BUSINESS PROCESS OUTSOURCING, OPERATIONAL EFFICIENCY, FIRM CHARACTERISTICS AND PERFORMANCE OF OIL AND GAS DISTRIBUTION FIRMS IN KENYA

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

2018

DECLARATION

I, declare that the work contained in this thesis is my own original work and has not in its entirety or in part been submitted to any other university or institution for a degree. All references cited have been duly acknowledged.

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DEDICATION

To my God, for His continued wisdom, courage, health and amazing spiritual support. To the memory of my loving and dear father, Samuel Murage Muriuki and mother Esther Wangui Murage, for their wise counsel, encouragement and instilling the sense of discipline and hard work in life. My heartfelt appreciation and indebtedness to my husband Andanyi, daughters Kabalika and Wangui and son Kidiavai whose inspiration and priceless support made this possible. To my sisters; Wambui, Nyokabi and Wanja and brother Githinji, you are my rock! Thank you for believing in me.

I love you all very much.

ACKNOWLEDGEMENT

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ABBREVIATIONS AND ACRONYMS

BP: Beyond Petroleum

BPO: Business Process Outsourcing

BSC: Balanced Score Card

CAGR: Compound Annual Growth Rate

DCT: Dynamic Capabilities Theory

ERC: Energy Regulatory Commission

ETO: Equity Turn Over

ICT: Information Communication and Technology

KPC: Kenya Pipeline Company

KPRL: Kenya Petroleum Refineries Limited

NOCK: National Oil Corporation of Kenya

NSE: Nairobi Securities Exchange

OE: Operational Efficiency

OMC: Oil Marketing Companies

PIEA: Petroleum Institute East Africa

RBA: Retirements Benefits Authority

TATO: Total Asset Turn Over

TCE: Transaction Cost Economics Theory

TOC: Theory of Constraints

TQM: Total Quality Management

ABSTRACT

Business process outsourcing (BPO) has become a universal business concept that has enabled firms to successfully engage with the dynamics of the competitive environment through formulating and implementing strategies to improve firm performance. The main objective of the study was to determine the influence of operational efficiency and firm characteristics on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya. This study was premised on the Theory of Constraints that argues by applying the right framework, a firm may eliminate constrains that limit high performance, improve production timelines, enhance flexibility, increase customer satisfaction and reduce unnecessary costs. The study applied cross sectional descriptive survey research design. All the oil and gas distribution firms in Kenya that are registered with the Energy Regulatory Commission formed the study population. Primary data was collected through a structured questionnaire. Cronbach's Alpha was used to test for the reliability of data while content validity and construct validity tested the validity of data. Analysis techniques used included descriptive and inferential statistics. Descriptive statistics such as frequency distribution, mean, standard deviation and coefficient of variation were computed to describe the characteristics of the variables of interest. Inferential statistics was also used to test the nature and magnitude of the relationship between the variables and conclusions drawn. Simple, Path, Hierarchical and Multiple regressions were used to test the four hypotheses. The study established that business process outsourcing has a statistical significant influence on firm performance of oil and gas distribution firms in Kenya. The findings provided satisfactory statistical evidence indicating that operational efficiency has a full mediating influence on the relationship between business process outsourcing and firm performance of oil and gas distribution firms in Kenya. It was further revealed that firm characteristics have a significant moderating influence on the relationship between business process outsourcing and firm performance of oil and gas distribution firms in Kenya. Finally, the study revealed that business process outsourcing, operational efficiency and firm characteristics had a significant joint influence on firm performance. The study recommended an interactive model where all the variables; business process outsourcing, operational efficiency and firm characteristics can be considered across the oil and gas distribution firms to foster performance since the joint effect was found to be more significant than their individual effect on performance. This study has contributed to theory development by confirming the postulations of the Theory of Constraints and the Dynamic Capabilities Theory which state that operational efficiency contributes more to performance by supporting the business process outsourcing dimensions. The study contributed to policy by better understanding the benefits to clients and service providers in joint strategic outsourcing partnerships. The study had some limitations mainly caused by the scope of work as respondents consisted of only the executive management team excluding the other categories of staff. Organizational hierarchy sampling would have provided a more inclusive population sample. Future research efforts should extend the scope of this study by including important contextual variables such as, the external environment (politics, competition), and/or strategy to the research framework and also focus on firms outside the oil and gas distribution firms, and across other sizes of firms in order to determine whether the conclusions reached in this study are applicable in the context of other areas of Kenya's business sectors.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The dynamics of the present day competitive environment have placed increasing pressure on firms to reinvent continuously through formulating and implementing strategies to accomplish long term goals of the firm to sustain competitive advantage (Pearce & Robinson, 2011). Some of the strategies that firms have adopted include; the generic competitive strategies (Porter, 1980), the turnaround strategy (Wheleen & Hunger, 2005), mergers and acquisitions (Meglio & Risberg, 2011) and business process outsourcing strategy (Oshri, Kotlarsky & Willcocks, 2015) amongst others.

Business Process Outsourcing (BPO) is a set of activities of shifting a transaction or function governed internally to an external service provider through a long-term contract and partnership with a focus to improve firm performance. BPO is driven mainly by global competitiveness and the need to reduce costs and increase operational efficiency by focusing firm resources and capabilities on growing core business (Information Technology Association of America, 2015).

Outsourcing is the process of contracting a supplier to manage those activities considered to be outside the firm's chosen core competencies in order to build strategic advantages (Sharpe, 2007). The factors that influence the decision to outsource include; cost management, service enhancement, provision of world class service all with the aim of improving firm performance. (Brown & Wilson, 2012; Tas & Sunder, 2014).

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Researchers such as McCormack, Johnson and Walker (2003) and Mohiuddin and Su (2013) proposed a strong and positive relationship between business process outsourcing and firm performance for both short and long term perspective. Giustiniano and Clarioni (2013) opined that outsourcing contributes to a firm's sustainable competitive advantage. Bhagavath (2009) stated that operational efficiency have an intervening relationship between business process outsourcing and performance. In the competitive global market place, operational efficiency refers to the process of firms delivering products and services to clients in a cost-effective manner without compromising on quality enabling the firm to increase revenue and improve firm performance (Blackstone, 2010).

The relationship between business process outsourcing and firm performance may be moderated by firm characteristics which include but not limited to firm ownership structure, number of employees, firm age and size and capital related variables such as capital structure and firm liquidity level (Bernard, Redding & Schott, 2011; Ganguli, 2013). According to Usman and Zahid (2011), there exist a positive relationship between structure related firm characteristics and performance.

Carton and Hofer (2010) asserted that the joint relationship between business process outsourcing, operational efficiency, firm characteristics and performance may best be analyzed using the situational approach. This approach is of the view that the determinants that affect firms are uniquely different and therefore there is no one general applicable way that the variables may be studied and managed (Cho & Pucik, 2005).

The interface of business process outsourcing, operational efficiency, firm characteristics and firm performance is anchored on the Theory of Constraints which supports the working principle of improving the efficiency of firm operations to achieve overall bottom line performance excellence (Goldratt, 1990). Motwani, Klein and Harowitz (1996) recommended that by applying the Theory of Constraints, firms may eliminate constrains, improve timelines and flexibility in the delivery of goods and services, enhance customer satisfaction and reduce cost savings for positive performance.

The anchoring theory in this study is the Theory of Constraints (Goldratt, 1990), supported by The Dynamic Capabilities Theory (Teece, Pisano & Shuen, 2008) and Transaction Cost Economics Theory (Calantone & Stanko, 2007). The Theory of Constraints is a management philosophy that asserts firms may strategically and continuously improve the efficiency of processes and operations through the identification and elimination of constraints by focusing on the weakest link of the value chain thus strongly influencing firm performance (Motwani, Klein & Harowitz, 1996).

The Dynamic Capabilities Theory states that a firm's capacity to create, extend or modify its resources by acquiring the right firm capabilities and characteristics improves firm performance (Teece, Pisano & Shuen, 2008). According to the Transaction Cost Economics (TCE) Theory, outsourcing of a firm's non-core operations to an external service provider may be deemed to lower production and coordination costs thus protecting the firm's value and improving firm performance (Fill & Visser, 2000; Abdul-Halim & Chetta, 2009).

The Government of Kenya, in its Vision 2030 development policy, aims at transforming the country into a middle-income economy and the petroleum sector is prioritized as one of the infrastructural enablers to the achievement of this objective. However, the oil and gas distribution industry has continued to struggle with stringent environmental regulations and rules to transition to clean energy, an ever-changing cut throat global market and infrastructure limitations. In addition, declining core resources have affected sustainable profitability and increased upstream, midstream and downstream operational costs of firms (Chatrath, Miao, Ramchander & Wang, 2015).

One way of addressing these challenges is through the adoption of a new and sustainable business strategy model of business process outsourcing and partnerships. This is where oil and gas distribution firms choose to embrace outsourcing of non-core business functions. These include handling of day to day distribution and supply chain management, ICT, human resources, finance and tax functions and retain core or critical services such as oil and gas exploration and extraction processes (Fill & Visser, 2000).

Outsourcing may result in a stronger concentration of core competencies and capabilities, increased access to new innovations and industry technology, controlled fixed and overhead costs, improved regulatory conformity and compliance which may allow firms to strategically plan ultimately improving firm's operational efficiency and firm performance (Filis & Degiannakis, 2016). Recent discoveries of commercially viable oil and natural gas in Kenya, Uganda and Tanzania have propelled the East African region into the focus of both local and multinational petroleum firms and cemented the outsourcing of non-core business functions in the energy market.

Nigeria and Libya rank among the top ten giants of oil and gas production in the African continent and have gradually become a predominant market for firms seeking worldwide expansion (PIEA, 2018). Industry players have cited Kenya's improved energy policy and regulatory framework, improved road, air and rail infrastructure, increased power generation and competitive liberalization of the petroleum industry to justify continued investment in the oil and gas sector.

The study was driven by the fact that, while oil and gas distribution firms are involved in business process outsourcing, there exist a gap in determining the impact of outsourcing in the petroleum industry. Despite Mohiuddin and Su (2013) proposing a strong and positive relationship between business process outsourcing and firm performance, there is no known attempt by researchers to establish the relationship between business process outsourcing and performance and operational efficiency as an intervening variable and firm characteristics as a moderating factor likely to influence this relationship in the oil and gas distribution firms in Kenya (Chatrath, Miao, Ramchander & Wang, 2015).

As at June 2017, there were one hundred and thirty (130) oil and gas distribution firms in Kenya registered with the Energy Regulatory Commission (ERC) to import, export and wholesale on oil and gas products (ERC, 2017). This number is anticipated to increase making petroleum industry the most lucrative sector to watch in the future (PIEA, 2018).

1.1.1 Business Process Outsourcing

Business Process Outsourcing (BPO) is a function governed internally by an external service provider through a long-term contract and partnership with a focus to maintain or improve overall firm performance (Oshri, Kotlarsky & Willcocks, 2015). Globalization, cost and quality considerations have been credited as the major drivers of outsourcing (Bharadwaj, Saxena & Halemane, 2010). Fill and Visser (2000) refer to business process outsourcing (BPO) as the most sustained trend in commerce and it comes in contrast to the traditional model whereby firms used to be highly vertically integrated with activities in every link of the value chain conducted internally.

Business process outsourcing is a multistage process organized into four main stages namely; internal benchmarking analysis, external benchmarking analysis, contract negotiation and outsourcing management (Franceschini, Galetto, Pignatelli & Varetto, 2003). Benchmarking analysis is the first stage and involves monitoring the business operations activities to outsource.

External benchmarking analysis is the second stage and involves comparisons with other firms that are the best in the industry. Contract negotiation is the third stage and involves managing client – service provider contract obligations and partnerships, performance audits and risk. The fourth stage is outsourcing management which refers to the management of the BPO process.

Weimer and Seuring (2008) define the scope of BPO by dividing the concept into four scopes. The functional scope describes the amount and distributions of functions while the organizational scope covers the amount of different organizational units. The geographical scope describes the expanse of different business sites, countries and cultures and finally the service scope and the human resource scope which handles issues of employee retention and workforce planning.

Franceschini et al., (2003) described four types of outsourcing relationships which include managing strategic decisions, economic factors, human resources and monitoring the contractual expectations of the outsourcing process. Vining and Globerman (1999) analyzed two main outsourcing characteristics namely; specificity which refers to the level of reutilization of resources and techniques and complexity which refers to the level of difficulty in monitoring and defining contract terms and conditions of the outsourcing process.

According to Power, Desouza and Bonifazi (2006), reasons for outsourcing are; cost savings, focus on core business, access to resources and knowledge, growth in global knowledge, increased sophistication of information technology and global diffusion of knowledge. Other reasons include cost reduction in telecommunications, higher level of computerization and informatisation, higher level of education, mobile technology, e-mail, video conferencing, web conferencing, instant messaging and other collaborative tools (Bharadwaj, Saxena & Halemane, 2010).

Rasheed and Gilley (2005) discussed three main types of BPO namely; peripheral or non-core outsourcing, strategic or near core outsourcing and offshoring. Peripheral outsourcing occurs when a firm outsources its less strategic activities which include administrative services such as human resources, finance and tax. Scholars concur that peripheral outsourcing leads to cost management enabling firms to focus on critical business activities leading to better performance (Franceschini, Galetto, Pignatelli & Varetto, 2003; Bharadwaj, Saxena & Halemane, 2010).

Strategic outsourcing refers to the process where a firm outsources its near core activities allowing for shared benefits and risks between the client and service provider (Mohiuddin & Su, 2013). McIvor (2000) discussed the strategic outsourcing theory and argued that firms may need to outsource all activities except specials activities which may bring the firm a unique competitive advantage. Activities strategically outsourced include; logistics and distribution and ICT services.

Power et al., (2006) argued that strategic outsourcing is associated with reduced operational costs and increased revenues resulting in an increase in new customers, improved brand awareness and value-added services. Offshoring refers to the delegation of a firm activity to a foreign-based external firm with the aim of minimizing operational risk by choosing several strategic locations to operate from other than a single offshore destination (Tholons, 2007).

A fourth type of outsourcing that has emerged in recent literature but is yet to get consensus is extreme outsourcing (Mella & Pellicelli, 2012). This is where outsourcing is deemed to be a flexible phenomenon and any service may be outsourced with the exclusion of only managerial activity leading to a virtual firm characterized by pure business coordination through the formation of a stable flexible network (Mella & Pellicelli, 2012).

However, like in any process in business, there are associated risks with BPO which include complexity in contracts management and poor client-service provider partnerships due to differing business cultures. These reasons may lead to in-sourcing dimension where a firm may reverse its decision to outsource and back source the function back in-house (Mohiuddin & Su, 2013).

1.1.2 Operational Efficiency

Operational Efficiency (OE) refers to the identification of several strategies and techniques to deliver products and services to clients in a cost effective and timely manner without compromising on quality thus improving firm performance (Kuosmanen & Johnson, 2010). The concept of operational efficiency has become the center of academic research due to an upsurge in competition and increasing uncertain business environment (Bhagavath, 2009). Studies indicate that more than ten (10) per cent of production capacity may be locked up in process complexity and inefficiency leading to rising investment and operational costs affecting profitability and performance (Kaplan & Norton, 2008).

Santa, Ferrer, Bretherton and Hyland (2010) defined efficiency as the better use of firm resources and firm specific factors that may lead to the gaining new capabilities, gaining competitive advantage, adapting innovation and technology improving firm performance. Fare, Grosskopf and Lovell (1994) stated that technical efficiency is where a firm achieves maximum output for given inputs and minimum input utilization for given outputs while allocative operational efficiency compares alternative positions in terms of relative prices of inputs and outputs. Operational efficiency is measured by using input and output ratios where an improvement in the ratios is an indicator of improved firm performance (Rao & Lakew, 2012).

This study used operational efficiency measures of timeliness, customer satisfaction, quality, cost savings and flexibility as research study variables. Total Asset Turn Over (TATO) measures the efficiency of a firm's use of assets in generating sales revenue. Equity Turn Over (ETO) measures the efficiency with which management is using equity to generate revenue are examples of operational efficiency ratios. The determining factor in gaining operational excellence may require firms to provide relevant information to management to enable timely decision making (Kaplan & Norton, 2008).

Efficiency scores obtained for an organization may be used to formulate operational strategy to enable a firm to achieve its business objectives and goals by enhancing allocation of available resources in order to maximize outputs of the firm (Reid & Sanders, 2007). According to Berger and Mester (1997), statistical based efficient cost frontier tactics would measure operational efficiency more accurately.

The operating performance of firms has long been at the center of academic research and has received a substantial amount of attention. This is primarily due to the fact that operating efficiency is of interest for both managers and policy makers. A firm manager's aim is to improve the performance of the firms financially while policy makers are tasked to assess the effects of market structure on performance and therefore safeguard the stability of the financial system (Reid & Sanders, 2007). When firms operate more efficiently, improved productivity and profitability is expected. Consequently, the consumer may expect better and fair prices, quality service, better security and reliability of financial structures (Berger, Hunter & Timme, 1993).

1.1.3 Firm Characteristics

Firm characteristics refer to distinguished features or qualities that a specific firm may have but not limited to; firm ownership structure, firm age and size, capital structure and firm liquidity level and number of employees (Ghodeswar & Vaidyanathan, 2008; Weimer & Seuring, 2008; Bernard, Redding & Schott, 2011; Ganguli, 2013). Firm characteristic features are universally known as firm level factors.

A firm's ownership structure plays a key role in firm performance and provides potential investors, policy makers and top management with insights for making key firm decisions which influence overall performance of the firm (Glen & Pinto, 1998). A sizeable ownership structure and adherence to strict cost control is necessary to maximize the wealth of shareholders and ensure profitability (Ghodeswar & Vaidyanathan, 2008).

McMahon (2001) found that firm size was significantly linked to better business performance and large enterprises were found to have a higher level of success. The size of the firm has also been shown to be related to industry sunk costs, concentration, vertical integration, and overall profitability (Dean, Brown & Bamford, 1998). The market power and access to capital markets of large firms may give them access to investment opportunities that are not available to smaller ones. Larger firms are more likely to have output levels close to the industry minimum efficient scale, and thus, less likely to be vulnerable than smaller firms that produce at a lower scale (Kaguri, 2013).

Firm age, measured as the number of years a company has operated in the market since formation and is an important determinant of a firm's performance. According to the life cycle effect, younger companies are more dynamic and more volatile in growth experience than older companies. Usman and Zahid (2011) theorized that firms mature in age may have a well-diversified portfolio and may easily obtain regulatory compliance and offer favorable deliver prices due to economies of scale.

According to Galbreath and Galvin (2008) older firms are highly inertial and tend to become increasingly ill-suited to cope with changing competitive environment. Past researches indicate that probability of firm growth, firm failure, and the variability of firm growth decreases as firm's age (Teece, Pisano & Shuen, 1997). Maturity enables stability in growth as firms learn more about market positioning, cost structures and efficiency level. Hence, according to the results of this study, firm's performance is highly determined by what period the firm has been operating in the market.

A firm's capital structure refers to the way a firm finances debt and equity resources and manages profitably, liquidity and leverage (Ganguli, 2013). Liquidity of the firm is a key determinant of the firm's financial performance. Bhunia (2010) opines that liquidity is the ability of a firm to meet its short-term obligations and plays a key role in its success. There are three liquidity ratios that are used for this and include; the current ratio, the quick ratio and the capital ratio.

Liquidity not only helps to ensure a firm has a reliable supply of cash close at hand, but it is a powerful tool when it comes to determining the financial health of future investments (Clementi, 2001). A study by Frost (2010) observed that focusing on employee satisfaction allows firms to create a workforce of engaged loyal employees and with increased employee morale often comes better performance. When a firm offers consistently high quality products or services, brand awareness as well as customer satisfaction are enhanced (Frost, 2010).

1.1.4 Firm Performance

Performance refers to the accumulated and acceptable end results of all firm's business processes (Carton & Hofer, 2010). Performance is probably one of the most widespread dependent variables used by scholars, while at the same time it remains one of the vaguest variables (Rogers & Wright, 1998). Awino (2011) states that performance is a multidimensional construct and any single index may not provide a comprehensive understanding of the relationship relative to the construct under study.

Measuring of firm performance is essential in firms as it lead to increased brand awareness, improved customer focus, which leads to greater consumer trust and ability to command a premium price (Cameron & Whetten, 1983). Kaplan and Norton (2008) advanced the Balanced Score Card (BSC) performance framework to measure performance and align business to strategy from four (4) perspectives. These perspectives include; the financial perspective, the learning and growth perspective, the internal business process perspective and the customer perspective.

The financial perspective is stated as having the key outcome for firm success and consist of key financial performance attributes that analyze a firm's profitability such firms return on capital, firm's gross profit, firms investment and growth and firm's sales revenue due to repeat sales, brand awareness, value added services, customer focus and new retail stations (Molyneux & Thorton, 1992; Kirkendall, 2010). When a firm consistently offers high quality products or services, the firm may gain positive brand reputation that potentially may lead to more business and repeat customers.

Hillman and Keim (2001) revealed that making customers feel valued through increased customer focus and offering additional value added services may inspire additional business in the future. Improving the way the public views a firm may mean increased business and stronger relationships with the community (Cho & Pucik 2005). Financial and non-financial performance goals drive higher profits and aid in improving the company performance. The non-financial improvements help round out the company's strengths in areas like brand awareness, value added services and customer focus. These areas create a stronger company that can perform better in the market increasing profits.

Tholons (2007) state that performance may be managed through service level agreements and operating metrics increasing profitability. The internal business process performance measures include access to global and specialized best practice standards resulting in increased value-added services and customer focus. The learning and growth perspective performance includes gaining of new competencies and capabilities which may lead to increased value added services and brand awareness (Kaplan & Norton, 2008).

The customer perspective allows the firm to take responsibility for the customer feedback system thus improving on customer satisfaction (Tholons, 2007). There are three frequent approaches to performance measurement as discussed by Richard, Devinney, Yip & Johnson (2009). The first approach is the single measure approach based on the relationship of the measure to performance (Hillman & Keim, 2001; Roberts & Dowling, 2002). The second approach is where the authors investigate a variety of different measures of performance to compare and contrast analyses with different dependent but similar independent variables (Peng, Lee & Wang, 2005).

The final approach is where there is subjective measurement of performance and we have the authors adopting dependent variables on the correlation between the performance measures (Cho & Pucik, 2005). Management may use financial measures to evaluate firm performance by comparing net income to prior years and reviewing the current ratio. An example of a financial performance measure for an employee would be a firm's sales revenue due to repeat business. Using financial measures such as firm's return on capital, gross profit and sales revenue positions all firm on a relatively equal playing field in the view of analysts are judged on performance.

Comparing the raw financial data of two firms in the same industry offers only limited insight. Financial attributes may go beyond the financial numbers to reveal how healthy a firm is at making a profit, funding the business and growing through sales rather than debt amongst other factors (Peng, Lee & Wang, 2005). Analyzing two companies with various financial measures may reveal that a smaller firm may operate much more efficiently and generate substantially more profit per dollar of assets employed than a larger firm (Hillman & Keim, 2001; Roberts & Dowling, 2002).

This study used both financial and nonfinancial measures of performance. The financial measures were; firm's return on capital, firm's gross profit, firm's investment and growth and firm's sales revenue due to repeat sales while the non-financial indicators were; brand awareness, value added services, customer focus and new retail stations.

1.1.5 Global Perspective of Business Process Outsourcing

The global business process outsourcing market is anticipated to grow at a Compound Annual Growth Rate (CAGR) of 5.4% between 2014 to 2019 and reach revenues of $93.4 billion by the end of 2018 (Outsourcing Markets, 2018). The emerging economies in India and China have set the pace in driving the global BPO market with forecasted growth increase of CAGR of 15.7% and 16.1% respectively in 2018. Karl (2011) argue that BPO markets in North America and Europe have experience marginal growth in outsourcing as the markets are mature while Mexico and Philippines have remained competitive global BPO destinations for manufacturing and administration of BPO skills.

Africa draws about 1 per cent of the total revenues received in the BPO industry globally (Bharadwaj, Saxena & Halemane, 2010). Globalization and the advantages that are derived from outsourcing such as improved quality, increased innovation and technology and reduced interlinkages to market have propelled Ghana to the top most BPO destination in Sub-Saharan Africa. Tunisia, Kenya, Senegal and South Africa are ranked in position 38, 39, 45 and 48 respectively (Global Services Location Index, GSLI, 2016).

The reasons necessitating Kenya's remarkable global index achievement include; improved and flexible ICT developments, highly developed infrastructural connection, an intellectual skilled labor force and a favorable business climate (Lacity & Willcoks, 2013). The local and global upcoming trends in outsourcing may view the adoption of cloud-based technologies and artificial intelligent tools to complete routine tasks which may pose a serious threat to the global service industry and disrupt traditional outsourcing and offshore processes (Karl, 2011).

1.1.6 Business Process Outsourcing in Oil and Gas Distribution Firms in Kenya

Globalization, Information Communication and Technology (ICT) advancements and the competitiveness and diversity of emerging markets have spread the rapid advancements of business process outsourcing in Kenya. Outsourcing service providers in the oil and gas distribution firms in Kenya, may be categorized into three namely; specialist service providers, direct service providers and indirect service providers (ERC, 2017).

The outsourced specialist service providers are non-existent in Kenya due to limited heavy capital investment, strict safety operational standard enforcement and limited technical specialization requirements. Services in this category include oil and gas drilling services provided by multinational firms such as Tullow Oil PLC, Delonex Energy and Simba Energy Limited (ERC, 2017). Direct outsourced service providers complement the specialist providers but require less capital investments and technical specialization. Examples of direct service providers include oil and gas civil, mechanical and electrical, construction and environmental service providers (Tholons, 2007).

Indirect outsourced services providers require less capital investment and technical expertise. Services in this category are widely available and are offered by most local outsourcing firms in Kenya. Examples of services in this category include; logistics and distribution, finance and tax, human resources, ICT services and procurement and supply chain management (ERC, 2017). This research study concentrated on the indirect service providers where a majority of the oil and gas distribution firms outsource services to.

Petroleum products are predominantly used in the transportation and aviation industry, commercial, telecoms and the industrial sectors of the Kenyan economy (PIEA, 2018). The Ministry of Energy and Petroleum, The Energy Regulatory Commission (ERC) and the Petroleum Institute of East Africa (PIEA) professional group are the key institutions and stakeholders involved in the regulation and management of petroleum products in Kenya (ERC, 2017).

The oil and gas distribution firms in Kenya are broadly categorized into up-stream, mid-stream and down-stream divisions and are organized along the direction of the stream. The upstream activities primarily involve the process of exploration, development and production of crude oil and natural gas. Oil and gas exploration in Kenya began in 1965 and through Tullow Oil, a United Kingdom based firm, two oil wells at South Lokichar Basin in Turkana County were successfully discovered in 2012 (PIEA, 2018). According to the Petroleum Institute of East Africa (PIEA, 2018), Kenya boasted of 74 oil wells with 12 hydrocarbons by 2013.

However, it is only in June 2018 that the commercial flow and transfer of crude oil to the Kenya Petroleum Refineries Limited (KPRL) in Changamwe Mombasa by road commenced. Additionally, in 2012, natural gas was found in Lamu Island, situated about 341 kilometers North East of Mombasa, but unfortunately it was not commercially viable (PIEA, 2018). The midstream segment involves the refining, storage and transportation of the crude oil. The Kenya Petroleum Refineries Limited (KPRL) and the Kenya Pipeline Company (KPC) supports in refining, storage and transportation of the oil and gas products (PIEA, 2018).

The downstream segment involves marketing and distribution of the oil and gas products to the final consumer by means of supply and distribution channels such as petrol stations retail outlets and a few designated industries (PIEA, 2018). This research study concentrated on the downstream segment where a majority of the oil and gas distribution firms are categorized and classified.

Ownership of the active retail stations network consist of 73% by multinationals, 19% by independent Oil Marketing Companies (OMCs) and 8% by the National Oil Corporation of Kenya (NOCK). The local and global outsourcing future demands and trends in the oil and gas distribution sector is propelled by business demand to minimize and spread operational risk through offshoring to multiple suppliers and locations as opposed to single suppliers and singular locations (Tholons, 2007).

1.2 Research Problem

Business process outsourcing has emerged as a viable business competitive option that enables firms to maximize on the outsourcing benefits to improve firm performance (Brown & Wilson, 2012). Arguments based on existing theories such as Theory of Constraints and the Dynamic Capabilities Theory argue that firms' resources and capabilities vary significantly hence the need for adopting various operational efficiencies and outsourcing strategies to improve the weakest chains in business structures to improve firm performance (Buckley, 2016).

The context of this study was the petroleum industry in Kenya with a focus on business process outsourcing in the oil and gas distributions firms. The petroleum industry in Kenya is largely oligopolistic with over 71.9 % of the market share controlled by five (5) major firms namely: Vivo Energy Limited 17.6%, Kenol/Kobil 16.5 %, Total Kenya Limited 15.9 %, Oil Libya 7.7% and NOCK 4.9% (PIEA, 2018). The oil and gas distribution sector has played a significant role in Kenya's socio-economic development as it accounts for about 80% of the country's commercial energy requirements (ERC, 2017).

The liberalization of the petroleum sector in Kenya in 1994 involuntary forced several multinational firms such as Esso Limited, Mobil Limited, Caltex Limited, Beyond Petroleum (BP) and Agip Limited to prematurely exit the market. Sambu (2010) identified reduced profit margins, negative returns, an inadequate and unreliable infrastructure distribution system that was unable to meet local and regional supply chain and market demands as the main reasons for exiting the market.

Furthermore, high technical and allocative operational inefficiencies in the supply chain distribution continue to negatively impact performance of oil and gas distribution firms (Fare, Grosskopf & Lovell, 1994). For the remaining oil and gas distribution firms to survive in a dynamic environment the firms may have to strategize and adopt various outsourcing strategies and operational efficiencies especially at the market level to achieve success and improve firm performance (Usman & Zahid, 2011).

Empirical literature identified the existence of a strong link between business process outsourcing, operational efficiency, firm characteristics and firm performance in the oil and gas distribution firms (Bharadwaj, Saxena & Halemane, 2010). The results from these studies indicated that oil and gas distribution firms employed best outsourcing strategies and practices such as better utilization of technology and innovation infrastructure to increase operational efficiency leading to improved firm performance (McCormack, Johnson & Walker, 2003; Lacity & Willcoks, 2013). Recent research studies have further linked business process outsourcing, operational efficiency, firm characteristics and firm performance to better understand the drivers of success (Goldratt, 1990; Mella & Pellicelli, 2012).

On the other hand, Abdul-Halim and Chetta (2009) and Kotabe and Mol (2009) identified a negative or no clear relationship existing between BPO and performance suggesting the relationship was negatively curvilinear in nature. The lack of consensus from the previous studies roused the researcher's interest to determine the nature of the relationship between BPO and performance. Operational efficiency which identified gaps in firm operational efficiency was recognized to have a possible intervening effect on the relationship between BPO and performance (Kale, Meneghetti & Shahrur, 2013).

Additionally, the relationship between BPO and performance is moderated by firm characteristics (Berman, Wicks, Kotha & Jones, 2012). Awino and Mutua (2013) census study focused on strategy, firm characteristics, BPO and performance of Kenyan state corporations and opined that all State corporations outsource leading to improved firm performance. However, gaps in the study indicated that all the data gathered was from state corporations and may not have provided an exhaustive opinion of various service providers whose opinion may have been key to the study.

Arvanitis and Loukis (2012) comparative study focused on outsourcing and firm performance of Swiss and Greek firms and concluded that outsourcing enhances innovation performance. However, the study did not account for the negative or weak relationship impacting productivity and operational efficiency. The gap in knowledge as to whether BPO impacts firm's performance resulted in further research to establish the nature and impact of this influence.

Rajasekar, Ashraf and Deo (2014) using a data envelopment data analysis approach focused on the evaluation of operational efficiency in selected major ports in India during the period 1993 to 2011. Though the research study was successful in determining that operational efficiency leads to better firm performance, it was difficult to ascertain how port structure and size firm characteristics play an intervening role in the relationship.

Khaki and Rashidi (2012) cross sectional survey, examined outsourcing and its impact on operational objectives and performance of Iranian telecommunications industries. The study indicated the existence of a positive relationship between business process outsourcing and operational efficiency in terms of cost reduction, quality control and customer service. Further studies are required to understand the extent of success of both financial and non-financial performance a gap this research study will try to address.

Kenani (2013) cross sectional survey study focused on operational efficiency and performance of BPO activities in cement manufacturing firms in Kenya. The study noted that BPO has a positive impact on operational and supply chain effectiveness improving firm performance. On the other hand, the study was limited as to how firm characteristics may impact BPO and performance a gap this study would try to research on.

