

**TOTAL QUALITY MANAGEMENT PRACTICES AND PERFORMANCE OF
COMMERCIAL BUILDING CONSTRUCTION PROJECTS IN NAIROBI COUNTY,
KENYA**

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**A Research Project Report Submitted in Partial Fulfillment of the Requirements for the
Award of Degree of Master of Arts in Project Planning and Management, Of the
University of Nairobi**

2022

DECLARATION

This research project is my original work and has not been presented for an award to any other University.



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This research project is dedicated to my parents for always supporting my insatiable desire to learn.

ACKNOWLEDGEMENT

I express my sincere gratitude and appreciation to my supervisor; Dr. John Mwaura Mbugua for his guidance and thoroughness throughout the process of writing this project.

My deepest gratitude goes to the lecturers at the University of Nairobi, Department of Management Science and Project Planning who took us through the masters' class and have also guided me in writing this project.

I am forever indebted to the class of 2019; Master of Arts in Project Planning and Management for the immense assistance you provided in my study. I would also like to thank the respondents of who took part in this study.

Many thanks to my family for their strong encouragement and tangible support during the entire process of writing this project.

Finally, I thank Almighty God for His unconditional love.

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ABBREVIATIONS AND ACRONYMS

COVID-19	Coronavirus Disease 2019
KLIA2	Kuala Lumpur International Airport
KPDA	Kenya Property Developers Association
NACOSTI	National Commission for Science, Technology and Innovation
NCA	National Construction Authority
NSSF	National Social Security Fund
SGR	Standard Gauge Railway
TQM	Total Quality Management

ABSTRACT

The ability of a project to achieve its goal(s) through competent management, strong governance, and a constant rededication to attaining results is referred to as project performance. The building industry in Kenya is a competitive one, and as a result, quality is extremely important. TQM is used by businesses to obtain a competitive edge in terms of productivity and customer satisfaction. Therefore, the study aimed to investigate the influence of total quality management practices on performance of commercial building construction projects in Nairobi County, Kenya. The study looked at the influence of customer focus, mutual supplier relation, total employee commitment, and fact-based decision-making on the performance of commercial building construction projects in Nairobi County. This study was hinged on Deming's theory, Crosby's theory, and resource-based view theory. The researcher employed a descriptive research design. The population targeted was the commercial building construction projects in Nairobi County. The unit of observation was the 6 National Construction Authority senior managers, 13 Ministry of Transport, Infrastructure Housing, Urban Development and Public Works officials, 147 managers and 382 supervisors of commercial building construction projects. The sample size of 231 was attained using Stratified random sampling method. To collect primary data, self-administered questionnaires were used. The content validity of the questionnaire was established in order to evaluate the responses. Reliability was assessed using the Cronbach Alpha. Data obtained in the field was filtered, processed, and cleaned in accordance with the study's goals. The data was then coded, placed into statistics software, and examined (SPSS, Version 25.0). Descriptive statistics was applied in analyzing quantitative data. Percentages, frequencies, means, and standard deviation were all calculated. Inferential data was analyzed with the use of multiple regression analysis. Frequency tables were used to present the results. The study found that the project spent time and money educating customers about its new offerings. The research also found that payments to suppliers were not made on time. The research found that it was not certain whether employees were more concerned with product quality than with yields and if employees learned quality-related concepts and skills. The research found that they frequently delegated the task of critiquing each decision to one member of the decision-making team in order to examine its merits. The study concluded that fact-based decision-making ($r=0.818$, $p=0.033<0.05$) had the greatest influence on the performance of commercial building construction projects in Nairobi County, followed by customer focus ($r=0.787$, $p=0.002<0.05$), then total employee commitment ($r=0.738$, $p=0.012<0.05$) while mutual supplier relation ($r=0.599$, $p=0.038<0.05$) had the least influence on the performance of commercial building construction projects in Nairobi County. The study recommends that employees in the commercial building construction projects in Nairobi County should be responsible for actively supporting the adoption of the TQM accepted practices on performance. The study also recommends that commercial building construction projects in Nairobi County ought to concentrate the wants and expectations of their customers, give personalized and quality customer experience, deliver the appropriate services at the appropriate times with an emphasis on fostering positive customer relationships.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The ability of a project to fulfill its goal(s) through competent administration, sound governance, and a never-ending dedication to results is referred to as project performance (Bastas & Liyanage, 2018). Over the last several decades, academics and practitioners have been concerned with project performance. According to Psomas and Antony (2017), project performance pertains to an organization's accomplishments in relation to some criterion. They discovered that project performance is a good indicator of an organization's effectiveness. The efficacy, efficiency, financial viability, and relevance to stakeholders are all indicators that could be utilized to examine an organization's success. Total Quality Management (TQM) has been shown to be a very effective method for enhancing quality performance (Li, Zhao, Zhang, Chen & Cao, 2018). TQM is a quality management system that originated in the manufacturing business and has garnered global acclaim for its impressive results, including improved productivity, lower product costs, and enhanced reliability.

As a result of its successful application in the manufacturing business, TQM has become a source of new ideas for other industries, such as the construction industry, to adopt and use this concept. The goal of quality management is to ensure that all efforts are made to meet the required level of quality for a well-planned and organized product. From the perspective of a construction company, managing quality in building projects should entail keeping construction operations at the correct level to satisfy customers, thereby ensuring long-term competitiveness and business sustainability (Fernandes, Sampaio, Sameiro & Truong, 2017). Furthermore, Aquilani, Silvestri, Ruggieri, and Gatti (2017) stated that the word quality management as employed in the construction sector encompasses all aspects of the phenomena, comprising quality assurance, quality control, quality enhancement, and quality standards, among others. TQM, according to Demirkesen and Ozorhon (2017), makes performance a successful technique for achieving organizational change and improving quality. The success of organizational transformation projects, particularly TQM, is dependent on the organization's performance. The TQM techniques in this study will include fact-based decision-making, total staff engagement, mutual supplier relationships, and a customer-focused approach.

Over 80% of project managers and leaders in industrialized nations such as the United Kingdom share customer demands and expectations with middle management and lower-level employees to prevent variations from the agreed-upon deliverables. Poor communication, lack of technical competence, a rise in cost and time, and contractor deficiencies/poor work are the primary causes of performance problems that affect around 50% of those involved in construction projects (Suryanto, Haseeb & Hartani, 2018). In Canada for instance, Hamid, Isa, Chew and Altun (2019) delays in the completion of infrastructure projects have been blamed on a variety of factors, including reduced money from sponsors, miscommunication, delayed payment transfers, contractors poor site management, and time-consuming legislative processes. According to Ross (2017), design adjustments have caused a delay in the closure of a pipeline project between Florida State University and the Bahamas in the United States.

Poor quality, lax standards, and low productivity are hallmarks of construction in developing nations, and management strategies fall short in addressing these issues (Gutierrez-Gutierrez, Barrales-Molina & Kaynak, 2018). To address quality in building projects, Hong, Zhang and Ding (2018) noted that South African Development Community – countries ought to follow Quality Management Systems in Projects. A prime example is the high cost of non-conformance in South Africa as a result of building contractors' failure to participate in management practices training. Since management methods and procedures were not given priority over generating more revenue and creating new employment in Ghana, project management there had difficulties with project performance and meeting deadlines (Mehralian, Nazari, Nooriparto & Rasekh, 2017). According to a study conducted in Swaziland by Stamatis (2018), management methods and quality management elements in construction projects may minimize substandard construction project quality.

In Malaysia, Mukhopadhyay (2020) reported that cost overruns, delays, and poor work quality in state projects, like community college and school buildings facilities, plague the construction sector. Similarly, in the building of the new Kuala Lumpur International Airport, a local newspaper reported on similar issues (KLIA2). After construction, it was repeatedly reported to have quality issues, including water ponding water ponding, cracked runaways, periodic flooding, sinking aircraft parking bays and uneven taxiways. These quality issues have

prompted public safety concerns (CIDB, 2016), and the Malaysian construction industry's quality standards have been directly questioned.

The National Construction Authority (NCA) and the Ministry of HUD oversee the Kenyan construction sector, which includes work on infrastructure and buildings. Due to devolution, county administrations are tasked with regulating this industry within their jurisdictions. The construction industry is anticipated to generate around 130,000 private segment jobs per annum (Government of Kenya, 2014). According to analyst Njenga (2017), the Kenyan market has proven to be lucrative in attracting foreign investors due to its high profitability of 20-30%, which is not achievable even in the US or European markets. In the first quarter of 2016, the construction industry contributed 8.0% of Kenya's GDP, thanks to a boom in the real estate sector and revenues from infrastructure projects like standard gauge railways (KPMG, 2016). This is a 6.7% increase over last year. The country's capital, Nairobi, has become an industry leader.

A robust real estate sector, as well as large ongoing infrastructure projects such as the Standard Gauge Railway (SGR) between Mombasa and Nairobi, road and energy infrastructure construction, and airport expansion, is fueling the growth. However, Kenya's construction industry is plagued by poor quality outcomes. The construction business has a variety of issues, the most serious of which is major safety violations, as proven by a series of building collapses across the country. Wangi (2018) sees quality control as a problem for the Kenyan construction sector and finds that most construction contracts are costly and time consuming. Kenya's construction industry is estimated to account for 27% of deaths and worker injuries that affect project completion rates.

Moreover, the biggest obstacles facing construction companies in Kenya, as per the Kenya Property Developers Association (KPDA) (2014), are capital, handling stringent quality requirements and dynamic customer requirements. The expansion of the Kenyan real estate market has contributed to a rise in the proportion of developers and brokers. However, despite the phenomenal growth of the real estate sector in recent years, it has become clear that quality is not always the deciding factor. Nationwide rogue structures can be found as most sales did not go as planned (Daily Nation, 2016). Many structures have been reported to have shrunk due to poor quality. In 2013, a five-story structure collapsed in Kisumu, Kenya, killing nine

people. In March 2016, another four-story structure collapsed in Zimmerman, Nairobi, killing 46 and above people. Another collapsed in Huruma in May, killing 46 and above people. And in November, another one collapsed in Kishia, killing nine people. Previously, quality assurance in the sector was entrusted to the municipality.

Currently, counties are required to inspect buildings for quality in accordance with established requirements (NCA, 2016). Private organizations have also emerged to aid local contractors with construction, inspection, and certification services by evaluating projects in compliance with the country's exclusive standards. It has been determined that there are insufficient specialist development employees in Kenya, as well as a scarcity of directors and organizers in government who understand TQM, to enable Kenyan development administrations to compete on value rappers in the global market. Kwasira, Wambugu, and Wanyoik (2016) found that the completion rate of government-funded construction projects was 35.6%. According to Mwikali and Bett (2019), an upsurge in building collapses in Nairobi County has been attributed to poor quality management. According to this analysis, Kenya's construction industry lacks quality management measures, which has an impact on how well it performs relative to international norms. Therefore, the current study aimed on establishing the influence of TQM practices on performance of commercial building construction projects in Nairobi County, Kenya.

1.2 Statement of the Problem

The construction industries and its customers' complexity has increased in both intensity and diversity, causing many construction businesses to have difficulties maintaining project performance, particularly the expected customer satisfaction (Bastas & Liyanage, 2018). The degree of success in conducting construction project development operations is highly dependent on the quality of management, the financial, technical and firm performance of the parties involved, as well as management of risk, firm environment, political and economic stability.

