CAPACITY MANAGEMENT AND SERVICE QUALITY IN PETROLEUM FILLING OUTLETS IN NAIROBI

BY

MUTHOKA BONIFACE MWANGANGI

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SUPERVISOR

SENIOR LECTURER, DR X N IRAKI

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DECLARATION

This research project is my original work and has not been submitted for a degree in this or any other University.

…….. ……

MUTHOKA BONIFACE MWANGANGI **Date**

D61/79105/2015

This project has been submitted for Examination with my approval as the University Lecturer.

…….. ……..

DR X N IRAKI **Date**

SENIOR LECTURER

Senior Lecturer, Department of Management Science,

University of Nairobi, School of Business

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First and foremost, I give my gratitude and humble appreciation to the Almighty God for the gift of life and good health during my undertakings in this entire project.

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Lastly, I appreciate my family for the encouragement and moral support they gave me throughout the study.

God Bless You all!

DEDICATION

This project is dedicated to my family: my wife and children

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LIST OF ACRONYMS

BP	British Petroleum
CCR	Capacity Constrained Resources
DBR	Drum-buffer-rope
DOE	Design of experiments
ERC	Energy Regulatory Commission
LPG	Liquefied Petroleum Gas
NGO	Non-Profit Organisations
PIEA	Petroleum Institute of East Africa
TOC	Theory of Constraints

ABSTRACT

The study sought to establish capacity management used by petroleum filling outlets (quick shop, car wash, restaurant, service bay) in Nairobi County. The study targeted the petroleum filling outlets based on 6 major roads leading into/out of Nairobi, ie: Waiyaki Way, Uhuru Highway, Langata Road, Jogoo Road, Limuru Road (UN offices) and Mombasa Road. Applying phenomenological approach, the researcher gathered deep information and perceptions through inductive, qualitative methods (interviews, discussions, participant observation). Both descriptive and inferential statistical analysis were used to attain the objectives of the study. The researcher applied judgmental procedure to select 90 representatives from the targeted filling outlets. Findings of the study revealed that petroleum filling outlets shares capacity with other oil marketers like storage facility. Further findings showed that normal/expected service was not available or was slow due to inevitable system failures. The study also showed that the filling outlets practiced variable shifts or scheduled working hours. Chi square results indicated a significant association between capacity management and service quality among petroleum filling outlets in Nairobi. Pearson's Correlation on capacity management and service quality indicated that capacity management and service quality have a positive linear correlation. The study benefits operations managers of the petrol filling outlets as it provides an insight about how capacity management practices they adopt affect their service quality. The discoveries of this examination benefits oil filling outlets in Kenya in overseeing request as indicated by business needs, with the goal that specific basic procedures dependably have enough ability to run viably. Writing audit of this examination has uncovered that the assets accessible to the association, for instance; offices, hardware, and work, how they are sorted out, and their productivity as dictated by particular work techniques and methods decide limit administration (Capacity management).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Technological advancements, constraints to attain business objectives, desire to enhance productivity and efficiency, desire to cut down operational costs and minimise misuse of resources are crucial factors in enhancing the quality of services rendered to customers by petroleum filling outlets all over the world (Swan, 2014). Nowadays, customers desire to be handled as equal associates with civility and efficiency hence the necessity of petroleum filling outlets sector to impress upon the customers that the price paid is worth the value of the product or services offered (Bradley, 2014).

This has forced petroleum filling outlets to embrace strategic capacity management. According to Nguyo (2014), capacity management is in the middle of every product or service an organization produces or offers. Nguyo posit that, no business activity can take place without resources. The quality of product or service offered by petroleum filling outlets depends heavily on the management of the resources involved. Geng (2015) averred that services have some unique decisions especially where capacity is concerned. Geng argued that in services, the output must have an intangible element and it must be impossible to disconnect the production of a service from its consumption.

The increased number of petroleum filling outlets have given consumers a variety of selections from which to make a choice (Munyavi, 2014). As a result of declining profitability in the industry due to this intense competition, filling outlets have endeavoured to differentiate their positioning to the customers through improved

quality customer service and added services like garage, quick shops, restaurants, and carwash in order to enhance customer retention and loyalty by developing capacity management practices that ensures customers receive consistently high quality services in every encounter at the service station (Petroleum Institute of East Africa PIEA, 2015).

1.1.1 Capacity Management

As per Armistead and Clark (2013), limit administration (Capacity management) is the capacity to adjust request from clients and the capacity of the administration conveyance framework to fulfill the request. This places an accentuation on seeing first the idea of interest by determining (Lovelock, 2014) and second the choices for overseeing ability to take care of the normal demand. Sasser (2013), has recommended two fundamental practices for overseeing limit in administrations industry in particular; Level limit administration practices and Chase limit administration rehearses, the previous is pertinent where limit is constrained and henceforth the emphasis is on impacting interest to be in accordance with limit, and the last works on being conceivable when supply can be changed to keep in accordance with request. Fuels are generally homogeneous products from the same source, which are transported the same way and sold in a similar manner.

A filling outlet would therefore be chosen based on the self-confidence that the customer has regarding the outlet in terms of convenience, the added services (garage, quick shops, restaurants, carwash), and interaction with the attendants (Greenland 2014). This makes capacity management in petroleum filling outlets unique and therefore, the personnel in charge of capacity management should grasp key limit administration. Powerful limit administration is a vital idea in business operations since it prompts enhanced administration quality in the operations inside a business and great

connections of the association with its partners (Combe, 2015). As per Greenland (2014), limit administration includes arranging, breaking down and upgrading ability to fulfill request in an opportune way and at a sensible cost.

1.1.2 Service Quality

Slack (2014) characterized benefit quality as client's impression of how well an administration meets or surpasses their desires. As per Slack, benefit quality is frequently judged by clients and not by the association itself. Service quality in filling outlets can be analysed in terms of interaction between customers and service providers (PIEA 2015). Buxey (2013) asserted that, technical quality service relates to what a customer gets in terms of quality during the moment of truth while on the other hand functional quality concerns how the service was delivered (Delosier, 2014).

Quality administration can be accomplished through aptitudes, information and graciousness of representatives and their ability to express trust and certainty and the consideration the filling outlet gives its clients (Jiang, 2015). As indicated by Jones (2014), the specialist organization should obviously characterize and convey the administration level that will be given, with the goal that representatives comprehend what they should convey and what the pulled in clients will get. The assets accessible to the filling outlet like offices, gear, work power and how they are sorted out, and their effectiveness as controlled by particular work techniques and methodology decide the nature of the administrations (Heshmati, 2013).

Indeed, some organizations are increasingly focusing their energy in building customer loyalty through offering superior quality service than their competitors (Mieghem, 2013).

1.1.3 Petroleum Filling Outlets in Nairobi

The oil industry in Kenya has come a long way. It has been established that the first venture by oil companies in Kenya started at the turn of the 20th century with operations in Mombasa which later spread to the rest of East Africa (Isaboke, 2013). Petroleum filling outlets have experienced economic challenges due to global strategic realignment of Multinational companies that also have operations in Kenya. In 2001, Agip exited from Kenya and its interest was taken up by Shell/BP. Elf merged with Total in Kenya in 1999 after global buyout (Apungu 2013). This process has been accelerated in recent years. BP and Mobil exited from Kenya in 2007 and their interest were bought by Shell and Oilibya respectively (Energy Regulatory Commission of Kenya ERC, 2014).

A report by Economic Survey (2017) indicated that petrol filling market in Kenya has recorded unprecedented sporadic rise in prices as a result of fluctuation of crude oil prices in the market which hit USD 143.9 a barrel. There are over 15 major oil marketers in Kenya and their market share is based on the volumes of fuel pushed within a given period (ERC, 2014). A 2014 report by energy regulatory commission show that, Total Kenya was the leader at 23.4% in 2013 followed by KenolKobil at 22.8%, Shell at 17.9%, Libyaoil at 11.8%, Nock at 5.2%, Gapco at 4.4%, Hass at 1.8%, Gulf at 1.8%, Hashi at 1.8%, Galana at 1.4%, Bakri at 1.4%, Engen at 0.8%, Oilcom at 0.7%, Rivapet at 0.6% and Fossil at 0.5% of the total Kenyan market share. (See Appendix IV).

Capacity management is widely adopted by petrol filling outlets as a vehicle for improving service quality (Clark (2013). Convenience shops, tyre service centres, car wash bays, service bays and food courts have been added on as key features of retail outlets. Total came up with the Bonjourshop, Shell had the Shell Select, Caltex had the Star shop and Mobil had On The run (Apungu, 2013). Owing to the diverse nature of

petrol filling outlet propositions, petroleum filling outlets in Kenya have segmented their offerings into fuel retailing, non-fuel retailing and convenience retailing (Armistead, 2014).

Fuel retailing relates to hydro carbon sales on and off the retail service station forecourt and includes sale of Regular, Premium, Diesel and Kerosene (Cook, 2013). Non fuel retailing relates to the sales of some hydrocarbon sales, provision of auto services on and off the retail forecourts (Fang, 2014). Hyro-carbon sales in this category are LPG and lubricants. Auto services refer to air pressure facilities, tyre repair and servicing, car and engine wash (Fang, 2014). Kariithe (2015), averred that convenience retailing involve all non-hydro-carbon sales and auto services provided outside the forecourt but within the filling outlet which include:- sale and merchandising of fast moving consumer goods and services, food courts, banking and bakery.