Machana (2014) cross sectional study focused on outsourcing and operational performance on major petroleum marketing firms in Kenya and concluded that outsourcing increased a firm's competiveness through accessing modern technology and expertise enabling the firm to focus on core competencies. However, the study was unable to account for employees and manager's behavioral characteristics and attitudes.

The inconsistencies cited in these studies suggested a gap in knowledge as to how various firm characteristics may impact BPO which this study tried to explore. Moturi (2015) cross sectional survey research focused on the application of the Balance Score Card (BSC) on the performance of ICT outsourcing firms in 14 commercial banks in Kenya and noted a positive influence of BPO on performance. However, the influence of firm characteristics and operational efficiency proved difficult to ascertain, a gap that informs this study. An integrative perspective of the joint influence of BPO, operational efficiency, firm characteristics and performance was examined in this study. Challenges brought about by depicting performance as an independent variable was identified as a useful area to explore and aroused the researcher's interest.

Firm's characteristics and operational efficiency pivotal roles in influencing performance have been documented in developed countries in North America, Europe and Japan. However, very few studies have been carried out in developing countries (Kim, Lee, Park & Kim, 1999). A balanced assessment of the firm's characteristics and operational efficiency factors affecting performance in a developing country such as Kenya have been considered in this study.

The various comments cited in the findings of these early studies advised a gap in knowledge as to whether and how BPO positively impacts performance. Knowledge of the intervening and moderating factors likely to influence the relationship between BPO and performance has continued to remain open to question. Previous studies have focused more on direct relationships producing mixed results which required to be further investigated in the context of this study.

An integrative joint influence of BPO, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya was worth investigating. In light of the developments in the outsourcing industry, what influence does operational efficiency and firm characteristics have on the relationship between BPO and performance of oil and gas distribution firms in Kenya?

1.3 Research Objectives

The broad objective of this study was to determine the influence of operational efficiency and firm characteristics on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya. The specific objectives of the study included:

a) To determine the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.

b) To establish the influence of operational efficiency on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.

c) To ascertain the influence of firm characteristics on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.

d) To establish the joint effect of business process outsourcing, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya.

1.4 Value of the Study

Firstly, this study is aimed at theory building and will add value to the Theory of Constraints (Goldratt, 1990), The Dynamic Capabilities Theory (Teece, Pisano & Shuen, 2008) and Transaction Cost Economics Theory (Calantone & Stanko, 2007) in endorsing or negating the authors propositions in explaining the key study variables. The findings of this study aims at provoking researcher's thoughts on how to apply the various concepts under the study. The findings will further present a unique opportunity for extended research and exploration of new theories in outsourcing relationships to better understand the benefits for service providers in joint strategic partnerships.

Secondly, the findings of this study will be important to various key policy stakeholders in the oil and gas distribution industry who include but not limited to the Ministry of Energy and Petroleum, The Energy Regulatory Commission (ERC), The Communications Authority of Kenya (CA) and The Petroleum Institute of East Africa (PIEA) professional group. The stakeholders will find this study useful for developing policies and regulations to discharge obligations as stipulated in the Petroleum Exploration, Development and Production Bill, 2015 and The Energy Act, 2006.

The study will provide guidance as to which services can be outsourced to enhance firm performance and maximize shareholder returns in order to enhance Kenya's development and economic growth in alignment with the country's vision 2030. The policy holders will be able to develop strategies that will reform the oil and gas distribution industry ensuring Kenya is globally competitive in conducting business and engaging in advocacy that promotes economic growth.

In particular the Communication Authority of Kenya (CA) will find this study useful for purposes of coming up with policies and regulations that would help the BPO industry to better evaluate, control, monitor and implement strategies. The Communication Authority of Kenya will ensure that business process outsourcing players discharged obligations as stipulated in licenses and in keeping with the provisions of the Kenya Communications Act 1998 and the Kenya Communications Regulations. 2001.

Lastly, the findings of this study were envisaged to be informative to scholars, researchers and top leaders in the areas of business process outsourcing, operational efficiency, firm characteristics and performance. The findings and recommendations would be useful to outsourcing industry practitioners in enhancing outsourcing and operational efficiency initiatives by creating and enhancing competitive advantage and superior performance for firms. The findings will also help scholars in explaining the concept of business process outsourcing in the Kenyan context and environment and further contribute towards filling the gap on lack of local studies about business process outsourcing in Kenya.

1.5 Outline of the Thesis

The research study in chapter one examined in multiple perspectives the background and concept of business process outsourcing, operational efficiency, firm characteristics and firm performance. The global perspective of business process outsourcing and an overview of the oil and gas distribution industry in Kenya has been discussed. The research problem, research objectives as well as the value of the study concludes the chapter.

Chapter two chapter reviews the theoretical and empirical literature relating to linkages among the major variables of the study. Theories guiding the study are discussed. The chapter also reviews the literature on the key study variables. The review points out the existing gaps in knowledge in both the direct and indirect linkage. Finally, the chapter sets out the conceptual framework and conceptual hypotheses of the study.

Chapter three identifies and discusses the philosophical orientation of the study, the research design and the population the study. This chapter discusses data collection technique, tests of reliability and validity and highlights the operationalization of research variables. Finally, this chapter presents data diagnostics and tests of hypotheses.

Data analysis and findings of the research variables are discussed in chapter four. Response rate, tests of reliability and validity, tests of statistical assumptions, tests of normality, multicollinearity, homoscedasticity and linearity are presented in the initial part of the chapter. This is followed by organizational demographic profiles and manifestations of the study variables.

Chapter five presents the results of the tests of hypotheses by initially discussing the four research objectives and four corresponding hypotheses which were tested using simple, Path analysis, Hierarchical and Multiple regressions to establish the statistical significance of these hypotheses. A detailed discussion on the study findings relating to each variable is presented and concludes the chapter. Finally, the summary, conclusion, recommendations, limitations of the study and suggestions for further research are presented in chapter six.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews key pertinent literature related to business process outsourcing identified as the independent variable, operational efficiency as an intervening variable, firm characteristics as a moderating variable and firm performance as the dependent variable. The key focus of the literature review is on the influence of operational efficiency and firm characteristic on the relationship between BPO and firm performance.

The key theory used in this study is the Theory of Constraints supplemented by the Dynamic Capabilities Theory and the Transaction Cost Economics Theory which provides the basis on which the various study variables are investigated and impact of the various relationship between variables identified. The variable factors viewed to impact the relationship between business process outsourcing and performance are presented.

The chapter concludes with a summary of the literature review and knowledge gaps presented in a table format. A summary of the conceptual framework and generation of research hypotheses is developed from the study. The hypotheses guided the researcher to examine the outcome of the relationships of concepts as informed by the literature review.

2.2 Theoretical Foundation

This study highlighted three key theories related to outsourcing. The anchoring theory in this study was the Theory of Constraints, supplemented by the Dynamic Capabilities Theory and the Transaction Cost Economics Theory. Theory of Constraints is a management philosophy that asserts how firms may strategically and continuously improves the efficiency of processes and operations thus, strongly influencing firm performance (Goldratt, 1990). The underlying assumption of the Theory of Constraints is that firm's productivity may be organized and measured by variations of three measures which include operating expense, inventory and output (Gupta & Boyd, 2008).

The Theory of Constraints is complemented by the Dynamic Capabilities Theory (Teece, Pisano & Shuen, 2008) which states that a firm's capacity to create, extend or modify its resources by acquiring the right firm characteristics improves performance. The authors state that a firms resources are firm specific, may not be imitated and are difficult to transfer among firms. Due to this challenge, firm managers are therefore encouraged to build and reconfigure internal and external strategies and operational efficiencies to adapt to rapidly changing competitive environments (Winter, 2003).

The Transaction Cost Economics Theory postulates that outsourcing choices and firm transactional costs are driven by economic factors aimed at improving firm performance (Calantone & Stanko, 2007). In view of the various forms of economic exchanges such as production of good and services and long term contractual relations, the Transaction Cost Economics Theory seeks to provide explanations regarding sustainability and profitability.

2.2.1 Theory of Constraints

Theory of Constraints (TOC) was developed by Goldratt (1990) in the mid 1980's with the aim of managing performance through ongoing improvement (Motwani, Klein & Harowitz, 1996). Umble and Spoede (1991) define the Theory of Constraints as a framework that guides in the identification of constraints through a process of focusing limited time and resources for maximum returns and further assert that a constraint is anything that limits a firm's higher performance.

Gupta and Boyd (2008) observed that the Theory of Constraints views a firm as a network of interdependent processes where a variety of resources are transformed into products and services referred to as output. However, since the firm's inputs and resources are limited, it is critical that only key processes are targeted for maximum returns. To maintain efficient operations that may lead to improved performance, firms need to identity and eliminate constraints by focusing on the weakest link of the value chain (Motwani, Klein & Harowitz, 1996).

The successful application of the Theory of Constraints is in the manufacturing process outsourcing (Librelato, Lacerda, Rodrigues & Veit, 2014) and BPO service industry. The operational efficiency variable relates to the Theory of Constraints, as suitable application may help firms eliminate constrains leading to improved quality and production timelines, enhanced flexibility and customer satisfaction and increase cost savings (Gupta & Boyd, 2008). However, Elsis (2011) argued that the Theory of Constraint is overrated in both the manufacturing and service industries and further research was needed to measure verifiable outputs during the outsourcing process.

In addition, a major challenge in the application of the Theory of Constraints is that the theory work best in the present time unless the short-term effects remain up-to-date for a longer time frame (Librelato, Lacerda, Rodrigues & Veit, 2014). On occasion, a firm will find it challenging to identify a constraint leading to wastage of resources such as time and money on issues that are not critical to the firm success (Gupta & Boyd, 2008).

2.2.2 The Dynamic Capabilities Theory

The Dynamic Capabilities Theory (Teece, Pisano & Shuen, 2008) refers to the capacity of a firm to purposefully create, extend, or modify its resources and acquire the right firm characteristics to perform in a systematic way, improve firm performance and sustain a competitive advantage in a rapidly changing environment. Business process outsourcing builds from the proposition that when a firm lacks strategic resources or certain capabilities, the firm may work in partnership with an external provider through an outsourcing or partnership relations (Franceschini, Galetto, Pignatelli & Varetto, 2003).

The partnership relations are often based on trust and dependence to replace price driven adversarial relations. The Dynamic Capabilities Theory attempts to deal with issues of essential firm characteristics or attributes such as ownership structure, firm age and size, capital structure and liquidity levels and number of employees that a firm may need to achieve goals, ensure competitive survival and improve on firm performance (Helper & Sako, 1995). The Dynamic Capabilities Theory has been used to explain the outsourcing preparation phase and vendor selection phase of the business process outsourcing (Teece, Pisano & Shuen, 2008).

The outsourcing preparation phase and vendor selection phase of business process outsourcing is where key decisions on strategies and operational efficiency are effected, core competencies developed, business functions outsourced and contract relationship created to improve firm performance. The adoption of the Dynamic Capabilities Theory in this study is informed by the fact that firms may adopt suitable operational efficiencies and engage essential firm level factor characteristics to improve firm performance and ensure competitive survival (Franceschini, Galetto, Pignatelli & Varetto, 2003).

Although the Dynamic Capabilities theory has contributed immensely to the field of strategic management and specifically the concept of competitive advantage, scholarly debates are still predominant regarding the challenges and uncertainty of the approach (Winter, 2003; Teece, Pisano & Shuen, 2008). Discussions regarding the Dynamic Capabilities Theory approach posit that although capabilities may be valuable and dynamic, it may not always be a source for sustainable competitive advantage.

2.2.3 Transaction Cost Economics

The Transactional Cost Economics Theory (TCE) was pioneered by Coase, an economist, whose philosophies and concepts about transaction costs revolutionized major firms in the 1970s (Coase, 1960). According to Coase (1960), transaction costs maybe equal to exchange costs in open markets and that in a perfectly competitive market environment, external outsourcing maybe more effective that in sourcing. In a BPO set up, transactional costs may refer to the costs of monitoring mechanisms to prevent opportunistic behavior from service provides.

Calantone and Stanko (2007) discussed Transaction Cost Economics Theory and recognized four categories of costs namely; adaptation, safeguarding, measurement and transaction costs which may be considered in a client – service provider outsourcing relationship. Outsourcing of a firm's non-core operations to an external service provider may be deemed to lower production and coordination costs. (Abdul-Halim & Chetta, 2009; Fill & Visser, 2000). However, the transactional cost sometimes become high due to the management of service providers and shared risks.

Transactional Economics Theory directs that functions that are not firm specific such as logistics and distribution, finance and tax, human resources, ICT services and procurement and supply chain management should be outsourced (Furubotn, 2001). A firm's decision to outsource its processes may exclusively be based on the rationale to protect the firm value and may be implemented when the transactional costs outweigh the management costs of conducting the activity in-house. The application of the TCE in BPO is in the vendor selection phase and contract preparation stage where it is critical to benchmark the internal and external service providers to determine performance levels relative to competitors and suppliers (Calantone & Stanko, 2007).

The Transaction Cost Economics Theory (TCE) is stated to manage outsourcing both directly and indirectly as it deals with firm boundaries, history of outsourcing and potential outcomes of outsourcing (Lau & Zhang, 2006). According to the TCE, when asset specificity is low, and transactions are relatively frequent, transactions may be governed by outsourcing. In other words, higher levels of asset specificity would lead to a lower amount of the core business being outsourced (Abdul-Halim & Chetta, 2009).

Despite the benefits of the Transaction Cost Economics Theory, criticism levelled against the theory emanate from unresolved issues and weak spots in the Transaction Cost Economics Theory concept (Jiang, Juanjuan, Le & Jing, 2017). Librelato, Lacerda, Rodrigues and Veit (2014) argue that the concept of Transaction Cost Economics Theory overstates cost minimization while understating cost savings transactions to the firms. The Transaction Cost Economics Theory also disregards the role of social networks critical between transaction partners such as the client and service provider (Furubotn, 2001).

The Theory of Constraints, the Dynamic Capabilities Theory and the Transaction Cost Economics Theory brings about the relational and partnership view that draws from the three mentioned theories. However, out of the three theories discussed, the Theory of Constraints emanated as dominant and best informs this research study. The Theory of Constraints is an intuitive model that recognizes every system in a firm may have least one constraint that may limit performance and therefore the need for management to improve on the strategies and operational process inefficiencies of the firm that affect performance (Librelato, Lacerda, Rodrigues & Veit, 2014).

2.3 Strategic Management in Organizations

In recent years, organizations have witnessed an increase in global business competition, changing policy and technological innovations. This has driven the various competitive strategies adopted allowing the organizations to remain relevant and outperform competitors in various environmental conditions (Johnson, Scholes & Whittington, 2008).

According to Pearce and Robinson (2011), strategic management is the process of formulating and implementing of strategy which further guide's resource utilization to accomplish long term goals with sustainable competitive advantage. Aosa (2000) states that the formulation and implementation of strategies can lead to corporate success. Chandler (1962) in his key contribution to strategy and competitive advantage, stated that the choice of organizational structure is determined by the firm's strategy.

Andrews (1971) advanced the concept of formulating and implementing of corporate strategy in organizations based on the complete combinations of environmental conditions, trends, opportunities and risks. Ansoff and McDonnell (1990) stated the importance of an organization effectively matching the level of environmental turbulence and its increasing unpredictability and complexity with the company strategy.

Porter (1980) discussed the concept of generic competitive strategies in organizations and established that competitive strategy is influenced by industry attractiveness and competitive positioning. Porter (1980) further suggested that an organization's key strengths may fall into one of two categories; that is either the cost advantage or differentiation strategy. When these strengths are related in either a broad or narrow scope, three generic strategies of cost leadership, differentiation as well as focus will result enabling the firm to sustain a competitive advantage.

Harmel and Prahalad (1989) assert that strategy is influenced by firm's resources and capabilities. In addition, when firms have similar resources, it is likely the same strategy will be pursued resulting in diminished competitive advantage. However, when firms develop significant resource and capability differences, competitive advantages develops. Johnson, Scholes and Whittington (2008) confirmed that strategies vary in degree of formality and that strategy may be turned into action at the corporate level, business or functional level depending on the complexity of the organization.

Due the linkage of the world economies and an increase in global competition through trade, manufacturing sourcing, technology, global markets and customers, the past decade has seen the emergence of a global and political economy, an increase in multinational corporations and business ventures embracing outsourcing (Wheleen & Hunger, 2005). Various corporate strategies have best informed firm's decisions to outsource some or all of core and non-core activities.

The turnaround strategy is generally a corporate strategy option which underscores the improvement of operational efficiencies in a firm. Johnson, Scholes and Whittington, (2008) points that the turnaround strategy is best suited for diversified organizations with ailing subsidiaries affected by large financial losses, lower return on investment and huge debts resulting in loss of market share. Wheleen and Hunger (2005) further argued that the turnaround strategy, targets the restoration of loss making organizations back to profitability as a result of long term poor performance generally considered strategic and entrepreneurial.

However, Barker and Duhaime (1997) posit that despite the foreseen benefits of the turnaround strategy, sometimes the level of resources deployed and resistance to change by employees may negatively impact its success and challenge the key gains. In addition, the turnaround strategy may fail to achieve the set objectives due to focusing on longer term firm strategies without addressing short term challenges. Boyne (2004) investigated the advantages of the turnaround strategy and found ambiguous and unclear results.

Mergers and acquisition is another corporate strategic option that occurs when firms wish to increase in economic scale, scope and synergy to capture a wider market share due to industry saturation (Meglio & Risberg, 2011). Mergers and acquisition involve various activities such as strategic alliances and joint ventures. However, synergy which is a key motivator of mergers and acquisition may tend to be overestimated resulting in acquisition failure factors (Wheleen & Hunger, 2005).

Total Quality Management (TQM) is focused in lowering firms cost through activities such as managing people and satisfying the customers (Kaynak, 2003). It is a high-level strategy that includes customers and supply chain focusing on learning and adaptations to changes that are deemed progressive to organizational success. A well utilized TQM system plays an essential role in fostering performance and productivity. This implies that the organizational survival depends on quality practices that are essential.

The practices of TQM include learning organization commitment for leadership and top management, employee training, teamwork and employee commitment, role of the quality department, incremental improvement, consumer emphasis, innovation analysis, quality focus and information and analysis and quality management of supplier (Mohrman, Tenkasi, Lawler & Ledford, 1995).

Diversification strategy calls for new ways of doing things including; new skills, facilities, and technologies that leads to changes in structure of an organization (Ansoff & McDonnell, 1990). This further involves entry of the organization into new business line by either developing a business internally or even by acquisition which may result to changes in the management structure, systems and other processes.

The diversification strategy is pursued by firms due to various value creating reasons that include benefiting from operational efficiency through application of existing resources and other organizational capabilities to new markets to maintain a firm competitiveness (Johnson, Scholes & Whittington, 2008). Nayyar (1995) observed that through diversification, firms are able to improve profitability due to better utilization of resources. In diversification, companies seek to apply corporate managerial capabilities to new markets, products as well as services.

Peters and Waterman (1982) formulated eight attributes of excellence that may increase organizational performance through observing America's most successful companies. The attributes include; a bias for action, staying close to the customer, autonomy and entrepreneurship, productivity through people, a hand on value driven management philosophy guiding practice, simple form lean staff and simultaneous loose tight properties. The last attribute was sticking to the knitting which encouraged firms to focus on its core competencies an outsource services it does not seem critical. These provides the management time to develop the core business and build primary resources.

Business process outsourcing corporate strategy is mostly viewed as an alternative to vertical integration where a firm may be producing or disposing of its own products and services (Aron & Singh, 2005). Business process outsourcing has become progressively universal over the past decade resulting in a more globalized, integrated, interdependent and competitive world economy. This study is focused on business process outsourcing and the main drivers that have propelled various firms to adopt it as a corporate strategy.

2.4 Business Process Outsourcing Strategy

Quinn and Hilmer (1994) suggested that Business process Outsourcing (BPO) has become a key strategic initiative and an operational cost cutting mechanism enabling firms to gain competitive advantage and improve firm performance. Business process outsourcing is a business strategy in which a firm delegates some of its core operations and processes to a third party while keeping ownership of the whole underlying process, product or service (Aron & Singh, 2005). Kotler (2003) established that BPO may be imposed by firms through processes and policies and has seen an increase of firms engaging third parties to provide almost all services.

Many appealing arguments offered in support of BPO indicate that outsourcing is a means of achieving competitive advantage and improving operational efficiencies to improve performance (Rasheed & Gilley, 2005). Outsourcing has benefited firms in terms of improved brand awareness, enhanced value added services and boosted customer focus through supplier specialist knowledge in various business processes, (Aron & Sign, 2005; Tas & Sunder, 2014).

Despite the great achievements gained from outsourcing, a few empirical discussions have indicated potential obstacles in outsourcing gains and indicate glaring inconsistencies in research work. Butler, Henderson and Raiborn (2011) argue that BPO may lead to loss of control of firms own innovation and technology, decreased product and service quality standards, increased long term unforeseen contractual and transaction costs and loss of organizational trust between employer and employee relationship (Lanford & Parsa, 1999).

Beaumont and Sohal (2004) examined a wide range of costs and risks in various outsourcing partnerships but opined that the critical ones include; lack of supplier due diligence assessment, quality failure during delivery, lack of intellectual property protection and negative impact on brand name. This study proposes that despite the unforeseen challenges, gains from outsourcing a business process outweighs the risks and adds a lot of value from the corporate strategy leading to improved firm performance.

2.5 Business Process Outsourcing and Firm Performance

Empirical studies on the outcome of outsourcing and especially its effects on firm performance are scarce, however an increasing number of scholars have started recognizing the central role business process outsourcing plays in improving firm performance (Fill & Visser, 2000). Giustiniano and Clarioni (2013) study on the impact of outsourcing on business performance demonstrated that outsourcing may contribute to a firm's sustainable competitive advantage.

Research reveals outsourcing implementation improves internal coordination of business processes and enhances both short and long term financial and non-financial performance (McCormack, Johnson & Walker, 2003). Other authors (Dyer & Sign, 1998) contends that firms should venture into an outsourcing partnership when the client – service provider relationship is beneficial to the sharing of knowledge, capabilities and risks. However, some authors (Abdul-Halim & Chetta, 2009) are against the foreseen positive impacts of outsourcing on performance.

Despite the challenges of verifiable business process outsourcing gains, Abdul-Halim and Chetta (2009) concur that even dramatic levels of outsourcing improvements may not translate into better firm performance. However, substantial evidence of the strong and positive impact of outsourcing on firm performance exists (McCormack, Johnson & Walker, 2003). Tas and Sunder (2014) confirmed that the more outsourced processes a firm has, the better its performance. This study therefore proposes that business process outsourcing positively influences firm performance.

2.6 Business Process Outsourcing, Operational Efficiency and Firm Performance

Operational efficiencies are stated to be advantageous to firms engaged in outsourcing through the improved timeliness and flexibility in delivery of products and services, increased customer satisfaction, improved quality of products and services, increased costs savings and capabilities and gaining of competitive advantage (Kale, Meneghetti & Shahrur 2013).

Several operational efficiency factors influence firm performance. Kijjambu (2015) investigated various operational factors responsible for financial performance of all domestic licensed commercial banks in Uganda during the period 2000 to 2011. The factors were analyzed in the light of structure–conduct performance and efficiency hypothesis. The study demonstrated that management efficiency, asset quality, capital adequacy and inflation factors affected the performance of domestic commercial banks.

Omondi and Muturi (2013) examined the factors affecting the financial performance of listed companies at the Nairobi Securities Exchange (NSE) in Kenya. The study adopted an explanatory research design using the Purposive sampling technique to research twenty-nine (29) listed firms which have consistently been operating at the NSE during the period 2006 to 2012. The study provided some precursory evidence that operational efficiency, capital structure, liquidity, firm size and firm age play an important role in improving firm's financial performance.

Mutunga, Minja and Gachanja (2014) study sought to identify the effects of human capital innovative adaptation and operational efficiency within the food and beverage firms in Kenya. The study indicated that executive and management capabilities and dynamic operational efficiency at innovation are critical success factors in gaining a sustainable competitive advantage. The alignment between business process outsourcing, operational efficiency and performance is critical in the outsourcing process hence the need to develop strategic outsourcing, its future core capabilities, firm structure and competitive position adjusting these to the long-term firm strategy (Dess, Lumpkin, Eisner & McNamara, 2013).

Recent operation efficiency studies have proposed methods of improving cost effectiveness and make or outsource decisions alternatives to better understand impact of outsourcing on operational efficiency and performance (Sufian, 2007). However, Lysons and Farrington (2006) opine that despite the many advantages of BPO, outsourcing faces various strategic challenges such as reduced firm's control and coordination over its products and services impacting operational efficiency attributes of quality and timely delivery of products and services raising the firm's liability.

Other authors who oppose outsourcing state that outsourcing bears the loss of operational efficiencies and competitive advantage creating future competition (Haizer & Render, 2011). The other associated risks with outsourcing include complexity in management of contracts between the client and supplier, loss of control of processes, poor environmental and governance adherence and inconsistent communication which may lead to lack of visibility on critical projects (Mohiuddin & Su, 2013).

Dess, Lumpkin, Eisner and McNamara (2013) and Buckley (2016) examined the relationship between BPO, operational efficiency and firm performance and established that operational efficiency has an intervening relationship between BPO and firm performance. Operational efficiency may lead to increased speed and responsiveness to customer complaints due to an improved customer feedback system, improved quality of products and services and increased costs savings (Santa, Ferrer, Bretherton & Hyland, 2010). This study therefore proposes that operational efficiency has a significant influence on the relationship between business process outsourcing and performance.

2.7 Business Process Outsourcing, Firm Characteristics and Firm Performance

Various studies have been carried out on business process outsourcing, firm characteristics and performance either directly or indirectly. For instance Kiganane, Bwisa and Kihoro (2012) conducted a study on assessing the moderating influence of firm characteristics on the effect of mobile phone services on firm performance in Thika town in Kenya. The study adopted an exploratory design where a total of one hundred and twenty (120) questionnaires were self- administered yielding a response rate of 100%. The results revealed that firm characteristics may have no statistical significant influence on the effect of mobile phone services on firm performance.

Kaguri (2013) investigated the moderating effect of firm characteristics such as firm size, firm age, diversification, leverage, liquidity, premium growth and claim experience on financial performance of seventeen (17) life insurance companies in Kenya over the period 2008 to 2012. The study findings confirmed that the variables significantly influenced premium growth and financial performance of life insurance companies as indicated by the positive and strong Pearson correlation coefficients.

Mahfoudh (2013) studied the effects of selected firm characteristics namely; firm size, firm age, leverage, liquidity and board size on firm financial performance as measured by return on assets on seven (7) agricultural firms listed at the Nairobi Securities Exchange over the period of 2007 to 2012. The researcher selected six out of the seven listed firms due to inaccessibility of the seventh firm. Correlational research design was used in an attempt to examine the effects of firm characteristics on firm financial performance.

The study demonstrated that only liquidity and board size were statistically significant while firm size, firm age and leverage were not significant. Firm size, firm age, leverage, and liquidity were positively related to firm financial performance while board size was negatively related to firm financial performance. Ahmed, Zeng, Sinha, Flavell and Massoumi (2011) investigated the moderating impact of firm level characteristics on the performance of the life insurance sector in Pakistan over the period of seven years from 2001 to 2007. Regression analysis results revealed that leverage is negatively and significantly related to the performance of life insurance companies.

A study by Ahmed et al., (2011) established that firm size is positively and significantly related to the performance of life insurance companies. This indicates that performance of the large size life insurance companies is better than the performance of small sized life insurance firms. According to this study, tangibility of assets and liquidity may also have a positive relation to performance of life insurance companies but were statistically insignificant.

Njoroge (2014) conducted a study on the effect of firm size on financial performance of pension schemes in Kenya using the descriptive research design methodology. The study recommended that the Retirements Benefits Authority (RBA) should ensure that all schemes, particularly those with segregated investments, have up to date investment policies and that the strategic asset allocation is included within the investment policy. Furthermore, Njoroge (2014) suggested that the RBA may need to institute a compulsory saving scheme for all in employment, and the introduction of a flexible scheme for those in the informal sector, who may make periodic payments.

Rajan and Zingales (1995) theorized that large firms that had been in the industry for some time with a well-diversified portfolio, enjoyed higher credit ratings for debt, paid lower interest rates for borrowed funds and were financially stable. Bathala, Moon and Rao (1994) categorized debt financing sources into either private source from banks and credit unions or public source from the state or federal government. Almajali, Alamrao and Al-Soub (2012) observed that firm liquidity may have a significant effect on financial performance of firms.

Liquidity is essential for a firm existence and principally influences financial costs reduction or growth, changes in the sales dynamic, as well as firm risk level. The decisive significance of liquidity means that it is important for firm development and it is one of the most fundamental endogenous factors responsible for firm market position. Bhunia (2010) acknowledged the key significance of liquidity to firm performance as it determines the profitability level of a firm.

Vishnani and Bhupesh (2007) affirmed that the most common measures of liquidity are the current ratio and return on investment for profitability. The current ratio is used to test a firm's liquidity, that is, the current or working capital position by deriving the proportion of the firm's current assets available to cover its current liability. A higher current ratio indicates a larger investment in current assets which means, a low rate of return on investment for the firm. (Bathala, Moon & Rao, 1994). However, there is consensus in theoretical literatures that the higher the ratio, the better the firm's performance (Naceur & Goaied, 2008; Bhunia, 2010).

The degree of financial risk is related to the firm's capital structure. The total combination of common equity, preferred stock and short and long-term liabilities is referred to as financial structure. That is, the manner in which the firm finances its assets constitutes its financial structure. If short-term liabilities are subtracted from the firm's financial structure, we obtain its capital structure (Naceur & Goaied, 2008).

Berman, Wicks, Kotha and Jones (2012) examined the relationship between stakeholder management and firm financial performance and pointed out that fostering positive connections with customers and service providers enforces firm characteristics improving profitability and firm performance. Ganguli (2013), identified firm characteristics aspects such as firm ownership structure, firm age and size, capital structure and firm liquidity level and number of employees as having a direct impact on firm performance.

Firm's capital and ownership structure decisions are key aspects of firm characteristics and both play a key role in influencing firm performance decisions such as outsourcing firm activities that are considered high risk for maximum returns (Glen & Pinto, 1998; Bernard, Redding & Schott, 2011). When considering a firm's age and size characteristics, a mature firm that is relatively large is size may experiences less financial and liquidity constraints and few barriers to growth as opposed to newer and small sized firms that are sensitive to financial and liquidity constraints (Cho & Pucik, 2005).

McConnell and Servaes (1990) presented additional evidence on how the growth of the firm may have an impact on the relationship between capital structure, ownership structure and firm performance. Abor (2007) opined that various capital structure measures such as short term debt, long term debt and total debt may impact firms' profitability negatively affecting firm performance.

In addition, liquidity has a significant effect on leverage but the former may have a positive or negative effect on the capital structure decision thus, the net effect is unknown (Abor, 2007). Liargovas and Skandalis (2008) suggest that a firm may use liquid assets to finance activities and investments when external finance is not available. On the other hand, higher liquidity may allow a firm to deal with unexpected contingencies and cope with various obligations during periods of low earnings.

Almajali, Alamrao and Al-Soub (2012) found that firm liquidity may have a significant effect on financial performance of insurance companies. The findings suggested that the insurance companies may increase the current assets and decrease current liabilities because of the positive relationship between the liquidity and financial performance. In this study, Firm characteristics as a moderating variable is considered to influence the strength of the relationship between the independent variable, business process outsourcing and the dependent variable performance (Berman, Wicks, Kotha & Jones, 2012).

In research, moderation occurs when the effect of an independent variable on a dependent variable varies according to the level of a third variable, termed a moderator variable, which interacts with the independent variable (Sunders, Lewis & Thornhill, 2016). Therefore, this study proposes that firm characteristics may have a significant moderating influence on the relationship between business process outsourcing and performance (Golan, Krissof, Kuchler, Nelson, Price & Calvin, 2015).

2.8 Business Process Outsourcing, Operational Efficiency, Firm Characteristics and Firm Performance

Firms encompass limited and valued firm factors capabilities that are essential to every organizations survival. Carton and Hofer (2010) stated that the joint relationship between BPO, operational efficiency, firm characteristics and performance may best be analyzed using the situational approach. This approach is of the view that the determinants that affect firms are uniquely different and therefore there is no one general applicable way that the variables may be studied and managed (Cho & Pucik, 2005).

BPO's influence on performance is evidenced by the large number of firms using outsourcing to control overhead costs and eliminate operational inefficiencies (Lyson & Farriangton, 2006). Despite considerable growth of BPO, there is very little knowledge about firm level characteristics that facilitate BPO and are key to influencing performance (Abdul-Halim & Chetta, 2009; Manning, Larsen & Bharati, 2015). Currie and Willcocks (2014) suggested that the more firm level characteristics are shared in outsourcing, the greater is the potential for improving operational efficiencies and firm performance.