The construction industry in Kenya is a competitive one, and as a result, quality is extremely important. KNBS (2018) in a report on the Kenya real estate, has shown a declining trend on the real estate sector in Nairobi. Compared to 2017, when it expanded by 8.2 percent, the construction industry rose by 7.2% in 2018. The use of cement decreased from 6 million tonnes to 5.2 million tonnes during the two years, indicating a decrease. Furthermore, according to

NCA (2018), the majority of the occurrences of collapsing buildings occur in low-income areas with little or no inspection. When it comes to the underlying elements that contribute to project completion, the construction sector has had a poor track record. This has been as a result of the use of substandard materials, bad workmanship, defective design methodology, noncompliance with methodology, lack of oversight, poor assessment and control, structural deficiencies and unauthorized modifications. Overall, this has an impact on project quality, which is the primary emphasis of this study so far. In this sense, the goal of this research is to see how comprehensive quality management approaches like: fact-based decision-making, total employee commitment, mutual supplier relation and customer focus generally affect the commercial building construction projects in Nairobi County.

Studies done in connection with TQM practices construction projects include Chege and Bett (2019) investigated TQM Practices and Organizational Performance in the Real Estate Industry, with a case study of property creators in Nairobi County. The study discovered that the Real Estate Companies' organizational performance has been greatly affected by client focus, a dedication to excellence from the top down, employee empowerment, and ongoing development. Kwasira, Wambugu, and Wanyoike (2016) investigated the impact of quality management practices on the successful achievement of building construction projects in Nakuru Town, Kenya. The findings showed that the successful completion of building construction projects in Nakuru town is statistically significantly and positively correlated with all four elements of quality management. Njenga (2017) looked at the impact of contractor links on TQM practices in the construction industry. The results revealed that procedural hurdles are an impediment to TQM practices in the construction sector in Nairobi County, customer focus and management were the most often used TQM principles, and contractor-client interactions had the most significant impact on TQM practices. The studies however, did not seek to establish the influence of total quality management practices on performance of commercial building construction projects in Nairobi County, Kenya. The current study hence aimed on bridging this gap.

1.3 Purpose of the Study

The purpose of this study was to investigate the influence of total quality management practices on performance of commercial building construction projects in Nairobi County, Kenya.

1.4 Objectives of the Study

The study sought to achieve the following objectives:

- i. To establish how customer focus influences performance of commercial building construction projects.
- ii. To determine the extent to which mutual supplier relation influences performance of commercial building construction projects.
- iii. To examine the extent to which total employee commitment influence performance of commercial building construction projects.
- iv. To assess how fact-based decision-making influence performance of commercial building construction projects.

1.5 Research Questions

The study sought to answer the following research questions;

- i. How does customer focus influence performance of commercial building construction projects?
- ii. To what extent does mutual supplier relation influence performance of commercial building construction projects?
- iii. To what extent does total employee commitment influence performance of commercial building construction projects?
- iv. How does fact-based decision-making influence performance of commercial building construction projects?

1.6 Research Hypotheses

The study tested the following research hypotheses;

H₀₁: There is no significant relationship between customer focus and performance of commercial building construction projects.

H₀₂: There is no significant relationship between mutual supplier-relation and performance of commercial building construction projects.

H₀₃: There is no significant relationship between total employee commitment and performance of commercial building construction projects.

H₀₄: There is no significant relationship between fact-based decision-making and performance of commercial building construction projects.

1.7 Significance of the Study

The goal of the research was to see if there is a link amid TQM approaches and project performance in commercial building construction. The findings of the study would be vital to the building industry since they would provide information on the value of embracing TQM. The study would also assist the NCA in determining the elements that contribute to substandard commercial building construction projects at the county level, allowing the NCA to devise mitigation measures to prevent accidents caused by substandard construction.

The conclusions of this study might enlighten Kenyan policymakers about the relevance of ideal total quality management techniques, which, when properly implemented, can produce transformative benefits. Furthermore, the research would determine the advantages of implementing a whole quality management system and make it easier to do so by establishing effective and suitable policies and regulations. The research might theoretically be valuable in providing vital information on various quality practices used by businesses. The paper would also be used as a resource for future academics working on a similar problem. Scholars interested in pursuing the same topic in their research might find the study useful. It might make it easier for them to discover research gaps and conduct study in those areas.

1.8 Delimitation of the Study

The study aimed to investigate the influence of total QM practices on performance of commercial building construction projects in Nairobi County, Kenya. The study looked at the influence of customer focus, mutual supplier relation, total employee commitment, and fact-based decision-making on the performance of commercial building construction projects in Nairobi Kenya. The study targeted the commercial building construction projects in Nairobi. In addition, the unit of analysis was the project managers and project teams. The study covered a period of 4 months.

1.9 Limitation of the Study

A number of limitations were encountered in this study, such as respondents' reluctance to provide information because they were suspicious of the study's intentions. They were assured

of their anonymity and that the findings were used solely for academic drives by the researcher. This was avoided by submitting a letter of introduction and authority from the university.

The study's data collection was limited due to COVID-19 pandemic protocols, which are now in effect around the world. To solve this issue, the researcher administered questionnaires online wherever possible and relied on research assistants to administer questions in person, all while adhering to Ministry of Health norms and protocols.

1.10 Assumptions of the Study

This study presumed that the companies sampled were the main stray of commercial building construction projects in Nairobi County. Moreover, the study assumed that TQM practices influence the performance of commercial building construction projects. The respondents were knowledgeable on the idea of construction projects and its effects. The researcher assumed that the participants who would give data understand the commonly used terms of commercial building construction projects. The study also assumed that the participants would be available and willing to answer questions.

1.11 Definition of Significant Terms in the Study

Customer Focus: The orientation of commercial building construction projects toward serving its clients' needs. This study defines it as an organization's focus on meeting the demands of its clients in order to improve the project-customer connection. This study will use satisfaction, innovation and knowledge management.

Mutual supplier relation: is the discipline between the commercial building construction projects and the third party who afford goods and/or service. This study will measure this variable using knowledge management, quality products, re-order levels, and payment of suppliers

Project Performance: This is the capacity to complete a project according to the requirements, on time and on budget, while keeping stakeholders and customers pleased..

Total employee commitment: This is where the employees are totally involved in all aspects of strategy implementation, setting, quality policy, and communicating a clear

vision and appreciating positive energies in the commercial building construction projects.

Total Quality Management Practices: These are the various methods used to ensure that a product or service meets the maximum level of customer satisfaction. In this study, this involves customer focus, mutual supplier relation, total employee commitment, and fact-based decision-making.

Total Quality Management: This is a project management method for a commercial building construction project that focuses on quality, relies on all members' participation, and aimed for long-term accomplishment through customer happiness and benefits to every member of the company and society.

1.12 Organization of the Study

The study effort was organized into five major sections. This is the introduction to the research article and includes the backdrop of the investigation, which includes perspectives ranging from global concerns to local concerns that are relevant to the study. This chapter covers the problem, the study's purpose, the research objectives, the research questions, the study's importance, its delimitation, its limits, its assumptions, its definitions of key terminology, and its organizational structure. The second chapter is a review of the literature from various scholars, which entailed in-depth research in relation to the variables of the study. This chapter also provided a theoretical and conceptual framework. The research methods which are applied in collection and implementation of research data, the target population, the study sample, ethical considerations, and operational definitions of variables were all covered in chapter three. The researcher evaluated, interpreted, and presented the data in tables in chapter four. Finally, chapter five included a review of the research findings, recommendations, and research areas that require additional investigation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents literature review on the influence of TQM practices on performance of commercial building construction projects in Nairobi County, Kenya. It outlines the work of other researchers in the topic. The review contains both a theoretical and a literary review. The review of ideas aided in understanding the present state of knowledge in the field. The review aided in the development of the conceptual framework.

2.2 Performance of Commercial Building Construction Projects

Organizational performance can be referred to as the actual results or results of an organization compared to its expected results (or goals and objectives). Strategic planning, operations, finance, legal, and firm development professionals are all concerned with organizational effectiveness (Waduu & Rugami, 2019). When a project satisfies specified performance metrics and requirements, it is termed a success. These actions are usually tolerable and comprise completing the project on time, within budget, within expected limits, and successfully meeting the needs of all project stakeholders. The lack of improvement is also explained by the success of the project (Jimoh, Oyewobi, Isa & Waziri, 2019). According to Lu, Tsai, Wei, Song, and Wu (2019), prior the existence of project administration agencies, updated project management books and guides, and Gantt charts, project management skills existed for the following period: A person exists in the world with a face as examples, there are countless huge projects that have been successfully accomplished in the past. The Pyramids of Giza, the Great Wall of China, and the Coliseum are among them. Many tough and successful initiatives have been completed throughout history, notwithstanding the complications and uncertainties that may have caused the projects to fail.

Unfortunately, there is very little documentation on the procedures and methods used, despite the numerous and huge undertakings completed (Jermsittiparsert, Namdej & Somjai, 2019). Project management processes, according to the majority of the literature, are aimed at delivering successful projects (Dahlgaard-Park, Reyes & Chen, 2018). For example, the Construction Industry Council defined construction project management in 2007 as a purposeful

effort aimed at using project management concepts wisely to add significant value to the process of implementing successful projects.

2.3 Customer Focus and Performance of Commercial Building Construction Projects

Customer focus and (in conjunction with) customer satisfaction are two topics that have gotten a huge attention in the TQM literature. Given the growing emphasis on gaining competitive edge, it is stated that quality should be described from the perspective of external consumer prospects other than prearranged internal criteria (Eniola, Olorunleke, Akintimehin, Ojeka & Oyetunji, 2019). Demirkesen and Ozorhon (2017) espouse that to assess customer needs and expectations, a business must identify customer relationships, include consumers in quality enhancement, and quantify consumer satisfaction. Universities are committed to maintaining strong relationships with students, staff, businesses and society at large, recognizing customers as the root cause of their existence and ensuring the continued advancement of higher education.

Customer focus is a long-term strategic goal that can deliver small short-term results (Chege & Bett, 2019). The long-term focus of the customer focus strategy, on the other hand, generates stress for managers who must also achieve financial performance standards, which are typically measured in yearly financial outcomes. Sustainable organizational performance, according to Psomas and Antony (2017), is the anticipation that a firm will be able to respond quickly and competently to new customer issues, such as the wish to change operations. Given the ever-changing nature of the customer experience, this is critical.

According to Babalola, Ibem, and Ezema (2018), determining customer wants is the first step in defining quality goals for businesses. Furthermore, quality planning and execution starts with a emphasis on customer demands and ends when those needs are met. This viewpoint is supported by Bajjou and Chafi (2018), who define customer focus as an organization's operations that benefit the customer. Murunga and Kisimbii (2019) investigated how customer-centric TQM elements are implemented in Chinese manufacturing companies. He argued that customer orientation has two components: organizational customer orientation and customer association practice. He discovered that a company's customer orientation drove customer relationship practices, which in turn influenced the company's performance.

TQM integrates customer knowledge with other data and utilizes a planning procedure to coordinate future work, manage day-to-day operations and achieve long-term company goals. Customer focus is beneficial for companies as it increases customer loyalty, increases sales and market share, and improves resource efficiency (Mairura, 2018). An effective management system ought to identify and translate customer needs and expectations into product requirements while ensuring that the business remains strong customer-centric. Due to intense competition, especially in the service business, customer happiness is a major concern for management (Gutierrez-Gutierrez, Barrales-Molina & Kaynak, 2018). As a result, every company must focus on how well it satisfies its customers. Organizations that cannot meet the needs of their customers will sooner or later fail. According to Mukhopadhyay (2020), modern marketing theory places a premium on ensuring consumer satisfaction. They also claimed that scientific proof of the favorable influence of customer satisfaction on behavioral outcomes like loyalty and performance outcomes like profit is growing.

