the following statements on the Top management commitment Practices used by your firm. The scale below will be applicable: 1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent.

| **Top management commitment** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| This organization has been setting up and serving on a quality committee | | | | | |
| This organization has been formulating and establishing quality policies and objectives, | | | | | |
| This organization has been providing resources and training, | | | | | |
| This organization has been overseeing | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| implementation at all levels of the organization | | | | | |
| This organization has been evaluating and revising the policy in light of results achieve | | | | | |

9) Please indicate the extent to which you agree with the following statements on the Supplier Partnering Practices within your firm. The scale below will be applicable: 1=very small extent, 2= small extent, 3= moderate extent, 4= Large extent, 5= to a very large extent.

| **Supplier Partnering Practices** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| The firm work directly with suppliers to improve quality of service. | | | | | |
| The Firm shares the use of statistical controls with Supplier partners. | | | | | |
| The firm practice outsourcing to cut costs of service delivery. | | | | | |
| The firm seek out feedback from suppliers | | | | | |
| The firm maintains Contractors information data base. | | | | | |

**TQM Practices and Operational Performance**

1) Using a scale of 1-5, where 1= strongly agree; 2=Agree; 3=Neutral; 4=Disagree; 5=Strongly Disagree, Please indicate the extent to which you agree with the following statements

| **Operational Performance** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| Implementation of quality management systems has increased the firm performance. | | | | | |
| Quality management systems have enhanced services which have contributed to Operational Performance | | | | | |
| Effective implementation of quality management Systems has increased firm's competitiveness and resulted in customer satisfaction. | | | | | |
| Implementation of quality management systems has ensured effective waste reduction in operations | | | | | |
| Quality management systems improve operation efficiency thus reducing time taken to complete projects. | | | | | |
| Implementation of quality management systems focuses on increased retention as a result of customer satisfaction | | | | | |

## APPENDIX II: CONSTRUCTION COMPANIES

1. Acarred Eastern Africa Ltd
2. Africost (k) Consulting Quantity Surveyors
3. Akal Fabricators
4. Alebon Development Limited
5. Alltech Security Systems
6. Altec Fire And Safety Ltd
7. Amour Tech Engineering Co Ltd
8. Anoten Aluminium Fabricators Ltd
9. Appar Tech Ltd
10. Arma Roofing Contractors
11. Armstrong & Duncan Quantity Surveyors
12. Arvin Construction Co
13. Atlabara Investments
14. Baloch International Construction And Consultants
15. Batton Contractors
16. Beam Engineering (k) Ltd
17. Benma Technical Services Ltd
18. Binary Engineering Enterprises Ltd
19. Boma Surveys Ltd
20. Bowl Plumbers Ltd
21. C B & Construction
22. Central Plumbing Ltd
23. Charwins Ltd
24. Chemason Engineering & Fabrication Works
25. China Chuang Group Limited
26. China Gezhouba Group Co.,Ltd. Kenya Branch
27. China Sichvan Corp For International Techno Economic Coop (sietco)
28. Collands Ventures

29. Concept Construction Co. Ltd
30. Construction Consultants Ltd
31. Construction Project Consultants
32. Copstech Systems
33. Costek Alma
34. Costplan Consultants
35. Covenant Geo-Survey Systems
36. Crown General Contractors Co
37. D. F. Enterprises Co. Ltd
38. Dechto General Construction Ltd
39. Deluxe Interiors
40. Devnarayan Enterprises Ltd
41. Diaspora Design Build Ltd
42. Digmap Consultants
43. Doctal Agencies Co Ltd
44. Dowell Contractors
45. Dragon Fire Appliances Ltd
46. Dutam Survey & Land Consultants
47. E.G.D. Interiors & Project Ltd
48. Ecoventures Holdings (k) Ltd
49. Ekalakala Construction Co Ltd
50. El-Noor General Contractors Limited
51. Eridy Construction
52. Ernest Kibiru
53. Europa Infrastructure Technology (e.a) Ltd
54. Exdamum Developers & Contractors Ltd
55. Fabricators & General Contractors Ltd
56. Fire Planet Co
57. Firoze Construction Ltd
58. Freddy Steel Structures