In conclusion, Kaplan and Norton (2008) stated that outsourcing may have a positive impact on operational efficiency, firm characteristics and performance. In addition, a firm's operational efficiency may have a significant intervening influence on BPO and subsequent performance while firm characteristics may have a moderating influence between BPO and performance (Ganguli, 2013). Therefore, this study proposes that the joint effect of business process outsourcing, operational efficiency, firm characteristics and performance is greater than the individual effect of the variables on performance of oil and gas distribution firms.

2.9 Summary of Knowledge Gaps

The table below summarized key empirical literature, concepts, methodology, findings and knowledge gaps of the various literature covered and forms the basis for the research problem statement and conceptual framework of the present study. Arising from the foregoing summary of literature review, various knowledge gaps have been identified.

Table 2.1: Summary of Knowledge Gaps

Researcher (s)	Focus Area	Methodology	Main Findings	Knowledge Gaps	Focus of Current Study
Kim, Lee, Park and Kim (1999).	Influence of firms' characteristics and operational efficiency in influencing performance in developed countries in North America, Europe and Japan.	Comparative Case Study.	Firms' characteristics and operational efficiency pivotal roles in influencing performance.	BPO as an independent variable to be included in future studies aimed at a better understanding the influence of outsourcing on performance.	Current study to focus on financial and non-financial performance ratios specific to the oil and gas distributions firms in Kenya. Investigate outsourcing as an independent variable.
Arvanitis and Loukis (2012).	The influence of outsourcing and firm performance of Swiss and Greek firms.	Comparative Case Study.	Outsourcing enhances innovation performance but has a negative relationship when it comes to productivity and operational efficiency.	Operational efficiency and firm characteristics should be included as variables in future studies aimed at a better understanding influence of outsourcing and firm performance.	Current study to focus on financial and non-financial attributes of firm performance ratios specific to the oil and gas distribution industry in Kenya. Incorporates moderating and intervening effect of operational efficiency & firm characteristics.
Khaki and Rashidi (2012).	Outsourcing and its impact on operational objectives and performance of Iranian telecommunication industries.	Cross Sectional Survey.	There exists a positive relationship between outsourcing and operational efficiency.	Further research to determine the extent of success of both financial and non-financial performance in performance.	Current study to establish the extent of the influence of operational efficiency on the relationship between outsourcing and performance of oil and gas distribution firms.
Kenani (2013).	Impact of operational efficiency and performance of business process outsourcing activities in cement manufacturing firms in Kenya.	Cross Sectional Survey.	Business process outsourcing has a positive impact on performance and supply chain effectiveness has a positive impact on operational effectiveness.	Further research to investigate whether firm characteristics have an impact on Business process outsourcing and outsourcing.	To determine whether firm characteristics, influence Business process outsourcing and performance of oil and gas distribution firms in Kenya.

Table 2.1: Summary of Knowledge Gaps Contd'…

Researcher (s)	Focus Area	Methodology	Main Findings	Knowledge Gaps	Focus of Current Study
Awino and Mutua (2013).	Strategy, firm characteristics, business process outsourcing and performance of Kenyan state corporations.	Cross Sectional Survey.	All Kenyan State corporations outsource and BPO has a positive contribution to the firms' overall performance.	State corporations were treated as outsourcing firms and may not have provided an exhaustive opinion of various service providers.	Current study to focus on the oil and gas distribution firms in Kenya and incorporate moderating and intervening effect of operational efficiency and firm characteristics.
Machana (2014).	Outsourcing and operational performance on major petroleum marketing firms in Kenya.	Cross Sectional Survey.	Outsourcing increased a firm's competiveness through accessing modern technology and expertise.	Further research to account for employees and manager's behavioral characteristics and attitudes.	Current study to ascertain the influence of firm characteristics on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.
Rajasekar, Ashraf and Deo (2014).	Evaluation of operational efficiency of selected major ports in India during the period 1993 to 2011.	A data envelopment Analysis approach.	Operational efficiency leads to better firm performance.	Mixed results with some studies indicating operational efficiency as relating to size of the port positively and negatively influences port performance.	The conceptualization of the current study has operational efficiency as the intervening variable and firm characteristics as the moderating variable with a focus on the oil and gas distribution firms.
Moturi (2015).	Application of the Balance Score Card (BSC) on the performance of ICT outsourcing firms in commercial banks in Kenya.	Cross Sectional Survey.	Business process outsourcing has a direct influence on firm performance.	Further research to investigate whether operational efficiency and firm characteristic have significant contribution to firm's performance using different variables.	Current study to determine joint effect of business process outsourcing, operational efficiency, firm characteristics & performance on oil and gas firms in Kenya.
Ndolo (2015).	Examine the relationship between operational efficiency & financial performance of firms listed at the Nairobi Securities Exchange.	Longitudinal research study.	Operational efficiency positively influences some aspects of financial performance of firms listed at the Nairobi Securities Exchange.	Further research to investigate the specific elements of operational efficiency that would yield maximum performance.	Current study will conceptualize operational efficiency as the intervening variable and firm characteristics as the moderating variable as main knowledge gap.

2.10 Conceptual Framework

Ravitch and Riggan (2016) opine that a conceptual framework assists the scholar develop awareness and fully understand the variables under investigation. The conceptual model in this study identified the concepts and relationship between four key variables under study. The conceptual model is represented in Figure 2.1.

H₁

Intervening Variable

Operational Efficiency
- Timeliness
- Customer Satisfaction
- Quality
- Cost Savings
- Flexibility

H₂

Business Process Outsourcing
- Logistic and Distribution
- Finance and Tax
- Human Resources
- ICT Services
- Procurement and Supply Chain Management

H₄

Firm Performance
- Financial
- Brand Awareness
- Value added Services
- Customer Focus
- New Retail Stations in strategic locations

Firm Characteristics
- Ownership Structure
- Firm Age
- Firm Size
- Capital Structure and Liquidity Level
- Number of Employees

H₃

Moderating Variable

Independent Variable

Dependent Variable

Figure 2.1: Conceptual Model

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The conceptual model of this study is formulated on the basis of the relationship between business process outsourcing as the independent variable and the performance of the oil and gas distribution firms in Kenya as the dependent variable. Business process outsourcing is depicted as having a direct relationship with firm performance. The attributes comprising business process outsourcing include; logistical distribution, finance and tax, human resources, ICT services, procurement and supply chain management. Financial indicators of firm performance examined include; firm' return on capital, firm's gross profit, firm's investment and growth and firm's sales revenue due to repeat sales. In addition, the non-financial indicators considered include; brand awareness, value added services, customer focus and new retail stations.

Operational efficiency has been depicted as an intervening variable in this research study. The five dimensions of operational efficiency include; timeliness, customer satisfaction, quality, cost savings and flexibility. The interaction of operational efficiency in the model has two levels of influence on firm performance. Firstly, it is modelled as having an intervening influence between the independent and dependent variables. Secondly, it is modelled as having a joint influence with BPO and firm characteristics on firm performance.

Firm characteristic has been depicted as a moderating variable in this research study. The dimensions of firm characteristics discussed include; firm ownership structure, firm age, firm size, capital structure firm liquidity level and number of employees. The interaction of firm characteristics in the model has two levels of influence on firm performance Firstly, it is modelled as having a moderating influence between the independent and dependent variables. Secondly, it has joint influence with BPO and operational efficiency on firm performance.

The entire model depicts how BPO, operational efficiency and firm characteristics either individually or jointly influence firm performance. The model further illustrates how operational efficiency and firm characteristics dimensions intervene and moderate respectively the relationship between BPO and firm performance.

2.11 Conceptual Hypotheses

From the context of study objectives, literature reviewed and the conceptual model, the following hypotheses have been developed to test the relationships between the variables as follows: business process outsourcing as the independent variable, firm performance as the dependent variable, operational efficiency as the intervening variable and firm characteristics as the moderating variable.

H$_1$: Business process outsourcing has a significant influence on the performance of oil and gas distribution firms in Kenya.

H$_2$: Operational efficiency has a significant intervening effect on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.

H$_3$: Firm characteristics have a significant moderating effect on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.

H$_4$: Business process outsourcing, operational efficiency and firm characteristics have a significant joint effect on performance of oil and gas distribution firms in Kenya.

2.12 Chapter Summary

The theoretical foundations of this study were grounded on the Theory of Constraints and Transactional Cost Economics Theory which appear to complement each other as ways to approach business process outsourcing (BPO) analysis (McIvor, 2000; Mohiuddin & Su, 2013). The Theory of Constraints and the Transactional Cost Economics Theory focus on the positive aspects of strategic outsourcing and suggest that firms may improve performance by deploying firm specific characteristics and operational efficiency factors that lead to business performance (Jiang, Juanjuan, Le & Jing, 2017).

Literature reviewed was on relationship between BPO and performance (Abdul-Halim & Chetta, 2009; Giustiniano & Clarioni, 2013), operational efficiency and performance (Kuosmanen & Johnson, 2010), firm characteristics and performance (Bernard, Redding & Schott, 2011; Ganguli, 2013) and joint effect of BPO, operational efficiency, firm characteristics and performance (Cho & Pucik, 2005; Carton & Hofer, 2010). From the reviewed literature, majority of the studies focused on both the African continent, Asia, North America and Europe Firms (Kim, Lee, Park & Kim, 1999; Khaki & Rashidi, 2012; Rajasekar, Ashraf & Deo, 2014). However, none of these studies examined the influence of operational efficiency and firm characteristics on the relationship between BPO and performance of oil and gas distribution firms in Kenya.

Many of the studies carried out did not also focus on Africa as a continent and therefore some of the findings may not be applicable in the Kenyan scenario given that the industries are influenced differently. Therefore, this study will focus on the influence of operational efficiency and firm characteristics on the relationship between BPO and performance of oil and gas distribution firms in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discussed the methodology proposed for the study. The philosophical orientation of the study was positivistic in nature and was modeled under the positivism paradigm. The study was examined using the cross sectional descriptive survey design which was able to capture data at a given point in time to determine the extent of the relationships between the study variables.

The chapter identified the study population and choice of respondents engaged to fully achieve the study objectives. Investigation was carried out in all the oil and gas distribution firms in Kenya. Explanations are provided as to how the firms were involved and engaged in the study. The chapter further discussed how data was collected in terms of the procedures followed, the people to respond to the research questionnaire and the type of instruments employed justifying each step in a robust manner.

The chapter also discussed how the research instrument was validated and reliability ratio established to determine the content and consistency of the instrument in measuring the intended objectives and also explains the tabulated operationalization of key variables. The chapter further explains the key analytical models used during analysis stage and also explain how diagnostic tests was performed to establish the suitability of the data before subjecting it for regression analysis.

3.2 Philosophical Orientation

Research philosophy refers to a system of beliefs and assumptions based on the development and nature of that knowledge (Saunders, Lewis & Thornhill, 2016). In social sciences, there are two key philosophical orientations namely; positivism and phenomenology (Hayes, 2013). This study is positivistic in nature and is modeled under the positivism paradigm that advocates for theory testing and empirically establishing a link between the study variables through generalization and predictions (Bryman & Bell, 2015).

Under positivism, the researcher follows a step by step method starting with deductive reasoning, formulating hypothesis and operationalizing of the study variables based on existing theory then deducing the observations to determine the truth or falsify the hypothesis (Bryman, Bell, Mills, Albert & Yue, 2011). Hammond and Wellington (2013) posit that social behavior studies should be examined using the same techniques as those used to investigate natural sciences studies.

This position is justified by the fact that knowledge is both objective and subjective where scientific processes are followed in hypothesizing fundamental laws (Hayes, 2013). When positivism and logical reasoning is applied to precision, objectivity and rigidity is noted to replace perceptions, experience and intuition as the means of investigating research problems (Trochim & Donnelly, 2006). In addition, Cooper and Schindler (2014) state that through positivist paradigm reality is assumed as stable without interfering with the occurrence itself, facts and values in the study.

Phenomenology orientation suggests the importance social context surrounding human activity. Phenomenology focuses on immediate experiences characterized by the reliance on unstructured open interviews and theory development (Bryman & Bell, 2015). In addition, phenomenological paradigm is concerned with understanding human behavior from the participant's own frame of reference resulting in subjective research (Creswell, 2014). This limitation is an aspect that positivism does not consider hence the choice of using positivistic research philosophy in this current study (Gill & Johnson, 2010).

Positivism research philosophy takes a stance that knowledge developed is based on attentive observation and measurement of objective reality and the problem under investigation is perceived as independent and separate (Sekaran & Bougie, 2013). Secondly, the positivism paradigm is deductive, objective and enables the use of both qualitative and quantitative data to test hypothesis drawn from the theoretical conceptual framework (Easterby-Smith, Thorpe & Jackson, 2012). Quantitative research methodology is often associated with positivism research philosophy and is applied in the current study (Saunders, Lewis & Thornhill, 2016).

3.3 Research Design

This study utilized cross sectional descriptive survey research design to find out the influence of the relationship between BPO depicted as the independent variable on firm performance portrayed as the dependent variable in oil and gas distribution firms. The cross sectional descriptive survey design was preferred for this study because it has a robust effect on testing the direction and strength of both the moderating variable of firm characteristics and intervening variable of operational efficiency (Bryman, Bell, Mills, Albert & Yue, 2011; Saunders, Lewis & Thornhill, 2016).

Hammond and Wellington, (2013) used the cross sectional descriptive survey research method arguing that the design enables the researcher to capture data at a given point in time of the study with minimal temporal effect of the variables. Gill and Johnson (2010) stated that a cross sectional descriptive survey research design seeks to determine the extent of the relationships between the variables through the use of statistical data in relation to the research questions.

Moturi (2015) and Kenani (2013) successfully carried out research using the cross sectional descriptive survey research design in theory testing and drew successful conclusions to the research objectives at a specific point in time. This research design therefore offered an opportunity to establish the relationship between BPO and performance of oil and gas distribution firms in Kenya and determine the influence of operational efficiency and firm characteristics on the relationship between BPO and performance.

3.4 Population of the Study

Saunders, Lewis and Thornhill (2016), define a population as the universe of the elements from which a sample is derived. The study population consisted of all the oil and gas distribution firms in Kenya registered with the Energy Regulatory Commission (ERC). The ERC is a government agency established under the Energy Act, 2006 with a key objective of regulating petroleum and related products and renewable energy and other forms of energy in Kenya (ERC, 2017).

As at June 2017, there were one hundred and thirty (130) oil and gas distribution firms in Kenya registered and licensed by the ERC to import, export and wholesale on oil and gas products (Appendix VII). This was a census study. The firms that have been registered and licensed by the ERC provided an accredited and authentic list of population study elements. These firms represent large corporations, have good access to capital and other resources and have well documented objective financial data. The oil and gas distribution firms are located in the downstream segment of the petroleum industry chain and use petrol stations retail outlets and a few designated industries as distributions channels.

The Government of Kenya Vision 2030 development policy, aims at transforming the country into a middle-income economy. The oil and gas sector is prioritized as one of the infrastructural enablers to the achievement of this objective hence the reason for studying this industry (PIEA, 2018). Mukuha (2006) and Machana (2014), used similar population of listed firms to conduct studies on performance in the oil and gas industry.

3.5 Data Collection

Data in research is referred to as those facts collected for further investigation (Saunders, Lewis & Thornhill, 2016). Data collection techniques therefore enable the scholar to systematically collect information on research variables in the setting of occurrence and from the selected target population (Gill & Johnson, 2010). Research instruments refer to tools used to select, gather and collect data during the research process (Hammond & Wellington, 2013). The various data collection techniques used generally in social research include, questionnaires, interviews, standard tests and observation forms (Gill & Johnson, 2010).

This study adopted a structured questionnaire method for data collection and contained closed ended questions (Appendix VI). Structured questionnaires are appropriate for research studies since data is collected as requested by the researcher, is affordable and can easily be analyzed and replicated. The Primary data was collected through a structured research questionnaire where one hundred and thirty (130) questionnaires were distributed but only one hundred and nine (109) were viable for analysis. The response rate was therefore 83.85%.

The respondents comprised of one (1) member of the executive management team per oil and gas distribution firm in Kenya consisting of the commercial manager or equivalent. The choice of respondent was informed by the role holder responsibilities which include and not limited to risk management, supply chain management as well as financial reporting. The respondents also possess excellent commercial awareness skills to provide statistical information. The choice of the respondents for this study was therefore valid and credible.

The research questionnaires were also distributed using the drop-off and pick-up survey method where the researcher dropped the questionnaire and picked it from the respondent's designated location after successful completion. This survey method has been suggested by scholars as an effective alternative to the post mail or telephone methods (Cooper & Schindler, 2014). The structured questionnaire is based on five point Likert-type scale questions. In a Likert-type scale, subjectivity is minimized and the researcher may carry out quantitative analysis (Hammond & Wellington, 2013).

The structured questionnaire for this study was designed as follows: Part A question $1-5$ presented general organization information where data pertaining to year of incorporation or registration, ownership structure, size of the firm, years of operation and scope of firm was collected. Questions examining the manifestations of different constructs of business process outsourcing was presented in Part B questions (i-xxx) where we had the commercial manager or equivalent asked to rate statements on a five-point Likert-type scale where 1= Not at all; 2 = To a less extent; 3 = To a moderate extent; 4 = To a large extent; 5 = To a very large extent.

Questions relating to the manifestations of operational efficiency in the firms were presented in Part C questions (i-xxxiv). Questions describing the manifestations of firm characteristics in the firm were presented in Part D questions (i-xxvi) on a five-point Likert-type scale and finally questions relating the manifestations of firm performance in the firm over the past five (5) years were presented in Part E questions (i-xxx) on a five-point Likert-type scale.

3.6 Test of Reliability

Reliability is the consistency of measurement and concerned with estimates of the degree to which a measurement is free of random or unstable error (Cooper & Schindler, 2014). Reliability of a measure indicates the magnitude to which a measure is bias free which ensures consistency the measuring instrument (Sekaran & Bougie, 2013). Strategies to enhance reliability of research results include; objectively scoring results, training of researchers and use of a reasonable rating scale (Dillman et al., 2014).

Creswell (2014) identified several methods of assessing reliability namely; Cronbach's alpha for internal consistency, inter-rater reliability and parallel reliability. Hayes (2013), demonstrated that the Cronbach's alpha for internal consistency involves a one test administration to measure the reliability of results across a set of items. The intra-rate reliability tests describes each raters' consistency of the same observation over time and may try to establish whether two observations are consistent. The parallel reliability tests is a measure of reliability attained by administering different versions of a research assessment tool to identical groups of respondent (Hammond & Wellington, 2013).

This research study adopted the Cronbach's alpha coefficient test for internal consistency. Nunally (1978) and Gliem and Gliem (2003) recommends a Cronbach's alpha value of 0.7 and above as desirable, whereas, Cooper and Schindler (2014) suggest a range of 0.7 to 0.9 Cronbach's alpha coefficient to be good for reliability test. The current study had a reliability cut-off point coefficient of 0.7. In order to test the research instrument for internal reliability, a pilot study of six (6) firms were required to respond to the research questionnaire and report any ambiguous questions, identify any defects in the questions or lack of clarity in the instructions as well as suggest any changes.

Primary data was obtained from the commercial manager or an equivalent manager due to the fact that these individuals hold key positions in the firms and are commercially well versed to provide the requested information. The results from the pilot study indicated that a number of variables had accepted levels of alpha values. From the outcome of the pilot study, the research questionnaire was revised and used in collecting the survey data for the study.

3.7 Test of Validity

Validity test shows how closely a measure correctly represents the concept of the study. Creswell (2014) defined validity as the extent to which the data collection method accurately measures what was intended to be measured. Various types of validity include statistical conclusion, internal, external and construct validity. Construct validity is of two types namely; translation validity comprised of face and content validity and criterion related validity composed of predictive, concurrent, discriminant and convergent validity (Cooper & Schindler, 2014).

Face validity refers to the transparency or relevance of a test as it appears to test participants. Face validity was tested by engagement and discussing the questionnaire with industry players that included professionals in the field of study such in the oil and gas private sector and oil and gas marketing consultants to gauge the clarity of the questions and ensure respondents provide appropriate feedback (Hayes, 2013).

Content validity refers to how accurately an assessment or measurement tool taps into the various aspects of the specific construct in question (Cooper & Schindler, 2014). Content validity was assessed through pre-testing the questionnaire to identify deficiencies in the construction, through comments and suggestions from the respondents to enrich the actual data collection instrument.

The respondents involved were the lecturers, supervisors, and students. The feedback from the respondents was used to review the quality of the instrument in terms of quantity of questions, clarity and coverage based on study variables and objectives (Saunders, Lewis & Thornhill, 2016). Construct and criterion validity was carried out on the instrument by randomly pilot testing eight managers from different departments of the firms who were not considered under the final survey of the study to establish if the respondents could answer the responses with ease. Questions that were unclear, inadequate or sensitive were cleaned, sorted or dropped. Factor analysis was applied to test validity construct.

3.8 Operationalization of the Study Variables

The key variables in this study included; business process outsourcing as the independent variable and performance as the dependent variable. Operational efficiency was the intervening variable which altered the direction or strength of the relationship between business process outsourcing and firm performance. Firm characteristics were the moderating variable and were used to observe the relationships between business process outsourcing and performance of oil and gas distribution firms in Kenya. The variables were operationalized in line with the objectives of the research study as illustrated in Table 3.1

Table 3.1: Operationalization of the Study Variables

Variable	Type of Variable	Indicators	Measurement	Scale	Supporting Literature	Questionnaire Section
1.Business Process Outsourcing	Independent Variable	• Logistic and Distribution • Finance and Tax • Human Resources • ICT Services • Procurement and Supply Chain Management	Rating scale: 1.Not at all 2.To a less extent 3.To a moderate extent 4. To a large extent 5.To a very large	Interval	Rasheed and Gilley (2005); Mella and Pellicelli (2012).	Part B questions (i-xxx).
2.Operational Efficiency	Intervening Variable	• Timeliness • Customer Satisfaction • Quality • Cost Savings • Flexibility	Rating scale: 1.Not at all 2.To a less extent 3.To a moderate extent 4. To a large extent 5.To a very large	Interval	Kuosmanen and Johnson (2010); Santa, Ferrer, Bretherton and Hyland (2010).	Part C questions (i-xxxiv).
3.Firm Characteristics	Moderating Variable	• Ownership structure • Firm age • Firm Size • Capital structure and liquidity level • Number of employees	Rating scale: 1.Not at all 2.To a less extent 3.To a moderate extent 4. To a large extent 5.To a very large	Interval	Bernard, Redding and Schott (2011); Ganguli (2013).	Part D questions (i-xxvi).
4.Firm Performance	Dependent Variable	• Financial • Brand awareness • Value added services • Customer focus • New retail stations in strategic locations	Rating scale: 1.Not at all 2.To a less extent 3.To a moderate extent 4. To a large extent 5.To a very large	Interval	Kaplan and Norton (2008); Kirkendall (2010).	Part E questions (i-xxx).

(Source: Researcher, 2018)

3.9 Data Analysis

The unit of analysis of the study was the firm. The financial performance attributes were include; firm's return on capital, firm's gross profit, firms investment and growth and firm's sales revenue due to repeat sales. The non-financial measures discussed include; brand awareness, value added services, customer focus and new retail stations. The financial performance of firms in the oil and gas distribution firms was compared against business process outsourcing attributes which include: logistics and distribution, finance and tax, human resources, ICT services and procurement and supply chain management.

The data was analyzed using descriptive statistics such as means, standard deviations and coefficient of variations to describe the characteristics of the variables of interest. Descriptive statistics in this research study provided statistics on the firm's scope of operation (local or regional), firm ownership structure and size of the firm in terms of number of personnel. Data was presented in terms of frequency and percentages distributions tables. Inferential statistics were used to test the nature and magnitude of the relationship between the variables.

This study's data analysis compares well with similar studies. Kaguri (2013) discussed the relationship between firm characteristics and financial performance of life insurance companies in Kenya. Mkalama (2014) investigated top management demographics, strategic decision, macro environment and performance of Kenyan state corporates study used similar descriptive statistics.

3.9.1 Data Diagnostics

Diagnostics procedures check how well the assumptions of multiple linear regression are evaluated (Hayes, 2013). Tests of statistical assumptions tested for regression assumptions to establish if the data met the normality, linearity, independence, homogeneity and collinearity assumptions in this study. The Shapiro-Wilk test was used to test whether the research data was disturbed normally and detect any existence of skewness or kutrosis of both. Linearity test was used to establish whether there exists a relationship between the business process outsourcing and performance variables.

Homoscedasticity was measured by Lavene's test to check whether the variance between independent and dependent variables are equal or approximately the same. Multicollinearity test was conducted using the Variable Inflation Factor (VIF) to assess whether high correlation exists between one or more variables in the study with one or more of the other independent variables. It was on the basis of these results, that the measures of central tendency, dispersion, tests of significance, tests of associations and prediction were performed.

To conduct a regression analysis with a valid outcome, the assumptions should be investigated and determined (Bolker, Brooks, Clark, Geange, Poulsen, Stevens & White 2009; Creswell, 2014). Regression analysis was key for this study, as the main objective was to determine the influence of operational efficiency and firm characteristics on the relationship between business process outsourcing and performance. Due to multiple sub variates in the main study variables, composite score were considered and used to ensure the measures are valid and reliable

3.9.2 Tests of Hypotheses

Simple linear regression was used to test the relationship between business process outsourcing as the independent variable and firm performance as the dependent variable. Multiple linear regression analysis was used to express the relationship between business process outsourcing as the independent variable, performance as the independent variable, operational efficiency as the intervening variable and firm characteristics as the moderating variable (Bryman, Bell, Mills, Albert & Yue, 2011).

The possible moderating effect of firm characteristics was tested using hierarchical regression analysis with the interaction term indicating the degree of moderation (Baron & Kenny, 1986). Path analysis was used to establish the influence of operational efficiency on the relationship between business process outsourcing and performance. Hierarchical multiple linear regression was used to establish how the joint influence of business process outsourcing and operational efficiency differs from the independent effects of each of the variables on performance (Coopers & Schindler, 2014).

Table 3.2: Objectives, Hypothesis and Analytical Techniques

Research Objective (s)	Hypotheses	Analytical Technique	Interpretation of Results
i) To determine the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.	**H_1:** Business process outsourcing has a significant influence on the performance of oil and gas distribution firms in Kenya.	**Simple Regression Analysis** $P_1 = \beta_{01} + \beta_{11}X_{11} + \varepsilon_1$ Where: $P_1 = f$ (Business Process Outsourcing) β_0 = intercept β_{11}, is beta coefficients for H_1 X_{11} is the composite of the Dimensions of Business Process Outsourcing: Logistics and Distribution, Finance and Tax, Human Resources, ICT Services and Procurement and Supply chain ε_1 is the error term for H_1	R^2 depicts model fitness and also explains the changes in dependent variable. β_1, β_2 and β_3 are coefficient explaining the influence of a unit change in each of the business process outsourcing constructs on performance. F-ratio statistic explains the significance of the model constructs
ii) To establish the influence of operational efficiency on the relationship between BPO and performance of oil and gas distribution	**H_2:** Operational efficiency has a significant intervening effect on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.	**Path Analysis** Path 1: P=f(BPO); Path 2: OE=f(BPO); Path 3: P=f(OE) Path 4: P= f (BPO+OE). Where: P = Performance; BPO = Business process outsourcing; OE = Operational Efficiency $P_2 = f$ (BPO, Operational Efficiency); $P_2 = \beta_{01} + \beta_{11}X_{11} + \beta_{12}X_{12} + \beta_{13}X_{13} + \beta_{14}X_{14} + \beta_{15}X_{15} +$	R^2 depicts model fitness and also explains the changes in dependent variable. β_1, β_2 and β_3 are coefficient explaining the influence of a unit change in each of the business process outsourcing and operational efficiency on performance. F-ratio statistic explains the

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Table 3.2: Objectives, Hypothesis and Analytical Techniques Contd'…

Research Objective (s)	Hypotheses	Analytical Technique	Interpretation of Results
firms in Kenya.		$\beta_{31}X_{31} + \beta_{32}X_{32} + \beta_{33}X_{33} + \beta_{34}X_{34} + \beta_{35}X_{35} + \epsilon_1$ $\beta_{11}, \beta_{12}, \beta_{13}, \beta_{14}, \beta_{15}, \beta_{31}, \beta_{32}$ and β_{33} are beta coefficient for H_2 Dimensions of Business Process Outsourcing: X_{11} = Logistics and Distribution, X_{12} =, Finance and Tax, X_{13} = Human Resources, X_{14} = ICT Services, X_{15} = Procurement and Supply chain Dimensions of Operational Efficiency: X_{31} = Timeliness, X_{32} = Customer satisfaction, X_{33} = Quality, X_{34} = Cost savings, X_{35} = Flexibility. ϵ_2 is the error term for H_2	significance of the model constructs
iii) To ascertain the influence of firm characteristics on the relationship between BPO and performance of oil and gas distribution firms in Kenya.	**H_3:** Firm characteristics have a significant moderating effect on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.	**Hierarchical Regression Analysis** S_1= f (Business Process Outsourcing, Firm characteristics) P_3= β_{20} + $\beta_{21}X_{21}$ + $\beta_{22}X_{22}$ + ϵ_3 P_3= β_{20} + $\beta_{21}X_{21}$ + $\beta_{22}X_{22}$ + $\beta_{22}X*Z$ + ϵ $P3$ = Performance β_{20}, and β_{21}, β_{22} are beta coefficients for H_3; X_{21} = Business Process Outsourcing XZ = Interaction term (Business Process Outsourcing * Firm Characteristics) ϵ_3 is the error term for H_3	R^2 depicts model fitness and also explains the changes in dependent variable. $\beta_1, \beta2$ and β_3 are coefficient explaining the influence of a unit change in each of the business process outsourcing and firm characteristics on performance. F-ratio statistic explains the significance of the model constructs
iv) To establish the joint effect of BPO, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya.	**H_4:** Business process outsourcing, operational efficiency and firm characteristics have a significant joint effect on performance of oil and gas distribution firms in Kenya.	**Multiple Regression** $P_1 = \beta_{01} + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \epsilon_4$ Where: P = Performance β_{01}= intercept β_1, β_2 and β_3 are beta coefficient for H_4 X_1 = Business Process Outsourcing X_2 = Firm Characteristics X_3 = Operational Efficiency ϵ_4 is the error term for H_4	R^2 depicts model fitness and also explains the changes in dependent variable. $\beta_1, \beta2$ and β_3 are coefficient explaining the influence of a unit change in each of the business process outsourcing, operational efficiency and firm characteristics on performance. F-ratio statistic explains the significance of the model constructs

(Source: Researcher, 2018)

3.10 Chapter Summary

This chapter presented the research methodology of the study. This study was positivistic in nature and modeled under the positivism paradigm. The cross sectional descriptive survey research design was deemed appropriate for this census study. A structured research questionnaire was used as the research instrument. In addition, the chapter explains the reliability and validity of the data instruments and the operationalization of the study variables. A summary of the objectives, hypotheses and analytical techniques summarized in a table format concludes the chapter. Chapter four presents preliminary data analysis results of the study.

CHAPTER FOUR

PRELIMINARY DATA ANALYSIS RESULTS

4.1 Introduction

The broad objective of the study was to determine the influence of operational efficiency and firm characteristics on the relationship between BPO and performance of oil and gas distribution firms in Kenya. To achieve this objective, four specific objectives were set and corresponding hypotheses formulated and tested. This was important since the study focused on keenly determining how each objective and hypothesis can be well measured and arrived at valid conclusions.

The specific objectives of the study were : to determine the relationship between BPO and performance of oil and gas distribution firms in Kenya; to establish the influence of operational efficiency on the relationship between BPO and performance of oil and gas distribution firms in Kenya; to ascertain the influence of firm characteristics on the relationship between BPO and performance of oil and gas distribution firms in Kenya and to establish the joint effect of BPO, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya.

The data was obtained through a structured questionnaire developed from indicators of the study variables. For each study variable, respondents were presented with descriptive statements in a five point Likert-type scale and were required to indicate the extent to which the statements were applicable. Findings of the pre-tests reliability and validity were presented.

Reliability and validity gives a clear direction about the data viability in measuring the intended objectives. The details of descriptive analysis using frequency distribution tables, descriptive statistics such as means, standard deviations and coefficient of variations are well presented and discussed.

4.2 Response Rate

The study was a descriptive cross-sectional survey of firms operating in the distribution of oil and gas in Kenya. The questionnaire was administered by trained research assistants to the respective firms. The study targeted all the one hundred and thirty (130) oil and gas distribution firms in Kenya registered and licensed by the ERC to import, export and wholesale on oil and gas products in the country of which One hundred and fifteen (115) questionnaires were filled and returned. Further scrutiny established that 6 questionnaires were poorly filled and hence excluded from analysis. The effective response rate dropped to 109 respondents forming 83.85% response rate, which was considered adequate for analysis.