The relevance of customer focus as a TQM approach is highlighted in the preceding literature review. There is need to identify customer needs and expectations and translate them into product requirements. Customer focus includes focusing time and resources on providing pleasure and engaging customers, and the perception that customer satisfaction improves productivity. When TQM techniques are implemented effectively, customer satisfaction improves. Customer loyalty increases as a result of the quality service provided, and the business's strong reputation attracts more consumers. Satisfaction by customer and a positive reputation become cost-effective marketing tools for the company, resulting in increased profitability and market share (Fernandes, Sampaio, Sameiro & Truong, 2017). TQM, according to Bastas and Liyanage (2018), is a management concept that involves delegation of authority from front-line employees. It is a practice that involves all members of the team in making decisions through activities like quality cycles and effective teamwork.

2.4 Mutual Supplier Relation and Performance of Commercial Building Construction Projects

Suppliers are required in every organization to provide the necessary necessities for the organization's efficient operation. The organization's performance is determined by the interaction between the suppliers and the organization. One of the signs of a good relationship

is prompt response. Certainly, this strengthens the mutual relationship between suppliers and the company. For a firm to execute effectively and efficiently, materials and purchased parts must be available, according to Suryanto, Haseeb, and Hartani (2018). Purchasers incur additional costs as a result of the poor quality of the supplier's products. A strong and positive relationship between management and suppliers is required for an organization's greater success. Effective project management requires timely delivery of goods or services. Employees can access data and information with the help of good knowledge management in a timely, accurate and efficient manner while fulfilling their responsibilities, according to Li, Zhao, Zhang, Chen, and Cao (2018), who conducted their research in Turkey.

Establishing supplier requirements, meeting those needs, measuring achievement, and continuing to check suppliers' criteria for areas where improvements can be made are all part of the reciprocal supplier relationship. Depending on whether they are based within or outside the business, suppliers might be internal or external. Total quality, according to Ahmad and Ahmad (2018), it is a progressive and ever-evolving business philosophy, and supplier relationships are key.

According to Ross (2017), each company ought to treat the suppliers as regular partners. Suppliers should be considered an integral part of the company's business. Best quality management practices promote and facilitate communication by facilitating relationships with suppliers and customers with the goal of increasing the efficacy and efficiency of value-creating activities. Suppliers should be treated as long-term partners by every company. Suppliers must be viewed as an integral element of the company's operations (Petrick & Furr, 2017).

Suppliers should be encouraged to implement initiatives that promote continuous performance improvement. It is vital to include partners in the identification of purchasing needs and shared strategic development. This entails assessing and recognizing others' contributions, as well as rewarding them (Zeng, Zhang, Matsui & Zhao, 2017). According to Stamatis (2018), in order to achieve mutual dependency between suppliers and organizations, supply chain members must tear down barriers and create an integrated system. TQM associates work with carefully selected suppliers to ensure the highest quality of raw materials. In addition, several companies are working with their suppliers to improve product quality. Maintaining a positive relationship between management and the supplier will benefit both parties more.

An organization's materials and purchased items are elements of quality control, according to a study conducted by Rumane (2017). The number of suppliers, their engagement in product creation, supplier quality assessment and training are all factors that influence the supplier relationship. Supplier relationship management, according to Shafiq, Lasrado, and Hafeez (2019), requires time and resources. Firms ought to evaluate every supplier in order to identify high-priority ones. According to Marodin, Frank, Tortorella, and Fetterman (2019), organizations and some suppliers frequently have long-term partnerships. In essence, strategic partnerships are designed to influence an individual's strategic and operational capabilities to achieve a specific interest or goal. This type of collaboration is a direct and mutually beneficial relationship in the long run.

Supplier growth is critical to any organization's success. As per to Weinstein (2018), most aspects of supplier development, particularly financial assistance, direct company involvement, and awards, have a significant impact on firm results. Supplier development is crucial to an organization's success since it leads to increased profitability, lower manufacturing costs, and better product quality. As a result of the organization's growth, production is well supported by effective supplier relationships. To maintain positive relationships with suppliers, organizations must go through a supplier development process that includes on-site visits by the company management team. .

According to Ahmad & Ahmad (2018), many businesses face significant challenges in gaining a competitive edge. The Just-in-Time firm structure was beneficial since it cut down on overhead expenditures. A Backflush cot, that reduces analysis operations and cost tracking, also assists the overall quality administration, resulting in good product quality. To accomplish this, staff must be highly engaged and strive for excellence in every section of the company. Due to its success in eliminating errors, non-value addition tasks, defect breakdown, and timely delivery, the Just in Time system is widely employed. It is commonly utilized in TQM since it reduces flaws and allows for the rapid availability of solutions. It also aids in attracting and retaining employees with such expertise and abilities.

2.5 Total Employee Commitment and Performance of Commercial Building Construction Projects

Employee commitment is vital to the success of TQM implementation in businesses. Employees must communicate TQM to the entire organization, according to Aquilani, Silvestri, Ruggieri, and Gatti (2017), in order to develop awareness, action, desire and interest. They must present a quality vision and bring about a change in the company's culture. They must plan training, empower people to grow, delegate authority, and reward excellent results. Employees must manage resources and work with suppliers to share their knowledge of new technologies and advances in the high-quality materials market.

Employee participation in supporting an organization's goals and missions, as well as achieving its objectives, is referred to as total employee commitment. Employee contribution in solving issues and making decisions is referred to as total employee commitment (Lu, Chi, Bao & Zetkolic, 2019). Employee commitment is very significant and crucial, according to Caldera, Desha, and Dawes (2017), because it can lead to shared values, morality, purpose, and vision. Employee involvement in their organization is thought to lead to improved organizational performance.

Employee commitment and leadership require effective organizational culture change, which can only be achieved by engaging them in strategies for continuous business improvement, open communication, and collaboration across the organization. By impacting other total quality management dimensions, total quality management adoption increases organizational performance. According to Psomas and Antony (2017), management is to blame for the majority of quality issues. This showed that the amount of staff commitment is crucial to good quality management. Employee dedication to quality must transmit the attitude that quality will take precedence over cost in the long run, resulting in improved operational performance and lower operational costs. A number of research on the notions of quality improvement procedures and organizational performance have been conducted. Aquilani, Silvestri, Ruggieri, and Gatti (2017) discovered that training and employee commitment are critical in TQM implementation in public listed manufacturing firms.

Quality cannot succeed without clear and consistent quality leadership (Bastas & Liyanage, 2018). This necessitates making quality leadership a strategic goal, which entails the leader

creating the most comfortable environment for group members in order to boost performance and production (Li, *et al.*, 2018). One of the primary predictors of successful TQM adoption has been found as employee commitment.

2.6 Fact-Based Decision-Making and Performance of Commercial Building Construction Projects

Since it is an important According to Mizuno and Bodek (2020), senior management must first believe in TQM before it can be implemented successfully. They must also exhibit it by working together to make fact-based decisions in all departments and divisions of a business, as well as across functions, if it is to be successful. source for accomplishing organizational goals, fact-based decision making appears to be critical to achieving synergies between an organization's activities and operations. Top administration is in charge of comprehending the organization's beliefs and values, as well as fostering synergy and compatibility among its employees (Maqbool, Sudong, Manzoor & Rashid, 2017). According to Mizuno and Bodek (2020), senior management must first believe in TQM before it can be implemented successfully. They must also exhibit it by working together to make fact-based decisions in all departments and divisions of a business, as well as across functions, if it is to be successful.

Participants in advocacy decision-making treat decision-making as an event and a competition (Fernandes, Sampaio, Sameiro & Truong, 2017). Advocacy is often a closed process focused on a single solution. Advocacy techniques have the following characteristics: to win a lawsuit (as a lawyer); no alternative provided; Instead, one option forces the decision to "go or not". It argues for the advantages of the solution and downplays the disadvantages. Strong arguments and approval. The advocacy technique has a number of drawbacks, including: Reliance on a single answer eliminates the opportunity to consider other options. Disagreements can become acrimonious, even hostile. Personalities and egos enter the picture, and conflicts are handled through willpower struggles and behind-the-scenes scheming. In every decision there is always a winner and a loser. The loser contests the decision until the execution phase is reached. This extends the decision-making cycle, the time from the beginning of the decision-making process to the moment when an ultimate decision is not only developed, but also fully realized and benefits are recognized. Interpersonal conflict results from the advocacy strategy, which

manifests as personal friction, rivalries, and clashing personalities (Gutierrez-Gutierrez, Barrales-Molina & Kaynak, 2018).

Decision making, also known as inquiry, is an open process that generates various options, encourages the exchange of thoughts, and results in a properly-tested answer. Successful leaders understand that an exploratory approach is the best way to make essential decisions. When using the inquiry technique, teams explore a number of ideas and collaborate to find the optimal solution. While people will always have their own interests, the goal is to come to an agreement on the best decision rather than influence the team to accept a particular point of view (Suryanto, Haseeb & Hartani, 2018). An inquiry process, rather than stifling disagreement, stimulates critical thinking. Make your solution's goal-forming assumptions transparent to creating multiple options for your solution. creation of several alternatives; Use appropriate analytical methods to find the best answer by working with others to resolve differences in evaluation ideas, concepts, and assumptions for each possible alternative. Investigations have the distinct advantage of contributing to better decisions, the achievement of the company's goals, as well as providing judgments that can be made in a timely manner and effectively executed. However, this strategy requires the dedication and training of the leaders managing the process (Mehralian, Nazari, Nooriparto & Rasekh, 2017).

Leaders can evaluate a variety of "indicators" to see if they are on the correct track: When a large number of options are explored, teams involve in very vital analysis and deliberation. Assumptions testing are a superior strategy because it makes assumptions transparent. It enables the team to confirm or refute assumptions and take appropriate action as a result. Well-defined criteria make objective evaluation of opposing concepts, arguments, and options more easier; Disagreement and Discussion - A research-based method that promotes cognitive conflict by allowing people to openly express their disagreement, challenge underlying assumptions, come up with new ideas, and consider alternatives. Perceived fairness in decision-making is referred to as "procedural fairness" (Mitito, 2017). If team members feel their opinions were heard, that they had a chance to shape the conclusion, and that the process was fair, they are substantially more likely to have an impact on the result, even if their ideas do not win.

Research is a desirable goal, but rarely achieved in practice. It is very challenging for people to deliberate on ideas or situations without articulating their views. An approach that balances

defense and investigation is a more realistic and effective way to make choices. Group members leave their personal plans outside the door and enter meetings with the goal of being objective participants (Khan & Qianli, 2017). They may campaign for a cause they believe in, but they also explore different perspectives and seek solutions (Lu, Chi, Bao & Zetkulich, 2019). They comprehend that the objective is to come up with the best solution for the entire group. Even if this means that their decisions may cause harm to some members of the group. People openly share knowledge and weigh many possibilities in the majority of well-rounded meetings.

2.7 Theoretical Framework

This study was based on two theories to examine the impact of common quality management practices such as leadership, continual improvement, and customer focus and supplier relationships on organizational performance. This study used Deming's theory, Crosby's theory, and resource-based view theory.

2.7.1 Deming's Theory

Deming's comprehensive philosophy of quality management was based on 14 control points (Deming, 1986). It was built according to the methodology of the Plan-Do-Check-Act cycle. He argued that the quality of the ratio is comparable to labor productivity minus total cost. Deming said that when a company focuses on cost-cutting, product quality deteriorates. To remain competitive, companies must provide high-quality products to the market. Poor quality costs your company because more resources are needed to promote your product. Deming used four key concepts in his theory: systems evaluation, variable knowledge, knowledge theory, and psychological knowledge. In TQM, it is very vital to comprehend a company's procedures and how they work, what causes deviations, what can be known, and the human nature within an organization. This will help organizations promote continuous improvement and learning.