1.2 Research Problem

The oil benefit industry has experienced changes, bringing about a commercial center which is portrayed by exceptional rivalry and little development in essential request (Rothschild, 2014). Clark (2013) posit that capacity management is widely adopted by petrol filling outlets as a vehicle for improving service quality. This has largely been witnessed in the filling outlets whereby convenience shops, tyre service centres, car wash bays, service bays and food courts have been added on as key features of filling retail outlets. Today's customers in the petrol filling outlets are unique and their needs are diverse (Novelli, 2014).

Oil filling outlets are compelled to discover new reason for rivalry and they need to enhance the nature of their own items/administrations (Onyango, 2015). The endeavor to improve service quality in petrol filling outlets has been seen through ample space, introduction of motor clinics to check vehicle deficiencies, car wash, restaurants, increased station staff training, better profiling of service staff in terms of minimum academic and professional qualifications, mystery shopper programmes, petrol filling outlet designs, ambience, staff fitted with branded uniforms, branding and lighting to improve service delivery (Silva, 2014).

Studies show that various capacity management practices are in use by petroleum filling outlets in Nairobi (Nzuki, 2015; Waweru, 2014; Kariithe, 2015 & Waita, 2013). Notwithstanding, a few components of limit administration rehearses explored are still in their underlying phases of execution and along these lines should be fortified to help strengthen their impacts on improving the nature of administration arrangement (Wairimu, 2012; Onyango, 2015; & Sala, 2014). The specific problem is that literature about capacity management and service quality in petroleum filling outlets in Kenya is limited, or generally absent – hence the motivation to the current research questions.

1.3 Research Objectives

i. To establish capacity management used by petroleum filling outlets in Nairobi.
ii. To find out the relationship between capacity management and service quality in petroleum filling outlets in Nairobi.
iii. To determine whether capacity management adopted by petroleum filling outlets in Nairobi have impact on the quality of services they offer.

1.4 Value of the Study

This examination is critical to the operations directors of the oil filling outlets as it gives a knowledge about how limit administration (capacity management) hones they embrace influence their administration quality. Embracing limit administration rehearses empowers organizations to distinguish underused limit and open doors for union. Oil filling outlets would then have the capacity as far as possible as fundamental and screen the impact which can save them money on officially misused resources.

The investigation discoveries empowers oil filling outlets in Kenya in overseeing request as indicated by business needs, with the goal that specific basic procedures dependably have enough ability to run successfully. The results empowers topping outlets to work off a whole deal framework for the business by revealing both the levels of current utilize and guage necessities.

At long last, the examination likewise adds to the writing regarding the matter and is a noteworthy reference material on the investigation of limit administration and administration quality among oil filling outlets in Kenya. This examination likewise frames premise of further research from the proposals that are made for additionally contemplates.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter is organized into various sections: theoretical review, empirical review, conceptual framework and a summary of the knowledge gap is given at the end of the chapter.

2.2 Theoretical Literature Review

This area presents two key hypotheses which are: - hypothesis of requirements and time improvement show. The hypotheses are talked about in accordance with the particular targets of the investigation indicating how the speculations identify with the present theme.

2.2.1 Theory of Constraints

The Theory of Constraints (TOC) is a limit administration worldview that perspectives any reasonable framework as being restricted in accomplishing a greater amount of its objectives by few imperatives (Blackstone 2012). This theory gives petrol filling stations simple solution to capacity management by applying focus. The five step focusing process has been applied to processes and procedures within services industry: Recognize the framework's limitations, choose how to misuse the imperative, modify or deal with the framework's strategies, forms, and additionally different assets to help the above choices, include limit or generally change the status of the first assets as the commanding essential requirement. According to Boyd (2015), the argument is that in a system there are only a few constraints that need to be considered when managing capacity and ensuring that it is aligned with load and demand. These are the Capacity Constrained Resources (CCR's), this means all other resources have more capacity.

2.2.2 Time Optimization Models.

According to Grover (1998), this models helps businesses to develop an answer to a certain challenge using the available resources. These can be for maximizing revenues, enhancing service quality / customer happiness or minimizing costs / debts. Many individuals utilize petroleum filling outlets in their day by day life. Oil filling outlets can build their profit through quality administrations to their clients.

In light of time improvement demonstrate, in oil filling outlets, upper hand can be converted into three viewpoints: benefit speed, oil quality, and also cost (Grover, 1998). Since the quality and cost are ordinarily equivalent in dominant part of the business sectors, speed of administration and thus line length can be considered as the most influential factor on benefit quality (Parasuraman, 2014). As indicated by Parasuraman, sort and nature of interest or amount of clients, serving need, the fair line length, and the tolerable holding up time are the central point which can influence benefit quality. The holding up time and line length are two essential issues that assume significant parts in client knowledge about the administration quality (Boctor, 2007).

However, to have an ideal administration configuration, both the administration quality and venture income ought to be thought about all the while. Thus, various choices ought to be assessed to achieve the best likely situation which is fair from both the client's and specialist organization's view point (Cornillier, 2007). Diverse methodologies have been connected to advance administration quality and in this manner consumer loyalty in petroleum filling outlets. Cornillier and Boctor (2007) built up a correct calculation for the oil filling outlets renewal issue.

Moazzami (2010) concentrated on reproduction, displaying and examination of a petroleum station where an oil filling outlets conduct was recreated as a standout amongst the most significant areas of administration industry. Plan of tests (DOE) is a

numerical, factual and methodical strategy with a specific end goal to decide the connection between process factors and the yield of that procedure. At the end of the day, it is used to find circumstances and end results and collaboration between parameters where in one-factor at any given moment approach isn't conceivable. Investigation of DOE comes about is fundamental to oversee process contributions to request to upgrade the procedure yield (Cheng & Kleiinen, 2014). Based on these models, Kenyan petrol filling outlets should understand the importance of speed of service and queue length and their effect on service quality.

2.3 Capacity Management

The assets accessible to the association, for instance; offices, hardware, and work, how they are sorted out, and their productivity as dictated by particular work strategies and systems decide limit administration (Cornillier, 2014). Lovelock (2015), place that the announcement of work substance might be communicated as far as participation hours based on past involvement or by utilization of work estimation procedures. At the point when the errands to be performed are basic and monotonous, it is generally simple to make the figuring.

A cross sectional study conducted by Sasser (2012) in Germany showed that filling outlets in the study area applied Chase capacity management. According to Marcus (2013), the point is to keep up limit intently in accordance with successful limit in this manner guaranteeing greatest effectiveness and achievement of administration quality levels. Nguyo (2014) did a case study on capacity management strategies applied by Total petrol stations in Kenya and the findings revealed that 68% of the Total outlets used Level Capacity Management which according to the study minimises possible constraints which might interfere with efficiency and at the same time checking demand

level by way of: Developing off peak demand; Use of appointment and reservation systems; and Making customers queue for the service.

Boyd (2014) posit that in addition to Chase and Level capacity management, petrol filling outlets need Coping capacity management; a strategy which is effective for the short term constraint to check available capacity versus demand at the time. According to Boyd, the strategy (Coping Capacity) is ideal for the particular scenarios which are seen to be or identified as “being busy” or “being slack”.

2.4 Capacity Management versus Service Quality

A study by Johnston (2014), reported that in the event that upper hand is increased through administration quality at a high cost (contrasted with contenders) there will be more scope in the exchange of asset efficiency in this interest and subsequently an inclination to enjoy limit administration excess now and again. The examination found that if the organization business is fighting more on esteem, the advantage benefit will presumably exceed quality, which may be allowed to fall in the zone of preeminent quality.

A substantially more noteworthy modernity is required which can permit the less unmistakable parts of value to be decreased, in this way keeping the entire administration conveyance process under far more prominent control (Boyd, 2014). Boyd contends that, this requires a comprehension of the ability of a given level of limit administration to convey distinctive measurements of administration quality. As indicated by Jacobson (2014), Capacity administration is pivotal to help the basic measurements of administration quality.

The basic measurements are normally the measurements which win clients or those which on the off chance that they crumble excessively prompt loss of clients (Armistead, 2013). According to Perkins (2013), quality and asset profitability are

imperative in the limit administration setting as they encroach on the capacity of the specialist co-op to achieve quality administrations depicted by a blend of apparent included esteem (by the client) and cost. According to Bowman (2014), benefit quality is adjusted to apparent included an incentive for the client and asset efficiency and unit costs influence costs and productivity. The accentuation towards either quality or effectiveness will to a substantial degree be driven by the aggressive position of the specialist co-op (Goldrat, 2015).

2.5 Impact of Capacity Management adopted by Petroleum filling outlets on the Quality of Services they offer.

A study conducted by Judd (2015), reported that there are two polar opposites for managing service capacity in a petrol filling outlet, one to hold limit consistent while impacting request and the other of changing limit administration practices to remain in accordance with request. Sasser (2015) asserted that in actuality most specialist co-ops utilize a blend, despite the fact that on account of administration conveyance frameworks which have an unmistakable limit imperative there is an inclination towards level limit; this is apparent at the branch level for inns and aircrafts.