This study's response rate was acceptable as it compares well with similar studies. Machana (2014) studying outsourcing and operational performance of major petroleum marketing firms in Kenya had a response rate of 75%. Mukuha (2006) had a response rate of 80% from investigating the influence of outsourcing on procurement practices in the oil and gas industry in Kenya. Therefore, this study's response rate is considered very well for survey research.

Saunders, Lewis and Thornhill (2016) opine that a response rate of 80 per cent is adequate and indicated an effective data collection methodology, whereas Mugenda and Mugenda (1999) suggested a 50% response rate is adequate, 60% good and above 70% very good. On his part, Fowler (1984) as cited in Njeru, (2013) suggests that a response rate of 60% is representative of the population of the study.

4.3 Test of Reliability

This refers to a measure of degree to which results from an instrument are consistent on repeated measurements. Its goal is the estimation of measurement errors which are normally random. It is a measure of an instrument's internal consistency. The measurement instrument should be reliable for it to measure consistently (Mugenda & Mugenda, 1999; Cooper & Schindler, 2014). The test items internal consistency or average correlation was assessed using cronbach's alpha. The alpha coefficient value ranging from 0 to 1 were used. This study adopted the alpha coefficients ranges to describe reliability factors extracted from formatted questionnaires on Likert-type scale (rating from scale 1 to 5).

The study used a cut off Cronbach alpha coefficient of 0.7. Different authors recommend different cut off points for reliability. Nunally (1978) and Gliem and Gliem, (2003) indicate that Cronbach value of 0.7 and above is considered reliable, Cooper and Schindler (2014) suggest a range of 0.7 to 0.9 Cronbach's alpha coefficient to be good for reliability test, while Asikhia (2009) recommends a reliability cut off point of 0.6. Hair, Babin, Anderson and Tatham (2007) and Bagozzi and Yi (2012) instead recommend a value of 0.5 to be the reliability cut off point necessary for further analysis.

This study adopted a cut off Cronbach value of 0.7 which is considered a strong measure of reliability consistency as suggested by Gliem and Gliem, (2003) and Cooper and Schindler (2006). Reliability of the survey instrument was thus established by carrying out a pilot study on firms who were required to respond to the questionnaire and report any ambiguous questions, identify any defects in the questions or lack of clarity in the instructions as well as suggest any changes.

Hair et al., (2007) suggests that a pretest of 5 to 10 respondents selected from the targeted population is sufficient enough to allow validation of a questionnaire. These firms were excluded from participating in the main survey. After the pilot study, the necessary modifications were made to the questionnaire. The results of the reliability tests are summarized in Table 4.1.

Table 4.1: Summary of Cronbach's Alpha Reliability Coefficients

Variable	Components of Variables	Cronbach's Alpha	Number of items	Decision
Business Process Outsourcing	Logistic and distribution, Finance and tax, Human resources, ICT services, Procurement and supply chain management	.84	30	Reliable
Operational Efficiency	Timelines, Customer satisfaction, Quality, Cost savings, Flexibility	.81	34	Reliable
Firm characteristics	Ownership structure, Size, Age of firm, capital structure and liquidity, number of employees	.75	26	Reliable
Performance	Financial, Brand awareness, Value added services, Customer focus, New retail stations	.90	30	Reliable

Source: Primary Data, (2018)

As shown in Table 4.1, the alpha coefficients for all the variables are above the 0.7 threshold. This was confirmation of reliability of the data used to draw conclusions from theoretical concepts. Cronbach's alpha coefficient ranged from 0.75 (firm characteristics) to 0.90 (firm performance) revealing a high degree of reliability of the instrument. The results indicate that all constructs had high scores of reliability coefficients.

Performance and business process outsourcing, respectively, had the highest reliability scores (0.90 and 0.84). Operational efficiency had a reliability score of 0.81. Firm characteristics had the lowest reliability score (0.75) although it was above the 0.7 cut-off point for reliability test (Nunally, 1978; Gliem & Gliem, 2003). This implies that all the variables had a reliable index measure indicating that the instrument was reliable in collecting data.

4.4 Test of Validity

Validity refers to the questionnaire's ability to measure what is intended meaningfully and describe the construct accurately (Cooper & Schindler, 2014). Validity is used in science as an evaluation criteria on whether conclusions made in a study explain what happened accurately. Aiken, West and Reno (1991) further stated that validity refers to whether the research instrument is able to produce the expected measurement in a study.

Pre-testing for validity of the questionnaire initially involved a few respondents from the study population to improve the instrument. Construct and criterion validity was carried out on the instrument by randomly pilot testing eight managers from different departments of the firms to establish if the respondents could answer the responses. The final survey did not consider these pilot group.

Questions that were unclear, inadequate or sensitive were cleaned, sorted or dropped. The study incorporated views of content experts consisting of a few lecturers from Nairobi University, the supervisors and the researcher's cohort in the School of Business, University of Nairobi. The outcome of the pilot test was better review of the instrument, clear instructions and clarification on the measures to be captured that avoided unreliable results. Factor analysis was applied to test validity construct.

Construct validity shows how the instrument is measuring the target construct (Zapolski, Guller & Smith, 2012). In extracting the factors, Principal Component Analysis was used and Varimax rotation method applied to rotate the factors. The factors attributed to the variables were all uni-dimensional thus considered valid measurement of the study constructs. The results of the factor analysis are presented in Appendix VIII.

4.5 Tests of Statistical Assumptions

There are different assumptions for statistical tests conducted on the study variables. This ensures the use of correct statistical models. It is beneficial to test assumptions to ensure that your data meets important assumptions (Nimon, Zientek & Henson, 2012). The study performed the test of regression assumptions. For regression result of the study in classical linear regression model to be robust and valid, it was deemed fit to satisfy basic assumption of classical linear regression model. Prior to performing the descriptive and inferential analyses, statistical assumptions were tested to establish whether the data met the normality, linearity, independence, homogeneity and collinearity assumptions.

It was on the basis of these results, that the measures of central tendency, dispersion, tests of significance, tests of associations and prediction were performed. Bolker et al., (2009) indicated that all data is considered to have been included in the model if the basic assumptions are met. Otherwise information will have been left on violation of these assumptions. Data multicollinearity, homogeneity and normality were tested after which the model was applied to analyse results of the regression and significance testing of the slopes. The objective of the regression analysis was to predict the strength and direction of relationship between the study variables.

4.5.1 Tests of Normality

Use of inferential parametric statistical procedures requires that the data to be tested is normally distributed. Ghasemi and Zahediasl (2012) noted that the assumption of normality needs to be checked before carrying out any parametric test, because validity depends on it. Normality test was intended to ascertain whether data was distributed normally. When normality is absent using statistical tests that assume normality may not be appropriate.

The Shapiro-Wilk test was employed to test for normality. This test establishes the extent of normality of the data by detecting existence of skewness or kurtosis or both. Shapiro-Wilk statistic ranges from zero to one with figures higher than 0.05 indicating that the data is normal (Razali & Wah, 2011). The results are presented in Table 4.2.

Table 4.2: Shapiro-Wilk Test of Normality

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
Variable	Statistic	df	Sig.	Statistic	df	Sig.
Business process outsourcing	.07	109	.12	.98	109	.10
Operational Efficiency	.09	109	.02	.97	109	.12
Firm Characteristics	.07	109	.08	.97	109	.13
Firm performance	.04	109	.20[*]	.98	109	.56
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Source: Field Data (2018)

Normality tested using the Shapiro-Wilk showed that all the variables were above 0.05 (p > 0.05) hence confirming data normality. Normality assumes that the sampling distribution of the mean is normal. As shown in Table 4.2, p-values for the Shapiro-Wilk tests were 0.10 for business process outsourcing, 0.12 for operational efficiency, 0.13 for firm characteristics and 0.56 for firm performance.

Since all the p-values were greater that the cutoff point of 0.05, this confirms the hypothesis that data was collected from a population which is normally distributed. Data normality was also demonstrated by the plotted Quantile Quantile plot (QQ plot) and normal histograms. Q-Q plots are as presented in Figures 4.1(a, b), 4.2(a, b), 4.3 (a, b) and 4.4 (a, b). The normal distribution had a good fit for the study variables.
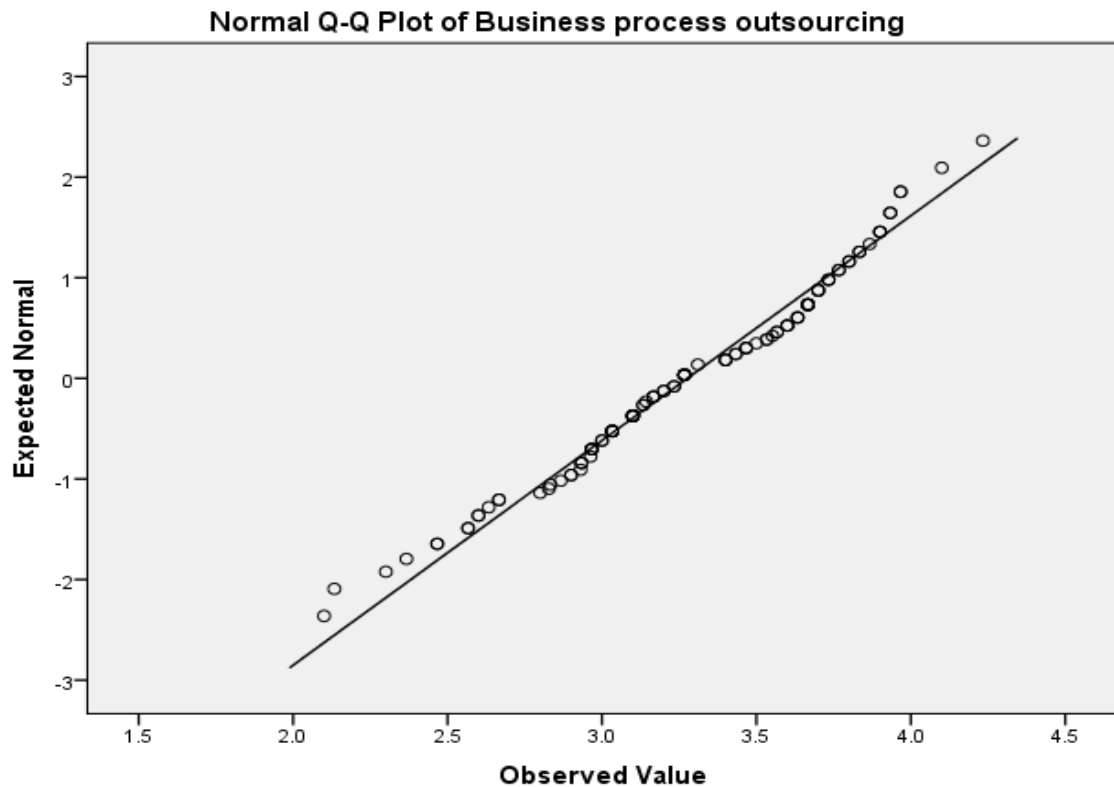
Figure 4.1 (a): Normal Q-Q Plot of Data on Business Process Outsourcing

Source: Field Data (2018)

The findings in Figure 4.1 (a) shows that data was normal since most of the cases were observed to cleave along the best fit line. The few cases of the observed values that cleaved away from the straight line can be taken care of by the large sample ($n \geq 30$). This demonstrates a good fit and therefore normal data on BPO variable. According to Mordkoff (2012), the assumption of normality turns out to be relatively uncontroversial, at least when large samples are used, such as $N \geq 30$.
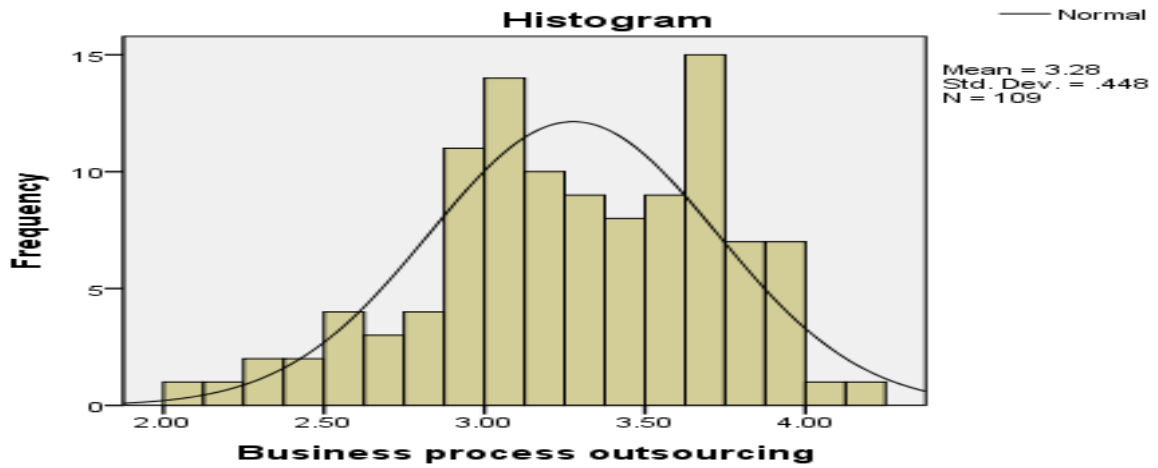
Figure 4.1 (b): Normal Histogram Plot of Data on Business Process Outsourcing
Source: Field Data (2018)

The findings in Figure 4.1 (b) demonstrate a good fit and therefore normal data on business process outsourcing. This is shown by a normal distribution curve that is not highly skewed either to the right or left implying that data came from a normal population and therefore fit for further analytical procedures.
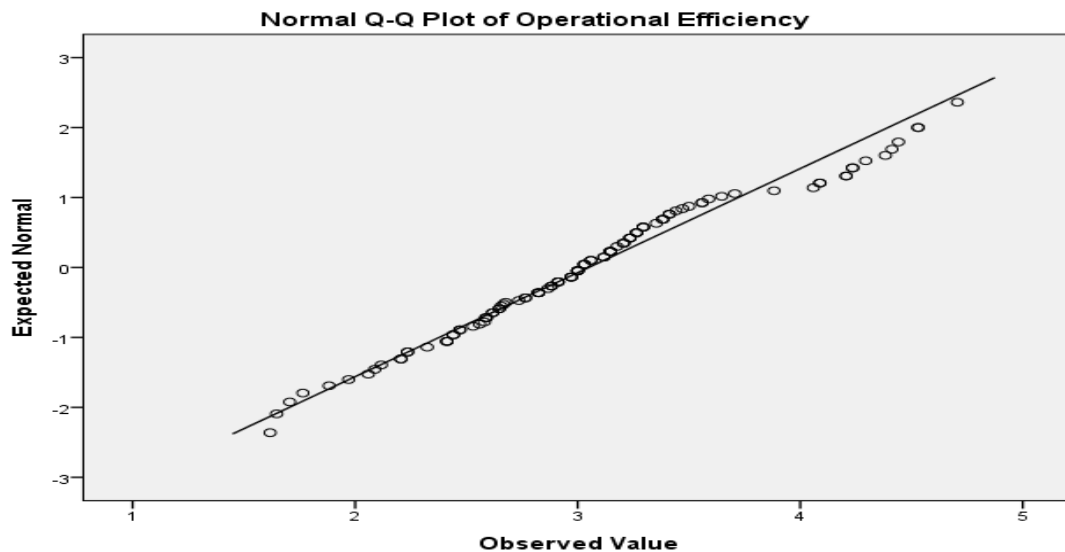
Figure 4.2 (a): Normal Q-Q Plot of Data on Operational Efficiency
Source: Field Data (2018)

Figure 4.2 (a) shows that data was normal since most of the cases were observed to cleave along the best fit line. The few cases of the observed values that cleaved away from the straight line can be taken care of by the large sample (n ≥ 30). According to Mordkoff (2012), the assumption of normality turns out to be relatively uncontroversial, at least when large samples are used, such as N ≥ 30.
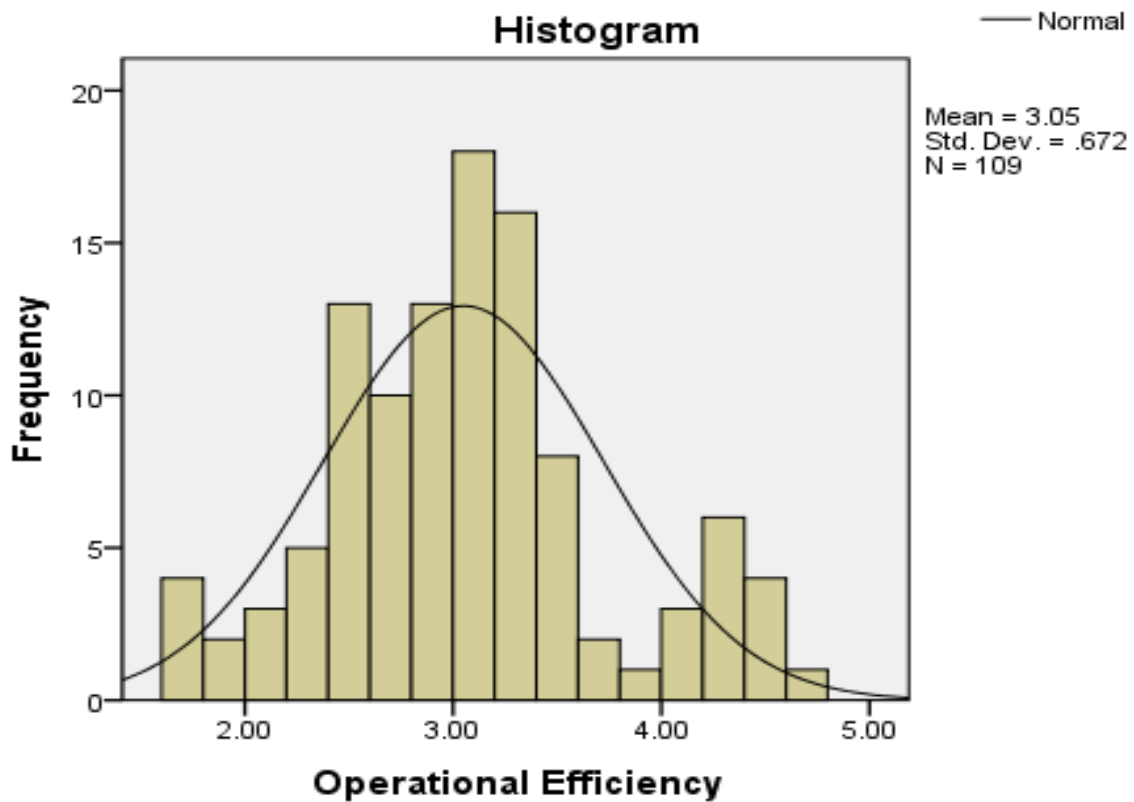
Figure 4.2 (b): Normal Histogram Plot of Data on Operational Efficiency
Source: Field Data (2018)

The findings in Figure 4.2 (b) demonstrate a good fit and therefore normal data on operational efficiency. This is shown by a normal distribution curve that is not highly skewed either to the right or left implying that data came from a normal population and therefore fit for further analytical procedures.
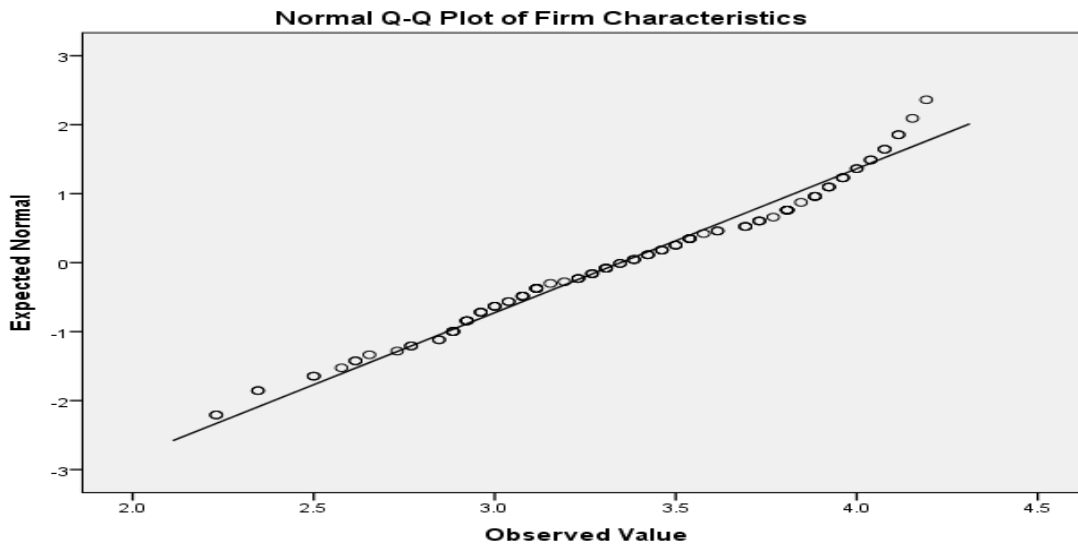
Figure 4.3 (a): Normal Q-Q Plot of Data on Firm Characteristics
Source: Field Data (2018)

Figure 4.3 (a) shows that data was normal since most of the cases were observed to cleave along the best fit line. The few cases of the observed values that cleaved away from the straight line can be taken care of by the large sample (n ≥ 30). According to Mordkoff (2012), the assumption of normality turns out to be relatively uncontroversial, at least when large samples are used, such as N ≥ 30.
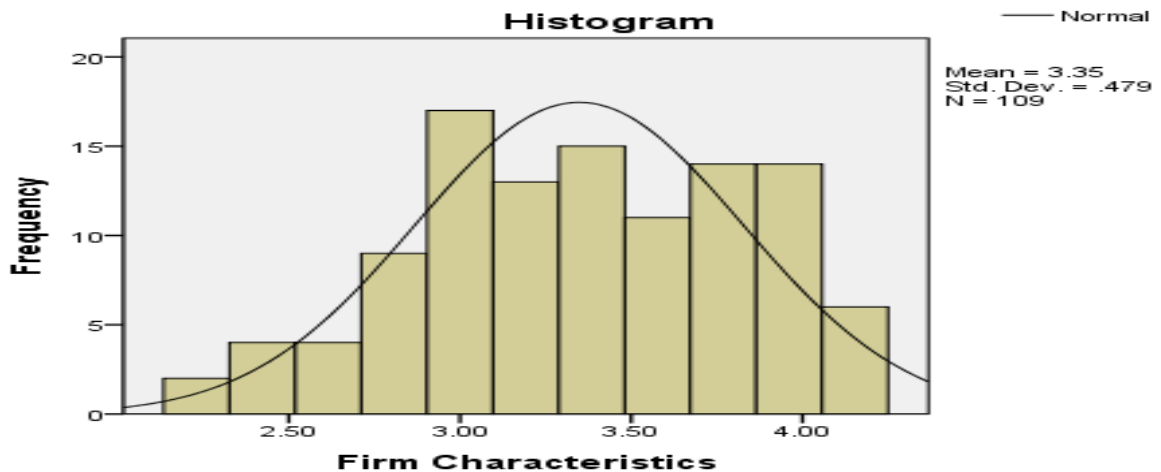
Figure 4.3 (b): Normal Histogram Plot of Firm Characteristics

Source: Field Data (2018)

The findings in Figure 4.3 (b) demonstrate a good fit and therefore normal data on firm characteristics. This is shown by a normal distribution curve that is not highly skewed either to the right or left implying that data came from a normal population and therefore fit for further analytical procedures.
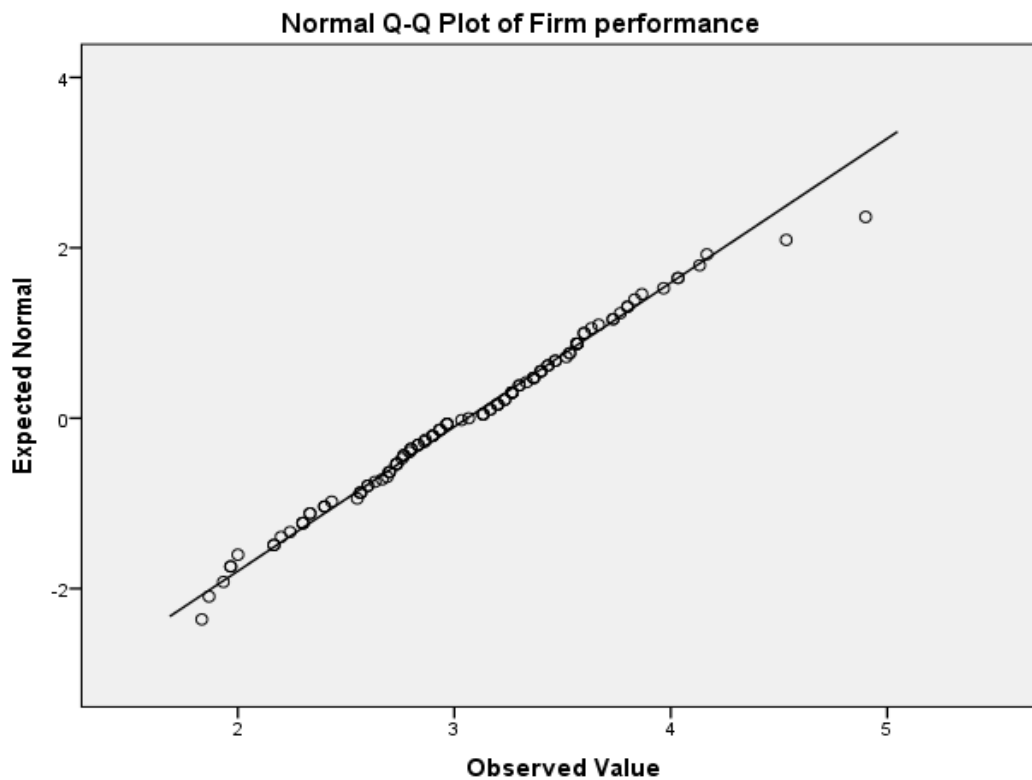
Figure 4.4 (a): Normal Q-Q Plot of Data on Firm Performance
Source: Field Data (2018)

Figure 4.4 (a) shows that data was normal since most of the cases were observed to cleave along the best fit line. The few cases of the observed values that cleaved away from the straight line can be taken care of by the large sample (n $\geq$ 30). According to Mordkoff (2012), the assumption of normality turns out to be relatively uncontroversial, at least when large samples are used, such as N $\geq$ 30.
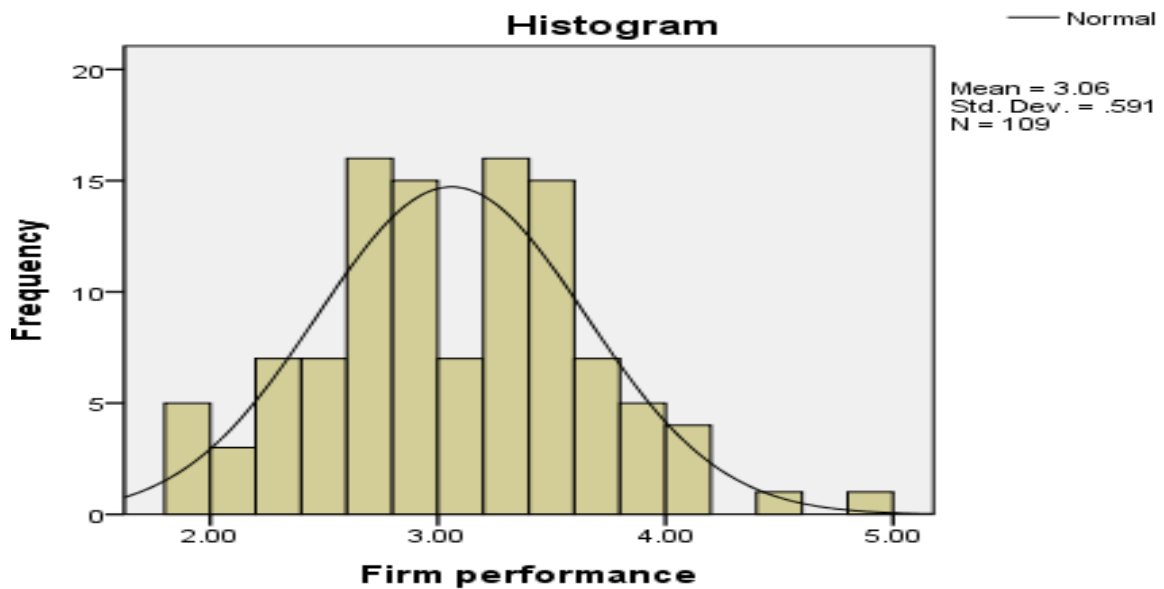
Figure 4.4 (b): Normal Histogram Plot of Data on Firm Performance
Source: Field Data (2018)

The findings in Figure 4.4 (b) demonstrate a good fit and therefore normal data on firm performance. This is shown by a normal distribution curve that is not highly skewed either to the right or left implying that data came from a normal population and therefore fit for further analytical procedures.

4.5.2 Test of Multicollinearity

Multicollinearity is a phenomenon whereby high correlation exists between the independent variables. Multicollinearity occurs in a multiple regression model when high correlation exists between these predictor variables leading to unreliable estimates of regression coefficients. This leads to strange results when attempts are made to determine the extent to which individual independent variables contribute to the understanding of dependent variable (Creswell, 2014).

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The consequences of multicollinearity are increased standard error of estimates of the Betas, meaning decreased reliability and often confusing and misleading results. Multicollinearity test was conducted to assess whether high correlation existed between one or more variables in the study with one or more of the other independent variables. Variable Inflation Factor (VIF) measured correlation level between the predictor variables and estimated the inflated variances due to linear dependence with other explanatory variables.

A common rule of thumb is that VIFs of 10 or higher (conservatively over 5) points to severe multi-collinearity that affects the study (Newbert, 2008). A tolerance threshold value of below 0.2 indicates that collinearity is present (Menard, 2000). Table 4.3 presents the result of tests for Multicollinearity.

Table 4.3: Test for Multicollinearity

	Variable	Collinearity Statistics		
		B	Tolerance	VIF
1	(Constant)	.06		
	Business process outsourcing	1.05	.16	6.08
	Operational Efficiency	.87	.63	1.58
	Firm Characteristics	-.93	.13	7.32

Source: Field Data (2018)

As shown in Table 4.3 the results revealed no problem with multicollinearity. The variables of the study indicated VIF values of between 1.58 and 7.32 which is less than the VIFs value of 10 or higher figure recommended by the rule of thumb. Therefore the data set investigated displayed no multicollinearity.

4.5.3 Test of Homoscedasticity

Homoscedasticity was measured by Levene's test. This test examines whether or not the variance between independent and dependent variables is equal. If the Levene's Test for Equality of Variances is statistically significant $\alpha= 0.05$ this indicates that the group variances are unequal. It is a check as to whether the spread of the scores in the variables are approximately the same.

Table 4.4: Tests for Homogeneity of Variances

Variable	Levene's Statistic	df1	df2	Sig.
Business process outsourcing	1.29	10	99	.11
Operational efficiency	1.89	10	99	.10
Firm characteristics	2.44	10	99	.17
a. Predictors: (Constant), Business process outsourcing, Operational efficiency, Firm characteristics				
b. Dependent Variable: Performance				

Source: Field Data (2018)

As presented in Table 4.4, the significant values for the Lavene's test were 0.11 for business process outsourcing, 0.10 for operational efficiency and 0.17 for firm characteristics. From the results in Table 4.4, P-values of Levene's test for homogeneity of variances were all greater than 0.05. The test therefore was not significant at $\alpha= 0.05$ confirming homogeneity.