Furthermore, he argued that TQM and the adoption of new philosophies should have a consistent purpose. Staff expertise, product quality, and management style should all be continually improved. TQM must not be based on on-site checks or awarding companies based on price. Ongoing manufacturing and service, training, and cutting-edge leadership are all essential to achieving TQM. Organizations that want to achieve TQM must break down departmental barriers. Organizations should have a free and easy flow of information (Petersen, 1999).

Deming demonstrated a PlanDoCheckAct cycle designed for continuous improvement. In the planning phase, goals and actions are first established (MartnezLorente, Dewhurst, & Dale, 1998). After that, the implementation process begins with taking action to improve the organization. Regular quality checks are performed to ensure compliance with standards. Supplier supplies should be carefully checked to ensure that standard quality is maintained. Finally, an action is required to ensure that the desired changes to the CI are implemented. Management must do the right thing on time and make sure customers are satisfied. This theory was relevant in linking the influence of mutual supplier relation on performance of commercial building construction projects.

2.7.2 Crosby Theory

In 1984, Crosby proposed this theory. He built his thesis on 14 quality-improvement initiatives. Staff management and recognition, procedures for measuring quality, and staff and employee training are only a few of these steps. Quality policies are set by management, not by anyone else. Policies should be set according to the needs and desires of the clients. Then he formulated the four principles of quality control. Quality is the price of nonconformity, and according to the principle, quality is the basic requirement and not good, the quality management system is duty, not evaluation, and the cost of quality is of nonconformity.

Crosby equated the diseased human body to a collapsing tissue. He said that organizations face continuous threats in their day-to-day activities. To be immune to the shortcoming, the organization must be vaccinated. To put his argument into context, he raises two issues. First, he considered management's commitment to the organization as the firm's heartbeat. Second, he considered employee empowerment. It was determined that the employees would not be able to fully perform their duties if their personal circumstances were not resolved (McMillin & Crosby, 1984). Employees' education and regard for their humanity, likewise, must be equipped to uplift. As a result, the staff' morale will be lifted, allowing them to give better service. This hypothesis applies to the current research. It is critical for private hospitals to find areas where they can empower their personnel in order to increase employee commitment and reduce human resource waste. When it comes to pledges, Crosby questions of empowerment are crucial. The theory was relevant in explaining the influence of total employee commitment on performance of commercial building construction projects.

2.7.3 Resource-Based View

According to the theory of the resource-based perspective, an organization's internal resources that are valuable, scarce, imitative, and irreplaceable are a source of long-term competitive edge (Penrose, 1959) and increase productivity. As per RBV theory, productivity is determined by a firm's resource profile, and the source of greater performance lies in having and using unique resources that cannot be imitated.

According to RBV theory, companies attain long-term competitive edge when they have some vital resources and efficiently use them in their target markets (Barney, 2001). As indicated by O'cass and McEwen (2004), certain characteristics of a firm are difficult to imitate and can produce underlying resources that determine performance differences between competitors. According to the RBV Theory, the central bases and influencers of a company's competitive edge and outstanding performance are primarily related to the characteristics of scarce, valuable, difficult to imitate, and irreplaceable resources and capabilities. According to the RBV theory, a company performance is determined by precise resources and abilities (Fotopoulos, et al., 2009).

Barney (2001) notes that, firms gain not only through acquisitions, but through the development, combination and efficient use of human, physical and firm resources in means that improve intrinsic value that is hard for competitors to emulate. The RBV indicates that, a company's competitive edge comes from its internal assets (Wernerfelt, 1984). The Resource-Based Perspective The essential principle of theory is that a firm's competitive advantage is primarily based on the deployment of a group of valued assets at the company's disposal (Wernerfelt, 1984). The model assumes that the enterprise is a collection of resources. Tangible and intangible resources that assist businesses to design, create and execute plans that increase their efficiency are considered resources. Physical resources such as buildings, raw materials, and equipment are tangible resources at the disposal of an organization. Firm brand name, ideals, networks, and procedures are examples of intangible resources that are not reflected in traditional management accounting data. Intangible resources, such as product quality, are more likely to produce higher performance than tangible resources. RBV thinking theory is founded on sociological and behavioral paradigms and regards firm variables and the relationships to the surroundings as the most important elements of success.

Internal procedure factors (quality enhancement, product creation, flexibility, and cost effectiveness) are considered the most important success factors in a strategic model with this internal focus. According to Barney (2001), these resources must be heterogeneous in order to turn short-term competitive advantage into long-term competitive advantage and not completely shifted. The result is a critical resource that cannot be fully replicated or maintained without significant effort. According to Barney (2001), if these circumstances apply, a firm's resources can help maintain above-regular earnings. This idea is applicable to this study since quality management methods are a resource for building quality images that organizations use to improve performance. Quality control practices must be valuable, unique, and irreplaceable so that manufacturing plants can create a competitive advantage and increase productivity.

Classen and Wybark (1999) argue that there are many theoretical implications for environmental management. Above all, environmental and economic performance is linked to one or more strategic resources, resulting in various competitive advantages. If the appropriate strategic organizational resources are developed through management initiatives, environmental policies can be linked to greater performance. For example, a corporation might strive for continual development in order to gain worldwide quality accreditation in accordance with ISO 9000 standards.

This strategic resource could be transmitted and utilized to the execution of preventative innovative solutions, and it provides a theoretical foundation for a holistic approach to environmental quality management. RBV distinguishes between resources and functions. A resource, like as a brand or patent, is a noticeable (though not essentially tangible) item that may be priced and sold. Opportunities, on the other hand, are intangible and difficult to assess due to their inability to be seen. A capability differs from a resource in two ways: first, it is firm-specific because it is integrated in the firm's processes; and second, its primary goal is to boost the productivity of the firm's other resources. Because organizational resources reflect numerous capabilities traits, this study looked at the performance consequences of some internal corporate characteristics (Barney, 2001), including core competencies, continual enhancement, and consumer orientation.

In contrast, a vital argument of RBV theory is that scarce, unique, and irreplaceable resources generate a company's heterogeneity, and that prosperous companies are those that acquire and retain appreciated and extraordinary resources that lead to good firm performance. . It is the lasting competitive edge they provide (DiMaggio & Powell, 1983). Because the resources available to an organization affect what the enterprise does or does not do, the organization's readiness determines what type of quality management system it should apply. Therefore, the implemented strategy can increase productivity by influencing the performance of the company and helping to attain a competitive edge in the market. Consequently, this theory promotes variables such as incessant enhancement, consumer focus, and commitment from top administration. This theory was relevant in explaining the influence of customer focus, employee commitment, and fact-based decision-making on performance of commercial building construction projects.

2.8 Conceptual Framework

The conceptual framework is a description of the methodology used in scientific research that specifies certain terminology in measurement form to assist make the topic more understandable. Snyder (2019) claims that the conceptual framework is illustrated as a connection between the explanation and the solution. Customer focus, mutual supplier relationships, entire employee engagement, and fact-based decision-making were the independent variables in this study, whereas performance of commercial building construction projects was the dependent variable.

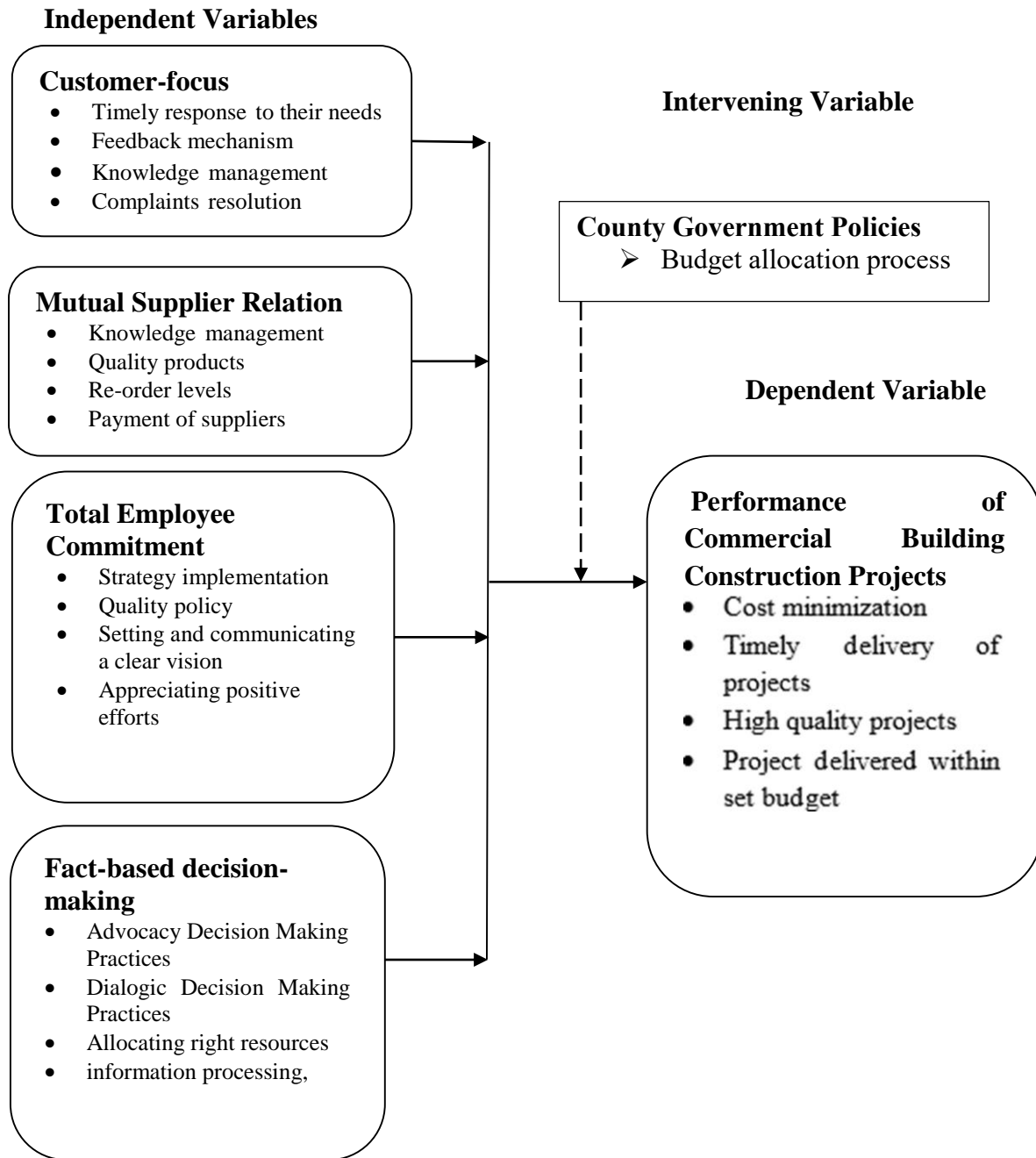


Figure 1: Conceptual Framework

2.9 Summary of Literature Review

Quality is defined as meeting or exceeding consumer expectations. The goal is to discover and then respond to client needs. TQM understands that a flawlessly designed product is useless

unless it meets the needs of the customer. Customer happiness was discovered to be one of the primary determinants of company performance in the study. Suppliers are required in every organization to provide the necessary necessities for the organization's efficient operation. The organization's performance is determined by the interaction between the suppliers and the organization. Leadership behaviors, structural forms, administration programs, and external initiatives all have a significant impact on an organization's activities. Effective management necessitates a concerted effort on the part of the organization's executives. In order to be successful, a company's culture must be flexible and adaptable.

2.10 Research Gaps

This section shows various studies related to total quality management practices. Table 2.1 shows the research gaps of the literature reviewed.