Operations supervisors utilize limit administration practices to limit the exchange off between asset efficiency and quality (Roth, 2014). A study conducted by Holt (2014) reported that benefit conveyance in most oil filling outlets contains two segments; bleeding edge where there is immediate contact between the clients and the forefront staff, and bolster where work is done as a major aspect of the administration bundle without the immediate association of the client. Jolly (2015), posit that the level of close connecting is affected by the degree of customisation of the administration bundle and the degree of client cooperation. Isolating the "specialized center" of help far from the

interruption of direct contact with the client may build the yield in any event for institutionalized administrations.

According to Kimes (2014), there is an association between limit administration, quality administration, and assets profitability or proficiency administration which is at the core of the arranging and control process for operations administration in an administrations organization like a petroleum filling outlet. Various creators have distinguished a portion of the issues going up against operations supervisors in overseeing free market activity in an administrations organization which influence their capacity to keep up quality benchmarks while accomplishing efficiency targets (Lockamy, 2013).

Motwany (2014) set that limit administration in benefit operations is a trying movement for operations administrators on the grounds that the idea of the administration conveyance process and the association of the clients in the process confines the ordinary choices open for controlling the procedure to coordinate supply with request; specifically, modifying the limit, holding and stock in foresight of interest, and expecting clients to sit tight for the administration. Perez (2014) states that there isn't the likelihood of delivering the entire administration bundle ahead of time of interest and holding it as a stock. This ongoing component of administration creation makes the coordinating of free market activity essential, especially in limit obliged administrations like carriers and lodgings when the benefit of the operation is firmly connected to the utilization of the present limit.

2.6 Empirical Review

Swann (2014) did random sampling on 10 petroleum stations in Germany to find out the extent to which capacity management approach influence service delivery. The study reported that for a petrol filling outlet to obtain a quality, Level capacity

management practices should be engaged appropriately. The study concluded that through the appropriate capacity management practices, the workers become more aware on their part on service delivery.

An examination led in Kenya by Ochieng (2010) about the impact of limit administration systems on benefit quality in Safaricom constrained retail outlets demonstrated that usage of limit administration techniques by Safaricom at the different retail outlets all through Kenya upgraded the supplier's nature of administration arrangement. Facilitate discoveries demonstrated that different limit administration procedures were being used at its offices, yet it was obvious that a few components of limit administration methodologies explored were still in their underlying phases of execution and thusly should have been fortified to help brace their consequences for upgrading the nature of administration arrangement. The investigation suggested that administration of specialist organizations ought to consider setting up fitting limit administration practices to better nature of administration arrangement.

Balaji (2016), conducted a survey on the major service industries in Nigeria to determine the process of achieving a quality service. The outcomes showed that quality should be comprehended and overseen all through an administration business and particularly in four basic regions to be specific, benefit experience, benefit configuration, benefit profitability and administration association culture. As per the examination, in the administration experience, clients connects with vitalize (the administration representatives) and lifeless things (the physical evidence).The result of the experience is reliant on how proficient and considerate is the administration worker. At last, the way of life of an association and the way it is composed as far as limit administration practices can influence the nature of administration (Underwood, 2014). Similarly, a study conducted by Fredrick (2013) posit that making the service/product

available at all times so that the customer has a choice is one of the very important capacity management practices a service provider can use to offer quality service.

2.7 Conceptual Framework

The conceptual framework of this study was based on capacity management and service quality in petroleum filling outlets. The independent and dependent variables were broken down into various parameters aimed to answer the research questions as shown below:

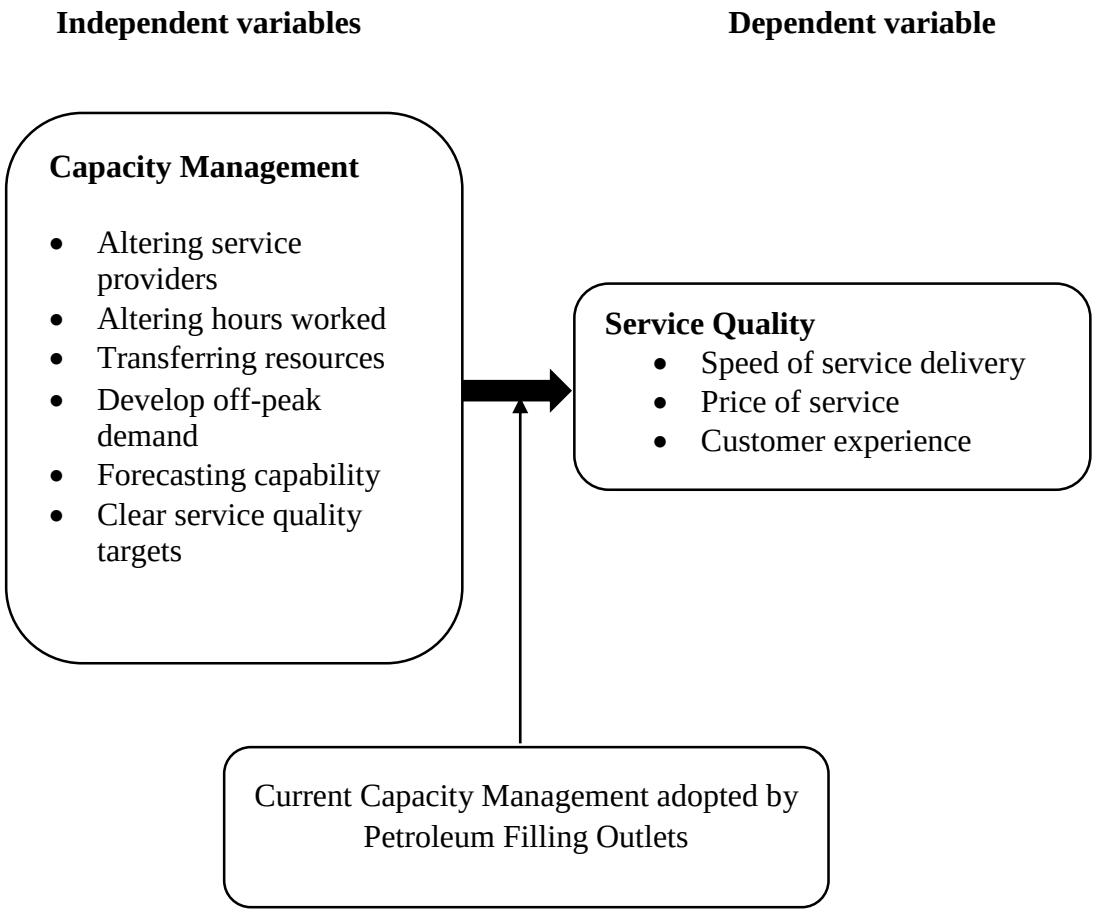

Figure 2.1: Conceptual framework.

Source: author, (2017)

2.8 Summary of the Knowledge Gap

In rundown, the current literature has demonstrated that the goal of limit administration (Capacity Management) hones is to guarantee that company's foundation gives the cost-legitimate assets expected to meet present and future business benefit necessities, while guaranteeing administration quality assets are provisioned, overseen, used and procured in a practical way. Geng (2014) fight that limit administration can advise change administration of the requirement for extra limit, or about the potential effect of another administration on current limit levels.

What's more, limit administration is instrumental in guaranteeing consistence with benefit levels set up through the administration level administration process. Checking of limit request levels can assist the operations chief with determining what number of clients require asset and how much assets every business movement devours. An inconsistency between the limit of an association and the requests of its clients brings about wastefulness, either in under-used assets or disappointed clients. At long last the examination included just petroleum outlets in Nairobi County whereby the specimen may not be illustrative of all the business players in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter has a number of sections showing the methodology used to carry out the study aimed to address the specific objectives of the study. These sections are; research design, target population, sampling, data collection instruments, and data analysis.

3.2 Research Design

The study adopted phenomenological approach. Phenomenology is the study of subjective experience (Moustakas, 1994). It is an approach to psychological subject matter that has its roots in the philosophical work of Edmund Husserl. The purpose of the phenomenological approach is to illuminate the specifics, to identify phenomena through how they are perceived by the actors in a situation (Strauss, 2015). Phenomenological approach is particularly effective at bringing to the fore the experiences and perceptions of individuals from their own perspectives, and therefore at challenging structural or normative assumptions (Moustakas, 1994).

In this study, this translated into gathering 'deep' information and perceptions through inductive, qualitative methods (interviews, discussions, participant observation). The approach (Phenomenological) was aimed to: discover the capacity management practices commonly used by petroleum filling outlets in Nairobi County; to find the relationship between capacity management and service quality in petroleum filling outlets; and to determine the effect of service quality on petroleum filling outlets in Nairobi County. The results were presented from participants' perspective.

3.3 Population of Study

The target population was 30 petroleum filling outlets (multinationals and local distributors) based in Nairobi County (Appendix III). The motivation behind this target population was simple; firstly, most filling outlets have their head offices in Nairobi County. Secondly, the target population was consistent with the general objective of the study which sought to determine capacity management and service quality among petroleum filling outlets in Nairobi County.

3.4 Sampling Design

Sampling design was based on 6 major roads leading into/out of Nairobi County, ie: Waiyaki Way, Uhuru Highway, Langata Road, Jogoo Road, Limuru Road (UN offices) and Mombasa Road. The researcher selected 5 petroleum filling outlets each from the 6 major roads above within Nairobi County to get a sample size of 30. This was because most filling outlets have their branches along the 6 major roads in Nairobi County.