4.5.4 Test of Linearity

Linearity was tested using scatter plots as indicated below. It assumes that there is a relationship between independent and dependent variable in a given study. In this study it is assumed that business process outsourcing influences firm performance. Firm characteristics and operational efficiency are also assumed to be key determinants of performance. The plots are as presented on Figure 4.5 (a, b and c).
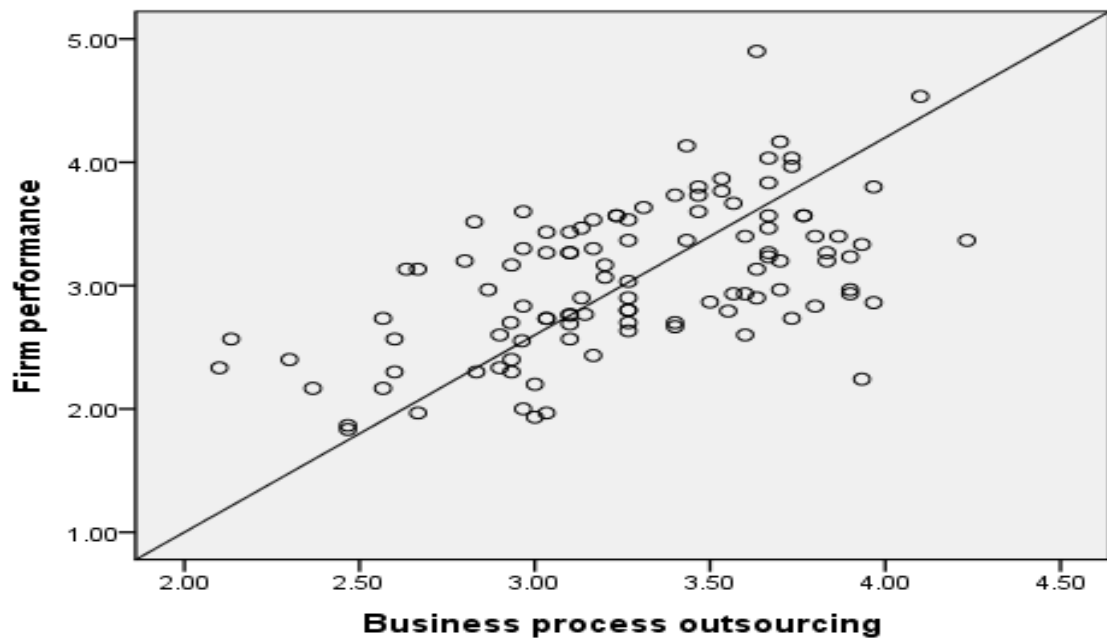
Figure 4.5 (a): Linearity Scatter Plot of Data on Business Process Outsourcing
Source: Field Data (2018)

Figure 4.5 (a) shows a strong positive linear association between the independent variable business process outsourcing and dependent variable firm performance. The few cases of the observed values that cleaved away from the straight line can be taken care of by the large sample (n ≥ 30).The results are therefore fit for further analysis.
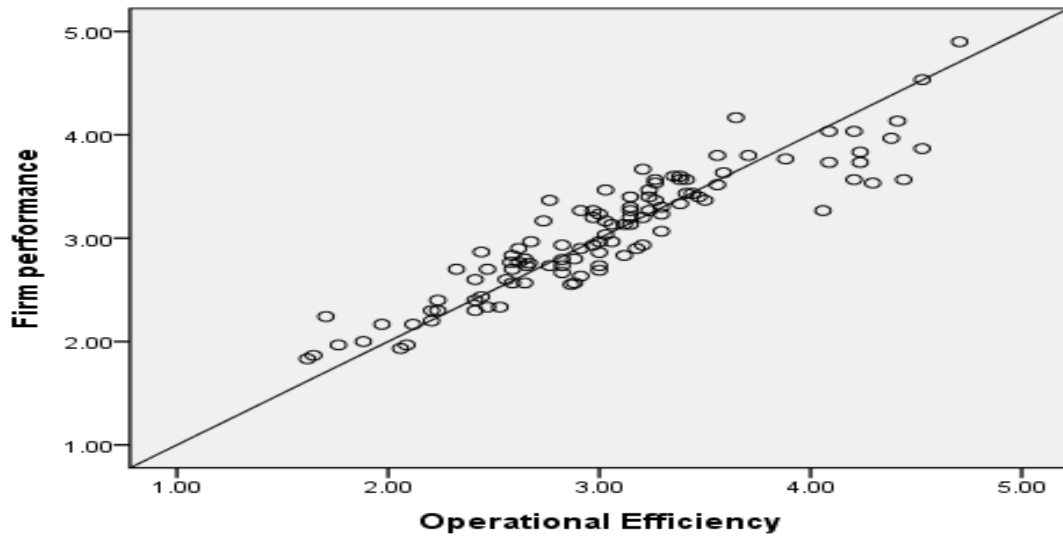
Figure 4.5 (b): Linearity Scatter Plot of Data on Operational Efficiency
Source: Field Data (2018)

Figure 4.5 (b) shows a very strong positive linear association between the operational efficiency as the intervening variable and firm performance representing the dependent variable. The few cases of the observed values that cleaved away from the straight line can be taken care of by the large sample ($n \geq 30$). The results are therefore fit for further analysis.
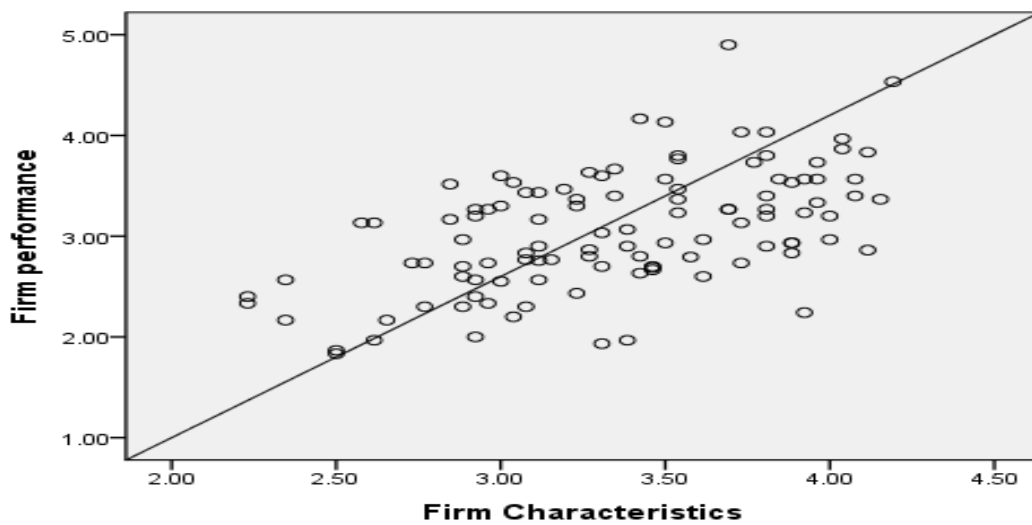
Figure 4.5 (c): Linearity Scatter Plot of Data on Firm Performance
Source: Field Data (2018)

Figure 4.5 (c) shows a strong positive linear association between the firm characteristics as the moderating variable and firm performance representing the dependent variable. The few cases of the observed values that cleaved away from the straight line can be taken care of by the large sample ($n \geq 30$). The results are therefore fit for analysis.

4.6 Organizational Demographic Profiles

The firms that were studied manifested demographic profiles. The firm profile demographics that were considered in the study include scope of operation (National throughout Kenya, Regionally within counties and East Africa), firm ownership structure (Sole proprietorship, partnership and Limited Liability Company) and the size of organization in terms of personnel.

Scope of operation is a long term capacity decision and therefore an important strategic level decision which influence firm performance. Additionally, ownership structure of a firm greatly influences the firm's performance. Ownership structure can be defined as distribution of equity with regard to votes and capital as well as identity of the equity owners.

A firm's ownership structure is crucial since it defines the internal mechanism of corporate governance. It specifies the distribution of rights and responsibilities among stakeholders and therefore influence performance of a firm. Moreover, the study also looked at how firm size influenced a firm's performance. Generally, large firms are able to generate stronger competitive capability than small rivals due to superior access to resources, greater market power as well as economies of scale.

4.6.1 Ownership Structure

The study determined the ownership structure of oil and gas distribution firms with the aim of ascertaining how they share responsibilities and roles in the governance undertakings and also determine how performance can be affected by the type of ownership structure. The results are presented in Table 4.5.

Table 4.5: Ownership Structure

Ownership Structure	Frequency	Percentage (%)
Partnership	9	8.3
Limited Liability Company	100	91.7
Total	**109**	**100.0**

Source: Field Data (2018)

The study sought to establish ownership structure in oil and gas distribution firms in Kenya. The results of the findings indicate that majority of oil and gas firms are limited liabilities as indicated by 91.7% and partnership representing 8.3%. This is synonymous with (ERC, 2017) that oil and gas distribution firms in Kenya are mainly limited companies or Partnerships.

The advantage of big firms is to bring more clients and income to an organization. The findings indicate that most firms are limited companies due to intensive capital required to start and operate the companies in question sourced through shareholding. Limited companies also bring on board expertise in different fields on the board for quality decision making process.

4.6.2 Size in Terms of Personnel

Size of the firm is key in ascertaining internal processes and therefore the study determined how oil and gas distribution firms in Kenya are manifested across the country. The firm with many personnel means its operation is bigger thus requiring more employees in each functional unit to carry out the needed roles. It further indicated that the firm may be doing well in terms of number of distribution channels or stores spread across the country. The findings are presented in Table 4.6.

Table 4.6: Size of Organization

Size of Organization	Frequency	Percentage (%)
Between 1-100	43	39.4
Between 101-200	46	42.2
Between 201-300	18	16.5
Between 301-400	1	0.9
Over 401	1	0.9
Total	**109**	**100.0**

Source: Field Data (2018)

The results show that majority 42.2% of oil and gas distribution firms in Kenya have an employee range from 101-200. This was followed by 39.4% who indicated a range between 1-100 employees. Further 6.5% indicated a range between 201-300 and only 0.9% indicated employee ranges between 301-400 and over 401 respectively.

The findings therefore suggest that oil and gas distribution firms in Kenya are relatively large with complex handling processes including storage and stock management. The study further implies that since these firms have distribution branches in major parts of the country, they require a good number of personnel to carry out the complex functions and processes. The study therefore concludes that majority of oil and gas distribution firms have adequate personnel to carry out business processes to ensue firm profitability.

4.6.3 Years of Operation

The study determined the number of years the firms have been in existence. This was to investigate whether the oil and gas distribution firms were well versed with the dynamics of the petroleum industry and fully understand the various operational efficiencies and firm characteristics required for competitive advantage. The study findings are presented in Table 4.7

Table 4.7: Years of Operation

Years of Operation	Frequency	Percentage (%)
Less than 5	20	18.3
5 to 10 years	21	19.3
11 to15 years	24	22.0
16 to 20 years	9	8.3
Over 20 years	35	32.1
Total	**109**	**100.0**

Source: Field Data (2018)

The study indicates that majority 32.1% of oil and gas distribution firms have been in existence for over 20 years followed by 22.0% who indicated having been in existence for a period between 11 to 15 years. Further 19.3% and 18.3% indicated having been in existence for a period between 5 to 10 years and less than 5 years respectively.

Further only 8.3% indicated having been in existence for a period ranging between 16 and 20 years. The findings therefore implies that majority of the oil and gas distribution have been in existence for long and are able to manifest and inform the purpose of the study on business process outsourcing, operational efficiency and also firm characteristics and how they influence performance.

4.6.4 Scope of Operation

The study determined the scope of operation of the oil and gas distribution firms surveyed. This was in the premise that, firms with a wide scope of operation are able to have a better competitive advantage in serving a large market and therefore realize great profits. The results are presented in Table 4.8.

Table 4.8: Scope of Operation

Scope of Operation	Frequency	Percentage (%)
National (only within Kenya)	43	39.4
Regional (only within East Africa)	25	22.9
Continental (only in Africa)	22	20.2
Globe (Africa and other Continents)	19	17.4
Total	**109**	**100.0**

Source: Field Data (2018)

The results show that majority of the oil and gas distribution firms representing 39.4% operate within Kenya. The firms that operate regionally within East Africa were 22.9% and in Africa continent 20.2%. Further, only 17.4% indicated serving Africa and other continents. The findings indicate that most oil and gas distribution firms in Kenya serve a wide range of market segments distributed throughout the country and not only limit scope of operations to segments closely located. Generally, a firm serving a wide market range is profitable as opposed to a firm limited to markets within its geographic location.

4.7 Manifestations of Study Variables

The study focused on how the key variables were manifested in different oil and gas distribution firms in Kenya. This was determined through presenting statements in each of the study sub variables to be responded in line with how the manifestation occurred. The key study variables included business process outsourcing, operational efficiency, firm characteristics and performance. The results were derived and discussed in the following subsections.

4.7.1 Business Process Outsourcing

Business process outsourcing (BPO) refers to the process where a firm outsources its near core activities. BPO allows for shared benefits and risks between the client and service provider which is associated with reduced operational costs and increased profit margins. The oil and gas distribution firms in Kenya under study are categorized under the down-stream division and are majorly involved in the marketing and distribution of oil and gas products to the final consumer (PIEA, 2018).

BPO was an independent variable in the study having five (5) measurement items namely; logistic and distribution, finance and tax, human resources, ICT Services and procurement and supply chain management. To capture data on the various BPO dimensions, descriptive statements derived from literature were presented to respondents on a five - point Likert-type scale with ranges from 1 representing (not at all) to 5 representing (very large extent). The respondents were requested to indicate the extent to which the statements are applicable to firms they operate. The subsequent subsections present the findings.

4.7.2 Logistics and Distribution Attributes

The study determined the extent to which Logistics and distribution attributes are manifested among the surveyed firms. Logistics and distribution plays a significant role in solving business logistics complexities and challenges which in turn provides firms with the ability to succeed and make profit. To capture these data, the respondents were asked to indicate the rating to which they view which statements relating to logistics and distribution manifest themselves in the firms. The findings are presented in Table 4.9 and were measured in terms of mean scores, standard deviation and coefficient of variation.

Table 4.9: Logistics and Distribution Attributes

Logistics and Distribution Attributes	N	Mean	Std. Deviation	Coefficient of Variation
Our firm enjoys technical expertise from outsourced logistic services	109	3.63	1.22	0.34
There has been enhanced distribution services in our firm as a results of outsourced services	109	2.25	1.25	0.55
Our firm has managed to free space due to efficient logistic and distribution processes	109	3.76	1.18	0.32
Our firm has gained competitive position arising from outsourced logistic and distribution services	109	3.59	1.26	0.35
There has been reduced costs of distribution as a result of outsourced logistic and distribution services	109	3.10	1.26	0.41
The speed of product distribution had been enhanced by efficient logistic and distribution services	109	3.16	1.21	0.38
Average Mean Score	**109**	**3.25**	**1.23**	**0.39**

Source: Field Data (2018)

Sub-variables of logistics and distribution were used to determine the extent to which they contributed to the performance of oil and gas distribution firms in Kenya. The average mean score of the statements depicting the manifestations of logistics and distribution was 3.25, standard deviation 1.23 and coefficient of variation of 0.39. This depicts an average manifestation of logistics and distribution among oil and gas distribution firms in Kenya. The statement with highest mean was on the firm managing free space due to efficient logistic and distribution processes (Mean=3.76, SD=1.18 and CV=0.32) implying that these factors impact the oil and gas distribution firms to a moderate extent.

Other statements had a mean above 3.0 implying that stake holders in the oil and gas distribution firms to moderate extent consider logistics and distributions as a key contributing factor towards enhancing firm performance. For instance, our firm enjoys technical expertise from outsourced logistic services (Mean=3.63, SD=1.22, CV=0.34), there has been enhanced distribution services in our firm as a results of outsourced services (Mean=2.25, SD=1.25 and CV=0.55).

In addition, our firm has gained competitive position arising from outsourced logistic and distribution services (Mean=3.59, SD=1.26, CV=0.35), there has been reduced costs of distribution as a result of outsourced logistic and distribution services (Mean=3.10, SD=1.26, CV=0.41) and the speed of product distribution had been enhanced by efficient logistic and distribution services (mean=3.16, SD=1.21, CV=0.38) indicating that these logistics and distribution factors impact the oil and gas distribution firms to a moderate extent.

The statement with the highest CV indicated that there had been reduced costs of distribution as a result of outsourced logistic and distribution services with a CV of 0.41 depicting that it exhibited highest variations among the responses. The study therefore implies that the function of logistics and distribution is exhibited among these firms since it plays a crucial role in efficiently moving the products across the supply chain destinations and helps sustain competitive advantage for a firm improving profitability.

4.7.3 Finance and Tax Attributes

The study established the extent to which finance and tax attributes are manifested among the oil and gas distribution firms in Kenya. Good financial management through keeping of accurate and up to date financial and tax records has enabled firms to operate efficiently and profitably. Technological innovation and strict compliance to a financial and tax regime have also contributed to firms making sound business decisions leading to improved firm performance. The statements depicting how finance and tax attribute manifested were presented to respondents and the findings are presented in Table 4.10. The results are presented in terms of mean scores, standard deviation and coefficient of variation.

Sub-variables of finance and tax were used to determine the extent to which they contributed to the performance of oil and gas distribution firms in Kenya. The results as presented in Table 4.10 show that the average mean score of the attributes of finance and tax was 3.27, standard deviation of 1.23 and coefficient of variation of 0.38. This indicated moderate opinions among the oil and gas distribution firms in Kenya on finance and tax attributes.

Table 4.10: Finance and Tax Attributes

Finance and Tax Attributes	N	Mean	Std. Deviation	Coefficient of variation
Our firm has simplified accounting and financial processes	109	3.16	1.20	0.38
Our firm has acquired great expertise and technology resources	109	3.68	1.36	0.46
Our firm has improved tax compliance as a result of better finance and tax systems in place	109	3.25	1.21	0.37
Our firm financial processes benchmark and baseline has improved over time	109	3.21	1.27	0.39
There has been great focus to meet financial regulatory requirements in our firm	109	3.77	1.12	0.29
Average Mean Score	**109**	**3.27**	**1.23**	**0.38**

Source: Field Data (2018)

The statement with the highest mean score was that there has been great focus to meet financial regulatory requirements in our firm (mean=3.77, SD=1.12, CV=0.29). This implies that to a moderate extent firm's places greater emphasis on meeting regulatory requirements. The statement with the lowest mean score was that our firm has simplified accounting and financial processes (Mean=3.16, SD=1.20 and CV=0.38) indicating low usage of simple accounting and financial processes.

Other statements showed means above 3.0 indicating that these attributes are moderately manifested among the surveyed firms. The statements include; our firm has acquired great expertise and technology resources (Mean=3.68, SD=1.36 and CV=0.46), our firm has simplified accounting and financial processes (Mean=3.16, SD=1.20 and CV=0.38), our firm has improved tax compliance as a result of better finance and tax systems in place (Mean=3.25, SD=1.21, CV=0.37).

In addition, our firm financial processes benchmark and baseline has improved over time (Mean=3.21, SD=1.27 and CV=0.39). These statements imply that some finance and tax attributes impact performance to a moderate extent. Further the statement that showed high coefficient of variation was that our firm has acquired great expertise and technology resources with a CV=0.46 implying that there was high variations in responses on the statement. The results showed therefore that in the surveyed firms, there is proper finance and tax processes put in place to ensure accountability and compliance to the statutory financial obligations.

4.7.4 Human Resources Attributes

The study determined the extent to which human resources attributes are manifested among the surveyed oil and gas distribution firms in Kenya. Good human resources practices that relate to acquiring expertise services, training and developing of staff and strategically handling of personnel issues are key to a company's ultimate survival.

The statements depicting how human resources attributes manifest among these firms were presented to respondents who were asked to rate factors on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were shown in Table 4.11.

Table 4.11: Human Resources Attributes

Human Resources Attributes	N	Mean	Std. Deviation	Coefficient of Variation
Our firm has acquired expertise services in areas of interest	109	3.82	1.01	0.27
Trainings of our staff has led to high propensity for internal innovation	106	3.29	1.21	0.37
There has been efficiency in service provision in our firm	108	3.18	1.11	0.35
Our firm has enjoyed excellent quality from external vendors	109	3.46	1.05	0.31
There has been reduced workload on our staff on outsourced services	109	3.44	1.16	0.34
Our firm has focused on strategic decision making due to reduced non-firm oriented workloads	109	3.60	1.05	0.29
There has been efficiency handling of personnel related issues in our firm	109	3.53	1.07	0.31
Average Mean Score	**109**	**3.48**	**1.10**	**0.32**

Source: Field Data (2018)

The average mean score attributed to human resources attributes as tabulated by the study is (Mean=3.48, SD=1.10 and CV=0.32). This suggests moderate human resources attributes in the oil and gas distribution firms. The statement that our firm has acquired expertise services in areas of interest had the highest mean score (Mean=3.82, SD=1.01693 and CV=0.27).

This means that the firms place importance to a moderate extent in acquiring expertise services in the areas of interest to ensure excellent service delivery. Other statements had an average mean score above 3.0; trainings of our staff has led to high propensity for internal innovation (Mean=3.29, SD=1.21 and CV=0.37), there has been efficiency in service provision in our firm (Mean=3.18, SD=1.11, CV=0.35).

Further statements with mean scores of above 3.0 were; our firm has enjoyed excellent quality from external vendors (Mean=3.46, SD=1.05, CV=0.31), there has been reduced workload on our staff on outsourced services (Mean=3.44, SD=1.16 and CV=0.34, our firm has focused on strategic decision making due to reduced non-firm oriented workloads (Mean=3.60, SD=1.05, CV=0.29) and there has been efficiency handling of personnel related issues in our firm (Mean=3.53, SD=1.07 and CV=0.31). This suggests that the human resources attribute is depicted to a moderate extent in the oil and gas distribution firms in Kenya.

The human resources function is regarded as fundamental in these firms as it enables the acquisition of expertise in different functional units of the business. This research study has indicated that it is necessary for all the oil and gas distribution firms to adopt and acquire critical human resources skills and expertise which will in turn lead to improve firm performance.

4.7.5 ICT Services Attributes

The presence of ICT service improves specific technological set ups and key functional processes that enables a firms to achieve maximum efficiency in operations improving profitability. ICT services are able to improve a firm's management systems for an effective and efficient decision making process. To determine the extent to which ICT services are manifested among the surveyed oil and gas distribution firms in Kenya, statements to measure this aspect were developed.

The respondents were asked to rate factors on ICT services on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.12.

Table 4.12: ICT Services Attributes

ICT Services Attributes	N	Mean	Std. Deviation	Coefficient of Variation
Our firm has widened specific technological assets and functions	109	3.83	0.94	0.25
There has been enhanced operational efficiency in our firm	109	3.68	1.03	0.28
The cost of hiring IT experts has reduced significantly	109	3.88	0.97	0.25
The amount invested in ICT has reduced in our firm	109	2.64	1.22	0.47
Our firm has integrated major functions for efficiency	109	2.83	1.23	0.44
There has been improved management systems for decision making process in our firm	109	2.88	1.17	0.41
Average Mean Score	**109**	**3.29**	**1.09**	**0.35**

Source: Field Data (2018)

The average mean score of the attributes of ICT services as tabulated by the study is (Mean=3.29, standard deviation=1.09 and coefficient of variation=0.35). This suggests moderate ICT attributes in the oil and gas distribution firms. The statement that had the highest mean score was that the cost of hiring IT experts has reduced significantly (Mean=3.88, SD=.97, CV=0.25). This means that to a moderate extent, the respondents agreed that hiring IT experts was affordable and can be easily outsourced.

Other statements that manifested mean scores of above 3 include; our firm has widened specific technological assets and functions (Mean=3.83, SD=.94, CV=0.25) and that there has been enhanced operational efficiency in our firm (Mean=3.68, SD=1.03, CV=0.28). The statement with the lowest mean was that the amount invested in ICT has reduced in our firm (Mean=2.64, SD=1.22, CV=0.47) which implied diverse opinions among the firms regarding the amount invested in ICT equipment and computer software.

However, other statements with means score below 3 include; the amount invested in ICT has reduced in our firm (Mean=2.64, SD=1.22, CV=0.47; our firm has integrated major functions for efficiency (Mean=2.83, SD=1.23, CV=0.44) and that there has been improved management systems for decision making process in our firm (Mean=2.88, SD=1.17and CV=0.41). This indicated some of the oil and gas firms consider ICT services factors impact performance to a less extent.

Further there was a high variation in responses on statements that the amount invested in ICT has reduced in our firm with a coefficient of variation of 0.47 and our firm has integrated major functions for efficiency with a coefficient of variation of 0.44. Considering the moderate average mean, it can be depicted to imply that oil and gas distribution firms in Kenya considers ICT important and therefore highly outsourced to facilitate their operations.

4.7.6 Procurement and Supply Chain Management Attributes

The study determined the respondents' level of agreement on procurement and supply chain management attributes. This function is crucial in any firm as it creates a flow of major products that an organization deals with from manufacturing to consumption level. Various statements depicting the different manifestations of procurement and supply chain management were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms. The respondents were asked to rate procurement and supply chain management factors on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.13.

Table 4.13: Procurement and Supply Chain Management Attributes

Procurement and Supply Chain management Attributes	N	Mean	Std. Deviation	Coefficient of Variation
There has been quick processes in supply chain functions in our firm	109	3.21	1.16	0.36
Our firm has not experienced any stock out due to proper inventory management system	109	2.60	1.13	0.44
The firm has experienced accurate and proper record keeping	108	3.00	1.04	0.35
There has been significant reduction in cost as a result of inventory management system in place	107	3.12	1.11	0.36
Suppliers have been integrated in our firm leading to reduced costs	108	3.22	1.06	0.33
There has been improved supplier-customer relationship in our firm	108	3.08	1.16	0.38
Average Mean Score	**108**	**3.04**	**1.11**	**0.37**

Source: Field Data (2018)

The average mean score for the attributes concerning procurement and supply chain management is 3.04, standard deviation of 1.11 and coefficient of variation of 0.37. This suggests moderate procurement and supply chain management attributes in the oil and gas distribution firms. A majority of the statements recorded a mean score of above 3.0 implying that to a moderate extent some of the firms consider the procurement and supply chain management factors as critical to improving firm performance. This could be due to proper record keeping, proper cost management due to an effective inventory management system and instituting an effective and cordial supplier – customer relationship.

However, one statement that our firm has not experienced any stock out due to proper inventory management system had the lowest mean (Mean=2.60, SD=1.13 and CV=0.44) implying that this particular procurement and supply chain management factor to a less extent impacts the oil and distribution firms in Kenya. The statement that manifested the highest mean was that suppliers have been integrated in our firm leading to reduced costs (Mean=3.22, SD=1.06 and SD=0.33) implying that to a moderate extent some of the firms have integrated suppliers in the firms as outsourcing partners.

Further it was found that the statement with highest variation in responses was that our firm has not experienced any stock out due to proper inventory management system with a coefficient of variation of 0.44. The study deduced that procurement and supply chain performance was well manifested within the firms surveyed.

4.7.7 Overall Summary of Business Process Outsourcing Attributes

The study further provided a summary of the descriptive statistics on the business process outsourcing attributes as manifested in various oil and gas distribution firms. These were the summaries on logistic and distribution, finance and tax, human resources, ICT services and procurement and supply chain management. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.14.

Table 4.14: Overall Summary of Business Process Outsourcing Attributes

Business Process Outsourcing Attributes	N	Mean	Std. Deviation	Coefficient of Variation
Logistics and distribution	109	3.25	1.23	0.39
Finance and tax	109	3.27	1.23	0.38
Human resources attributes	109	3.48	1.10	0.32
ICT services	109	3.29	1.09	0.35
Procurement and supply chain management	108	3.04	1.11	0.37

Source: Field Data (2018)

The summaries on business process outsourcing measures showed that human resources attributes showed the highest ranking (Mean=3.48, SD=1.10 and CV=0.32). This was followed by ICT services (Mean=3.29, SD=1.09 and CV=0.35), Finance and tax (Mean=3.27, SD=1.23 and CV=0.38), logistics and distribution (Mean=3.25, SD=1.23 and CV=0.39) and the least manifested being procurement and supply chain management (Mean=3.04, SD=1.11 and CV=0.37). The results demonstrates that human resource is the most important business process outsourcing attribute which may be illustrated to mean better personnel with the required skills are able to carry out roles effectively and other outsourcing process are a function of how human resource is constituted.

4.8 Operational Efficiency

The concept of operational efficiency has become the center of academic research due to an upsurge in competition and increasing uncertain business environment. Operational efficiencies are stated to be advantageous to firms through the improved timeliness and flexibility in delivery of products and services, increased customer satisfaction, improved quality of products and services, increased costs savings and capabilities and gaining of competitive advantage. Operational efficiency focuses on the identification of several strategies and techniques to deliver products and services to clients in a cost effective and timely manner without compromising on quality thus improving firm performance.

When firms operate more efficiently, improved productivity and profitability is expected. Consequently, the consumer may expect better and fair prices, quality service, better security and reliability of financial structures. Operational efficiently was an intervening variable in this research study having five (5) measurements namely: timelines, customer satisfaction, quality, cost saving and flexibility.

To capture data on the various operational efficiency dimensions, descriptive statements derived from literature were presented to respondents on a five - point Likert-type scale with ranges from 1 representing (not at all) to 5 representing (very large extent). The respondents were requested to indicate the extent to which the statements are applicable to firms they operate. The subsequent subsections present the findings.

4.8.1 Timelines Attributes

Timelines as a construct of operational efficiency was determined by the study using different attributes that are deemed to measure its manifestations in the surveyed oil and gas distributions in Kenya. The ability of supplies to consistently and timely deliver products enhance customer experience and allows for the effective stock management. Various statements depicting the different manifestations of timelines were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms. The results are presented in Table 4.15.

Table 4.15: Timelines Attributes

Timelines Attributes	N	Mean	Std. Deviation	Coefficient of Variation
Our firm has not experienced product shortages over the last five years	108	2.96	1.09	0.37
There is database integrating all firms activities for quick response in decisions	105	3.22	1.21	0.38
Our customers are served within the satisfactory time	108	2.99	1.13	0.38
The process of product delivery is quick in our firm	107	2.97	1.26	0.43
The stock in our firm is managed efficiently to reduce time wastage	109	3.25	1.20	0.37
There are reduced errors in counting and record keeping	109	3.04	1.20	0.39
Our employees are encouraged to keep time in their roles	109	3.28	1.23	0.38
Average Mean Score	**107**	**3.10**	**1.19**	**0.38**

Source: Field Data (2018)

The respondents were asked to rate factors of timeliness on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.15. The average mean score of timelines attributes was 3.10, standard deviation of 1.19 and coefficient of variation of 0.38. This depicts moderate timeline attributes in the oil and gas distribution firms.

The factor with the highest mean score is that our employees are encouraged to keep time in their roles (Mean=3.28, SD=1.23 and CV=0.38) implying that the oil and gas distribution firms emphasize on staff punctuality so as to be ready to serve clients. Other statements showed variations in manifestations. Factors with mean scores above 3.0 include; there is database integrating all firms activities for quick response in decisions (mean=3.22, SD=1.21, CV=0.38), the stock in our firm is managed efficiently to reduce time wastage (Mean=3.25, SD=1.20, CV=0.37) and that there are reduced errors in counting and record keeping (Mean=3.04, SD=1.20, CV=0.39). This suggests that timeliness is considered to be a good indicator of performance to a moderate extent.

The statements with mean scores below 3.0 include; our firm has not experienced product shortages over the last five years (Mean=2.96, SD=1.09, CV=0.37), our customers are served within the satisfactory time (Mean=2.99, SD=1.13, CV=0.38), the process of product delivery is quick in our firm (Mean=2.97, SD=1.26, CV=0.43) indicating challenges in customer service delivery and experience. The statements further varied in responses to a lower extent as indicated by low range in CV (0.37-0.43). The findings therefore depicts that that there is moderate timelines as far as operational efficiency is concerned in oil and gas distribution firms in Kenya.

4.8.2 Customer Satisfaction Attributes

The study also sought to establish the manifestation of customer satisfaction in the oil and gas distribution in Kenya according to respondents. Customers play a key role of contributing towards the creation of supply chains and increasing a shareholder value hence the importance of ensuring they are satisfied with the firm's products and services. This study deemed it necessary to determine the perception towards the nature of satisfaction the oil and gas distribution firms provide to customers through the provision of after sale services, an effective customer resolution system and a one stop shop for all clients.

Various statements depicting the different manifestations of customer satisfaction were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms. The respondents were asked to rate customer satisfaction factors on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. Customers were required to indicate the extent to which these statements were applicable in firms. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.16.

The results show that the average mean score of the attribute of customer satisfaction is 3.07, standard deviation of 1.22 and coefficient of variation of 0.39. This depicts moderate satisfaction levels to the customers and suppliers. The statement with highest mean score is that there are complain boxes for our customers (Mean=3.41, SD=1.25, CV=0.36) indicating that the firms have instituted a clear complaint resolution and feedback mechanism to satisfy the customers.

Table 4.16: Customer Satisfaction Attributes

Customer Satisfaction Attributes	N	Mean	Std. Deviation	Coefficient of Variation
Our firm has customer management system in place	108	2.75	1.23	0.44
Customer relationship is encouraged in our firm	108	2.93	1.21	0.41
Our firm encourages after sales services to our customers	107	3.02	1.25	0.41
Our firm has a front office services for our customers	108	2.92	1.30	0.44
Our firm has a proper customer complaint resolution system	109	3.28	1.13	0.34
There is complain boxes for our customers	108	3.41	1.25	0.36
Our firm has a call center for our customers	109	3.06	1.14	0.37
Our customers decisions are taken into firms major decision making process	109	3.22	1.24	0.38
Average Mean Score	**108**	**3.07**	**1.22**	**0.39**

Source: Field Data (2018)

The other statements with means above 3.0 include; our firm encourages after sales services to our customers (Mean=3.02, SD=1.25, CV=0.41), Our firm has a proper customer complaint resolution system (Mean=3.28, SD=1.13, CV=0.34), Our firm has a call center for our customers (Mean=3.06, SD=1.14, CV=0.37) and our customers decisions are taken into firms major decision making process (Mean=3.22, SD=1.24 and CV=0.38) implying that customer satisfaction influences performance of oil and gas distribution firms to a moderate extent.