Table 2. 1: Research Gaps

Author	Title	Methodology	Findings	Research Gap	Focus of the study
Chege and Bett (2019)	Total Quality Management Practices and Performance of Organizations in the Real Estate Industry, Case of Property Developers in Nairobi City County, Kenya	The study adopted a descriptive research design.	The extent to which customer orientation, top management commitment to quality, employees' empowerment and continuous improvement has influenced the organizational performance of the Real Estate Companies was great.	The study does not look at commercial building construction projects as in the current study	The research sought to investigate the influence of total quality management practices on performance of commercial building construction projects in Nairobi County, Kenya.
Kwasira, Wambugu, and Wanyoike (2016)	Influence of quality management practices on successful completion of building construction	The study utilized the descriptive survey design	Results revealed that all the four components of quality management have a statistically significant and	The study did not have similar variables as the current study	The research sought to investigate the influence of total quality management practices on performance of

	projects in Nakuru Town, Kenya			positive relationship with successful completion of building construction projects in Nakuru town.		commercial building construction projects in Nairobi County, Kenya.
Njenga (2017)	The Influence of contractor relationships on total quality management practices in the construction industry in Kenya	This study applied a cross-sectional research design	a	The results revealed that procedural hurdles are an impediment to TQM practices in the construction sector in Nairobi County, customer focus and management were the most often used TQM principles, and contractor-client interactions had the most significant impact on TQM practices.	The study used a different research design	The research sought to investigate the influence of total quality management practices on performance of commercial building construction projects in Nairobi County, Kenya.
Shirandula, Kisimbii and Otieno (2018)	Influence Of Total Quality Management Practices On The Performance Of The Construction Industry In Mombasa County, Kenya	This investigation embraced a descriptive survey research design.	a	The study found that management commitment, employee involvement, continuous improvement, and customer focus influence firm performance of in building construction industry positively	The research was done in Mombasa	The research sought to investigate the influence of total quality management practices on performance of commercial building construction projects in Nairobi County, Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapters gives the procedures that were followed in undertaking the research. The most appropriate study methodologies gives direction for the information to be gathered and the information to be analyzed. The chapters details the various section included which re research design applied, the population targeted and sampling method and sample size to be used, methods of data collected, data collection instrument and pilot study. In additions, the chapter also comprises of data analysis methods applied, ethical consideration undertaken and how the variables will be operationalized.

3.2 Research Design

A research design as per Yin (2017) is a scheme and outcome that can be used in addressing research questions. In investigating the research problem, the study will employ a descriptive research survey design. Wang (2015), opines that descriptive research survey design involves collecting the information relating to the state of affairs. The emphasis was on the description rather than on the interpretation. The main benefit of using a descriptive research approach is that it may supply information that has been obtained from a lot of different sources. Getting quantitative data from the intended respondents is the main objective of this approach.

3.3 Target Population

Target population is the whole group of people or things to which researchers want to apply their results (Cooper & Schindler, 2016). Additionally, the term "population" refers to a grouping of incidents, people, services, components, buildings, or other things that a researcher wants to study. A population is also defined as a group of individuals, occasions, or things that all have one particular observable characteristic in common (Creswell & Creswell, 2017). Commercial building construction projects in Nairobi County were the study's target population. The 6 National Construction Authority senior managers, 13 Ministry of Transport, Infrastructure Housing, Urban Development and Public Works officials, 147 managers and 382 supervisors of commercial building construction projects were the unit of observation. Table 3.1 exhibits the study target population.

Table 3.1: Target Population Distribution

Population	Total	Percent
Managers	147	26.8
Supervisors	382	69.7
National Construction Authority senior managers	6	1.1
Ministry of Transport, Infrastructure Housing, Urban Development and Public Works officials	13	2.4
Total	548	100.0

Source: Author (2022)

3.4 Sample size

A sample is a share of a population selected in so as to make conclusions relating to the overall population. Using the simplified formula, a sample size of 231 was calculated (Yamane, 1967). This formula was applied in the calculation of the sample size, as stated in Table 3.1:

$$n = \frac{N}{1+N(e)^2}$$

Where; n is the sample size

N is the population size and

e is the margin of error.

$$N = 529$$

$$e = 0.05$$

$$n = \frac{548}{1 + 548(0.05)^2} = 231.$$

3.4.1 Sampling Procedure

The use of stratified random sampling was applied in getting samples from each strata. Small groups must be represented in the sample, and stratified random sampling ensures that this happens. The strata from which the research sample was taken were created using the categories. Based on the category of respondents, strata were created, and each stratum was made up of a group of units with various characteristics. Then, to get respondents from every

strata, simple random sampling was used. As stated in Table 3.2, the sample was distributed throughout the strata.

$$231/548=0.422$$

Table 3.2: Sampling Design

Population	Total	Ratio	Sample
Managers	147	0.422*147	62
Supervisors	382	0.422*382	161
National Construction Authority senior managers	6	0.422*6	3
Ministry of Transport, Infrastructure Housing, Urban Development and Public Works officials	13	0.422*13	5
Total	548		231

Source: Author (2022)

3.5 Data Collection Instruments

Self-administered questionnaires were utilized to gather primary data. The surveys contained closed-ended inquiries. Closed ended questionnaires were easier to evaluate since they asked respondents to choose from a limited set of options. Close ended questions, according to Yin (2017), are easier to analyze. Questionnaires were favored because they saved time and money, and they were also simple to evaluate because they were in immediately usable form. They were also the preferred tools for obtaining data in survey investigations. Blumberg, Cooper, and Schindler (2014) contend that a questionnaire is essential for gathering objective data since it prevents the researcher from misleading the respondents in any manner. Additionally, questionnaires have the benefit of being less expensive and time-consuming than other techniques of data collecting.

3.5.1 Pilot Testing

A pilot test was undertaken through use of a questionnaire on managers and supervisors of commercial building construction projects from Kiambu County since it had similar projects as the ones in Nairobi County. The group was chosen via random sampling commercial building construction projects from Kiambu County. The suggested sample size for performing a pilot was 23 respondents which represent 10% of the total sample size (Blumberg, Cooper &

Schindler, 2014). The primary objective of the study was evaluating the reliability of the research methods so as to strengthen the validity of the findings (rنگreen & Levinsen, 2017).

3.5.2 Validity of Research Instrument

Validity relates to how accurate the research instrument is. Validity entails to the procedure of making accurate and pertinent judgement founded upon study findings (Blumberg, Cooper & Schindler, 2014). The main aim of conducting a pilot test is ensuring the validity of the questionnaire. The study made use of content validity, which connects test results to a broad range of things that are similar to those on the exam (Gorard, 2013). The representation of the sample population is important for content validity. Supervisors, lecturers, and other experts examined the questions in the questionnaires for suitability and clarity in order to ensure that the content was valid. The research instrument components were reviewed as needed to ensure that questions retained their significance, were changed, or were eliminated based on the advice of these experts, including those from my supervisor and the findings from pilot testing.

3.5.3 Reliability of Research Instrument

A set of measures used to estimate multiple variables to achieve similar results is called reliability (Wang, 2015). In other words, reliability measures the degree to which measurements are repeated when multiple people take the same measurements at different times and under different conditions, potentially acting as an alternative tool for measuring the same object (Yin, 2017).

Internal consistency is a measure of the reliability of the test content. An instrument's internal consistency is a gauge of how precise it is in measuring and at responding to changes in its condition. For this investigation, a construct composite reliability co-efficient (Cronbach alpha) of 0.7 or higher was deemed sufficient for all the constructs (Yin, 2017). Cronbach's alpha (α), which was calculated as follows, was used to evaluate the reliability coefficient of the study instrument.

$$A = \frac{k}{k-1} \times [1 - \frac{\sum (S^2)}{\sum S^2_{sum}}]$$

Where:

α = Cronbach's alpha

k = Number of responses

$\sum (S^2)$ = Variance of individual items summed up

$\sum S^2_{sum}$ = Variance of summed up scores

3.6 Data Collection Procedures

To acquire permission to ask questions to the participants, an introductory letter from the university was submitted to them. For clarity, data was obtained through the use of questionnaires. The questionnaires were sent to respondents using the drop-and-pick approach in order to get detailed responses from them. The researcher scheduled an appointment two days prior to dropping the questionnaires.

The researcher divided the research instrument in two segments where the first segment portion asked about the general information of the respondent whereas the second segment concentrated on the five variables including customer focus, mutual supplier relation, total employee commitment, fact-based decision-making and the performance of commercial building construction projects.

3.7 Data Analysis Techniques

Data gotten in the field was filtered, processed, and cleaned in accordance with the study's goals. The data was then coded, placed into statistics software, and examined (SPSS, Version 25.0). Descriptive statistics was applied in analyzing quantitative data. Percentages, frequencies, means, and standard deviation were all calculated. The outcomes were presented in tables.

Inferential data was analyzed with the use of multiple regression analysis. A multiple regression analysis model was applied to find out the relationship amid the predictor and response variables. The following equation was employed in the multiple regression models;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where; **Y** is the performance of commercial building construction projects

β_0 , is the constant

X_1 is the customer focus

X_2 is the mutual supplier relation

X_3 is the total employee commitment

X_4 is the fact-based decision-making

$\beta_1, \beta_2, \beta_3, \beta_4$ are the regression coefficients

3.8 Ethical Considerations

The researcher obtained approval from the ministry of education and the National Commission of Science and Technology to conduct research (NACOSTI). Additionally, the study's main objective was duly disclosed to the participants, and their confidentiality was upheld during the entire research process. The research used numbers rather than names to identify the respondents in an effort to protect their identities. The collected data was only used to further the goals of the study. The goal of the study was clearly stated, and the respondent's rights, such like informed consent and confidentiality, were honored. By explaining the goals of this research to the respondent and asking for their written consent to participate, informed consent was acquired. Privacy was guaranteed since those who were not involved in the study could not access the data that was gathered.

3.9 Operationalization of the Study Variables

Table 3.3 below shows the operationalization of the study variables.

Table 3.3: Operationalization of the Study Variables

Variable	Operationalization	Scales	Data analysis Technique	Tools of data analysis
Customer focus	<ul style="list-style-type: none">• Timely response to their needs• Feedback mechanism• Knowledge management• Complaints resolution	Five-point rating scale question	<ul style="list-style-type: none">➤ Descriptive statistics➤ Inferential statistics	<ul style="list-style-type: none">➤ Mean score and standard deviation➤ Regression analysis

Mutual supplier relation	<ul style="list-style-type: none"> ● Knowledge management ● Quality products ● Quality products ● Re-order levels ● Payment of suppliers 	Five-point rating scale question	<ul style="list-style-type: none"> ➤ Descriptive statistics ➤ Inferential statistics 	<ul style="list-style-type: none"> ➤ Mean score and standard deviation ➤ Regression analysis
Total employee commitment	<ul style="list-style-type: none"> ● Strategy implementation ● Quality policy ● Setting and communicating a clear vision ● Appreciating positive efforts 	Five-point rating scale question	<ul style="list-style-type: none"> ➤ Descriptive statistics ➤ Inferential statistics 	<ul style="list-style-type: none"> ➤ Mean score and standard deviation ➤ Regression analysis
Fact-based decision-making	<p>Advocacy Decision Making Practices</p> <p>Dialogic Decision Making Practices</p>	Five-point rating scale question	<ul style="list-style-type: none"> ➤ Descriptive statistics ➤ Inferential statistics 	<ul style="list-style-type: none"> ➤ Mean score and standard deviation ➤ Regression analysis
Performance of commercial building construction projects	<p>Cost minimization</p> <p>Timely delivery of projects</p> <p>High quality projects</p> <p>Project delivered within set budget</p>	Five-point rating scale question	<ul style="list-style-type: none"> ➤ Descriptive statistics 	<ul style="list-style-type: none"> ➤ Mean score and standard deviation

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter covers the responses rate, reliability analysis, characteristics of the respondents and their opinions on the influence of TQM practices on performance of commercial building construction projects in Nairobi County, Kenya. To display the respondents' aggregate reactions in a concise manner, the researcher employed tables.