The researcher applied judgmental procedure to select 3 representatives from each of the 30 targeted filling outlets. Judgmental procedure according to Schmitt (2014), is a non - probability sampling procedure where the researcher selects units to be sampled based on their knowledge and professional judgment.

Applying stratified proportionate random sampling the researcher selected the 3 representatives from the following categories of individuals; operation managers, support staff and a customer randomly picked at the time of interview making a sample size of 90 participants. This specimen measure was viewed as sufficient as the present investigation was just tending to three key factors. This is additionally opened up by Russel (2001) who watched that an examination ought to be of a sufficient size with respect to the goals of the investigation. As indicated by Chandran (2014), stratified

proportionate irregular testing strategy create appraisals of general populace parameters with more noteworthy accuracy and guarantees a more illustrative specimen is gotten from a moderately homogeneous populace.

3.5 Data Collection

The researcher self-administered the questionnaires and personally conducted interviews using an interview guide. The utilization of survey was favored as it guaranteed privacy was maintained all through the information accumulation process, it saved money on time, and was anything but difficult to manage (Bell 2013). The survey was likewise perfect since it empowered the accumulation of data from the expansive example estimate. It additionally guaranteed a more prominent sentiment obscurity subsequently promising open reactions to delicate inquiries and was free from inclination ensuring exact and legitimate information. Then again the meeting guide gave a stage to talk about the examination factors in detail with the respondents.

The poll was comprised of shut and open finished inquiries to inspire particular reactions for quantitative and subjective investigation separately. A portion of the shut finished inquiries required a reaction on a five point Likert scale, demonstrating the degree to which limit administration influenced benefit quality in oil filling outlets in Nairobi County. The poll was composed into topics. The primary topic of the survey managed statistic insights, for example, instruction level and age. Alternate areas were comprised of inquiries according to the examination destinations. As a methodology went for getting tenable information from the field, the scientist prepared enumerators to meet the members and furthermore for motivations behind survey organization. For auxiliary information, the examination utilized productions in view of information from the World Values Surveys, government records, non-benefit associations (NGOs) records, media articles, and concentrates identified with the present point.

3.6 Data Analysis

Qualitative data was analyzed through content analysis. To establish capacity management used by petroleum filling outlets in Nairobi County, the study applied principle component analysis to extract predominant capacity management practices used by petroleum filling outlets in Nairobi County.

To find out the relationship between capacity management and service quality in petroleum filling outlets in Nairobi County, the researcher applied chi square (***χ2***) analysis given by the formula:

$$x = \Sigma\ (o- ę)^{2}/ ę$$

Where: o - observed and ę- expected values.

To determine whether capacity management adopted by petroleum filling outlets in Nairobi have impact on the quality of services they offer, the study applied Pearson's correlation analysis method:

$$r = x = \frac{n(\Sigma xy)\text{-}(\Sigma x)(\Sigma y)}{\sqrt{n\Sigma y^2\text{-}(\Sigma x)^2[n\Sigma y^2\text{-}(\Sigma y)^2]}}$$

3.7 Summary

Table 3.1: Summary of Research Methodology

Objective	**Data Collection**	**Data Analysis**
To establish capacity management used by petroleum filling outlets	Questionnaire:	Principle component
To find out the relationship between capacity management and service quality in petroleum filling outlets	Questionnaire	Chi square
To determine whether capacity management adopted by petroleum filling outlets in Nairobi have impact on the quality of services they offer.	Interview guide	Pearson's correlation

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter discusses research findings of the study which was aimed at determining the relationship between capacity management and service quality among petroleum filling outlets in Nairobi. The chapter presents the analysis of the findings guided by questionnaire responses. The analyses were presented as follows: - first section analysed respondents' demographics; the second section did a detailed analysis on capacity management and service quality in petroleum filling outlets.

81 out of 90 participants responded positively to the questionnaires and completed the questions successfully making a response rate of 90%. This means that proper pilot study was conducted to address any loopholes before the primary study was conducted. It could also mean that the participants were able to understand and fill all the questions successfully.

The study applied the following tools to analyse the data: - to establish capacity management used by petroleum filling outlets the researcher applied principle component analysis.

To determine the relationship between capacity management and service quality in petroleum filling outlets in Nairobi County, the study used chi square $(\chi 2)$ analysis given by the formula:

$x = \Sigma (o- ę) 2/ ę$

To determine the impact of capacity management and service context on service quality in petroleum filling outlets, the study used Pearson's correlation analysis method:

$$r = x = \frac{n(\Sigma xy)\text{-}(\Sigma x)(\Sigma y)}{\sqrt{n\Sigma y^2\text{-}(\Sigma x)^2[n\Sigma y^2\text{-}(\Sigma y)^2]}}$$

4.2 Respondents Demographics

In this section the researcher sought to analyse respondents' demographics from each petroleum filling outlet and five themes were considered: - age, gender, and education, number of years worked with filling outlet and current position held by the respondent.

Table 4.1: Frequency Distribution of Respondents by Age

Age	Frequency	Percentage
20-29	27	32.93%
30-39	41	51.22%
40-49	12	14.63%
Above 50 years	1	1.22%
Total	81	100.00%

The findings are in line with studies conducted by Munyua (2012) who noted that most young people (20-39 years) in Kenya dominate the labor markets across all sectors. Age was significant to the study because individuals who grow up at the same time are a generation and often share many of the same experiences as others of the same age group. This depicts that age can influence capacity management and services offered in petroleum filling outlets.

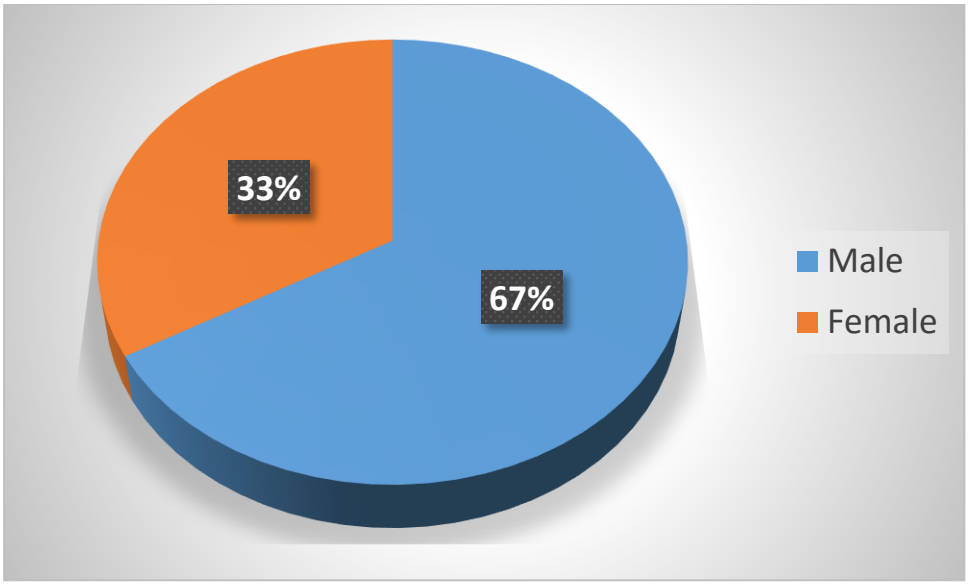

Figure 4.1: Frequency Distribution of Respondents by Gender

Results in figure 4.1 shows that majority of respondents interviewed were male (67%) however gender distribution at the sampled population is above the minimum threshold of 30% for any of the genders set by the constitution of Kenya, 2010.This could mean that male have embraced capacity management practices more than the female counterparts.

Table 4.2: Frequency Distribution of Respondents by Education Level

Education level	Frequency	Cumulative Frequency	Percentage
Masters holder	18	18	21.95%
First Degree holder	21	39	25.61%
Diploma holder	34	73	41.46%
Certificate	7	80	9.76%
Others	1	81	1.22%
Total	81		100.00%

Close to half of the participants interviewed were graduates. Level of education was significant to this study because educated respondents have higher capability in processing information and are able to make substantive decisions and therefore

education can influence implementation of capacity management and services offered in petroleum filling outlets.

Table 4.3: Distribution of Respondents by number of years worked in the outlet.

Duration (years)	Frequency	Percentage
Below 2 years	9	10.98%
3-6	20	24.39%
7-9	42	51.22%
Over 10	10	13.41%
Total	81	100.00%

This means that majority of the participants knew a lot about the particular filling outlet and could therefore provide credible information about the topic under study. 64% have worked for over 7 years.

4.3 Response on Capacity Management

In this section, the researcher sought to establish the capacity management used by petroleum filling outlets in Nairobi County. Respondents were asked to indicate either YES or NO on capacity management practices applied by the filling outlet to match customer demand.

Table 4.4: Respondents on capacity management practices used by filling outlets

Indicator	Y	N	Total
The filling outlet makes use flexible workforce.	*40.74%* *33*	*59.26%* *48*	*81*
The company practices variable shifts or scheduled working hours	*62.96%* *51*	*37.04%* *30*	*81*
During low demand employees work part time while during high demand the filling outlet uses contracted employees	*55.56%* *45*	*44.44%* *36*	*81*
The filling outlet shares capacity with other oil marketers e.g. storage	*58.02%* *47*	*37.04%* *30*	*81*
The filling outlet uses outsourced capacity during high demand e.g. staff	*45.68%* *37*	*49.38%* *40*	*81*
The filling outlet transfers resources to where they are really needed e.g. depot to depot transfer of stocks	*59.26%* *48*	*40.74%* *33*	*81*

This could mean that the sampled petroleum filling outlets have embraced different practices of capacity management. However majority performed below average in terms of managing capacity during high demand.