The coefficient of variation showed high variation in responses with the highly varied statement being that our firm has customer management system in place with CV of 0.44. This implies that a majority of the firms consider customer satisfaction as a good indicator to firm performance. Other statements that manifested means below 3 include; our firm has customer management system in place (Mean=2.75, SD=1.23, CV=0.44) and that customer relationship is encouraged in our firm (Mean=2.93, SD=1.21, CV=0.41).

Other statements with means below 3 were; our firm has a front office services for our customers (Mean=2.92, SD=1.30 and CV=0.44) implying customers are not adequately served within satisfactory timelines resulting in poor customer satisfaction. Overall customer satisfaction is the basis of survival of any firm. A satisfied customer will always act as a referral actor, come back for more products and services and will also act as an advertising agent and brand ambassador for the firm. The oil and gas distribution firms in Kenya thus strive to satisfy customers in order to remain on the market.

4.8.3 Quality Attributes

The study further determined how quality as an attribute of operational efficiency is manifested within the firms surveyed. The responses on this attribute were crucial in order to gauge their perception on the existence quality of products to the firms' customers. Consumers in the oil and gas industry demand safe products which should be delivered reliably to the consumers. This calls for an error free inventory system able to track product sources, reduction of product wastages and spillages and a fool proof standardization quality system to enhance firm performances.

Various statements depicting the different manifestations of quality were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms. The respondents were asked to rate quality attribute factors on a five Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.17.

Table 4.17: Quality Attributes

Quality Attributes	N	Mean	Std. Deviation	Coefficient of variation
There is proper inventory management that eliminates errors in our firm	109	3.20	1.24	0.39
Our management encourages completeness in any role assigned	109	3.00	1.17	0.39
Our systems are well maintained to keep accurate information	109	3.15	1.21	0.36
There is proper channel of communication in our firm	109	3.01	1.26	0.42
There is reduction is wastages of our products during handling	109	2.98	1.14	0.39
The activities in our firm are well coordinated	108	3.37	1.21	0.36
There is always a backup system for all the records in our firm	109	3.46	1.28	0.37
Average Mean Score	**108**	**3.17**	**1.22**	**0.38**

Source: Field Data (2018)

The results show that the average mean score for quality attributes is 3.17, standard deviation of 1.22 and coefficient of variation of 0.38, depicting moderate manifestations of quality attributes to the customer. The statement with the highest mean score was there is always a backup system for all the records in our firm (Mean=3.46, SD=1.28, CV=0.37).

This implies that to a moderate extent some of the oil and gas firm agree that a good back up system for all records was necessary to provide real time and up to data critical for enhancing firm performance. Statements that showed moderate mean scores included; there is proper inventory management that eliminates errors in our firm (Mean=3.20, SD=1.24, CV=0.39), our management encourages completeness in any role assigned (Mean=3.00, SD=1.17, CV=0.39), our systems are well maintained to keep accurate information (Mean=3.15, SD=1.21, CV=0.36), there is proper channel of communication in our firm (Mean=3.01, SD=1.26, CV=0.42) and the activities in our firm are well coordinated (Mean=3.37, SD=1.21, CV=0.36) suggesting that the oil and gas stakeholders consider quality as a key moderate indicator to firm performance.

However, the only statement with the lowest mean was there is reduction is wastages of our products during handling (Mean=2.98, SD=1.14, CV=0.39), indicating that this particular factor impacts performance to a less extent. Further there was further low variation among the responses implying that quality of products is being considered among the oil and gas distribution firms. However there was high variation in responses among the firms on the statement that there is proper channel of communication in our firm with a coefficient variation of 0.42. The study thus illustrates that quality in service and product is important in each firm since customers are aware of the quality they need in a competitive market.

4.8.4 Cost Saving Attributes

The study further determined how the cost saving attribute of operational efficiency is manifested within the firms surveyed. Cost saving is paramount in the oil and gas industry due to the high exploration, development, production and distribution costs. An operational excellence culture geared towards cost savings through instituting an efficient order management systems, proper handling of products to avoid unnecessary wastage, trained personnel to enhance service delivery and embracing outsourcing service provides contribute towards huge cost saving opportunities enhancing performance.

Various statements depicting the different manifestations of cost savings were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms. The respondents were asked to rate cost saving attribute factors on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.18.

The results show that the average mean score of cost saving attributes is 2.96, standard deviation of 1.20 and coefficient of variation of 0.41. This manifestation implies that cost savings attributes impacted performance to a less extent in the oil and gas distribution firms. Only two manifestations had a mean above 3.0; there is cost efficiency order management system in our firm (Mean=3.18, SD=1.29, CV=0.41) and the outsourced services reduced our firms operational costs (Mean=3.14, SD=1.17, CV=0.37) meaning that the oil and gas distribution firms agree that an effective order system and outsourcing contribute to cost savings for the firms enhancing performance to a moderate extent.

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Table 4.18: Cost Saving Attributes

Cost Savings Attributes	N	Mean	Std. Deviation	Coefficient of Variation
There is cost efficiency order management system in our firm	109	3.18	1.29	0.41
The handling of our products are well managed to reduce unnecessary wastage	109	2.99	1.27	0.43
The specialized personnel are keen on cost management in our firm	108	2.78	1.26	0.45
All the processes are well researched for cost analysis before introduced in our firm	109	2.83	1.16	0.41
There are well managed firm personnel to reduce unnecessary costs	109	2.82	1.07	0.38
The outsourced services reduced our firms operational costs	109	3.14	1.17	0.37
Average Mean Score	**109**	**2.96**	**1.20**	**0.41**

Source: Field Data (2018)

Other statements gave a mean below 3.0; the handling of our products are well managed to reduce unnecessary wastage (Mean=2.99, SD=1.27, CV=0.43), the specialized personnel are keen on cost management in our firm (Mean=2.78, SD=1.26, CV=0.45), all the processes are well researched for cost analysis before introduced in our firm (Mean=2.83, SD=1.16, CV=0.41) and there are well managed firm personnel to reduce unnecessary costs (Mean=2.8257, SD=1.07017, CV=0.38) indicating to a less extent varied opinions regarding cost savings by the firms.

The study further shows that there was low variation in responses among the statements with coefficient of variation ranging from 0.37 to 0.45. The findings therefore illustrates that cost is very crucial in any firms operation which the oil and gas distribution firms are striving to reduce for maximum profits.

4.8.5 Flexibility Attributes

The study further determined how the firms surveyed apply flexibility in operations. Firms should be flexible to meet customers' needs and requirements and deliver products to the customers at the right time. Due to the nature of the oil and gas distribution industry, real time access and generation of business reports, multitasking in personnel skills and a technologically driven management platform provide the flexibility and efficiency required.

Various statements depicting the different manifestations of flexibility were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms. The respondents were asked to rate flexibility attribute factors on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.19.

Table 4.19: Flexibility Attributes

Flexibility Attributes	N	Mean	Std. Deviation	Coefficient of Variation
Our firm has real time access to business reports	109	2.89	1.07	0.37
There are diverse order management platforms like online services	109	2.85	1.16	0.41
Our firm has put in place multiple checkout options	109	2.88	1.20	0.42
Our firm personnel have been trained to handle various activities within the firm	109	2.83	1.15	0.41
There are various modes of transport to reduce chances of delay	109	2.76	1.07	0.39
There is a standby generator for power back up in our firm	109	2.77	1.06	0.38
Average Mean Score	109	2.83	1.12	0.39

Source: Field Data (2018)

The results show that the average mean score is 2.83, standard deviation of 1.12 and coefficient of variation of 0.39. This is a less extent manifestation index implying that the firms consider flexibility as an average indicator to performance. All statements had means below 3.0; our firm has real time access to business reports (Mean=2.89, SD=1.07, CV=0.37), there are diverse order management platforms like online services (Mean=2.85, SD=1.16, CV=0.41). Our firm has put in place multiple checkout options (Mean=2.88, SD=1.20, CV=0.42), our firm personnel have been trained to handle various activities within the firm (Mean=2.83, 1.15, CV=0.41), there are various modes of transport to reduce chances of delay (Mean=2.76, SD=1.07, CV=0.39) and there is a standby generator for power back up in our firm (Mean=2.77, SD=1.06, CV=0.38) indicating to flexibility impact performance to a less extent.

The variation among the responses also registered low with a CV ranging between 0.37 and 0.42. The findings thus suggests that the oil and gas firms are flexible in operations which is associated with enabling customers to get the products and avoid necessary delays during the operations as well as distribution. In addition these firms can be classified also as not so keen on flexibility.

4.9 Firm Characteristics Attributes

Firm characteristics include firm-specific resources; tangible and intangible, knowledge, capabilities as well as human capital. Firm characteristics plays a key role in firm performance and provides potential investors, policy makers and top management with insights for making key firm decisions which influence overall performance of the firm (Glen & Pinto, 1998).

This study established the firm characteristics as ownership structure, firm size, age of the firm, capital structure and liquidity and number of employees. To capture data on the various firm characteristics dimensions, descriptive statements derived from literature were presented to respondents on a five - point Likert-type scale with ranges from 1 representing (not at all) to 5 representing (very large extent). They were presented to respondents and were requested to indicate the extent to which the statements applied in firms. The subsequent subsections present the findings.

4.9.1 Ownership Structure Attributes

Ownership structure can be defined as distribution of equity with regard to votes and capital as well as identity of the equity owners. This study sought to establish the ownership structure adopted by oil and gas distribution firms in Kenya. Determining the best ownership structure suited to the firm is important as it provides shareholders with a strong incentive to monitor the firm's management and ensure adherence to corporate governance best practice.

Various statements depicting the different manifestations of ownerships structure were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms. The respondents were asked to rate ownership structure factors on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. Table 4.20 gives the results of the findings in terms of mean, standard deviation and coefficient of variation on statements relating to the ownership structure employed.

Table 4.20: Ownership Structure Attributes

Ownership Structure Attributes	N	Mean	Std. Deviation	Coefficient of Variation
Management and ownership are one and the same	109	2.89	1.07	0.37
Owners are separate from the firm managers	109	2.62	1.17	0.45
Ownership of the firm influences the vision and mission	109	3.89	1.03	0.27
Ownership of the firm determines the practice we undertake	109	2.47	1.35	0.55
Ownership structure in our firm encourages quick decision making process	109	4.02	0.97	0.24
Average Mean Score	109	3.18	1.12	0.37

Source: Field Data (2018)

The average mean score for statement depicting ownership structure is 3.18, standard deviation of 1.12 and Coefficient of Variation of 0.37. This is a moderate mean indicating that ownership structure manifests to a moderate extent among oil and gas distribution firms in Kenya. All the dimensions of ownership structure showed statistically varied differences across the firms surveyed as exhibited moderate means.

The statement with the highest mean was that ownership structure in our firm encourages quick decision making process (Mean=4.02, SD=0.97, CV=0.24) implying to a large extent a majority of the oil and gas distribution firms are limited companies through shareholding and quick decision making drives performance as more time can be created in managing other critical aspects of the business.

Only one statement had a mean of 3; ownership of the firm influences the vision and mission (Mean=3.89, SD=1.03, CV=0.27) indicating that to a moderate extent owners and managers both participate in the design of vision and mission statements; however, proprietors often play a larger role in the process of developing an organization's vision. In fact, most firms are initiated by individuals with a vision that is a set of values and a choice for a specific path of an organization.

All the dimensions of ownership structure showed to a less extent differences across the firms surveyed as exhibited by means below 3.0; management and ownership are one and the same (Mean=2.89, SD=1.07, CV=0.37), owners are separate from the firm managers (Mean=2.6, SD=1.17, CV=0.45) and ownership of the firm determines the practice we undertake (Mean=2.47, SD=1.35, CV=0.55). The statements further varied in responses as indicated by the coefficient of variation ranging between CV (0.37-0.55) indicating that the responses given are valid and consistent, hence subject to less variation.

A visionary founder is more likely to revolutionize an industry by influencing its core values and by defining a clear direction. Hence, ownership of the firm greatly influences the firms' vision and mission. These results are supported by Galbreath and Galvin (2008), who argued that the probability of firm growth, firm failure and variability of growth decreases with age and that the other characteristics with impact on performance include capital intensity and ownership structure. Firms' managers have the responsibility of setting goals and ensure that they are achieved.

4.9.2 Size of Firm Attributes

An interesting aspect of economic growth is that much of it takes place through the growth in the size of existing organizations. Size of organization determines the levels of decision making, firm operation and bearing and general organization growth. Various statements depicting the different manifestations of size of firm were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms.

The respondents were asked to rate size of firm factors on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. Table 4.21 gives the results of the findings in terms of mean, standard deviation and coefficient of variation on statements relating to the size of the firms in influencing its performance.

Table 4.21: Size of Firm Attributes

Size of Firm Attributes	N	Mean	Std. Deviation	Coefficient of Variation
Our size matters in the business operations	109	3.83	1.07	0.28
The firm size has a bearing on our returns	109	3.36	1.16	0.34
The firm size has an implication on our organizational growth	109	3.44	1.08	0.31
Our firm size enables us achieve market dominance	109	3.38	1.14	0.33
Average Mean Score	**109**	**3.50**	**1.11**	**0.32**

Source: Field Data (2018)

The average mean score recorded was (Mean=3.50, SD=1.11, C.V = 0.32). This is a moderate mean score indicating that the size of the firm attributes are moderately manifested among the oil and gas firms surveyed. The statement with the highest mean was our size matters in the business operations (Mean=3.83, SD=1.07, CV=0.28) implying that averagely the firms believe that the size of the firms have an impact on business performance.

All the dimensions of size showed statistically moderate differences across the firms surveyed as exhibited by means above 3.0; the firm size has a bearing on our returns (Mean=3.36, SD=1.16, CV=0.34), the firm size has an implication on our organizational growth (Mean=3.44, SD=1.08, CV=0.31) and our firm size enables us achieve market dominance (Mean=3.38, SD=1.14, CV=0.33). This suggests that the industry players consider the size of the firm as an average indicator to firm performance since larger firms are presumed to be more efficient than smaller ones. The variation among the responses also registered low with a CV ranging between 0.28 and 0.34 with the lowest CV indicating our size matters in the business operations.

4.9.3 Age of Firm Attributes

A firm's age is critical in influencing performance of a firm. Firm age, is the length of time a firm has been in operation in an industry since establishment. Generally, older firms are said to perform better since they have fully adapted to changes in the industry, may have attained market dominance and are well conversant with the operations in the market. Various statements depicting the different manifestations of age of firm were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms.

The respondents were asked to rate age of firm factors on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. Table 4.22 gives the results of the findings in terms of mean, standard deviation and coefficient of variation on statements relating to age of the firms in influencing its performance.

Table 4.22: Age of Firm Attributes

Age of Firm Attributes	N	Mean	Std. Deviation	Coefficient of Variation
The firm's age has been a critical factor in decision making within the firm	109	3.24	1.29	0.40
The firm's age has a major contribution to our corporate image	109	3.50	1.07	0.31
The firm's age has a major contribution to our operational successes	109	3.49	1.14	0.33
The older our firm grows the more relevant it has become	109	3.74	1.12	0.30
The older our firm grows the more viable it has become	109	3.79	1.04	0.28
Average Mean Score	**109**	**3.55**	**1.13**	**0.32**

Source: Field Data (2018)

Table 4.22 indicates the manifestations of age within the firm. The average mean was (Mean=3.55, SD=1.13, C.V = 0.32). This indicates that the age of the firm to a moderate extent influences the performance of the firm. The statements with the highest mean was the older the firm grows the more viable it has become (Mean=3.79, SD=1.04, C.V = 0.28) implying that to a moderate extent older firms are considered more sustainable in business due to the stability and business networks created.

All the dimensions of age indicated statistically moderate differences across the firms surveyed as exhibited by means above 3.0; the firm's age has been a critical factor in decision making within the firm (Mean=3.24, SD=1.29, C.V = 0.40), the firm's age has a major contribution to our corporate image (Mean=3.50, SD=1.07, C.V = 0.31), the firm's age has a major contribution to our operational successes (Mean=3.49, SD=1.14, C.V = 0.33) and the older our firm grows the more relevant it has become (Mean=3.74, SD=1.12, C.V = 0.30). The findings depict that there is moderate dimensions of age manifested in the oil and gas distribution firms in Kenya. An average coefficient variation of 0.32 additionally shows that the respondents' feedback was valid and consistent since the variation was low.

4.9.4 Capital Structure and Liquidity Attributes

Capital and liquidity as a source of firm resources in this study are depicted in terms of availability of both assets and operating capital. Accessibility of finances is important for the growth and performance of a firm. Various statements depicting the different manifestations of capital structure and liquidity were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms.

The respondents were asked to rate capital structure and liquidity factors on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. Table 4.23 gives the results of the findings in terms of mean, standard deviation and coefficient of variation on statements relating to capital and liquidity in influencing firm performance.

Table 4.23: Capital Structure and Liquidity Attributes

Capital Structure and liquidity	N	Mean	Std. Deviation	Coefficient of Variation
We have sufficient financial resources to carry out planned activities throughout the year	109	3.24	1.19	0.37
The firm has had adequate current assets (other than financial) to carry out planned activities throughout a financial year	109	3.15	1.07	0.34
Our firm meets its debt obligations on time	109	3.42	1.03	0.30
Our firm has never been in insolvent state	109	3.38	1.14	0.34
Our firm has multiple sources of capital	109	3.58	1.05	0.29
Average Mean Score	**109**	**3.36**	**1.10**	**0.33**

Source: Field Data (2018)

The findings show that the average mean score is 3.36, standard deviation is 1.10 and coefficient of variation is 0.33. This is an average mean depicting moderate manifestation of capital and liquidity among the oil and gas distribution firms in Kenya. All other statements showed mean scored of above 3.0; we have sufficient financial resources to carry out planned activities throughout the year (Mean=3.24, SD=1.19, CV=0.37) and the firm has had adequate current assets (other than financial) to carry out planned activities throughout a financial year (Mean=3.15, SD=1.07, CV=0.34) implying that some capital structure and liquidity factors impact the oil and gas distribution firms to a moderate extent.

Other statements includes our firm meets its debt obligations on time (Mean=3.42, SD=1.03, CV=0.30), our firm has never been in insolvent state (Mean=3.38, SD=1.14, CV=0.34), our firm has multiple sources of capital (Mean=3.58, SD=1.05, CV=0.29). The findings therefore imply that oil and gas distribution firms are to a moderate extent well equipped with capital and liquidity levels to undertake the operations.

4.9.5 Number of Employees Attributes

The study determined the number of employees in oil and gas distribution firms in Kenya. This was to evaluate how firms are equipped in terms of qualified and knowledgeable personnel to undertake operations. Various statements depicting the different manifestations of number of employees were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms.

The respondents were asked to rate number of employees factors on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.24.

The average mean score results shows that attributes concerning number of employees in oil and gas distribution firms was 3.21, standard deviation of 1.06 and coefficient of variation of 0.34. The statement with the highest mean score was that individual employees have had the relevant skills required for their specific roles (Mean=3.85, SD=0.96, CV=0.24) implying that to a moderate extent the oil and gas distribution firms emphasize on training and developing employees for performance.

Table 4.24: Number of Employees Attributes

Number of Employees Attributes	N	Mean	Std. Deviation	Coefficient of Variation
The firm has had adequate management staff	109	3.51	1.05	0.29
The firm has had a highly qualified top management team	109	3.80	0.94	0.24
The firm has had adequate core staff to perform its functions	109	3.63	1.01	0.27
Individual employees have had the relevant skills required for their specific roles.	109	3.85	0.96	0.24
The firm has constantly acquired new knowledge related to its operations	109	2.36	1.12	0.47
The firm has deliberately facilitated knowledge sharing across its different departments.	109	2.67	1.17	0.44
The firm has had an excellent reputation	109	2.63	1.11	0.42
Average Mean Score	109	3.21	1.06	0.34

Source: Field Data (2018)

Other statements that showed mean scores above 3.0 include; the firm has had adequate management staff (Mean=3.51, SD=1.05, CV=0.29), the firm has had a highly qualified top management team (Mean=3.80, SD=0.94, CV=0.24), the firm has had adequate core staff to perform its functions (Mean=3.63, SD=1.01, CV=0.27) suggesting that the number of employees to a moderate extent is a good indicator of performance.

However other statements showed a mean below 3.0 include; the firm has constantly acquired new knowledge related to its operations (Mean=2.36, SD=1.12, CV=0.47), the firm has deliberately facilitated knowledge sharing across its different departments (Mean=2.67, SD=1.17, CV=0.44 and the firm has had an excellent reputation (Mean=2.63, SD=1.11 and CV=0.42).

The findings therefore illustrate the diverse opinions regarding number of employees needed to successfully carry out operations in the oil and gas industry to improve performance. The variation among the responses also registered varying opinions with a CV ranging between 0.24 and 0.47 indicating diverse opinions regarding the number of employees attributes in the oil and gas distribution firms.

4.10 Firm Performance

Performance is probably one of the most widespread dependent variables used by scholars, while at the same time it remains one of the vaguest variables (Rogers & Wright, 1998). Firm performance is based upon the idea that a firm is the voluntary association of productive assets, including human, physical, and capital resources, for the purpose of achieving a shared purpose (Hayes, 2013). So long as the value created by the use of the firm's properties is equal to or greater than the value, the assets will continue to be made available to the organization and the organization will continue to exist.

Financial and non-financial performance goals drive higher profits and aid in improving the company performance. Tholons (2007) state that performance may be managed through service level agreements and operating metrics increasing profitability. This study established the firm performance having both financial and non-financial attributes. Financial attributes include; firm's return on capital, firm's gross profit, firm's investment and growth and firms sales revenue indicators. The non-financial indicators deliberated include; brand awareness; value added services, customer focus and new retail stations.

To capture data on the various performance dimensions, descriptive statements derived from literature were presented to respondents on a five- point Likert-type scale where 1(not at all) to 5 (very large extent). Research questionnaires were presented to respondents who were requested to indicate the extent to which the statements applied in their firms. The subsequent subsections present the findings.

4.10.1 Financial Attributes

One of the key attributes in determining a firm's performance is establishing its profits. Profits are established by checking a firm's revenue and assets. Various statements depicting the different manifestations of financial performance were posed and respondents were required to indicate the extent of agreement to which these statements applied to firms. The respondents were asked to rate financial performance indicators on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. Table 4.25 gives the results of the findings in terms of mean, standard deviation and coefficient of variation.

Table 4.25: Financial Attributes

Financial Attributes	N	Mean	Std. Deviation	Coefficient of Variation
The firm's return on capital have increased over the last five years	109	2.96	1.20	0.41
Firm's gross profits have increased over the last five years	109	2.36	1.07	0.46
The firm's investment and growth has increased	108	2.77	1.10	0.29
The firm's sales revenue has improved due to repeat sales.	108	2.88	1.13	0.39
Average Mean Score	**109**	**2.74**	**1.13**	**0.39**

Source: Field Data (2018)

In determining how financial attributes manifests in oil and gas distribution firms, the average mean score was 2.74, standard deviation of 1.13 and coefficient of variation of 0.39. Financial attributes indicated a less extent manifestation to performance. All the measures of financial manifestation were below 3.0; the firm's return on capital have increased over the last five years (Mean=2.96, SD=1.20 and CV=0.41), firm's gross profits have increased over the last five years (Mean=2.36, SD=1.07, CV=0.46), the firm's investment and growth has increased (Mean=2.77, SD=1.10, CV=0.29) and the firm's sales revenue has improved due to repeat sales (Mean=2.88, SD=1.13, CV=0.39). This suggests that the industry players consider financial attributes impact performance to a less extent.

The statement with the highest CV indicated that the firm's gross profits have increased over the last five years with a CV of 0.46 depicting highest variations among the responses. Generally, financial status of the firms that the study surveyed was good. Respondents indicated that the firm's profits have increased and so is the growth. This could have been facilitated by the training offered to employees, promotion of brand image as well as good financial management.

Additionally, the study noted that firms apply cost control measures and monitoring in order to improve performance. Expenses majorly influence the income levels of firms. Higher expenses may affect firms negatively and bring about to low income and less profit. On the other hand, less expenses leads to accumulation of more profits therefore good income. In a bid to increase firms' profits, a firm may develop cost cutting measures to increase revenues.

4.10.2 Brand Awareness Attributes

Brand awareness measures the potential ability to recognize a company's products and services and is a key strategy in advertisement and brand recognition. The study considered brand awareness as the measure of performance by developing statements to which respondents were to rate level of agreement. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.26.

Table 4.26: Brand Awareness Attributes

Brand Awareness Attributes	N	Mean	Std. Deviation	Coefficient of Variation
Our firm in known to many segments of the market	109	2.91	1.10	0.37
Our customers talk positive about our firm	109	2.79	1.19	0.42
The management in our firm are known by their names	109	2.69	1.12	0.41
Our firm is involved in social responsibilities	107	3.21	1.23	0.38
Our firm image is known by the quality products and service we offer	107	2.95	1.11	0.37
Our firm engages all stakeholders in all segments to boost our image	107	3.03	1.29	0.37
Average Mean Score	**108**	**2.96**	**1.17**	**0.39**

Source: Field Data (2018)

The average mean score for the attributes of brand awareness was 2.96, standard deviation of 1.17 and coefficient of variation of 0.39 indicating overall brand awareness impacts performance to a less extent. Statements with higher means above 3.0 were; our firm is involved in social responsibilities (Mean=3.21, SD=1.23, CV=0.38) and that our firm engages all stakeholders in all segments to boost our image (Mean=3.03, SD=1.29, CV=0.37). This implies that some brand awareness factors impact performance to a moderate extent.

However, statements that had a mean score below 3.0 included; our firm in known to many segments of the market (Mean=2.91, SD=1.10, CV=0.37), our customers talk positive about our firm (Mean=2.79, SD=1.19, CV=0.42), the management in our firm are known by their names (Mean=2.69, SD=1.12, CV=0.41) and that our firm image is known by the quality products and service we offer (Mean=2.95, SD=1.11, CV=0.37) indicating that brand awareness factors impact performance of oil and gas distribution firms to a less extent.

The variation among the responses registered low varying opinions with a CV ranging between 0.37 and 0.42 indicating low diverse opinions regarding the brand awareness attributes in the oil and gas distribution firms. Overall, the study therefore illustrates that there is moderate brand awareness for the oil and gas distribution firms surveyed.

4.10.3 Value Added Services Attributes

The study further determined if there are value added services within the surveyed oil gas distribution firms. Value added services are additional benefits that act as an incentive when customers purchase a product and service and are a great initiative to build goodwill an increase revenue. The study therefore considered value added services as the measure of performance by developing statements to which respondents were to rate level of agreement on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.27.

Table 4.27: Value Added Services Attributes

Value Added Services Attributes	N	Mean	Std. Deviation	Coefficient of Variation
The firm's operational efficiency has improved as a result of business process re-engineering.	108	3.25	1.21	0.37
The firm has improved its critical internal processes to sustain market leadership.	108	3.03	1.18	0.39
The firm always produces a production schedule for all its products.	108	3.32	1.22	0.37
The firm has gained market share through quality improvements.	108	2.77	1.24	0.45
The firm introduced new products.	108	2.88	1.21	0.42
Firm's Market share has been improving	108	2.99	1.25	0.42
The firm's market share has improved due to increased marketing activities.	108	2.88	1.30	0.45
Average Mean Score	**108**	**3.02**	**1.23**	**0.41**

Source: Field Data (2018)

The average mean score for the value added services attributes was 3.02, standard deviation of 1.23 and CV of 0.41. This suggests that value added services influence performance to a moderate extent in the oil and gas industry. The statement with the highest mean score was that the firm's operational efficiency has improved as a result of business process re-engineering (Mean=3.25, SD=1.21, CV=0.37) indicating that improving business processes through re-engineering influences performance to a moderate extent the firm has improved its critical internal processes to sustain market leadership (Mean=3.03, SD=1.18, CV=0.39).

However there was also the manifestation of statements with means below 3 such as the firm has gained market share through quality improvements (Mean=2.77, SD=1.24, CV=0.45), the firm introduced new products (Mean=2.88, SD=1.21, CV=0.42), firm's market share has been improving (Mean=2.99, SD=1.25, CV=0.42) and that the firm's market share has improved due to increased marketing activities (Mean=2.88, SD=1.30, CV=0.45). This therefore implies that value added services though significant impact performance of oil and gas industries to a less extent. There was also low variation in responses as indicated by low range of CV between 0.37 and 0.45.

4.10.4 Customer Focus Attributes

The study sought to establish how firms have tried to reach, attract and maintain customers in the market. Firms that have a customer centric culture emphasize on creating value for clients, have a robust customer relationship management model and have excellent structures to support customer engagement. The study therefore considered customer focus as the measure of performance by developing statements to which respondents were to rate level of agreement on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. The results of the findings in terms of mean scores, standard deviation and coefficient of variation were presented in Table 4.28.

Table 4.28: Customer Focus Attributes

Customer Focus Attributes	N	Mean	Std. Deviation	Coefficient of Variation
The firm has entered new markets	109	3.29	1.14	0.35
The firm has created value for its customers through quality products and services.	108	3.43	1.26	0.37
The firm's product/service quality has improved	109	3.04	1.14	0.38
The firm delivers goods and services to customers on time.	109	3.22	1.27	0.39
There have been good structures to support customer relationship management.	109	3.29	1.26	0.38
The firm's delivery forecasts to its customers have been accurate.	109	3.12	1.19	0.38
Managers have been able to define employee needs and development to enhance customer satisfaction.	109	3.19	1.22	0.38
Average Mean Score	**109**	**3.23**	**1.21**	**0.38**

Source: Field Data (2018)

The average mean score for the customer focus is (Mean=3.23, SD=1.21 and CV=0.38). This suggests that customer focus influence performance to a moderate extent in the oil and gas industry firms. The statement with the highest mean score is that the firm has created value for its customers through quality products and services (Mean=3.43, SD=1.26, CV=0.37) implying that to a moderate extent, value is created through the provision of quality products and services in the oil and gas distribution firms.

Other statements that showed a mean score above 3.0; are that the firm has entered new markets (Mean=3.29, SD=1.14, CV=0.35), the firm's product/service quality has improved (Mean=3.04, SD=1.14, CV=0.38), the firm delivers goods and services to customers on time (Mean=3.22, SD=1.27, CV=0.39, there have been good structures to support customer relationship management (Mean=3.29, SD=1.26, CV=0.38).

The other statements with a mean score above 3 include; the firm's delivery forecasts to its customers have been accurate (Mean=3.12, SD=1.19, CV=0.38) and that managers have been able to define employee needs and development to enhance customer satisfaction (mean=3.19, SD=1.22, CV=0.38). All the statements had a mean score above 3.0 implying that all the firms surveyed to a moderate extent satisfy customers. There was also low variation in responses as shown by low range of CV with the highest at 0.39 and the lowest at 0.35.

4.10.5 New Retail Stations Attributes

The study determined the performance aspect in terms of new retail stations established by the oil and gas distribution firms. The study therefore considered establishment of new retail station as the measure of performance by developing statements to which respondents were to rate level of agreement on a Likert-type scale of 1 (not at all) to 5 (to a large extent) as applied in the respective surveyed firms. This was through developing statements that respondents were required to rate as per their take on how they manifest within their firms. The results are presented in Table 4.29.

Table 4.29: New Retail Stations Attributes

New Retail Stations Attributes	N	Mean	Std. Deviation	Coefficient of Variation
Our firm has entered new markets	109	2.98	1.25	0.43
The number of retail stations are opened frequently	109	3.11	1.20	0.39
There has been stations opened in strategic points	108	3.37	1.23	0.37
The firm has attracted more dealers in different locations	109	3.49	1.28	0.37
Majority of our products are competitive in different segments	109	3.13	1.25	0.39
Our firm has distribution points across the segments	109	2.97	1.28	0.43
Average Mean Score	**109**	**3.18**	**1.25**	**0.39**

Source: Field Data (2018)

The average mean score is 3.18, standard deviation of 1.25 and coefficient of variation of 0.39 implying the development of new retail stations influences performance to a moderate extent. The statement with the highest mean score is the firm has attracted more dealers in different locations (Mean=3.49, SD=1.28, CV=0.37) implying that to moderate extent, the establishment of retail stations influences performance in the oil and gas distribution firms.

Other statements that showed moderate manifestations with mean scores above 3.0 include: the number of retail stations are opened frequently (Mean=3.11, SD=1.20, SD=0.39), there has been stations opened in strategic points (Mean=3.37, SD=1.23, CV=0.37) and that majority of our products are competitive in different segments (Mean=3.13, SD=1.25, CV=0.39) implying that some factors of new retail stations impact performance to a moderate extent in the oil and gas distribution firms.