4.2 Response Rate

The researcher targeted 231 respondents whom the research tools were administered to. Out of the targeted respondents, a total of 167 returned filled questionnaires giving a response rate of 72.2% that statistically significant response rates as per Yin (2017) who said that the minimum significant response rate is 50%.

Table 4.1: Response Rate

	Questionnaires	Total
Response	167	72.2
Non-Response	64	27.8
Total	231	100.0

4.3 Reliability Analysis

Cronbach's Alpha was used to measure the reliability of the instrument which was used to determine if certain items on a scale assess the same concept in order to determine internal consistency. The study's reference point was the 0.7 Alpha value level set by Kumar (2011).

Table 4.2: Reliability Analysis

	Cronbach's Alpha	Decision
Customer focus	.781	Reliable
Mutual supplier relation	.867	Reliable
Total employee commitment	.734	Reliable
Fact-based decision-making	.717	Reliable

For each aim that made up a scale, Cronbach Alpha was developed. With an Alpha value of 0.867, the mutual supplier relationship was the most reliable, whereas fact-based decision-

making was the least dependable with a score of 0.717. This indicates that all four variables were reliable because their reliability values all above recommended cutoff point of 0.7. by Wang (2015). As a result, it can be shown that the research tool was trustworthy and didn't need to be modified.

4.4 Demographic Information

This part shows the summary of the data collected on respondents' general information which includes gender, age, level of education and the period they have worked with the commercial building construction projects. Tables are used to summarize the outcomes

4.4.1 Gender of the Respondent

It was asked of the responders to specify their gender. The outcomes are given in Table 4.3.

Table 4. 3: Gender of the Respondents

	Frequency	Percent
Male	120	71.7
Female	47	28.3
Total	167	100.0

According to the study's findings, 71.7 percent of respondents were male and 28.3 percent were female. This shows that there were more male replies than female ones. Regardless of their gender, all of the respondents who took part in the survey were able to provide accurate information on the topic at hand.

4.4.2 Age of the Respondents

The age range of the respondents was a requirement of the study. Their answers are listed in Table 4.4.

Table 4.4: Age of the Respondents

	Frequency	Percent
18-25 years	14	7.8
26-35 years	55	33.2
36-45 years	62	37.3
46 and above years	36	21.7
Total	167	100.0

According to the results, 37.3 percent of respondents said they were between the ages of 36 - 45 years. In addition, 33.2 percent of respondents reported being between the ages of 26 - 35 years , 21.7 percent were above the age of 46 years, and 7.8 percent were between the ages of 18 - 25 years. This demonstrates that the vast majority of respondents were responsible people who could be trusted to provide accurate data. The respondents were also well distributed across all ages.

4.4.3 Respondents Highest Level of Education

The respondents in addition were implore to state their highest education level. Table 4.5 gives the results.

Table 4.5: Respondents Highest Level of Education

	Frequency	Percent
Certificate/Diploma	9	5.4
Degree	98	58.4
Masters	47	28.3
PhD	13	7.8
Total	167	100.0

Most of the respondents indicated that they had degree as shown by 58.4%, Masters as shown by 28.3%, PhD as shown by 7.8% while 5.4% of the respondents had Certificate/Diploma as their level of education. This suggests that majority of the respondents had enough education to understand and give relevant information being sought.

4.4.4 Period Worked with the Commercial Building Construction Projects

The respondents were asked to tell the period in which they have worked with the building construction projects in Nairobi County. Table 4.6 exhibits the outcomes.

Table 4.6: Period worked with the building construction projects in Nairobi County

	Frequency	Percent
Less than 2 years	22	12.9
Between 2 and 4 years	111	66.7
More than 5 years	34	20.4
Total	167	100.0

Many of the respondents showed that they had worked with building construction projects in Nairobi County for a period between 2 and 4 years as shown by 66.7%. Other respondents specified that they had worked with commercial building construction projects for a period of more than 5 years as shown by 20.4% and for a period of less than 2 years as shown by 12.9%. This suggests that vast majority of the respondents had been working with building construction projects in Nairobi County for a large duration of time to give information that is credible.

4.5 Customer Focus

The study aimed on establishing how customer focus influences performance of commercial building construction projects. The researcher implored the participants to specify their level of agreement in relation to the customer focus and performance of Commercial Building Construction Projects in Nairobi County. Table 4.7 indicates a summary of the outcomes.

Table 4.7: Respondents Response in Relation to the Customer focus

	Mean	Std. Dev.
The project is centered on the needs of the customers	3.229	0.931
There are processes in place to deal with client requests.	4.046	0.766
The project has spent time and money educating customers about its new offerings.	4.148	0.783
Customer needs are prioritized in this project.	3.657	0.594
The project is aware of the needs of the client.	3.954	0.741
Customer complaints about quality are given top priority	3.870	0.657

According to the results, the respondents were in agreement that the project has spent time and money educating customers about its new offerings as shown by a mean of 4.148, there are processes in place to deal with client requests as shown by a mean of 4.046, the project is aware of the needs of the client as shown by a mean of 3.954, customer complaints about quality are given top priority as shown by a mean of 3.87 and that customer needs are prioritized in this project as indicated by a mean of 3.657. The respondents were however undecided that the project is centered on the needs of the customers as shown by a mean of 3.229.

4.6 Mutual Supplier Relation

The research aimed on determining the degree that mutual supplier relation influences performance of commercial building construction projects. The researcher also requested the respondents to show their agreement level with statements on mutual supplier relation and performance of commercial building construction projects in Nairobi County, Kenya. Table 4.8 show the results.

Table 4.8: Agreement level with statements on Mutual Supplier Relation and performance of commercial building construction projects in Nairobi County

	Mean	Std. Dev.
Companies and suppliers will benefit from the project's value sourcing	4.176	0.667
On-time delivery is guaranteed by the project	3.972	0.603
A complete supplier rating system exists that considers all factors, including ethnicity	4.074	0.805
Payments to suppliers have been made on time	2.256	0.632
Suppliers are recommended to implement programs that promote continuous performance improvement.	3.065	0.789
The delivery of conforming products is constantly monitored, and unnecessary products are eliminated	3.529	0.698
The number of suppliers and customers has been optimized, resulting in an increase in the organization's value.	4.135	0.600

As exhibited in Table 4.8, the respondents were in agreement that companies and suppliers will benefit from the project's value sourcing as indicated by a mean score of 4.176, the number of

suppliers and customers has been optimized, resulting in an increase in the organization's value as shown by a mean of 4.135, a complete supplier rating system exists that considers all factors, including ethnicity as described by a mean score of 4.074, on-time delivery is guaranteed by the project as shown by a mean score of 3.972 and the delivery of conforming products is constantly monitored, and unnecessary products are eliminated as described by a mean score of 3.529. The respondents however were undecided on the fact that suppliers are recommended to implement programs that promote continuous performance improvement as described by a mean score of 3.065. The respondents disagreed with the fact that payments to suppliers have been made on time as described by a mean score of 2.256.

4.7 Total Employee Commitment

The study aimed to investigate the degree that total employee commitment influence performance of commercial building construction projects. The researcher further implored the respondents to show their agreement level with statements on total employee commitment and performance of commercial building construction projects in Nairobi County, Kenya. Table 4.9 provides a summary of all the respondents' comments.

Table 4.9: Agreement level with statements on Total Employee Commitment and performance of commercial building construction projects in Nairobi County

	Mean	Std. Dev.
Employees actively participate in quality management activities.	3.861	0.826
Employees learn quality-related concepts and skills.	3.037	0.655
Employees are encouraged to be involved in quality management activities	3.972	0.755
Employees have access to adequate educational and training resources	4.267	0.912
Employees are more concerned with product quality than with yields	3.261	0.723
Top management encourages teamwork and performance evaluations.	4.389	0.834
Employees have a clear image of how the project will go in the future	3.870	0.943
At all stages of the project cycle, the personnel establish and maintain shared principles, fairness, and ethical role models	4.213	0.684

As indicated by the outcomes, the respondents agreed that their top management encourages teamwork and performance evaluations as showed by a mean of 4.389, employees have access

to adequate educational and training resources as illustrated by a mean of 4.267, at all stages of the project cycle, the personnel establish and maintain shared principles, fairness, and ethical role models as shown by a mean of 4.213, as evidenced by a mean of 3.972, employees are encouraged to participate in quality management activities, employees have a clear image of how the project will go in the future as shown by a mean of 3.870 and employees actively participate in quality management activities as illustrated by a mean of 3.861. The respondents were however undecided on whether the employees were more concerned with product quality than with yields as illustrated by a mean of 3.261 and that employees learn quality-related concepts and skills as illustrated by a mean of 3.037.

4.8 Fact-Based Decision-Making

The study also sought to assess how fact-based decision-making influence performance of commercial building construction projects. The respondents were implored to rate how much they agreed with certain fact-based decision-making and performance of commercial building construction projects in Nairobi County, Kenya. Table 4.10 presents the outcomes.

Table 4.10: Responses in Relation to Fact-Based Decision-Making and performance of commercial building construction projects in Nairobi County

	Mean	Std. Dev.
Individuals make the majority of our decisions.	3.852	0.609
The majority of our decisions are made with the help of a small number of people.	3.896	0.899
We have a habit of following through on a project decision regardless of the outcome	4.032	0.718
We frequently delegate the task of critiquing each decision to one member of the decision-making team in order to examine its merits	4.255	0.756
In groups, we try to encourage more independence rather than group thinking	4.343	0.919
Decision-makers are chosen voluntarily	4.250	0.699
All of our company's choices are made with the cooperation of all stakeholders	3.852	0.609

As indicated by the findings, the respondents agreed that in groups, they try to encourage more independence rather than group thinking as shown by a mean score of 4.343, they frequently delegate the task of critiquing each decision to one member of the decision-making team in order to examine its merits as shown by a mean of 4.255, decision-makers are chosen voluntarily as shown by a mean score of 4.250 , they have a habit of following through on a project decision regardless of the outcome as shown by a mean of 4.032, the majority of decisions are made with the help of a small number of people as shown by a mean of 3.896, individuals make the majority of decisions as shown by a mean of 3.852 and all of the company’s choices are made with the cooperation of all stakeholders as shown by a mean score of 3.852.

4.9 Performance of Commercial Building Construction Projects

The respondents were implored to give a rating of their agreement level with statements on performance of commercial building construction projects in Nairobi County for the last 5 years. Table 4.11 presents the summary of their responses.

Table 4.11: Level of agreement with statements on Performance of Commercial Building Construction Projects in Nairobi County

	Mean	Std. Dev.
Cost minimization	3.959	0.890
Timely delivery of projects	4.196	0.772
High quality projects	4.056	0.673
Project delivered within set budget	3.602	0.983

According to Table 4.11, respondents believed that throughout the previous five years, timely delivery of projects, as measured by a mean score of 4.196, high-quality projects, as measured by a mean score of 4.056, cost minimization, as measured by a mean score of 3.959, and project completed within set budget, as measured by a mean score of 3.602 had improved

4.10 Test of Hypotheses

The researcher applied a regression model I to test the hypotheses amongst total quality management practices (customer focus, mutual supplier relation, total employee commitment

and fact-based decision-making) and performance of Commercial Building Construction Projects in Nairobi County. The outcomes were as shown in the tables.