4.3.1 Respondents on Service Delivery Process

To assess the respondents' level of agreement/disagreement on service delivery process, five statements were given using a five point likert scale. The scale had two opposing negative and positive options on how the respondents agreed with the statements with a neutral option ranging from, strongly disagree-1, through neither agree nor disagree-3 to strongly agree-5.

Table 4.5 Respondents on service delivery process

Indicator	SD	D	U	A	SA	Total
Normal/expected service is not available or is slow due to inevitable system failures.	*20.99%* *17*	*53.09%* *43*	*7.41%* *6*	*16.05%* *13*	*2.47%* *2*	*81*
There is fast response to customer with special requests/preferences outside the standard company procedure.	*22.22%* *18*	*35.80%* *29*	*9.88%* *8*	*27.16%* *22*	*4.94%* *4*	*81*
There is fast response to admitted customer error in the delivery process e.g. error in ordering.	*17.28%* *14*	*19.75%* *16*	*13.58%* *11*	*38.27%* *31*	*11.11%* *9*	*81*
Attention is highly paid to customer by employees when delivering the service	*6.17%* *5*	*14.81%* *12*	*22.22%* *18*	*38.27%* *31*	*18.52%* *15*	*81*
Employees' performance is poor under adverse circumstances e.g because of pressure to large number of customers in the waiting.	*18.52%* *15*	*19.75%* *16*	*12.35%* *10*	*40.74%* *33*	*7.41%* *6*	*81*

The results mean that the sampled petrol filling outlets have clear service delivery process. The highest percentage (74.08%) of the participants indicated that the expected service was available.

4.3.2 Respondents on the important factors for the preferred petroleum filling outlet.

Respondents were asked to rate the capacity management indicators of the petroleum filling outlet they purchase petroleum products. The scale had two opposing negative and positive options on how the respondents agreed with the statements with a neutral option ranging from: - very poor; poor; fair; good; and excellent.

Table 4.6: 4.3.2 Respondents on the important factors for the preferred petroleum filling outlet.

Indicator	VP	P	F	G	E	Total
Communicating regularly with the customer.	22.22%	32.10%	9.88%	27.16%	8.64%	100
Confidence instilled in customers by staff	12.35%	20.99%	11.11%	44.44%	11.11%	100
Ability to provide services as promised	13.58%	13.58%	14.81%	43.21%	14.81%	100
Making customers feel safe in transactions	11.25%	15.00%	12.50%	38.75%	22.50%	100
Courtesy of staff to customers	8.75%	30.00%	13.75%	30.00%	17.50%	100
Staff technical knowledge to answer customer questions	7.41%	32.10%	7.41%	39.51%	13.58%	100
Dependability in handling customer's problems.	5.06%	29.11%	17.72%	34.18%	13.92%	100
Performing services right the first time	9.88%	16.05%	16.05%	37.04%	20.99%	100
Ability to perform the promised service dependably and accurately (credibility)	11.11%	18.52%	18.52%	29.63%	22.22%	100
Individualized attention to customers by staff	7.41%	28.40%	19.75%	33.33%	11.11%	100
Providing services at the promised time	7.59%	20.25%	16.46%	34.18%	21.52%	100
Employees who deal with customers in a caring fashion	13.58%	14.81%	19.75%	33.33%	18.52%	100
Maintaining error free records	6.25%	16.25%	13.75%	47.50%	16.25%	100
Informing client when services will be performed	11.11%	27.16%	14.81%	34.57%	12.35%	100
Prompt service to customers	3.75%	16.25%	18.75%	37.50%	23.75%	100

Customers' best interest at heart by staff	7.50%	13.75%	11.25%	42.50%	25.00%	100
Willingness by staff to help customers	3.70%	19.75%	18.52%	30.86%	27.16%	100
Readiness of staff to respond to customers' requests	5.00%	26.25%	13.75%	37.50%	17.50%	100
Understand exactly what each customer needs.	7.41%	32.10%	13.58%	28.40%	18.52%	100
Modernity of the office equipment	3.70%	17.28%	17.28%	28.40%	33.33%	100
Appearance of physical facilities, equipment, personnel, communication material and location access.	30.00%	17.50%	11.25%	23.75%	17.50%	100
Convenience of office business hours	8.64%	11.11%	9.88%	54.32%	16.05%	100

The results mean that the sampled petrol outlets valued time taken for service delivery. The highest (54.32%) number of respondents were comfortable with the convenience of office hours.

Table 4.7: Respondents on how frequent they purchase petroleum products

Indicator	Frequency	Percentage
Daily	22	27.16%
Weekly	51	62.96%
Fortnightly	1	1.23%
Monthly	7	8.64%
Total	81	100

The results mean that the repeat purchase rate in the sampled petro filling outlets is high. 62.96% of the current customer base has come back to shop again weekly in the petrol filling outlets which could be attributed to high quality service by the sampled filling outlets.

4.4 Chi Square Test on Capacity Management and Service Quality among Petroleum Filling Outlets.

In this section, the researcher sought to determine the relationship between capacity management and service quality among petroleum filling outlets in Nairobi County. A chi square tests to see whether distributions of categorical variables differ from each other. It shows any discrepancies between the expected results and the actual results. The data used in calculating a chi square statistics must be drawn from independent variables, must be random, raw, mutually exclusive, and drawn from a large enough sample. A very small chi square test statistic means there is a relationship while a very large chi square test statistic means no relationship.

Table 4.8: Chi square test statistic

Strategic expansion			**Residual**		**Component**
Category	**Observed**	**Expected**	**Obs-Exp**	**(Obs-Exp)2**	**(Obs-Exp)2/ Exp**
Altering service providers	13	10.136	2.864	8.2024	0.809234412
Altering hours worked	9	10.136	-1.136	1.2904	0.127308603
Transferring resources	16	10.136	5.864	34.3864	3.392501973
Develop off-peak demand	14	10.136	3.864	14.9304	1.473007103
Forecasting capability	14	10.136	3.864	14.9304	1.473007103
Clear service quality targets	15	10.136	4.864	23.6584	2.334096290
Chi square					**9.609155484**

The results in table 4.8 shows that the calculated value is 9.609 which is bigger than the critical values for chi square. Therefore the results conclude that there is a significant association between capacity management and service quality among petroleum filling

outlets in Nairobi meaning that a slight change in capacity management will have a great impact on quality of service offered by the sampled petrol filling outlets.

4.5 Pearson's Correlation on Capacity Management and Service Quality among Petroleum Filling Outlets

Pearson correlation is a measure of the strength and direction of association that exists between two variables measured on at least an interval scale. In this case the researcher used Pearson correlation to determine the impact of capacity management and service context on service quality in petroleum filling outlets:

$$r = x = \frac{n(\Sigma xy)\text{-}(\Sigma x)(\Sigma y)}{\sqrt{n\Sigma y^2\text{-}(\Sigma x)^2[n\Sigma y^2\text{-}(\Sigma y)^2]}}$$

$\sum x = 99$

$\sum y = 106$

$\sum xy = 10494$

$\sum x^2 = 9801$

$\sum y^2 = 11236$

N = Sample size = 81

Therefore correlation coefficient =

$81\ (10494) - (99)\ (106) / \sqrt{81\ (11236) - (99)^2\ \{81x11236\text{-}106^2)\}}$

$= 0.9332$

The range of the correlation coefficient is from -1 to 1.

-1 denotes a perfect negative relationship;
- 0.5 denotes moderate negative relationship;
0 denotes no linear relationship;
0.5 denotes moderate positive relationship; while
1 denotes a perfect positive relationship.

The results above indicate; 0.9332 or 93.32% meaning that the two variables, i.e. capacity management and service quality have a positive linear correlation which colud

mean that a unit change in capacity management will affect quality of service offered by the sampled petrol filling outlets.

4.6 Discussion

The findings showed that majority of the respondents (62.96%) indicated that the filling outlets practiced variable shifts or scheduled working hours while 37.04% did not support the statement. This could mean that most petroleum filling outlets within Nairobi experience high volumes of customers at any particular time and they have to embrace capacity management to ensure smooth flow of service process. 58.02% agreed with the statement that the filling outlets shares capacity with other oil marketers like storage facility.

Further results show that 45.68% of the respondents agreed that the filling outlet uses outsourced capacity during high demand e.g. staff. While 49.38% did not support this statement. The finding are upheld by another examination led by Berry (2013) which found that limit at all the levels won't be steady notwithstanding for consistent request. The inconstancy in the execution of work by individuals and hardware causes vacillations. Berry set that the changes might be covered up a moderately long timescale to be relatively steady. However Parasuraman and Zeithaml (2014) affirmed that at the group or individual asset level the variance on an hourly to regular schedule might be, for example, to give challenges in taking care of demand.