Two statement indicated to a less extent manifestation with mean scores below 3 are: our firm has entered new markets (Mean=2.98, SD=1.25, CV=0.43) and our firm has distribution points across the segments (Mean=2.97, SD=1.28, CV=0.43). There was further a lower variation in response with the statement that there has been stations opened in strategic points and that the firm has attracted more dealers in different locations having the lowest variation as presented by CV of 0.37. The results thus illustrates that new retail stations manifestations scored moderately on average and therefore deduced to mean that oil and gas distribution firms have opened new retail stations to serve various market segments.

4.11 Chapter Summary

Chapter four presented the results and findings of this study that sought to establish the influence of operational efficiency and firm characteristics on the relationship between BPO and performance of oil and gas distribution firms in Kenya. This chapter presented the findings of various analyses performed on the study variables by giving results in terms of mean, standard deviation and coefficient of variation. Tests for normality, multicollinearity, heteroscedasticity and linearity, were also presented. Chapter five discusses the tests of hypotheses and discussion of the findings in the various.

CHAPTER FIVE

TESTS OF HYPOTHESES AND DISCUSSION

5.1 Introduction

This chapter presents and discusses the results of the hypotheses as derived from the specific objectives of the study. The study was based on the premise that there is a relationship between business process outsourcing (BPO) and performance of oil and gas distribution firms in Kenya. This relationship is moderated by firm characteristics and subsequently intervened by operational efficiency. To achieve this objective, four specific objectives were set and corresponding hypotheses formulated.

The specific objectives of the study included: to determine the relationship between BPO and performance of oil and gas distribution firms in Kenya, to establish the influence of operational efficiency on the relationship between BPO and performance of oil and gas distribution firms in Kenya, to ascertain the influence of firm characteristics on the relationship between BPO and performance of oil and gas distribution firms in Kenya and to establish the joint effect of BPO, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya.

Four hypotheses were also formed on the basis of the research objectives. They include; BPO has a significant influence on the performance of oil and gas distribution firms in Kenya, operational efficiency has a significant intervening effect on the relationship between BPO and performance of oil and gas distribution firms in Kenya and firm characteristics have a significant moderating effect on the relationship between BPO and performance of oil and gas distribution firms in Kenya.

The final and fourth hypotheses was that BPO, operational efficiency and firm characteristics have a significant joint effect on performance of oil and gas distribution firms in Kenya. The hypotheses were tested using; simple regression analysis for hypothesis one. The four steps approach proposed by Baron and Kenny (1986) tested the intervening effect of operational efficiency for hypothesis two. Hypothesis three was tested using the Hierarchical regression for the moderating effect of firm characteristics. Multiple regression tested the combined effect exhibited by hypothesis four. Choice of which analytical tools is used was guided by the study objective, type of data as well as the measurement scales.

The hypotheses were tested at 95 percent confidence level ($\alpha=0.05$), hence decision points to reject or fail to reject a hypothesis were based on the p-values. Where $p<0.05$, the study failed to reject the hypotheses, and where $p>0.05$, the study rejected the hypotheses. Interpretations of results and subsequent discussions also considered correlations (R), coefficients of determinations (R^2), F-Statistic values (F) and beta values (β). R^2 indicated the change in dependent variable explained by change in the independent variables combined.

Further, the higher the F-Statistic, the more significant the model was. The negative or positive effect of the independent variable on the dependent (either negative or positive) was explained by checking the beta (β) sign. The R-value shows the strength of the relationship between the variables, t-values represent the significance of individual variables. The findings are presented along study objectives and corresponding hypotheses.

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5.2 Results of Test of Hypotheses

This section presents the results of the tests of hypotheses. The hypotheses are a manifestation of the relationship between the study variables as conceptualized and presented in the conceptual model. There were four research objectives and four corresponding hypotheses which were tested using Simple, Path, Hierarchical and multiple regressions to establish the statistical significance of these hypotheses. The study hypothesized that there is an association between business process outsourcing (independent variable) and performance of oil and gas distribution firms in Kenya (dependent variable) but this relationship is moderated by firm characteristics and operational efficiency as an intervening variable.

In addition, the study hypothesized that the joint effect of the variables business process outsourcing, operational efficiency and firm characteristics is greater that their individual effect on performance. A composite index for each of the study variables was computed through averaging of the total number of measurement items on each variable. Business process outsourcing was measured as a composite index of logistics and distribution, finance and tax, human resources, ICT services and procurement and supply chain management. Firm characteristics was measured as a composite index of ownership structure, size, age of the firm, capital structure and liquidity and number of employees.

Operational efficiency was measured as a composite index of timelines, customer satisfaction, quality, cost saving and flexibility. Finally, performance was computed as composite index of financial, brand awareness, value added services, customer focus and new retail stations. The subsections below present the findings on the regression analysis conducted.

5.2.1 Business Process Outsourcing and Firm Performance

This subsection presents the results of the tests for the first hypothesis of this study which was formulated from the first research objective. This objective sought to establish the influence of business process outsourcing on performance of oil and gas distribution firms in Kenya. The procedure of testing and results are discussed.

The study determined the influence of business process outsourcing on each of the performance measurements. This study used both financial and nonfinancial measures of performance. The financial measures were; firms return on capital, firm's gross profit, firms investment and growth and firm's sales revenue due to repeat sales while the non-financial indicators were; brand awareness, value added services, customer focus and new retail stations. The results are presented in subsections herein.

5.2.1.1 Business Process Outsourcing and Financial Performance

The study proposition is that business process outsourcing influence the performance of oil and gas distribution firms in Kenya. Business process outsourcing attributes include; logistics and distribution, finance and tax, human resources, ICT services and procurement and supply chain management are presumed to influence the financial performance measure. This was done by calculating the indices for each of the business process outsourcing dimensions and perform a regression analysis with financial performance as the dependent variable. The results are presented in Table 5.1.

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Table 5.1: Effect of Business Process Outsourcing on Financial Performance

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Business process outsourcing	.636[a]	.405	.396	.74350
ANOVA[a]						
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Model		Sum of Squares	df	Mean Square	F	Sig.
Business process outsourcing constructs	Regression	131.671	4	26.334	47.639	.000[b]
	Residual	193.475	104	.553		
	Total	325.146	108			
Coefficient						
---	---	---	---	---	---	---
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Business process outsourcing constructs	(Constant)	.553	.265		2.083	.038
	Logistics and distribution	.831	.079	.600	10.480	.000
	Finance and tax	-.279	.093	-.152	-3.015	.003
	Human resources	.134	.074	.099	1.802	.072
	ICT services	-0.67	.045	-0.071	-1.475	.141
	Procurement and supply chain management	.177	.061	.143	2.891	.004

Source: Field Data (2018)

The effects of Business process outsourcing dimensions on financial performance are shown in Table 5.1. The study found a moderately strong association between business process outsourcing dimensions and financial performance (R= .636). Coefficient of determination (R^2 =.405) indicates that business process outsourcing constructs together explain 40.5 % of variation in financial performance. Business process outsourcing dimensions significantly influence financial performance (High t-values, $p<0.05$). Overall the model was significant as shown by high F-values (F=47.639, $p<0.05$).

The dimension with highest influence is logistics and distribution (β=.831, $p<0.05$). Other dimensions with positive influence are human resources (β=.134, $p<0.05$), ICT services (β=.051, $p<0.05$) and procurement and supply chain management (β=.177, $p<0.05$). However finance and tax and ICT services manifested negative but significant results. The effect is negative which may be due to huge taxes imposed on oil and gas products.

5.2.1.2 Business Process Outsourcing and Brand Awareness

The study further tested the effect of independent business process dimensions on brand awareness. The average indexes for all the dimensions for both business process outsourcing constructs and brand awareness were determined and a regression analysis carried out. The results are presented in Table 5.2.

Table 5.2: Business Process Outsourcing and Brand Awareness

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Business process outsourcing constructs	.443[a]	.196	.187	.67161
ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
Business process outsourcing constructs	Regression	38.626	4	9.657	21.409	.000[b]
	Residual	158.320	104	.451		
	Total	196.946	108			
Coefficient						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Business process outsourcing constructs	(Constant)	1.541	.185		8.343	.000
	Logistics and distribution	.138	.057	.143	2.443	.015
	Finance and tax	-.056	.040	-.076	-1.398	.064
	Human resources	.045	.048	-.058	.953	.163
	ICT services	.391	.054	.416	7.259	.000
	Procurement and supply chain management	.118	.031	.123	3.781	.002

Source: Field Data (2018)

The study found a relatively moderate and positive relationship between business process outsourcing dimensions and brand awareness (R= .443). Coefficient of determination (R^2 =.196) indicates that business process outsourcing independent dimensions together explain 19.6% of variation in brand awareness.

In overall business process outsourcing dimensions significantly influence brand awareness (High t-values, $p<0.05$). Further, the model was significant as shown by high F-value (F=21.409, $p<0.05$). The dimension with highest influence are ICT services (β=.391, $p<0.05$) and logistics and distribution (β=.138, $p<0.05$). Other dimensions with positive influence are procurement and supply chain management (β=.118, $p<0.05$) and human resource (β=.045, $p<0.05$).

However finance and tax showed negative and insignificant relationship with brand awareness (β=-.056, $p>0.05$). This therefore implies that business process outsourcing constructs that include logistics and distribution, human resources and ICT services factors are key in determining brand awareness of oil and gas distribution firms in Kenya.

5.2.1.3 Business Process Outsourcing and Value Added Services

The effect of business process outsourcing on value added services was investigated. The average indexes for all the dimensions for both business process outsourcing constructs and value added services were determined and a regression analysis carried out. The results are presented in Table 5.3.

The study found that the independent business process outsourcing constructs have a moderate influence on value added services (R= .301). Coefficient of determination (R^2 =.090) indicating that independent business process outsourcing constructs explain 9.0% of variation of value added services.

Table 5.3: Effect of Business Process Outsourcing and Value Added Services

Model Summary					
Model	R	R Square	Adjusted R Square		Std. Error of the Estimate
Business process outsourcing constructs	.301[a]	.090	.080		.87801

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
Business process outsourcing constructs	Regression	26.893	4	6.723	8.721	.000[b]
	Residual	270.587	104	.771		
	Total	297.480	108			

Coefficient						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Business process outsourcing constructs	(Constant)	1.970	.241		8.158	.000
	Logistics and distribution	.164	.074	.054	2.259	.031
	Finance and tax	-.132	.052	-.146	-3.525	.012
	Human resources	.263	.062	.065	4.218	.000
	ICT services	.285	.070	.247	4.044	.009
	Procurement and supply chain management	.164	.074	.054	3.059	.013

Source: Primary Data (2018)

Overall model was significant as shown by high F - value (F=8.721, p<0.05). ICT services had a positive and significant influence on value added services (β=.285, p<0.05). Procurement and supply chain management had positive but insignificant influence on value added services (β=.164, p>0.05). Further it was found that fiance and tax was negative but significant in influencing value added services (β=-.132, p<0.05). This implies that business process outsourcing influences value added services. The findings therefore imply that BPO independent constructs are important in determining value added services of oil and gas distribution firms in Kenya.

5.2.1.4 Business Process Outsourcing and Customer Focus

The effect of business process outsourcing on customer focus was determined. The average scores for all the dimensions for both business process outsourcing constructs and customer focus were investigated and a regression analysis carried out. The results are presented in Table 5.4.

Table 5.4: Business Process Outsourcing and Customer Focus

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Business process outsourcing constructs	.462[a]	.214	.205	.92596
ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
Business process outsourcing constructs	Regression	81.837	4	20.459	23.862	.000[b]
	Residual	300.946	104	.857		
	Total	382.783	108			
Coefficient						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Business process outsourcing constructs	(Constant)	1.213	.255		4.764	.000
	Logistics and distribution	.206	.078	.153	2.637	.009
	Finance and tax	.005	.055	.005	.098	.922
	Human resources	.307	.066	.006	3.099	.000
	ICT services	.501	.074	.382	6.743	.000
	Procurement and supply chain management	.302	.061	.142	4.925	.000

Source: Field Data (2018)

The study found that business process outsourcing constructs and customer focus have a strong relationship (R= .462). Coefficient of determination (R^2 =.214) indicates that business process outsourcing constructs together explain 21.4% of variation of customer focus. Overall model was significant as shown by high F - value (F=23.862, $p<0.05$). Logistics and distribution, human resources and ICT services showed positive and significant relationship with customer focus ($\beta=.206$, $p<0.05$), ($\beta=.307$, $p<0.05$) and ($\beta=.501$, $p<0.05$) respectively.

Finance and tax however showed insignificant influence on customer focus (β=.005, p>0.05). This thus indicates that BPO constructs are important in determining customer focus especially logistics and distribution, human resources and ICT services factors.

5.2.1.5 Business Process Outsourcing and New Retail Stations

The effect of business process outsourcing on new retail stations was investigated. The average scores for all the dimensions for both business process outsourcing constructs and new retail stations were determined and a regression analysis carried out. The results are presented in Table 5.5.

Table 5.5: Business Process Outsourcing and New Retail Stations

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Business process outsourcing constructs	.635[a]	.403	.395	.74458

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
Business process outsourcing constructs	Regression	131.105	4	26.221	47.296	.000[b]
	Residual	194.041	103	.554		
	Total	325.146	108			

Coefficient						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Business process outsourcing constructs	(Constant)	.481	.257		1.872	.062
	Logistics and distribution	-.100	.093	-.068	-1.072	.285
	Finance and tax	-.251	.096	-.137	-3.610	.009
	Human resources	.161	.072	.119	2.245	.025
	ICT services	.832	.080	.600	10.382	.000
	Procurement and supply chain management	.189	.072	.153	2.629	.009

Source: Field Data (2018)

The study found that business process outsourcing constructs and new retail stations have a strong relationship (R= .635). Coefficient of determination (R^2 =.403) indicates that business process outsourcing constructs together explain 40.3% of variation of new retail stations. Overall model was significant (F=59.16, p<0.05) examining the fitness of the model.

Human resources, ICT services and procurement and supply chain management showed positive and significant relationship with new retail stations (β=.161, p<0.05), (β=.832, p<0.05) and (β=.189, p<0.05). Finance and tax however showed significant but negative influence on new retail stations (β=-.251, p>0.05). This indicates that business process outsourcing constructs are important in determining new retail stations especially human resources, ICT services and procurement and supply chain management attributes.

5.2.1.6 Overall Business Process Outsourcing and Firm Performance

The study then determined the overall influence of business process outsourcing on both the financial and nonfinancial attributes of performance. Business process outsourcing attributes include; logistics and distribution, finance and tax, human resources, ICT services and procurement and supply chain management are presumed to influence the financial performance in firms. The results were as presented on Table 5.6. The results show that there is a relatively moderate relationship between business process outsourcing and firm performance (R=.386). The coefficient of determination R^2 =.149 implies that business process outsourcing explains 14.9% of the variation in firm performance.

Table 5.6: Overall Regression Results of Business Process Outsourcing and Firm Performance

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Business process outsourcing	.386[a]	.149	.140	.57721
a. Predictors: (Constant), Business process outsourcing				

a) ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
Business process outsourcing	Regression	5.723	1	5.723	17.176	.000[b]
	Residual	32.651	107	.333		
	Total	38.373	108			
a. Dependent Variable: Firm performance						
b. Predictors: (Constant), Business process outsourcing						

b) Combined coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.315	.139		23.898	.000
Business process outsourcing	.245	.059	.386	4.144	.000
a. Dependent Variable: Firm performance					

Source: Field Data (2018)

The analysis from the model had the F value of 17.176 with p-value .000< 0.05, while the results of the beta coefficient showed that a unit increase in business process outsourcing will cause a .245 increase in firm performance (B=.245, t=23.898, p<0.05). This implies that business process outsourcing predicts firm performance. The findings, thus, were sufficient to support the influence of business process outsourcing on performance of oil and gas distribution firms in Kenya; therefore the hypothesis (H_1) was accepted. The regression equation can be written as follows;

Y = 3.315+ .245BPO where Y = Firm performance, BPO= Business Process Outsourcing

5.2.2 Business Process Outsourcing, Operational Efficiency and Performance of Oil and Distribution Firms in Kenya

The study sought to determine the influence of operational efficiency as an intervening variable on the relationship between business process outsourcing and performance through formulation of the following hypothesis.

H_2: Operational efficiency has a significant intervening effect on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya

Baron and Kenny (1986) four-step method was used to test the hypothesis using regression analysis. Step one involved regressing business process outsourcing with performance. The progression moves to step two if step one yields statistically significant results and if not significant, the process terminates and would be concluded that operational efficiency do not intervene the relationship between business process outsourcing and performance.

In step two business process outsourcing was regressed against operational efficiency. If the results are significant, the process moves to step 3 because the necessary condition for an intervening effect exist. In step three the influence of operational efficiency on performance is tested using a simple linear regression model. A statistically significant effect of operational efficiency on performance is a necessary condition in testing for the intervening effect.

Finally, Step four tested the influence of business process outsourcing on performance while controlling for the effect of operational efficiency. These tests were done using simple linear regression analysis. The influence of business process outsourcing on performance should not be statistically significant when operational efficiency is controlled. This is a necessary condition in testing for an intervening effect. Results from the four steps are presented in Table 5.7, 5.8, 5.9 and 5.10 respectively.

Step One: Business process outsourcing were regressed against Performance. The results are presented in Table 5.7.

Table 5.7: Regression Results for the Effect of Business Process Outsourcing on Performance

a) Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.802ᵃ	.643	.640	.77199

a. Predictors: (Constant), Business process outsourcing

b) ANOVAᵃ					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	124.427	1	124.427	208.779	.000ᵃ
Residual	69.133	107	.596		
Total	193.560	108			

a. Dependent Variable: Performance
b. Predictors: (Constant), business process outsourcing

c) Combined coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.499	.273		-1.829	.070
	Firm characteristics	1.163	.081	.802	14.449	.000

a. Dependent Variable: Performance

Source: Field Data (2018)

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The findings in Table 5.7 indicate a statistically strong and positive relationship between business process outsourcing and performance (R=.802). Coefficient of determination (R^2=.643) depicts that business process outsourcing explains 64.3% variations of performance. The F-value of 208.779 with p-value of 0.00 which is less than the level of significant 0.05, hence the model is statistically significant. The results thus confirmed the first step of testing for the intervening effect of operational efficiency on the relationship between operational efficiency and performance.

The intervening testing then progressed to step two that involved testing the influence of business process outsourcing on operational efficiency. The results of the tests are presented in Table 5.8.

Table 5.8: Regression Results for the Effect of Business Process Outsourcing on Operational Efficiency

(a) Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.620[a]	.384	.379	.46520
a. Predictors: (Constant), Business process outsourcing				
b. Dependent Variable: Operational efficiency				

(b) ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.454	1	14.454	66.788	.000[a]
	Residual	23.156	107	.216		
	Total	37.610	108			
a. Predictors: (Constant), Business process outsourcing						
b. Dependent Variable: Operational efficiency						

(c) Coefficients		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	1.813	.177		10.229	.000
	Business process outsourcing	.424	.052	.620	8.172	.000
a. Predictors: (Constant), Business process outsourcing						
b. Dependent Variable: Operational efficiency						

Source: Field Data (2018)

The results presented in Table 5.8 indicate that business process outsourcing have a positive and statistically strong relationship with operational efficiency (R=.620). Further the coefficient of variation (R^2=.384) depicted that operational efficiency is explained by 38.4% of business process outsourcing. Further the F-value was 66.788 with P-value of .00 which is<0.05, hence the model is statistically significant. The results, therefore suggest that the second step of testing confirms the process of testing the intervening effect to move to step 3. In Step three Operational efficiency was regressed against performance. The results for the step 3 are presented in Table 5.9.

Table 5.9:   Regression Results for the Effect of Operational Efficiency on Performance

(a) Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.577[a]	.333	.289	.62334

(b) ANOVA					
Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	8.909	1	2.970	7.642	.000[b]
1	Residual	17.873	107	.389		
	Total	26.782	108			

(c) Coefficients					
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
	(Constant)	3.105	.416		7.467	.000
1	Operational efficiency	.238	.093	.355	2.570	.012
a. Dependent Variable: Performance						

Source: Field Data (2018)

The results in Table 5.9 indicate that operational efficiency had a significant relationship with performance (R=.577) with operational efficiency explaining 33.3% of performance (R^2=.333) with remaining percent being explained by other factors not considered in the model. The analysis from the model had F-value of 7.642 with P-value of 0.00 which is less than the level of significance 0.05, hence the model is statistically significant. Therefore the condition in the third step in testing for an intervening effect was satisfied and therefore progressed to step 4 in testing for the intervening effect.

Finally, step four tested the influence of business process outsourcing on performance while controlling for the effect of operational efficiency. These tests were done using simple linear regression analysis. The influence of business process outsourcing on performance should not be statistically significant at α=.05 when operational efficiency is controlled.

The results in Table 5.10 show that when operational efficiency is controlled business process outsourcing explain only 30.8% of the variation in performance (R^2 =.308) which is not statistically significant (p-value=.091 which is less than 0.05 threshold at 95% confidence level). At model 2, operational efficiency adds significantly to the performance as the variation increased from .308 to .864 and p-value=.000. The results reveal that the variance explained by operational efficiency is significant (F=47.577, p-value=0.000) and the significance was increased (F=335.658, p-value=.000) in the second model.

Table 5.10: Regression Results Depicting Intervening Effect of Operational Efficiency on Business Process Outsourcing and Performance

(a) Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.555[a]	.308	.301	.49381
2	.929[a]	.864	.861	.22021

(b) ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.601	1	11.601	47.577	.000[b]
	Residual	26.092	107	.244		
	Total	37.693	108			
2	Regression	32.553	2	16.277	335.658	.000[b]
	Residual	5.140	106	.048		
	Total	37.693	108			

(c) Coefficients						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
	(Constant)	.032	.159		.203	.839
	Business process outsourcing	.243	.053	.184	4.606	.000
	Operational efficiency	.731	.035	.832	20.786	.000

a. Dependent Variable: Performance

Source: Field Data (2018)

The results revealed that the regression coefficients for business process outsourcing increased from 0.243 to .731 when operational efficiency were added to the regression suggesting that operational efficiency may be exerting an intervening effect. The hypothesis that operational efficiency intervenes the relationship between business process outsourcing and performance was therefore accepted. This can imply that the attributes of operational efficiency discussed are manifested in the oil and gas distribution firms in Kenya to the extent of influencing the business process outsourcing and subsequent the performance.

5.2.3 Business Process Outsourcing, Firm Characteristics and Firm Performance

The moderating effect of firm characteristics was determined by testing the effect of the business process outsourcing (independent) variable on performance (dependent) variable when the moderator is introduced. However, prior to performing this analysis, the direct link between firm characteristics and performance was first established. Therefore, the third hypothesis of this study was broken down into two parts – the first part (H_{3a}) sought to establish if firm characteristics has a statistically significant effect on performance, while the second part (H_{3b}) sought to determine if the moderating effect of firm characteristics on the association between business process outsourcing and performance is statistically significant.

The effect of firm characteristics on performance was established through simple linear regression using the composite indices computed for both firm characteristics and performance. The results were as presented in Table 5.11.

Table 5.11: Regression Results of Firm Characteristics and Performance

a) Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Firm characteristics	.523[a]	.274	.272	.58386
b) ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
Firm characteristics	Regression	47.032	1	47.032	137.967	.000[b]
	Residual	124.768	107	.341		
	Total	171.800	108			
c) Combined coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
(Constant)		1.109	.170		6.522	.000
Firm characteristics		.686	.058	.523	11.746	.000

a. Dependent Variable: Performance
a. Predictors: (Constant), Firm characteristics
Source: Field Data (2018)

The results in the model summary show that R=.523 suggesting that there exists a moderate relationship between firm characteristics and performance. Coefficient of determination R^2=.274 implies that firm characteristics influence performance by 27.4% with other factors not considered in the model influencing 72.6%. The F value is 137.967 and p=0.00<0.05 depicting a significant model. Results of the coefficients shows that a unit increases in firm characteristics will cause .686 increases in performance.

This implies that firm characteristics are a good predictor of performance of oil and gas distribution firms in Kenya. The findings, thus, were sufficient to support the influence of firm characteristics on performance. After establishing the direct effect of firm characteristics on performance, the study next sought to determine the extent to which these firm characteristics influence the association between business process outsourcing and performance through the hypothesis that:

H_{3b}: Firm characteristics have a statistically significant moderating effect on the association between business process outsourcing and performance of oil and gas distribution firms in Kenya.

The composite index was computed for both business process outsourcing, firm characteristics and performance and the hypothesis tested through Hierarchical regression analysis. In step one, business process outsourcing was regressed on performance. In step two, business process outsourcing was regressed on firm characteristics. In step three the interaction term between business process outsourcing and firm characteristics was introduced. The moderation effect is confirmed when the effect of interaction term is statistically significant. The results were as presented in Table 5.12.

Table 5.12: Moderation Results of the Effect of Firm Characteristics on Business Process Outsourcing and Performance

a) Model Summary									
			Adjusted	Std. Error	Change Statistics				
		R	R Square	of the	R Square	F	df1	df2	Sig. F
Model	R	Square		Estimate	Change	Change			Change
1 Business Process Outsourcing	.439ª	.192	.190	.61573	.104	1.856	3	105	.150
2 Business process outsourcing, Firm Characteristics,	.523ª	.274	.272	.58386	.281	4.634	2	106	.150
3 Business process outsourcing Firm Characteristics, interaction	.761ª	.579	.578	.39456	.385	6.490	5	103	.000

b) ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1 Business process outsourcing	Regression	3.048	1	1.016	1.856	.030
	Residual	26.277	107	.547		
	Total	29.325	108			
2 Business process outsourcing, Firm Characteristics	Regression	14.961	2	4.980	8.823	.000
	Residual	22.007	106	.446		
	Total	28.967	108			
3 Business process outsourcing, Firm Characteristics interaction	Regression	14.349	5	1.794	6.490	.000
	Residual	14.975	103	.348		
	Total	29.325	108			

c) Coefficients							
	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	.803	.314		2.559	.013		
Business process outsourcing	.360	. 086	.426	4.192*	. 000	.966	1.035
Performance	.290	.106	.278	2.740*	.008	.966	1.035
2 (constant)	.740	.319		2.321*	.023		
Business process outsourcing	.357	.086	.421	4.148*	.000	.964	1.037
Firm characteristics	.314	.108	.301	2.905*	.005	.925	1.081
3 Business process outsourcing, Firm Characteristics interaction	.675	.068	.354	9.937*	.000	.958	1.044

a. Predictors: (Constant), Business process outsourcing, firm characteristics

b. Predictors: (Constant), Business process outsourcing, firm characteristics, Interaction term between business process outsourcing and firm characteristics

c. Dependent Variable: Performance

Source: Field Data (2018)

The results in Table 5.12 on the moderating effect of firm characteristics on the association between business process outsourcing and performance were computed using three steps. In model one the result shows that the association between business process outsourcing and performance was significant (R= .439[a,] R^2=0.192, P-value<0.05). In model two (R= .523[a,] R^2=274, P-value<0.05) and in model three (R= .761[a,] R^2=0.579, P-value<0.05), suggesting that there was a progressive increase in the value of the coefficient of variation in each step thus portraying an influence of firm characteristics.

Coefficient of determination R^2=.0.579 implies that firm characteristics influence the association between business process outsourcing and performance by 57.9%, suggesting a positive and strong moderating influence. The value of the interaction term (BPO * FC) had a significant influence (β= .675, P<0.05) thus confirming a moderation effect of firm characteristics on the association between business process outsourcing and performance. The study therefore accepts the hypothesis that firm characteristics moderate the effect of business process outsourcing on performance of oil and gas distribution firms in Kenya.

The moderating equations for business process outsourcing, firm characteristics and performance can thus be written as:

$Y = .803 + .360X_1$

$Y = .740 + .357X_1 + .314Z$

$Y = .803 + .360X_1 + .314Z + .675X.Z$

Where: Y= Performance; X= Business process outsourcing ; Z= Firm characteristics; X.Z= Business process outsourcing and firm characteristics interaction.

5.2.4 The Joint Effect of Business Process Outsourcing, Firm Characteristics, Operational Efficiency and Performance

The fourth study objective was to determine the joint effect of business process outsourcing, firm characteristics and operational efficiency on performance and arising from this objective, the following hypothesis was formulated and tested - H4: Business process outsourcing, firm characteristics and operational efficiency have a statistically significant joint effect on performance. The hypothesis was tested using both simple and multiple regression analysis.

Simple regression was used to test for individual independent effects while multiple regression analysis was used to test for joint effects. In the regression model, performance was the dependent variable, while business process outsourcing, firm characteristics and operational efficiency were predictor variables. The joint effect was then established by regressing predictor variables on performance.

The regression results presented in Table 5.13 show that the influence of business process outsourcing on performance was significant (R^2=0.342, F=254.46, P<0.05) implying that business process outsourcing explains 34.2% of variation in performance while the other 65.8% is explained by other factors not considered in this study. The regression of business process outsourcing on performance is significant with P < 0.05 and F ratio 254.469.

Table 5.13: Regression Results of the Individual for the Joint Effect of Business Process Outsourcing, Firm characteristics and Operational efficiency on Overall Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1 Business process outsourcing	.585[a]	.342	.340	.38402
2 Firm characteristics	.523[a]	.274	.272	.58386
3 Operational efficiency	.580[a]	.336	.335	.55811
4 Joint- Business process outsourcing, firm characteristics, Operational efficiency	.830	.688	.668	.39410

Source: Field Data (2018)

Model		Sum of Squares	df	Mean Square	F	Sig.
1 Business process outsourcing	Regression	37.526	1	37.526	254.469	.000[a]
	Residual	72.260	354	.147		
	Total	109.786	355			
2 Firm characteristics	Regression	47.032	1	47.032	137.967	.000[b]
	Residual	124.768	354	.341		
	Total	171.800	355			
3 Operational efficiency	Regression	57.795	1	57.795	185.546	.000[b]
	Residual	114.005	354	.311		
	Total	171.800	355			
4 Joint- Business process outsourcing, firm characteristics, Operational efficiency	Regression	116.116	3	5.372	34.586	.000
	Residual	107.300	352	.155		
	Total	223.416	355			

Model	Unstandardized Coefficients		Standardized Coefficients			t	Sig.
	B	Std. Error	Beta				
(Constant)	1.335	.108				12.333	.000
Business process outsourcing	.473	.030	.585			15.952	.000
Constant	1.109	.170				6.522	.000
Firm characteristics	.686	.058	.523			11.746	.000
Constant	1.614	.111				14.536	.000
Operational efficiency	.561	.041	.580			13.622	.000
4 (Constant)	1.656	.596		-2.778	.008		
Joint- Business process outsourcing, firm characteristics, Operational efficiency	.741	.188	.383	3.933	.000	19.789	.000

a. Dependent Variable: Performance

b. Predictors: (Constant), Business process outsourcing, firm characteristics, Operational efficiency

Source: Field Data (2018)

The co-efficient β is also significant ($\beta = 0.473$, t = 15.952, P < 0.05) suggesting that when business process outsourcing changes by one percent, it leads to a 47.3% change in performance. Further firm characteristics also showed significant influence on performance ($R^2=0.274$, F=137.97, P<0.05) and operational efficiency ($R^2=0.336$, F=185.546, P<0.05). This implies that both firm characteristics and operational efficiency are significant in explaining performance.

The test for joint effects was performed through a separate analysis to establish the combined influence of business process outsourcing, firm characteristics and operational efficiency on performance. The regression results in table 5.13 show that the joint influence of business process outsourcing, firm characteristics and operational efficiency on performance was significant ($R^2 =0.688$, F= 34.586, P< 0.05).

The results suggest that jointly, business process outsourcing, firm characteristics and operational efficiency explain 68.8% of variation in performance, while the remaining 31.2% is explained by other factors not considered in the study. The F ratio shows that the regression of business process outsourcing, firm characteristics and operational efficiency on performance is statistically significant at P < 0.05. It is clear from the value of $R^2 =.668$ and F ratio that the regression model was fit for use in the analysis.

The joint effect was thus higher and significant ($R^2 =0.688$, F= 34.586, P< 0.05) compared to the individual effect of individual variables. In view of this finding, the hypothesis that the combined effect of business process outsourcing, firm characteristics and operational efficiency on performance is greater than the individual effect of each variable on performance was supported.

Based on the results, the regression model for hypothesis four can be fitted as follows:

The original model: $Y_0 = \beta_0 + \beta_1 BPO + \beta_2 FC + \beta_3 OE + \varepsilon$

The new model: $Y = 1.656 + 0.473BPO + 0.686FC + 0.561OE$

Where:

Y = Performance

BPO = Business Process Outsourcing

FC = Firm characteristics

OE = Operational efficiency

ε = error term

This model suggests that even in the absence of all three variables - business process outsourcing, firm characteristics and operational efficiency – oil and gas distribution firms in Kenya will perform by 1.656 units. However, for a unit increase in business process outsourcing, firm characteristics and operational efficiency, firms will perform by 0.473 units, 0.686 units and 0.561 units respectively, when all other factors are held constant.