Hypothesis 1: There is no significant relationship between customer focus and performance of commercial building construction projects

Table 4. 12: Regression Analysis Results for Hypothesis 1

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.713	0.509	0.506	2.285		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	892.31	1	892.310	170.851	2.97E-27
	Residual	861.75	165	5.223		
	Total	1754.06	166			
Regression Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	0.916	0.217		4.221	0.000
	Customer focus	0.787	0.249	0.713	3.161	0.002

The results of Table 4.12 revealed that R-Square value (coefficient of determination) is 0.509 that suggests that customer focus explains 50.9% of the changes in the dependent variable (performance of commercial building construction projects in Nairobi County). Moreover, the ANOVA results demonstrated that the model had predictive value and was hence significant. This was due to the fact that its p-value was less below 5%, $p=2.97E-27$, and the computed F value (170.851) was much more than the critical F value (3.8984). The regression model upon the findings of regression is replaced as below;

$$Y=B_0+\beta_1X_1+\varepsilon$$

The outcomes revealed that if all factors were held constant at zero, performance of commercial building construction projects in Nairobi County will be 0.916. The findings also indicated that a unit increment in customer focus leads to a 0.787 rise in the performance of commercial building construction projects in Nairobi County. Because this variable was significant at $0.002<0.05$, the null hypothesis, which indicated that there is no significant relationship between customer focus and performance of commercial building construction projects, was rejected.

Hypothesis 2: There is no significant relationship between mutual supplier-relation and performance of commercial building construction projects

Table 4. 13: Regression Analysis Results for Hypothesis 2

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.534	0.285	0.281	0.607		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.31	1	24.310	65.919	1.04E-13
	Residual	60.85	165	0.369		
	Total	85.16	166			
Regression Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
(Constant)		0.987	0.249		3.964	0.000
Mutual supplier relation		0.599	0.286	0.534	2.094	0.038

The results of Table 4.13 revealed that R-Square value (coefficient of determination) is 0.285 that suggests that mutual supplier-relation explains 28.5% of the changes in the dependent variable (performance of commercial building construction projects in Nairobi County). Moreover, the ANOVA results demonstrated that the model had predictive value and was hence significant. This was due to the fact that its p-value was less below 5%, $p=1.04E-13$, and the computed F value (65.919) was much more than the critical F value (3.8984). The regression model upon the findings of regression is replaced as below;

$$Y = B_0 + \beta_2 X_2 + \varepsilon$$

The outcomes revealed that if all factors were held constant at zero, performance of commercial building construction projects in Nairobi County will be 0.987. In addition, the outcome indicated that an increment with a unit in the scores of mutual supplier relation would translate to a 0.599 increment in the scores of Performance of Commercial Building Construction Projects in Nairobi County. This variable was significant because $0.038 < 0.05$; the null hypothesis, which indicated that there is no significant relationship between mutual supplier-relation and performance of commercial building construction projects, was rejected.

Hypothesis 3: There is no significant relationship between total employee commitment and performance of commercial building construction projects.

Table 4. 14: Regression Analysis Results for Hypothesis 3

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.718	0.515	0.512	0.750		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	98.75	1	98.750	175.371	9.78E-28
	Residual	92.91	165	0.563		
	Total	191.66	166			
Regression Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	0.953	0.251		3.797	0.000
	Total employee commitment	0.738	0.291	0.718	2.536	0.012

The results of Table 4.14 revealed that R-Square value (coefficient of determination) is 0.515 that suggests that total employee commitment explains 51.5% of the changes in the dependent variable (performance of commercial building construction projects in Nairobi County). Moreover, the ANOVA results demonstrated that the model had predictive value and was hence significant. This was due to the fact that its p-value was less below 5%, $p=9.78E-28$, and the computed F value (175.371) was much more than the critical F value (3.8984). The regression model upon the findings of regression is replaced as below;

$$Y=B_0+\beta_3X_3+\varepsilon$$

The outcomes revealed that if all factors were held constant at zero, performance of commercial building construction projects in Nairobi County will be 0.953. The study further discovered that an increment with a in the scores of total employee commitment would translate to a 0.738 increment in the scores of Performance of Commercial Building Construction Projects in Nairobi County. This variable was significant because $0.012 < 0.05$; the null hypothesis, which indicated that there is no significant relationship between total employee commitment and performance of commercial building construction projects, was rejected.

Hypothesis 4: There is no significant relationship between fact-based decision-making and performance of commercial building construction projects.

Table 4. 15: Regression Analysis Results for Hypothesis 4

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.749	0.562	0.559	0.555		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	65.2	1	65.200	211.356	2.35E-31
	Residual	50.9	165	0.308		
	Total	116.1	166			
Regression Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
(Constant)		0.934	0.199		4.693	0.000
Fact-based decision-making		0.818	0.381	0.749	2.147	0.033

The results of Table 4.15 revealed that R-Square value (coefficient of determination) is 0.562 that suggests that total employee commitment explains 56.2% of the changes in the dependent variable (performance of commercial building construction projects in Nairobi County). Moreover, the ANOVA results demonstrated that the model had predictive value and was hence significant. This was due to the fact that its p-value was less below 5%, $p=2.35E-31$, and the computed F value (211.356) was much more than the critical F value (3.8984). The regression model upon the findings of regression is replaced as below;

$$Y = B_0 + \beta_4 X_4 + \varepsilon$$

The outcomes revealed that if all factors were held constant at zero, performance of commercial building construction projects in Nairobi County will be 0.934. The outcomes in addition indicate that an increment with a unit in the scores of fact-based decision-making would translate to a 0.818 increment in the scores of Performance of Commercial Building Construction Projects in Nairobi County. This variable was significant because $0.033 < 0.05$; the null hypothesis, which indicated that there is no significant relationship between fact-based decision-making and performance of commercial building construction projects, was rejected.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The summary, conclusions, and recommendations based on the findings gathered from the TQM techniques that influence the performance of commercial building construction projects in Nairobi County are summarized and discussed in this chapter.

5.2 Summary of the Findings

The study sought to determine the influence of customer focus on performance of commercial building construction projects in Nairobi County, Kenya. The study revealed that the project spent time and money educating customers about its new offerings, there were processes in place to deal with client requests, the project was aware of the needs of the client, customer complaints about quality were given top priority and that customer needs were prioritized in the project. The research however found that it was not certain whether the project was centered on the needs of the customers. The study also found that a unit increase in the customer focus would lead to a 0.787 increase in the scores of Performance of Commercial Building Construction Projects in Nairobi County. This variable was significant because $0.002 < 0.05$; henceforth, the null hypothesis that stated that there is no significant association amongst customer focus and performance of commercial building construction projects, was rejected.

The study aimed to assess how mutual supplier relation influence performance of commercial building construction projects in Nairobi County, Kenya. The study revealed that companies and suppliers benefited from the project's value sourcing, the number of suppliers and customers was optimized, resulting in an increase in the organization's value, a complete supplier rating system existed that considered all factors, including ethnicity, on-time delivery was guaranteed by the project and the delivery of conforming products was constantly monitored, and unnecessary products were eliminated. The study found that it was not certain that suppliers were recommended to implement programs that promoted continuous performance improvement. The research also found that payments to suppliers were not made on time. The

study in addition discovered that an increment with a unit in the scores of mutual supplier relation would translate to a 0.599 increment in the scores of Performance of Commercial Building Construction Projects in Nairobi County. This variable was significant because $0.038 < 0.05$; henceforth, the null hypothesis that stated that there is no significant association amongst mutual supplier-relation and performance of commercial building construction projects, was rejected.

The research required to establish the influence of total employee commitment on performance of commercial building construction projects in Nairobi County, Kenya. The study found that their top management encouraged teamwork and performance evaluations, employees had access to adequate educational and training resources, employees were encouraged to be involved in quality management activities, employees had clear image of how the project will go in the future and employees actively participated in quality management activities. The research found that it was not certain whether employees were more concerned with product quality than with yields and if employees learned quality-related concepts and skills. The study in addition revealed an increment with a unit in the scores of total employee commitment would translate to a 0.738 increment in the scores of Performance of Commercial Building Construction Projects in Nairobi County. This variable was significant because $0.012 < 0.05$; therefore the null hypothesis that stated that there is no significant association amongst total employee commitment and performance of commercial building construction projects, was rejected.

The study intended to evaluate the influence of fact-based decision-making on performance of commercial building construction projects in Nairobi County, Kenya. The research found that they frequently delegated the task of critiquing each decision to one member of the decision-making team in order to examine its merits, decision-makers were chosen voluntarily, they had a habit of following through on a project decision regardless of the outcome, the majority of decisions were made with the help of a small number of people, individuals made the majority of decisions and all of the company's choices were made with the cooperation of all stakeholders. The study also discovered that a rise of one unit in the scores of fact-based decision-making would lead to a 0.818 increase in the scores of Performance of Commercial Building Construction Projects in Nairobi County. This variable was significant since $0.033 < 0.05$; therefore the null hypothesis that stated that there is no significant association

amongst fact-based decision-making and performance of commercial building construction projects, was rejected.

The research sought to determine details on the performance of commercial building construction projects in Nairobi County for the last 5 years. The study found that timely delivery of projects, high quality projects, cost minimization, and project delivered within set budget had improved for the last 5 years.

5.3 Discussion of the Findings

The following section consists of discussions of the findings of the variables from chapter four. The section connects the results to the chapter two literature.

5.3.1 Customer Focus and Performance of Commercial Building Construction Projects

The research found that it was not certain whether the project was centered on the needs of the customers. The finding is not in line with Demirkesen and Ozorhon (2017) who espoused that to assess customer needs and expectations, a business must identify customer relationships, include consumers in quality enhancement, and quantify consumer satisfaction. Universities are committed to maintaining strong relationships with students, staff, businesses and society at large, recognizing customers as the root cause of their existence and ensuring the continued advancement of higher education.

The study found that there were processes in place to deal with client requests. Sustainable organizational performance, in accordance with Psomas and Antony (2017) stated that the anticipation that a firm will be able to respond quickly and competently to new customer issues, such as the wish to change operations. Given the ever-changing nature of the customer experience, this is critical.

The study found that the customer complaints about quality were given top priority and that customer needs were prioritized in the project. This is accordance with Babalola, Ibem, and Ezema (2018) who stated that determining customer wants is the first step in defining quality goals for businesses. Furthermore, quality planning and execution strats with a emphasis on customer demands and ends when those needs are met. This viewpoint is supported by Bajjou

and Chafi (2018), who define customer focus as an organization's operations that benefit the customer.

5.3.2 Mutual Supplier Relation and Performance of Commercial Building Construction Projects

The study found that it was not certain that suppliers were recommended to implement programs that promoted continuous performance improvement. This does not concur with Suryanto, Haseeb, and Hartani (2018) who noted that suppliers are required in every organization to provide the necessary necessities for the organization's efficient operation. The organization's performance is determined by the interaction between the suppliers and the organization. One of the signs of a good relationship is prompt response. Certainly, this strengthens the mutual relationship between suppliers and the company. For a firm to execute effectively and efficiently, materials and purchased parts must be available.

The research also found that payments to suppliers were not made on time. Purchasers incur additional costs as a result of the poor quality of the supplier's products. A strong and positive relationship between management and suppliers is required for an organization's greater success. Effective project management requires timely delivery of goods or services. Employees can access data and information with the help of good knowledge management in a timely, accurate and efficient manner while fulfilling their responsibilities which is not in line with Li, Zhao, Zhang, Chen, and Cao (2018), who conducted the research in Turkey.

The study found that companies and suppliers benefited from the project's value sourcing, on-time delivery was guaranteed by the project and the delivery of conforming products was constantly monitored, and unnecessary products were eliminated. The results are supported by Ross (2017) who argues that each company ought to treat the suppliers as regular partners. Suppliers should be considered an integral part of the company's business. Best quality management practices promote and facilitate communication by facilitating relationships with suppliers and customers with the goal of increasing the efficacy and efficiency of value-creating activities.