Further results showed that majority 74.08% of the respondents interviewed disagreed that normal/expected service was not available or was slow due to inevitable system failures. 58.02% of the participants disagreed that there was fast response to customers with special requests/preferences outside the standard company procedure. This could mean that the filling outlets have a challenge in altering capacity to cope with changes

in demand. 56.79% of the participants agreed that attention was highly paid to customers by employees when delivering the services. The discoveries are steady with another investigation directed by Goldrat (2015) which found that when choosing the powerful limit it is important to consider the amount and nature of the information factors and furthermore the measure of work which should be done to create the administration. As indicated by Goldrat, limit administration is worried about adjusting the capacity to create included esteem work and the interest for that work.

Communicating regularly with the customer was rated below average, with 32.1% of the participants rating *poor.* This could imply that most filling outlets do not have the data component which might be utilized to record time and recurrence factors including pertinent administration times. Considering the asset based hypothesis as talked about in Cornillier and Boctor (2007), company's assets are not restricted to unmistakable resources as it were. As per Boctor (2011), correspondence involves educating the clients in a dialect they can comprehend and tuning in to them. It might imply that the organization needs to modify its dialect for various buyers: clarifying the administration itself, clarifying how much the administration will cost, and clarifying the exchange offs amongst administration and cost, guaranteeing the customer that the issue will be dealt with.

When asked to rate appearance of physical facilities, equipment, personnel, communication material and location access, majority of the participants (30%) rated *very poor* while 23.75% rated *good*. Another important indicator which showed interest to the participants was the confidence instilled in customers by staff which was rated *good* by 44.4% of the respondents. This could mean that the staff are well trained to handle customer complaints. The discoveries are bolstered by an examination directed

by Sasser (2015) which found that understanding the client is trying to comprehend the client's needs: understanding client's particular needs, giving individualized consideration, perceiving the client. Effects are physical confirmation of the administration: appearance of physical offices, instruments and types of gear used to give the administration, appearance of faculty and correspondence materials, different clients in the administration office.

Chi square results indicated a significant association between capacity management and service quality among petroleum filling outlets in Nairobi. This is consistent with a study conducted by Moazzami (2010) which found that quality service delivery involves a comparison of expectations with performance. Pearson's Correlation on capacity management and service quality indicated that capacity management and service quality have a positive linear correlation.

This implies fulfilling client needs is imperative for the filling outlets' survival and it requires understanding and enhancing of operational procedures, distinguishing issues rapidly and efficiently, building up substantial and solid limit administration measures.

The study achieved the objectives which were: - to establish capacity management used by petroleum filling outlets in Nairobi; to find out the relationship between capacity management and service quality in petroleum filling outlets in Nairobi; and to determine whether capacity management adopted by petroleum filling outlets in Nairobi have impact on the quality of services they offer.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This was the final chapter of the study. It summarized the findings of the primary study, drew conclusions based on the findings of the study, provided recommendations as well as insight in the areas for further research. The following specific objectives guided the chapter: - to establish capacity management used by petroleum filling outlets in Nairobi; to find out the relationship between capacity management and service quality in petroleum filling outlets in Nairobi; and to determine whether capacity management adopted by petroleum filling outlets in Nairobi have impact on the quality of services they offer.

5.2 Summary of Findings

The first objective was aimed to establish capacity management used by petroleum filling outlets in Nairobi. More than half of the respondents interviewed indicated that the filling outlets practiced variable shifts or scheduled working hours. According to the findings of this study, all respondents were unanimous that the petroleum filling outlets shares capacity with other oil marketers like storage facility. More than half of the respondents indicated that filling outlet uses outsourced capacity during high demand like staff. Most petroleum filling outlets within Nairobi experience high volumes of customers at any particular time and they have to embrace capacity management to ensure smooth flow of service process and enhance quality service.

The second objective was to find out the relationship between capacity management and service quality in petroleum filling outlets in Nairobi. The study established that more than half of the participants indicated that there was no fast response to customers

with special requests/preferences outside the standard filling outlets procedure. The petroleum filling outlets in Nairobi have a challenge in altering capacity to cope with changes in demand. Chi square results indicated a significant association between capacity management and service quality among petroleum filling outlets in Nairobi.

More than half of the participants agreed that attention was highly paid to customers by employees when delivering the services. Communicating regularly with the customer was rated below average which could mean that most petroleum filling outlets lack the information element which may be used to record time and frequency factors including relevant service times. Pearson's Correlation on capacity management and service quality indicated that capacity management and service quality have a positive linear correlation.

The third specific objective was to determine whether capacity management adopted by petroleum filling outlets in Nairobi have impact on the quality of services they offer. The study found that majority of the filling outlets staff handled customers professionally. This could mean that the staff are well trained to handle customer complaints. More than half of the participant were not satisfied with the appearance of physical facilities, equipment, personnel, communication material and location access of the petroleum filling outlets. Tangibles are physical evidence of the service.

5.3 Conclusion

Quality administration conveyance includes a correlation of desires with execution. The investigation has discovered that limit at all the levels won't be steady notwithstanding for consistent demand as oil filling outlets inside Nairobi encounter high volumes of clients at a specific time and they need to grasp limit administration to guarantee smooth stream of administration process. Fulfilling client needs is critical for the filling outlets'

survival and it requires understanding and enhancing of operational procedures, distinguishing issues rapidly and methodically, building up legitimate and solid limit administration measures. Chi square outcomes showed a huge relationship between limit administration and administration quality among oil filling outlets in Nairobi. In understanding the client is trying to comprehend the client's needs: understanding client's particular needs, giving individualized consideration, perceiving the client.

5.4 Recommendation

Considering the findings of this study, the study recommends that petroleum filling outlets should strive to create a loyal programme strategy and to do so they need facts that will result from identifying the objectives of their business and identifying the internal and external factors that are favorable and unfavorable to achieve the objective. This can be done by answering the following questions: is the outlet providing services at the promised time?; how can communication be done regularly with the customer?; how can the outlet be in a position to provide services as promised?; does the outlet understand exactly what each customer needs.?; how can the outlet ensure attention is highly paid to customer by employees when delivering the service?

It is therefore recommended that the management of petroleum filling outlets should consider putting in place the recommended steps to even better its service delivery by enhancement of capacity management practices that have not been fully embraced such as fast response to customer with special requests/preferences outside the standard company procedure. Others include flexible workforce, enhanced use of the element of

equipment sharing or capacity sharing with other oil marketers as a strategy as well as alter of operations with fluctuating demand.

5.5 Limitations of the Study

These discoveries must be deciphered against the scenery of the methodological constraints of this examination, which offer extra future research openings. Firstly, the study was limited in scope which means that the findings cannot be over generalized. The sample size (30 filling outlets) limits the extent to which the findings on capacity management used by petroleum filling outlets in Nairobi can be inferred. There is need to consider and focus on other sectors.

This study was conducted with a strong presence of employees in petroleum filling outlets and it is possible that this exposure and working environment contributed significantly to their perceptions of the effect of capacity management on service quality. There is need therefore to increase the number of respondents and petroleum filling outlets. However, despite the above limitations, the findings presented in this paper have important policy implications.

5.6 Suggestions for Further Research

The study targeted only 30 petroleum filling outlets in Nairobi County which makes it impossible to generalize the findings. The study recommends a comparative study to establish capacity management used by petroleum filling outlets in East African region. Additionally, the study utilized a phenomenological research approach which was aimed to bring to the fore the experiences and perceptions of individuals from their own perspectives among the 30 sampled filling outlets in Nairobi county. The investigation prescribes a deductive research approach. Deductive approach is worried about

building up a speculation (or theories) in light of existing hypothesis, and after that planning an examination procedure to test the theory (Rapando (2013).

REFERENCES

Andaleeb, W. O., (2014), An integrated approach to inventory and flexible capacity management subject to fixed costs and non-stationary stochastic demand. OR Spectrum, 31(2), 337-360.

Apungu, Y. R., (2013), *Capacity management, investment, and hedging*: Review and recent developments. Manufacturing and Service Operations Management. 5269-302.

Armistead, M. & Clark, P. (2012), Integrating Supplier Satisfaction with Customer Satisfaction. Total Quality Management, 11 (4/5/6), S427-S432.

Armistead, Q.W., (2014), A conceptual model of service quality and its implication for future research, *Journal of Marketing*, Vol.49 (3), 41-50.

Balaji, E. (2016), "Service quality dimensions and their relationships with satisfaction," A content analysis of customer reviews of securities brokerage services.

Bamie, M. & Dale, W. (2016), Service Marketing: Integrating Customer Focus across the Firm, New York: McGraw-Hill.

Berry, E. K. (2014), The nature and determinants of customer expectations of service, *Journal of the Academy of Marketing Science*, Vol 21 (1), 1-12.

Blackstone, Q. Y. (2012), A capacity management model in service industries, *International Journal of management studies* Vol. 12 (3), 486 – 102.

Bowman, N. (2014), Tactical Capacity Management under Capacity Flexibility in Make-to-Stock Systems. Working Paper.

Boyd, Q. G. (2014), Capacity management in services and the influence on quality and productivity performance, Cranfield School of management working paper 56/91.

Bradley, M. N., (2014), A capacity management model in service industries, *International Journal of Service Industry Management*, Vol. 13 (3), 286 – 302.

Bradley, W. Sala, M. Silva O. & Heshmati, P. (2014), Evolutionary Economics, 3(2), 127-144.The classical theory of production and the capabilities view of the firm. *Journal of Economic Studies*, 24(5), 307-323.