59. Fredmar Quality Surveyors
60. Friscan Construction Management
61. Frontier Engineering Ltd
62. Geomeasure Surveyors
63. Geoplan Survey
64. Ghanshyam Timber & Steel Hardware Ltd
65. Gichocho Building Contractors
66. H F Fire International Kenya Ltd
67. H. Van Deurzen B.V.
68. Halisi Construction Co Ltd
69. Harrisongeorge Ltd
70. Ibis (e A) Construction
71. Industrial Specialized Systems
72. Inesa Ltd
73. Integra Consulting Quantity Surveyors
74. Jaisham Ltd
75. Johli Works (k) Ltd
76. Jomcon Construction Co Ltd
77. Jongonga Contractors
78. Jowas Fabricators
79. Just In Time Plumbing & Hvac Ltd
80. Kargua (k) Construction Co Ltd
81. Karsan Bhimji Construction Ltd
82. Kaydee Construction company Ltd
83. Kenya Federation Of Master Builders
84. Kerora Construction Company
85. Kirethi Construction Co Ltd
86. KK Fire
87. Knight Fire Appliances
88. Kolmans Geomatic Consultants

89. Komal Construction Co Ltd
90. Komwere And Associates
91. Lexis Contractors Stop Ltd
92. Liberty Events & Contracts Scaffolding
93. Lituku Consultancy
94. Locost Homes & Construction Ltd
95. Logicool Limited
96. Loita Hills Construction Ltd
97. Luke Contractors
98. Magid Ventures
99. Magnum Engineering & General Contractors
100. Makus Survey Services
101. Manrik Group Ltd
102. Mao Landmap Service
103. Maru Piling & Geotechnical Contractors Ltd
104. Mas & Systems Ltd
105. Master Aluminium Ltd
106. Masterbill Intergrated Projects
107. Mather + Platt (k) Ltd
108. Mescon Builders Ltd
109. Morris & Co (2004) Ltd
110. Mugo Land Surveyors
111. Nafuu Classic General Hardware Ltd
112. Nam Builders
113. Narmar East Africa Limited
114. Nationwide contractors Ltd
115. Neat Construction Ltd
116. Oceanic Marine Surveyors Kenya Ltd
117. Optic Fire& Engineering Services
118. Oris & Sons Contractors

119. Paa Na Jiko Limited
120. Paa Na Jiko Limited
121. Pekar Roofing Company Limited
122. Pekema Construction Co
123. Phenziah Engineering Works
124. Pinakprani Enterprises
125. Pioneer Glassmart & Fabricators
126. Pitshah Shades Enterprises
127. Plumbuild & Engineering Ltd
128. Premium Glass And Interiors Contractors Limited
129. Prestro Venture Ltd
130. Prime Bill Consultants
131. Prosper Construction Co Ltd
132. Proxy Insurance Investigators
133. Rapid Construction Co Ltd
134. Ravji Construction
135. Relemech Services Ltd
136. Rexe Roofing Products Ltd
137. Roll-On Equipment Ltd
138. Rotunda Contractors Ltd.
139. Royal Land Surveyors & Property Valuers
140. Rupa Civil & Contractors Ltd
141. Sadasa Construction Ltd
142. Samek Construction Ltd
143. Scope construction and Trading Ltd
144. Silicon Electric Co Ltd (fire & Security Engineers)
145. Somal Builders & Contractors Ltd
146. Span Fabricators Co. Ltd
147. Squarem Services
148. Steny Fabricators

149. Stepal Builder Co Ltd
150. Stroika
151. Tamna Construction Ltd
152. Taurus Construction Co. Ltd
153. Technologistics Africa
154. Temple Air Management Ltd
155. The Institution Of Surveyors Of Kenya
156. Thwama Building Service Ltdharrisongeorge Ltd
157. Total Venture Enterprises Ltd
158. Tripodsystems Ltd
159. Trishcon Construction Co Ltd
160. Tritech Construction & Engineering
161. Undiri Construction Co
162. Varoma-Tech Enterprises
163. Vineyard Holdings
164. Wamwa Trading Company
165. Westlife Construction Co. Ltd
166. Windscope Loss Assessors Ltd
167. Wright Adams Co Ltd