5.3.3 Total Employee Commitment and Performance of Commercial Building Construction Projects

The study found that their top management encouraged teamwork and performance evaluations, employees had access to adequate educational and training resources. This is in accordance with Aquilani, Silvestri, Ruggieri, and Gatti (2017) who noted that employees must communicate TQM to the entire organization, in order to develop awareness, action, desire and interest. They must present a quality vision and bring about a change in the company's culture. They must plan training, empower people to grow, delegate authority, and reward excellent results.

The study found that employees were encouraged to be involved in quality management activities, employees had clear image of how the project will go in the future and employees actively participated in quality management activities. This is in line with Caldera, Desha, and Dawes (2017) who argue that employee commitment is very significant and crucial because it can lead to shared values, morality, purpose, and vision. Employee involvement in their organization is thought to lead to improved organizational performance.

The research found that it was not certain whether employees were more concerned with product quality than with yields and if employees learned quality-related concepts and skills. This does not agree with Psomas and Antony (2017) who noted that management is to blame for the majority of quality issues. This showed that the amount of staff commitment is crucial to good quality management. Employee dedication to quality must transmit the attitude that quality will take precedence over cost in the long run, resulting in improved operational performance and lower operational costs. A number of research on the notions of quality improvement procedures and organizational performance have been conducted.

5.3.4 Fact-Based Decision-Making and Performance of Commercial Building Construction Projects

The research found that they had a habit of following through on a project decision regardless of the outcome, the majority of decisions were made with the help of a small number of people, individuals made the majority of decisions and all of the company's choices were made with the cooperation of all stakeholders. The results relate to Mizuno and Bodek (2020) who stated that senior management must first believe in TQM before it can be implemented successfully.

They must also exhibit it by working together to make fact-based decisions in all departments and divisions of a business, as well as across functions, if it is to be successful.

The research found that they frequently delegated the task of critiquing each decision to one member of the decision-making team in order to examine its merits, and decision-makers were chosen voluntarily. Mitito (2017) argued that perceived fairness in decision-making is referred to as “procedural fairness”. Even if their perspectives do not win, team members are far more likely to have an impact on the result if they feel that their opinions were heard, that they had a chance to shape the final choice, and that the process was fair.

5.4 Conclusions

The study concluded that the performance of commercial building construction projects in Nairobi County is strongly and favorably influenced by customer focus. The study came to the further conclusion that customer focus aids in the development of a loyal clientele for commercial building construction projects. Customers are more likely to make purchases from businesses they believe take their requirements into account while developing their goods and services. Focusing on the demands of the client enables commercial building construction projects to identify and seize growth possibilities, such as unmet consumer wants.

Further, the study concluded that mutual supplier relation had a positive significant influence on the Performance of Commercial Building Construction Projects in Nairobi County. The study also concluded that continuous improvement increases suppliers engagements and minimizes turnovers. Suppliers get a sense of pleasure and success when they actively contribute to the enhancement of commercial building construction projects. As a result, there are less excuses to abandon the commercial building construction projects and a higher sense of belonging. Continuous improvement motivates both process and product improvement, which results in goods and services that satisfy consumers' demands even before they are aware of them. Additionally, low-quality supplier items cost the buyer more money, which has an impact on the organization's operations. A strong and positive relationship between management and the supplier is crucial for a business to function better.

The study came to the further conclusion that the performance of commercial building construction projects in Nairobi County was positively and significantly influenced by overall

staff commitment. The study concluded that senior management's backing is helpful in obtaining the required resources and in reaping the rewards of various initiatives. Support from senior management is crucial for the development of a service culture and service innovation within commercial building construction projects. When senior management is committed to giving staff the freedom to succeed, commercial building construction projects perform better.

The study deduced that fact-based decision-making had a positive significant influence on the Performance of Commercial Building Construction Projects in Nairobi County. The study concluded that in order to know how well commercial building construction projects in Nairobi County are performing, data on performance measures are necessary. To improve the accuracy of decision-making, establish agreement, and enable forecasting based on past data, TQM dictates that an organization continually collect and analyze data.

5.5 Recommendations

The management of the commercial building construction projects in Nairobi County ought to take into account the need of training and empowering employees as it motivates them in continuing to perform and attaining organizational goals. Another crucial aspect on which the top management might concentrate is team building among the workers. By promoting interaction among all staff members, segregation is eliminated.

The study further suggested that in order to foster a strong, supportive workplace culture and inspire employees to develop an emotional bond with the company, commercial building construction projects in Nairobi County should adhere their fundamental principles to their staff. Additionally, they ought to encourage openness, permit truthful criticism, and hold them responsible.

The study recommends that employees in the commercial building construction projects in Nairobi County should be in charge of actively promoting the adoption of the TQM accepted practices on performance. More funding should be devoted to quality improvement, and leaders should be sure to create and communicate quality objectives across the whole business.

In accordance with the study, the long-term objectives of TQM performance assessment ought to be continuous performance improvement, maximization of customer satisfaction by adjusting

to changes in customer demands and the overall business environment, and continual performance improvement. The study makes additional recommendations for Nairobi County commercial building construction projects, including a focus on meeting customer needs and expectations, offering a personalized, high-quality customer experience, providing the right services at the right time, and emphasizing the development of positive relationships with clients.

In order to streamline transactions, commercial building construction projects in Nairobi County ought to also include an integrated supply chain. The projects also need to employ strictness in examining if the provided items are of a high caliber. To effectively manage a project, Just-in-Time delivery of products or supply of services must be assured. Suppliers must be viewed as lifelong partners in every project. Suppliers must be viewed as long-term partners and a vital element of the organization's business operations.

The leadership culture in Nairobi County must be determined by senior management's and leaders' commitment to construction projects including commercial buildings. Leadership effectiveness is impacted by a leader's profound commitment to the corporate plan, as well as by cooperation and open communication. The performance of the company is improved through TQM deployment. Quality-related issues are connected to managerial effectiveness. The more problems a company has from suppliers, stakeholders, and consumers, the worse its management and leadership are. Top management commitment is vital for effective quality management.

5.6 Recommendations for Further Studies

This particular study focused on commercial building construction projects in Nairobi County. A nationwide study ought to be undertaken to determine the influence of total quality management practices on performance of commercial building construction projects.

Further research needs to be carried out to establish how other county projects in other sectors such as health and water are being implemented and if they are successful. Other researchers could also look at how to strengthen stakeholders' participation and management of information systems to enhance performance of commercial building construction projects in other counties.

Further, another study might also be done in same area though applying diverse methodology; or different constructs but with the same concepts.

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APPENDICES

Appendix I: Letter of Transmittal

RE: ACADEMIC RESEARCH PROJECT

I am a student of Masters of Arts in project planning and Management at University of Nairobi. I wish to conduct a research entitled *TOTAL QUALITY MANAGEMENT PRACTICES AND PERFORMANCE OF COMMERCIAL BUILDING CONSTRUCTION PROJECTS IN NAIROBI COUNTY, KENYA*. A questionnaire has been designed and will be used to gather relevant information to address the research objective of the study. The purpose of writing to you is to kindly request you to grant me permission to collect information on this important subject from your organization.

Please note that the study will be conducted as an academic research and the information provided will be treated in strict confidence. Strict ethical principles will be observed to ensure confidentiality and the study outcomes and reports will not include reference to any individuals.

Your acceptance will be highly appreciated.

Yours faithfully,

GACHIGWA DOREEN NJERI

Appendix II: Research Questionnaire

You are requested to fill out your personal information in the spaces below. Please tick only one response. The study seeks to establish the ***INFLUENCE OF TOTAL QUALITY MANAGEMENT PRACTICES ON PERFORMANCE OF COMMERCIAL BUILDING CONSTRUCTION PROJECTS IN NAIROBI COUNTY, KENYA***

SECTION A: Background Information

1. What is your gender
Male: Female:
2. Indicate your age bracket
18-25 yrs. 26-35yrs.
36-45yrs. 46 and above yrs.
3. State your highest level of education
'O' Level Certificate/Diploma Degree Masters PHD
4. How long have you worked with commercial building construction projects?
Less than 2 years Between 2 and 4 years More than 5 years

SECTION B: TOTAL QUALITY MANAGEMENT PRACTICES AND PERFORMANCE OF COMMERCIAL BUILDING CONSTRUCTION PROJECTS IN NAIROBI COUNTY, KENYA

Customer-focus

5. Please indicate your level of agreement with the following statements related to customer focus and performance of commercial building construction.

Where; **1- Strongly disagree, 2- Disagree, 3- Undecided, 4- Agree, 5- Strongly agree**

	1	2	3	4	5
The project is centered on the needs of the customers.					
There are processes in place to deal with client requests.					
The project has spent time and money educating customers about its new offerings.					
Customer needs are prioritized in this project.					
The project is aware of the needs of the client.					
Customer complaints about quality are given top priority.					

Mutual Supplier Relation

6. Please indicate your level of agreement with the following statements related to mutual supplier relation and performance of commercial building construction projects.

Where; 1- Strongly disagree, 2- Disagree, 3- Undecided, 4- Agree, 5- Strongly agree

	1	2	3	4	5
Companies and suppliers will benefit from the project's value sourcing.					
On-time delivery is guaranteed by the project.					
A complete supplier rating system exists that considers all factors, including ethnicity.					
Payments to suppliers have been made on time.					
Suppliers are recommended to implement programs that promote continuous performance improvement.					
The delivery of conforming products is constantly monitored, and unnecessary products are eliminated.					
The number of suppliers and customers has been optimized, resulting in an increase in the organization's value.					

Total Employee Commitment

7. Please indicate your level of agreement with the following statements related to total employee commitment and performance of commercial building construction projects.

Where; 1- Strongly disagree, 2- Disagree, 3- Undecided, 4- Agree, 5- Strongly agree

	1	2	3	4	5
Employees actively participate in quality management activities					
Employees learn quality-related concepts and skills					
Employees are encouraged to be involved in quality management activities					
Employees have access to adequate educational and training resources.					
Employees are more concerned with product quality than with yields.					
Top management encourages teamwork and performance evaluations.					
Employees have a clear image of how the project will go in the future.					
At all stages of the project cycle, the personnel establish and maintain shared principles, fairness, and ethical role models.					

Fact-based decision-making

8. Please indicate your level of agreement with the following statements related to fact-based decision-making and performance of commercial building construction.

Where; 1- Strongly disagree, 2- Disagree, 3- Undecided, 4- Agree, 5- Strongly agree

	1	2	3	4	5
Individuals make the majority of our decisions.					
The majority of our decisions are made with the help of a small number of people.					
We have a habit of following through on a project decision regardless of the outcome.					
We frequently delegate the task of critiquing each decision to one member of the decision-making team in order to examine its merits.					
In groups, we try to encourage more independence rather than group thinking.					
Decision-makers are chosen voluntarily.					
All of our company's choices are made with the cooperation of all stakeholders.					

Performance of Commercial Building Construction Projects


9. What has been the trend of aspects of performance of commercial building construction projects in Nairobi County, Kenya for the period of the last five years?

Where; 1-Greatly decreased, 2-Decreased, 3- Constant, 4- Improved, 5- Greatly improved

	1	2	3	4	5
Cost minimization					
Timely delivery of projects					
High quality projects					
Project delivered within set budget					

Thank you for Participation


Appendix III: NACOSTI Research Permit



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Date of Issue: 06/May/2022


RESEARCH LICENSE




This is to Certify that Miss. Doreen Njeri Gachigwa of University of Nairobi, has been licensed to conduct research in Nairobi on the topic: " Influence of Total Quality Management Practices on Performance of Commercial Building Construction Projects in Nairobi County,Kenya." for the period ending : 06/May/2023.

License No: NACOSTI/P/22/17263

324735
Applicant Identification Number


Director General
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

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