Buxey, M. V. (2013), Global operations strategy: Coordinating manufacturing networks. Omega, *The International Journal of Management Science*, 36(1), 91-106.

Chandran, O. (2014), A review on strategic capacity planning for the semiconductor manufacturing industry. *International Journal of Production Research*, 47(13), 3639-3655.

Cheng, P. & Kleiinen, N. (2014), Quality Improvement in Service. Marketing, *Journal of Serivces Marketing*, 7, (3), 59-71.

Clark, W. W. (2013), Capacity Planning and Management in Hospitals. Operations Research and Health Care, 70(2), 15-41

Collier, T. P. (2013), The determinants of service quality: satisfiers and dissatisfiers, *International Journal of Service Industry Management,* Vol. 6 (5), 53 – 71

Combe, T. (2015), Business Research methods (8th Ed.). New delhi: tata mcgraw hill.

Cook, S. S. (2013), Demand and capacity management decisions in services. How they impact on one another, *International Journal of operations and production management,* Vol.22 (5), 527-548

Cornillier, M. and Boctor, Y. (2007), The Effect of Petroleum retail Price Regulations in Kenya on Oil Marketing Companies.

Cox, P. (2015), A Guide to Petroleum Filling Stations, Licensing Officer Armagh City and District Council, the Palace Demesne

Cytonn investments, (2016), From Promise to Performance PwC's Africa Oil and Gas 3rd Review.

Delosier, W.W. (2014), An analysis of hospital capacity management patterns using Miles and Snow's typology. *International Journal of Manufacturing and Enterprise Development,* 3(4), 312-338.

Demmy, Y. (2015), Principles for the Sound Management of Operational Risk

Draman, P. (2013), Business Research methods. (7th Ed.). New York, NY: Irwin/ McGraw-Hill.

Economic Survey, (2013), Analytic Strategies in Hospital Epidemiology: Cross-Sectional Studies Vol. 10, No. 7 (Jul., 1989), pp. 321-325

Fang, M. G. (2014), Environmental & Impact Assessment & Audit guidelines for Downstream Petroleum Sector.

Fredrick, T. P., (2013), Evidence-Based Practice, Descriptive Research and the Resilience Schema-Gender-Brain. The British Journal of Social Work, Vol. 35, No. 6 pp. 843862

Galankashi, M. (2013), Situational Analysis of Energy Industry, Policy and Strategy for Kenya

Geng, W. (2014), The determinants of service quality: satisfiers and dissatisfiers, *International Journal of Service Industry Management,* Vol. 6 (5), 53 – 71.

Geng, F. U. (2014), The effect of supply chain integration on the alignment between corporate competitive capability and supply chain operational capability. *Journal of Operations & Production Management* 26 (100), 1084-1107

Geng, A. W. (2015), Capacity management in services and the influence on quality and productivity performance, Cranfield School of management working paper 56/91.

Goldrat, A. 2015), Risk Management Theory: A Comprehensive Empirical Assessment, Kozminski Working Paper No. 01-200; Kozminski University.

Greenland, Y. (2014), A review on strategic capacity planning for the semiconductor manufacturing industry. *International Journal of Production Research*, 47(13), 3639-3655.

Grover, W. (1998), The Influence Of Strategic Factors On Effective Crisis Preparedness: A Case Of Petrol Filling Stations In Nakuru Town, Kenya,Asian *Journal of Business and Management Sciences* Vol.2 No.11(25-41)

Gummesson, P. (2013), Contemporary Ethical Issues in Accounting, Finance, Management and Marketing. Journal of Business Ethics Journal of Business Ethics, Vol. 62, No. 2, pp. 141-146

Gupta, M. (2014), The Business History Review, Vol. 81, No. 4 pp. 802-805. President and Fellows of Harvard College and Cambridge University Press

Hatcher, N. (2014), Influence of Service Quality Factors in Determining Motorist Choice of Fuelling in Preferred, Petroleum Service Station in Nairobi

Heshmati, D. (2013), The heart of change: real-life stories of how people change their organizations. USA. Harvard Business Press.

Heskett, R. L. (2014), Lessons from the US Sub-Prime Crisis. *Journal of International and Area Studies*, Vol. 15, No. 2 (December 2008), pp. 87-114

Holt, M. (2014), Petrol Filling Stations Guidance on Managing the Risks Of Fire & Explosion

Hum, W. (2015), Research methods, *Journal of Business & Economic Research* – Volume 5-No.3

Husserl, A. (2012), Dumping and Adulteration of Petroleum Products in Kenya: SocialEconomic Impact and response by Stakeholders

Isaboke, K. K. (2013), A capacity management model in service industries, *International Journal of Service Industry Management*, 13 (3), 286 – 302.

Isaboke, L. (2016), Tactical Capacity Management under Capacity Flexibility in

Jacobson, B. (2014), Tactical Capacity Management under Capacity Flexibility in Make-to-Stock Systems. Working Paper.

Jiang, W. (2015), Essentials of Capacity Management, New York: John Wiley & Sons, Inc.

Johnston, M. (2014), "The effect of place on performance of shopping malls in Kenya". *International Journal of Business & Law Research*, 2(4):73-87.

Jolly, G. (2015), Services Marketing: Integrated customer focus across the firm. London: McGraw Hill.

Jones, U. K. (2014), Demand and capacity management decisions in services. How they impact on one another, *International Journal of operations and production management*, Vol.22 (5), 527-548.

Journal of Service Industry Management, Vol. 13 (3), 286 – 302.

Judd, W. W. (2015), Labor Turnover in the Sugar Industry in Kenya. European Journal of Business and Management. 4(9)

Kimes, O. P. (2014), Effects of Succession Planning Programs on Staff Retention. Mediterranean Journal of Sciences, 4 (6).

Klassen, H. Jones, O. & Fang, P. (2014), A review on strategic capacity planning for the semiconductor manufacturing industry. *International Journal of Production Research*, 47(13), 3639-3655.

Kutsch, M. Briec W. & Green, O. (2014), Effect of Capacity Management Strategies On Service Quality in Safaricom. Unpublished MBA Project. University of Nairobi.

Lockamy, N. P. (2013), Recruiting, selection, and job placement. In M.D. Dunette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally.

Lovelock, W. (2014), The Service Encounter: Diagnosing Favorable and Unfavorable Incidents, *Journal of marketing*, vol.54 pp71-84.

Lovelock, N. (2015), The determinants of service quality: satisfiers and dissatisfiers, *International Journal of Service Industry Management*, Vol. 6 (5), 53 – 71.

Maister, K. O. Rioux, M. Schmitt, H. and Leclerc, W. (2013), Research Methods. Nairobi: Starbright services limited.*Make-to-Stock Systems. Working Paper*.

Marcus, D. (2013), Demand and capacity management decisions in services. How they impact on one another, *International Journal of operations and production management*, .22 (5), 527-548.

Masese, K. (2013), Capacity Planning and Management in Hospitals. Operations Research and Health Care, 70(2), 15-41.

Masese, W. (2014), Match supply and demand in service industries. Harvard Business Review, 54(6), 133-140.

McDougall, A. P. (2013), An analysis of an employee value proposition. (Masters Dissertation). Retrieved from Networked Digital Library of Theses and Dissertations. http://hdl.handle.net/10394/1839

Mieghem, V. W. (2013), Investigation of capacity management strategies: the case of Kenya Airways. Unpublished MBA Project. University of Nairobi.

Moazzami, A. W. (2010), Seven Misconceptions about Human Resource Practices: Research Findings versus Practitioner Beliefs. Academy of Management Executive 16: 92 – 103

Motwany, I. F. (2014), The flexibility of manufacturing systems. International Journal of Operations & Production Management, 7(4), 35-45.

Moustakas, A. (1994), Staffing in the 21st Century: Challenges and Strategic Opportunities. *Journal of Management*, 32:868.

Munyavi, S. S. (2014), Service quality: The role of Capacity management, Cranfield school of management working paper 30/92.

Neiman, H. (2013), Effect of Capacity Management Strategies on Service Quality in Safaricom Limited Retail Outlets, Unpublished MBA Project: University of Nairobi New Age International Publishers.

Novelli, W. P. (2014), Factors affecting talent management at nation media group.

Nzuki, M. N. (2014), The „coping" management strategy in services and the influence on quality performance, *International Journal of Service industry management,* Vol.5 (2), 5-22.

Ochieng, T. (2010), Impact on Employee Retention in State Financial Corporations in Kenya. *International Journal of Business and Public Management*, 2(2) 30-38.

Oliver, W. M. (2014), Demand and capacity management decisions in services. How they impact on one another, International Journal of operations and production management, .22 (5), 527-548.

Osborn, M. Q. 2013), The nature and determinants of customer expectations of service, *Journal of the Academy of Marketing Science*, Vol 21 (1), 1-12.

Parasuraman, O. P. (2014), "Service quality dimensions and their relationships with satisfaction," A content analysis of customer reviews of securities brokerage services.

Energy regulatory commission (2014), Integrating Supplier Satisfaction with Customer Satisfaction.

Perkins, N. (2013), Capacity management, investment, and hedging: Review and recent developments. Manufacturing and Service Operations Management. 5 269-302.

Petrini, A. (2014), An integrated approach to inventory and flexible capacity management subject to fixed costs and non-stationary stochastic demand. OR Spectrum, 31(2), 337-360.

Petroleum institute of east Africa (2016), Customer care excellence; How to create an effective customers focus,

Pride, P. D. (2013), Evaluating Service Quality and Consumer Satisfaction in Emerging Markets. *International Journal of Consumer Studies,* 30 (6), 582-590.

Rhyne, A. (2015), Global operations strategy: Coordinating manufacturing networks. Omega, *The International Journal of Management Science,* 36(1), 91-106.

Roth, Q. (2014), A conceptual model of service quality and its implication for future research, *Journal of Marketing,* Vol.49 (3), 41-50.

Russel, F. S. (2001), Effect of Capacity Management Strategies On Service Quality in Safaricom. Unpublished MBA Project. University of Nairobi.

Sasse, P. F. (2015), Investigation of capacity management strategies: the case of Kenya Airways. Unpublished MBA Project. University of Nairobi.

Sasser, W. W. (1976), An analysis of hospital capacity management patterns using Miles and Snow's typology. *International Journal of Manufacturing and Enterprise Development,* 3(4), 312-338.

Sasser, P. E., (2013), Tangency capacity notions based upon the profit and cost functions: A non-parametric approach and a general comparison. Economic Modelling, 27(5), 1156-1166.

Schmitt, A. (2014), The heart of change: real-life stories of how people change their organizations. USA. Harvard Business Press.

Schragenheim, W. and Ronen, P. (2015), Research Methodology: Methods and Techniques. New Delhi: New Age International Publishers

Silva, M. (2014), Demand and capacity management decisions in services. How they impact on one another, *International Journal of operations and production management,* Vol.22 (5), 527-548

Simons, N. O. (2013), Essentials of Capacity Management, New York: John Wiley & Sons, Inc. *Journal of management sciences,* Vol.33 (7), 237-308

Slack, Q. (2014), Strategy not tactics drives aggregate planning. *International Journal of management sciences,* Vol.33 (7), 237-308

Slack, Y. (2015), The determinants of service quality: satisfiers and dissatisfiers, *International Journal of Service Industry Management,* Vol. 6 (5), 53 – 71

Smith, W.W. (2013), Evaluating Service Quality and Consumer Satisfaction in Emerging Markets. *International Journal of Consumer Studies,* 30 (6), 582-590.

Spencer, H. Y. (2014), A review on strategic capacity planning for the semiconductor manufacturing industry. *International Journal of Production Research*, 47(13), 3639-3655.

Strauss, Y. P. (2015), Business Research methods (8th Ed.). New delhi: tata mcgraw hill.

Swann, W. (2014), Customer care excellence; How to create an effective customers focus, 5th edition

Tan, H. P. (2014), Service Quality and the Service Delivery System, in Service Quality: Multidisciplinary and Multinational Perspectives, Massachusetts: Lexington Books

Wachira, Q. (2015), "Alchemy: the transformation to service excellence", The Learning Organization, Vol. 7 No.: 1, pp.13 – 22 Wadsworth Publishing Company.

Watson, W. & Polito, O. (2013), Service Quality and the Service Delivery System, in Service Quality: Multidisciplinary and Multinational Perspectives.

APPENDICES

APPENDIX I: INTRODUCTION LETTER

UNIVERSITY OF NAIROBI
SCHOOL OF BUSINESS

Telephone: 020-2059162
Telegrams: "Varsity", Nairobi
Telex: 22095 Varsity

P.O. Box 30197
Nairobi, Kenya

DATE..... 02.10.2017

TO WHOM IT MAY CONCERN

The bearer of this letter ..... BONIFACE MWANGANGI MUTHEKA .....

Registration No..... D61 / 79105 / 2015 .....

is a bona fide continuing student in the Master of Business Administration (MBA) degree program in this University.

He/she is required to submit as part of his/her coursework assessment a research project report on a management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate your assistance to enable him/her collect data in your organization.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you.

PATRICK NYABUTO
SENIOR ADMINISTRATIVE ASSISTANT
SCHOOL OF BUSINESS

APPENDIX II: QUESTIONNAIRE

TOPIC: CAPACITY MANAGEMENT AND SERVICE QUALITY IN PETROLEUM FILLING OUTLETS IN NAIROBI COUNTY.

This questionnaire is administered on operation managers and support staff from the selected petrol filling outlets in Nairobi County.

The information to be given in this questionnaire will be confidential and purely for academic purposes.

The Questionnaire aims: -to establish capacity management used by petroleum filling outlets in Nairobi County; to find out the relationship between capacity management and service quality in petroleum filling outlets in Nairobi County; and to determine whether capacity management adopted by petroleum filling outlets in Nairobi have impact on the quality of services they offer.

SECTION A: RESPONDENTS DEMOGRAPHICS

(*Fill in the blank spaces and tick once in the below given choices of all questions)*

1. Name *(optional):* ……

2. Please indicate your age bracket?
   20-29 years [ ]
   30-39 years [ ]
   40-49 years [ ]
   Above 50 years [ ]

3. Gender: Male [ ]
   Female [ ]

4. Education level:

   Masters [ ] Certificate [ ]

   Bachelor's degree [ ] others (specify)……..

   Diploma [ ]

5. For how long have you worked in this petrol filling outlet? .....

6. What is your current position? ……..

SECTION B: CAPACITY MANAGEMENT

In this section please state the most appropriate response for each of the statements in the table below.

7. Please tick either YES/NO about your filling outlet on the following capacity management practices applied to match customer demand.

INDICATOR	**YES**	**NO**
The company makes use flexible workforce		
The company practices variable shifts or scheduled working hours		
During low demand employees work part time while during high demand the company uses contracted employees		
The company shares capacity with other oil marketers e.g. storage		
The company uses outsourced capacity during high demand e.g. staff		
The company transfers resources to where they are really needed e.g. depot to depot transfer of stocks		

8. Please indicate your level of agreement/disagreement during service delivery process. *(Use a scale of 1-5: 5- Strongly agree; 4-Agree; 3-Neutral; 2- disagree; 1- strongly disagree)*

INDICATOR	**1**	**2**	**3**	**4**	**5**
Normal/expected service is not available or is slow due to inevitable system failures.					
There is fast response to customer with special requests/preferences outside the standard company procedure.					
There is fast response to admitted customer error in the delivery process e.g. error in ordering.					
Attention is highly paid to customer by employees when delivering the service					
Employees' performance is poor under adverse circumstances e.g because of pressure to large number of customers in the waiting.					

9. How long does it take to be served in the following areas of the filling outlet?

	Service bay	Quick shop	Restaurant	Car wash	Garage
Time (in minutes)					

APPENDIX III: INTERVIEW GUIDE

TOPIC: CAPACITY MANAGEMENT AND SERVICE QUALITY IN PETROLEUM FILLING OUTLETS IN NAIROBI COUNTY.

This interview guide is administered on customers of the selected petrol filling outlets on service quality in Nairobi County.

The information to be given in this interview guide will be confidential and purely for academic purposes.

The interview guide aims: - to find out the relationship between capacity management and service quality in petroleum filling outlets in Nairobi County; and to determine whether capacity management adopted by petroleum filling outlets in Nairobi have impact on the quality of services they offer.

1. Please indicate how frequently you purchase petroleum products

   Daily ☐

   Weekly ☐

   Fortnightly ☐

   Monthly ☐

2. For each of the following statements, please indicate how you would rate the petroleum filling outlet from which you purchase your petroleum products.

INDICATOR	**Very poor**	**Poor**	**Fair**	**Good**	**excellent**
Communicating regularly with the customer.					
Confidence instilled in customers by staff					
Ability to provide services as promised					
Making customers feel safe in transactions					
Courtesy of staff to customers					

Staff technical knowledge to answer customer questions					
Dependability in handling customer's problems.					
Performing services right the first time					
Ability to perform the promised service dependably and accurately (credibility)					
Individualized attention to customers by staff					
Providing services at the promised time					
Employees who deal with customers in a caring fashion					
Maintaining error free records					
Informing client when services will be performed					
Prompt service to customers					
Customers' best interest at heart by staff					
Willingness by staff to help customers					
Readiness of staff to respond to customers' requests					
Understand exactly what each customer needs.					
Modernity of the office equipment					
Appearance of physical facilities, equipment, personnel, communication material and location access,					
Convenience of office business hours					

APPENDIX IV: Petroleum filling outlets in Nairobi County

Outlet	**Market shareholding in percentage**
Total Kenya	23.7
KenolKobi1	23.4
Shell	17.8
Libya Oil	10.0
National Oil	5.8
GAPCO	3.4
Gulf Energy	1.9
BAKRI International	1.8
HASS Petroleum	1.7
Hashi Energy	1.5
GALANAOil	1.4
ENGEN	0.8
OILCOM	0.6
MGS	0.6
RIVAPET	0.6
FOSSIL	0.4
TROJAN	0.4
ADDAX	0.4
BANODA	0.4
REGNOL	0.4
MILLENIUM	0.3
PETRO	0.3
E.A. GASOIL	2.3
ETHOS	0.4
GLOBAL OIL PETROLEUM	0.3
YOUR STATION	0.3
BP RIRUTA	0.5

MOBIL	0.6
DELTA SERVICE	0.5
EASTLEIGH SERVICE STATION	0.3

Excluded from the statistics are stations that have not been operational since January 2007

Source: Cytonn investments, (2016).