From this regression model, it is thus evident that performance of oil and gas distribution firms in Kenya is influenced to a high degree by the combination of the predictor variables - business process outsourcing, firm characteristics and operational efficiency, whose beta coefficients were all positive and statistically significant. A summary of the above analyses with respect to the study objectives and hypotheses is presented in Table 5.14.

Based on the above results therefore, the hypothesis that the joint effect of business process outsourcing, firm characteristics and operational efficiency is greater than the individual effect on performance is accepted. A summary of the above analyses with respect to the study objectives and hypotheses is presented in table 5.14.

Table 5.14: Summary of Research Objectives, Hypotheses, Analytical Models and Conclusions

Objective	Hypothesis	F-test	Levels of Significance (p-value)	Conclusion
i) To determine the relationship between BPO and performance of oil and gas distribution firms in Kenya.	H_1: Business process outsourcing has a significant influence on the performance of oil and gas distribution firms in Kenya.	17.176	.000	Business process outsourcing is a strong statistical predictor of performance. **H_1 was supported**
ii) To establish the influence of operational efficiency on the relationship between BPO and performance of oil and gas distribution firms in Kenya.	H_2: Operational efficiency has a significant intervening effect on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.	26.867	0.001	There is a strong statistical moderating influence of operational efficiency on the association between business process outsourcing and performance. **H_2 was supported**
iii) To ascertain the influence of firm characteristics on the relationship between BPO and performance of oil and gas distribution firms in Kenya.	H_3: Firm characteristics have a significant moderating effect on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.	6.490	.000	There is a strong statistical moderating influence of firm characteristics on the association between business process outsourcing and performance. **H_3 was supported**
iv) To establish the joint effect of BPO, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya.	H_4: Business process outsourcing, operational efficiency and firm characteristics have a significant joint effect on performance of oil and gas distribution firms in Kenya.	34.586	.000	The joint effect of business process outsourcing, operational efficiency and firm characteristics on performance is greater than the effect of each variable separately. **H_4 was supported**

Source: Field Data (2018)

From the results in Table 5.14, there is a statistically significant and positive association between business process and performance of oil and gas distribution firms in Kenya ($R=.386$, $R^2 =.149$, $P=.000$). Firm characteristics also were found to moderate the relationship between firm business process outsourcing and performance ($R=.761$, $R^2 =.579$, $P=.000$). Further operational efficiency was found to significantly intervene the relationship between business process outsourcing and performance ($R=.854$, $R^2 =.730$, $P=.041$). Regarding the joint effects of business process outsourcing, firm characteristics and operational efficiency on performance, the results reveal that this effect is significantly greater that the individual effect of business process outsourcing on performance ($R=.830$, $R^2 =.688$, $P=.000$). Therefore, all four study hypotheses were accepted.

5.3 Discussion of Findings

The following section discusses the results of this study in line with the research objectives and the hypotheses formulated. These were formulated based on existing literature, both conceptual and empirical, and led to the development of conceptual model which outlined the relationships between the variables. To test the hypotheses, regression analysis was used after conducting tests for statistical assumptions.

5.3.1 Business Process Outsourcing and Firm Performance

The first objective of the study aimed at establishing the influence of business process outsourcing on performance of oil and gas distribution firms in Kenya. This objective had a corresponding hypothesis, H_1, which stated that business process outsourcing has significant influence on the performance of oil and gas distribution firms in Kenya. The study determined the influence of business process outsourcing on each of the performance measurements.

The study found that business process outsourcing dimensions significantly influence each of the performance measures since the corresponding p-value were less than 0.05. This implies that business process outsourcing of oil and gas distribution firms determines performance to a great extent. Empirical literature has identified the existence of a strong and positive link between BPO and firm performance (Bharadwaj, Saxena & Halemane, 2010).

Firms that have embraced outsourcing have benefited in terms of accessing supplier specialist knowledge in various business processes, improved value-added operational cost management, increased revenue management and better product quality management (Tas & Sunder 2004; Aron & Sign, 2005). In addition, McCormack, Johnson and Walker (2003) stated that the more outsourced processes a firm has, the better its performance from the perspective of the firm and its employees. However, despite the great achievements gained from outsourcing, a few empirical discussions have indicated potential obstacles in outsourcing gains and indicate glaring inconsistencies in research.

Raiborn, Butler and Massoud (2009) argue that BPO may lead to loss of control of own innovation and technology, decreased product and service quality standards, increased long term unforeseen contractual and transaction costs and loss of organizational trust between employer and employee relationship (Lanford & Parsa, 1999; Beaumont & Sohal, 2004). In view of these inconclusive arguments, scholars have in the past embarked on studies to test the impact of BPO on performance.

Arvanitis and Loukis (2012) comparative study focused on outsourcing and firm performance of Swiss and Greek firms concluded that outsourcing enhances innovation performance but has a negative or weak relationship impacting productivity and operational efficiency. Locally, Awino and Mutua (2013) census study focused on strategy, firm characteristics, BPO and performance of Kenyan state corporations and opined that all Kenyan State corporations outsource and BPO has a positive contribution to firm's overall performance

Dynamic Capabilities Theory (Teece, Pisano & Shuen, 2008) has been used to explain the outsourcing preparation phase and vendor selection phase of the BPO process. This is where key decisions on core competencies are developed, business functions outsourced and contract relationship created with a key focus of improving firm performance. The finding in this study agree with the Dynamic Capabilities Theory which affirms that BPO builds from the proposition that when a firm lacks strategic resources or certain capabilities, the firm may work in partnership with an external provider through an outsourcing or partnership relations to improve firm performance (Winter, 2003).

This study having empirically demonstrated BPO's positive impact on the performance of oil and gas distribution firms in Kenya, concludes that there exists a significant relationship between BPO and firm performance which may be a source of competitive advantage and therefore agrees with the studies concluded by Teece, Pisano & Shuen, (2008). However, this study disagrees with the view from Collins (1994) which stated that although certain capabilities may be valuable and dynamic, they may not always be a source for sustainable advantage.

The findings of this study are therefore an indication that for oil and gas distribution firms to continuously improve on performance, respective business process outsourcing are to be evaluated and realigned to key objectives. The study therefore established there exists a strong relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.

5.3.2 Business Process Outsourcing, Operational Efficiency and Firm Performance

The study also determined how operational efficiency conceptualized as an intervening variable affecting the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya. The operational efficiency indicators used in this study include; timeliness in the delivery of products and services, customer satisfaction, quality of products and services, cost savings and flexibility.

From the analysis of primary data involving BPO, operational efficiency and firm performance ratios and the resulting tests of the generated hypotheses, the current study established that operational efficiency mediates the relationship between BPO and performance of oil and gas distribution firms in Kenya. The literature reviewed in this study concurred with the finding of the study (Dess, Lumpkin, Eisner & McNamara, 2013; Kale, Meneghetti & Shahrur, 2013; Jiang, Juanjuan, Le & Jing, 2017). Kale, Meneghetti and Shahrur (2013) opined that a firm's operational effectiveness in delivering products and services to clients may have a possible intervening effect on the relationship between BPO and performance.

Dess, Lumpkin, Eisner and McNamara (2013) asserted that the alignment between BPO, operational efficiency and firm performance is critical in the outsourcing process. It was therefore critical to develop strategic outsourcing and its future core capabilities, firm structure and competitive position and adjust these to the long-term business strategy. In analyzing the relationship between BPO, operational efficiency and firm performance, studies indicate that operational efficiency may have an intervening relationship between BPO and firm performance (Dess et al., 2013).

Arguments offered in support of BPO indicate that outsourcing may be a means of improving operational efficiencies, achieving competitive advantage and enabling firms to improve performance (Gilley & Rasheed, 2000). Sufian (2007) proposed various methods of enhancing the cost effectiveness and make or outsource decisions alternatives to better understand impact of outsourcing on operational efficiency and performance.

However, Abdul-Halim and Chetta (2009) expressed reservations concerning the influence of operational efficiency on the relationship between business process outsourcing and performance and argue that BPO may bring about the loss of operational efficiencies and competitive advantage creating future competition (Haizer & Render, 2011). Business process outsourcing is also said to be prone to strategic challenges such as reduced firm's control and coordination over its products and services impacting on operational efficiency attributes of quality and timely delivery of products and services raising the firm's liability (Lysons & Farrington, 2006).

The successful application of the Theory of Constraints has been in manufacturing process outsourcing and BPO service industry outsourcing (Librelato, Lacerda, Rodrigues & Veit, 2014). The adoption of the Theory of Constraint in this study is informed by the fact that greater operational efficiencies may mean less constraint eventually improving firm performance (Gupta & Boyd, 2008).

Motwani, Klein and Harowitz (1996) recommended that by applying the Theory of Constraints, firms may eliminate constrains, improve timelines and flexibility in the delivery of goods and services, enhance customer satisfaction and cost savings impacting performance positively. This study disagrees with the view that the Theory of Constraints overstates cost minimization while understating cost savings transactions to the firms and that higher levels of asset specificity may lead to a lower amount of the core business being outsourced (Jiang, Juanjuan, Le & Jing, 2017).

This study agrees with the view that operational efficiencies are considered as advantageous to firms that are engaged in outsourcing through the improved timeliness and flexibility in the delivery of products and services, increased customer satisfaction, improved quality of products and services and capabilities and gaining competitive advantage (Kale, Meneghetti & Shahrur, 2013). Therefore success of firms depends partly on a proper match between business process outsourcing and operational efficiency and this match is expected to have a positive impact on performance.

Therefore, good operational efficiency in place is very crucial for oil and gas distribution firms in pursuit to performance goals. The study therefore established operational efficiency has a significant intervening effect on the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.

5.3.3 Business Process Outsourcing, Firm Characteristics and Firm Performance

The third objective of the study was to establish the effect of firm characteristics on the relationship between business process outsourcing and performance. The study supported the hypothesis that the firm characteristics moderate business process outsourcing and performance relationship. The relatively high change in R^2 was an indication that the interaction term had significant effect to explain the relationship.

The literature reviewed in this study concurred with the findings of the study. Firm characteristics aspects such as increase in the number of employees, debt financing, equity ratio, liquidity and leverage levels are considered to have a direct impact on firm performance (Ganguli, 2013). Kaguri (2013) conducted a study on moderating effect of firm characteristics such as size, diversification, leverage, liquidity, age, premium growth and claim experience on financial performance of life insurance companies in Kenya and opined that the variables are statistically significance to influencing premium growth and financial performance of life insurance companies as indicated by the positive and strong Pearson correlation coefficients.

However, some authors have expressed reservations concerning the influence of firm characteristics on the relationship between BPO and performance. Kiganane, Bwisa and Kihoro (2012) conducted a study on assessing the moderating influence of firm characteristics on the effect of mobile phone services on firm performance in Thika town in Kenya and concluded that firm characteristics have no statistical significant influence on the effect of mobile phone services on firm performance.

Mahfoudh (2013) sought to find out the effect of selected firm characteristics namely; firm size, leverage, firm age, liquidity, and board size on firm financial performance as measured by return on assets on seven agricultural firms listed at the Nairobi Securities Exchange. The study demonstrated that only liquidity and board size were statistically significant and firm size, firm age and leverage were not significant. Firm size, firm age, leverage, and liquidity were positively related to firm financial performance while board size was negatively related to firm financial performance.

The Dynamic Capabilities Theory attempts to deal with issues of essential firm characteristics or attributes that firms need to have to achieve the goals to ensure competitive survival and improve on firm performance. Collins (1994), contends that dynamic capabilities may be highly susceptible and may supersede higher order capabilities leading to infinite regress. The Dynamic Capabilities Theory has been used to explain the outsourcing preparation phase and vendor selection phase of the outsourcing process where key decisions of core competencies are developed, business functions outsourced and contract relationship created all to improve firm performance (Teece, Pisano & Shuen, 2008).

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The adoption of the Dynamic Capabilities Theory in this study is informed by the fact that firms may adopt essential firm level factor characteristics to improve performance and ensure competitive survival (Helper & Sako, 1995). Firm's capital and ownership structure decisions are key aspects of firm characteristics and both play a key role in influencing firm performance decisions such as outsourcing firm activities that are considered high risk for maximum returns (Glen & Pinto, 1998; Bernard, Redding & Schott, 2011).

This study further concurs with some studies conducted and point out that in some circumstances, firm characteristics may not always provide a moderating effect on the relationship between BPO and performance (Kiganane, Bwisa & Kihoro, 2012; Mahfoudh, 2013). Previous studies undertaken assert that when it comes to considering a firm's age and size characteristics, a mature firm that is relatively large is size experiences less financial and liquidity constraints and few barriers to growth as opposed to newer and small sized firms that are sensitive to financial and liquidity constraints (Cho & Pucik, 2005).

Therefore firm characteristics are stated to influence and moderate the relationship between BPO and performance (Golan, Krissof, Kuchler, Nelson, Price & Calvin, 2015). The study therefore established firm characteristics have a significant moderating effect on the relationship between BPO and performance of oil and gas distribution firms in Kenya.

5.3.4 Joint Effect of Business Process Outsourcing, Operational Efficiency, Firm Characteristics on Firm Performance

The study also determined the joint effect of business process outsourcing, operational efficiency, firm characteristics and performance of oil and gas distributions firms in Kenya. A corresponding hypothesis (H_4) stating that the joint effect of business process outsourcing, operational efficiency and firm characteristics has influence on the performance of oil and gas distribution firms in Kenya was formulated and tested. The study found that the results of the joint effect were statistically significant implying that the variables jointly influence performance.

The findings of this study are in agreement with a study carried out by Carton and Hofer, (2010) who asserted that the joint relationship between BPO, operational efficiency, firm characteristics and performance may best be analyzed using the situational approach. This approach is of the view that the determinants that affect firms are uniquely different and therefore there is no one general applicable way that the variables may be studied and managed (Cho & Pucik, 2005).

Outsourcing of a firm's non-core operations to an external service provider is deemed to lower production and coordination costs. However, the transactional cost sometimes become high due to the management of service providers and shared risks. It is therefore important to note that all the variables significantly influenced firm performance and more significant when jointly taken into consideration.

The Theory of Constraint, Dynamic Capabilities theory and Transaction Cost Economics theory indicate that the functions that are not firm specific should be outsourced. A firm's decision to outsource its processes and functions to an external service provider should exclusively be based on the rationale to protect the firm value and only implemented when the transactional costs outweigh the management costs of conducting the activity in-house.

The application of Theory of Constraint, Dynamic Capabilities Theory and the Transaction Cost Economics Theory in BPO is in the vendor selection phase and contract preparation stage where it is critical to benchmark the internal and external service providers. According to Transaction Cost Economics Theory, when asset specificity is low, and transactions are relatively frequent, transactions might be governed by outsourcing. In other words, higher levels of asset specificity would lead to a lower amount of the core business being outsourced (Jiang, Juanjuan, Le & Jing, 2017).

Business process outsourcing's influence on performance is evidenced by the large number of firms using outsourcing to control overhead costs and eliminate operational inefficiencies that impact firm performance (Lyson & Farriangton, 2006). Notwithstanding the considerable growth of BPO, there is very little knowledge about firm-level characteristics that facilitate BPO and are key to influencing performance (Abdul-Halim & Chetta, 2009; Manning, Larsen & Bharati, 2015). The more firm level characteristics are shared in outsourcing, the greater is the potential for improving operational efficiencies and firm performance (Currie & Willcocks, 2014).

From the findings of this study and the subsequent tests of the generated hypotheses, this research has established that the joint effect of business process outsourcing, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya is greater than the individual effect of the variables on performance of oil and gas firm's distribution firms.

This study agrees with the view that outsourcing may have a positive impact on operational efficiency, firm characteristics and performance (Kaplan & Norton, 2008). In addition, this study concurs with the findings that a firm's operational efficiency may have a significant intervening influence on BPO and subsequent performance while firm characteristics may have a moderating influence between BPO and performance (Ganguli, 2013).

5.4 Chapter Summary

This chapter has presented the results of the hypotheses formulated from the specific objectives of the study. Simple regression analysis was employed to test for direct relationships between the study variables, indirect relationships were tested for by multiple regression analysis, while moderation and intervening effects were tested for using Hierarchical regression analysis and Path analysis respectively. The joint influence was tested through multiple regression technique. The study hypotheses were all supported. Chapter six discusses summary, conclusion and recommendation of the findings in the study.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The purpose of this study was to critically determine the influence of business process outsourcing, operational efficiency and firm characteristics on performance of oil and gas distribution firms in Kenya. The study was driven by the fact that while the oil and gas distribution firms are involved in business process outsourcing, there has been a gap in determining its impact in the petroleum industry. It is this concern that has aroused the researcher's interest to study the oil and gas distributions firms in Kenya.

The specific objectives of the study included: to determine the relationship between BPO and performance of oil and gas distribution firms in Kenya; to establish the influence of operational efficiency on the relationship between BPO and performance of oil and gas distribution firms in Kenya; to ascertain the influence of firm characteristics on the relationship between BPO and performance of oil and gas distribution firms in Kenya and to establish the joint effect of BPO, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya.

This chapter provides a summary of the research findings, conclusions and recommendations of the study. It also discusses the theory contribution to the academia, the implications to the policy makers, and the industry stakeholder. It further observes the limitations and proposes areas of future research.

6.2 Summary

The objective of this study was to determine the influence of operational efficiency and firm characteristics on the relationship between business process outsourcing (BPO) and performance of oil and gas distribution firms in Kenya. In order to establish this, four objectives and corresponding four hypotheses were developed to guide the study. The anchoring theory in this study was the Theory of Constraints (Goldratt, 1990), supplemented by the Dynamic Capabilities Theory (Teece, Pisano & Shuen, 2008) and the Transaction Cost Economics (Coase, 1960). The study employed a positivism research philosophy using the cross sectional descriptive survey research design.

Primary data was obtained using a self-administered structured questionnaire. The respondents comprised of two (2) members of the executive management team per oil and gas distribution firm in Kenya consisting of the commercial manager or equivalent due to the commercial awareness and knowledge base requirements the positions hold. The population for the study consisted one hundred and thirty (130) oil and gas distribution firms in Kenya registered and licensed by the ERC to import, export and wholesale on oil and gas products in the country.

One hundred and nine (109) questionnaires were effectively filled and returned. A response rate of 83.85% was realized. Descriptive statistics such as standard deviation, frequency distribution and measures of central tendency were computed to analyze the characteristics of the variables of interest. Inferential statistics was used to test the nature and magnitude of the relationship between the variables and conclusions drawn. Simple, Path analysis, Hierarchical and multiple regressions were used to test the four hypotheses.

The study established that business process outsourcing attributes contribute significantly to performance of oil and gas distribution firms in Kenya. The findings provided satisfactory statistical evidence indicating that operational efficiency has a full intervening influence on the relationship between business process outsourcing and firm performance of oil and gas distribution firms in Kenya. The study established that firm characteristics contributed significantly in moderating the relationship between business process outsourcing and firm performance of oil and gas distribution firms in Kenya.

Finally, the study established that business process outsourcing, firm characteristics and operational efficiency have a statistically significant joint effect on performance. The study recommended an interactive model where all the variables; business process outsourcing, operational efficiency and firm characteristics can be considered across the oil and gas distribution firms to foster performance since the joint effect was found to be more significant than their individual effect on performance.

6.2.1 Business Process Outsourcing and Performance

The first study objective sought to determine the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya. Under this objective, it was hypothesized that business process outsourcing has a significant influence on the performance of oil and gas distribution firms in Kenya. The study has shown that the BPO contributes significantly to both financial and non-financial performance.

The business process outsourcing dimensions used in the study include; logistics and distribution, finance and tax, human resources, ICT services, and procurement and supply chain management. The financial measures used in this study are; firms return on capital, firm's gross profit, firms investment and growth and firm's sales revenue due to repeat sales while the non-financial indicators were; brand awareness, value added services, customer focus and new retail stations.

The study found that business process outsourcing dimensions significantly influence each of the performance measures in oil and gas distribution firms since corresponding p-value were less than 0.05. The relationship was thus statistically significant so the hypothesis is supported and thus the alternative hypothesis that business process outsourcing has a significant influence on the performance of oil and gas distribution firms in Kenya was not rejected.

Business process outsourcing refers to the process where a firm outsources its near core activities allowing for shared benefits and risks between the client and service provider which is associated with reduced operational costs and increased revenues enabling the firm to increase new customers, improve brand awareness, improve quality of after sale services and value-added services. This establishes how logistics and distribution manifests among the oil and gas distribution firms in Kenya. Logistics and distribution plays a significant role in solving business logistics problems and challenges which in turn provides firms with the ability to succeed.

To capture these data, the respondents were asked to indicate the rating to which they view how statements relating to logistics and distribution manifest themselves in the firms. The average mean score of the statements depicting the manifestations of logistics and distribution was high depicting an average manifestation of logistics and distribution among oil and gas distribution firms in Kenya. The statement with highest mean was that our firm has managed to free space due to efficient logistic and distribution processes. The study therefore implies that the function of logistics and distribution is exhibited among these firms since it plays a crucial role in moving the products across the supply chain destinations.

The study examined the extent to which finance and tax attributes are manifested among the surveyed firms. The results show that the average means score of the attributes of finance and tax was above average. This indicates moderate manifestations among the oil and gas distribution firms in Kenya. The statement with the highest mean score was that there has been great focus to meet financial regulatory requirements in our firm. The results showed therefore that in the surveyed firms, there is proper finance and tax processes put in place to ensure accountability and compliance to the statutory financial obligations.

The study investigated the extent to which human resources attributes are manifested among the surveyed oil and gas distribution firms. The findings therefore shows that human resource attributes are manifested in oil and gas distribution firms in Kenya. This being an important firm's function that enables acquisition of expertise in different functional units, it is necessary for all firms to adopt and more so the oil and gas distribution firms who need technical handling and distribution processes.

The presence of ICT service improves the functional processes and enables the firms' achieve maximum efficiency in operations. To determine the extent to which ICT services are manifested within the firms, statements to measure this aspect were developed. It can be depicted to imply that oil and gas distribution firms in Kenya consider ICT important and therefore highly outsourced to facilitate their operations.

The study evaluated the respondents' level of agreement on procurement and supply chain management attributes. This function is crucial in any firm since it creates a flow of major products that an organization deals with from manufacturing to consumption level. It can therefore deduce from the study that procurement and supply chain performance is well manifested within the firms surveyed.

6.2.2 Business Process Outsourcing, Operational Efficiency and Performance

The study established how operational efficiency conceptualized as an intervening variable affects the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya. The operational efficiency indicators used in this study include; timeliness in the delivery of products and services, customer satisfaction, quality of products and services, cost savings and flexibility.

The concept of operational efficiency has become the center of academic research due to an upsurge in competition and increasing uncertain business environment. Operational efficiency focuses on the identification of several strategies and techniques to deliver products and services to clients in a cost effective and timely manner without compromising on quality thus improving firm performance.

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To investigate the perceptions of respondents towards operational efficiency within their firms therefore, statements relating to each operational efficiency factor – timelines, customer satisfaction, quality, cost saving and flexibility were developed. Timelines as a construct of operational efficiency was determined by the study using different attributes that are deemed to measure its manifestations in the surveyed oil and gas distributions in Kenya.

The average mean score of timelines attributes were high depicting high manifestations of timelines attributes. The findings therefore depicts that that there is moderate timelines as far as operational efficiency is concerned in oil and gas distribution firms in Kenya. The study also sought to establish the manifestation of customer satisfaction in the oil and gas distribution in Kenya according to respondents. It was necessary to determine the perception towards the nature of satisfaction given to customers.

The results show that the average mean score of the attribute of customer satisfaction is 3.07, standard deviation of 1.22 and coefficient of variation of 0.39. This depicts moderate satisfaction level to the customers. Overall customer satisfaction is the basis of survival of any firm since a satisfied customer will always come back for more products and he will also act as an advertising agent by talking good about the firm and as a referral actor. The oil and gas distribution firms in Kenya thus strive to satisfy customers in order to remain on the market.

The study further determined how quality as an attribute of operational efficiency is manifested within the firms surveyed. The responses on this attribute were crucial in order to gauge their perception on the existence quality of products to the firms' customers. The results show that the average mean score for quality attributes is 3.17, standard deviation of 1.22 coefficient of variation of 0.38. The study thus illustrates that quality in service and product is important in each firm since customers are aware of the quality they need in a competitive market.

Cost saving is paramount in every firm that is geared towards making profit since too much cost involved reduces the ability of a firm to earn profit and therefore make losses. The findings therefore illustrates that cost is very crucial in any firms operation and therefore oil and gas distribution firms are striving to reduce for maximum profits. The study further determined how the firms surveyed apply flexibility in their operations. The findings thus implies that the oil and gas firms are flexible in their operations which is associated with enabling customers to get the products and avoid necessary delays during the operations as well as distribution.

From the analysis of primary data involving BPO, operational efficiency and firm performance and the resulting tests of the generated hypotheses, the current study established that operational efficiency mediates the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya.

6.2.3 Business Process Outsourcing, Firm Characteristics and Performance

The third objective of the study was to establish the effect of firm characteristics on the relationship between business process outsourcing and Performance. The firm characteristics indicators used in this study include firm ownership structure, firm age, firm size, capital structure and firm liquidity level and number of employees. The study supported the hypothesis that the firm characteristics moderate the relationship between business process outsourcing and performance.

The relatively high change in R^2 was an indication that the interaction term had significant effect to explain the relationship. The results of the findings indicate that majority of oil and gas firms are limited liabilities. This is synonymous with (ERC, 2017) that oil and gas distribution firms in Kenya are mainly limited companies or partnerships. Large firms in size have the ability and advantage to attract more clients and generate income to an organization. The findings indicate that most firms are limited companies which might be due to intensive capital required to start and operate the firms in question which is sourced through shareholding.

Limited companies also utilize expertise in different fields for quality decision making process. Size of the firm is key in ascertaining internal processes and therefore was important to determine its impact and manifestation in the oil and gas distribution firms in Kenya. The firms with numerous personnel in its operation indicated by its large size implies that more employees are required in each functional unit to carry out the necessary roles and functions. It can also mean that the firm is doing well in terms of number of distribution channels or retail stores spread across the country.

The results show that majority of oil and gas distribution firms in Kenya have employees ranging from 101-200. The study indicates that majority of oil and gas distribution firms have been in existence for over 20 years. The study determined the scope of operation of the oil and gas distribution firms surveyed. This was in the premise that, firms with a wide scope of operation are able to have a better competitive advantage in serving a large market and therefore realize great profits. The outcome of the findings indicate that majority of oil and gas distribution firms operate throughout Kenya.

The results indicate that most oil and gas distribution firms in Kenya serve a wide range of market segments that are distributed throughout the country, hence they do not only limit themselves in segments that are close to location. Generally, a firm that serves a wide range of market is able to make huge profits as opposed to a firm that is only limited to market within its geographic location.

6.2.4 Business Process Outsourcing, Operational Efficiency, Firm Characteristics and Firm Performance

The fourth objective of the study sought to establish the joint effect of BPO, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya. This objective hypothesized, that the joint effect of BPO, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya is greater than the individual effects of the variables on performance. Multiple linear regressions was computed to test the contributory effect of business process outsourcing, operational efficiency and firm characteristics on performance.

The results in Table 5.13 reveal that business process outsourcing, operational efficiency and firm characteristics jointly have a statistically significant influence on performance. The regression results in table 5.13 show that the joint influence of business process outsourcing, firm characteristics and operational efficiency on performance was significant (R^2 =0.688, F= 34.586, P< 0.05). In view of this finding, the hypothesis that the joint effect of business process outsourcing, firm characteristics and operational efficiency on performance is greater than the individual effect of each variable on performance was supported.

6.3 Conclusion

The main objective of the study was to test the relationship between business process outsourcing, firm characteristics and operational efficiency on performance of oil and gas distribution in Kenya. A model to test these relationships was conceptualized and data was collected using a prepared questionnaire on the aspects to be tested. To achieve this objective, first tests were done on the independent effects, followed by combined effects and finally composite to confirm or not to confirm the hypothesis.

It was established that the influence of business process outsourcing on performance of oil and gas distribution firms was statistically significant. The study also reported statistically significant independent effects of the business process dimensions on some indicators of performance. The study also noted some key relationships and variations between the oil and gas distribution firm's performance and the business process outsourcing.

The strength of the relationship between business process outsourcing and performance was generally strong and that business process outsourcing does also influence firm characteristics and operational efficiency. The results suggested mixed results on business process outsourcing dimensions influence on performance although the relationship is moderately strong. The results indicated that individual predictors were statistically significant.

It was established that the moderating effect firm characteristics showed statistically significant results on performance of oil and gas distribution firms. The results of firm characteristics moderation on BPO dimensions showed significant relationship with performance of oil and gas distribution firms in Kenya. The results of analysis to establish the effect of BPO dimensions and operational efficiency on performance showed a very strong relationship. Business process outsourcing and operational efficiency dimensions suggested that the variables had statistically significantly moderated the firm performance.

The findings imply that operational efficiency strengthens the effect of BPO on performance. The interaction between business process outsourcing and operational efficiency had an influence on performance to support an intervening relationship. The results indicate that BPO and operational efficiency have significant influence on performance. This implies that BPO depends on operational efficiency in determining the performance of oil and gas distribution firms.

These findings inform firms that for the confirmed hypotheses, they should be keen on the influence of those effects. The results of this study have theory support from the Theory of Constraints (Goldratt, 1990), supplemented by the Dynamic Capabilities Theory (Teece, Pisano & Shuen, 2008) and the Transaction Cost Economics (Calantone & Stanko, 2007).

Lastly, it was established that firm characteristics weakens the effect of BPO on performance of oil and gas distribution firms. The interaction between BPO and firm characteristics had an influence on performance to support a moderation relationship. The results indicates that BPO and firm characteristics have significant influence on performance; thereby accepting the hypothesis, that firm characteristics moderates the effect of the relationship between business process outsourcing and performance of oil and gas distribution firms.

The independent effects of the variables influence performance by creating synergy in oil and gas distribution firms in Kenya. In effect no single variable can effectively influence firm's performance. The study has made attempts to establish the synergistic effect of the study variables that can create competitive advantage. This conclusion is consistent with findings from previous research (Carton & Hofer, 2010; Bernard, Redding & Schott, 2011; Manning, Larsen & Bharati, 2015) and lends credibility to the idea that firm performance is determined, in part, by the combination of factors both from operational efficiency and firm characteristics.

6.4 Implications of the Study

The broad objective of this study was to establish the relationship between business process outsourcing and performance of oil and gas distribution firms in Kenya. Operational efficiency and firm characteristics were hypothesized as intervening and moderating variables respectively. Business process outsourcing was the independent and firm performance was the dependent variable.

6.4.1 Implications for Theory

The findings of this study showed that business process outsourcing attributes are significant contributing factors in the Dynamic Capabilities Theory (Teece, Pisano & Shuen, 2008). Firms may be required to create, extend or modify resources and capabilities to acquire the right firm characteristics to improve performance and sustain a competitive advantage.

This supports the Transaction Cost Economics (TCE) Theory (Calantone & Stanko, 2007) which directs that functions that are not firm specific such as logistics and distribution, finance and tax, human resources, ICT services and procurement and supply chain management should be outsourced (Furubotn, 2001). Gupta and Boyd (2008) in discussing the Theory of Constraints (Goldratt, 1990), demonstrated that firms may need to identify and eliminate constraints that lead to weak links in operations negatively impacting performance.

Previous studies have recognized the key role played by business process outsourcing in improving both short and long term financial and non-financial performance (Fill & Visser, 2000; McCormack, Johnson & Walker, 2003; Giustiniano & Clarioni, 2013). The intervening influence of operational efficiency on the relationship between business process outsourcing and firm performance in this study confirms findings of previous studies (Sufian, 2007; Dess, Lumpkin, Eisner & McNamara, 2013; Kale, Meneghetti & Shahrur, 2013). Operational efficiencies are stated to be advantageous to firms engaged in outsourcing as presented in the study, however, caution on the loss of operational efficiencies may create future competition for the organizations (Haizer & Render, 2011).

In testing the moderating influence of firm characteristics, this study confirmed that firm characteristics have a significant moderating influence on the relationship between business process outsourcing and performance. The results have supported the Dynamic Capabilities Theory (Teece, Pisano & Shuen, 2008) and previous studies (Mahfoudh, 2013; Golan, Krissof, Kuchler, Nelson, Price & Calvin, 2015; Sunders, Lewis & Thornhill, 2016).

In examining the integrative joint influence of BPO, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya, the findings indicated that the combined effect of business process outsourcing, firm characteristics and operational efficiency on performance was greater than the individual effect of each variable on performance. The results have been grounded on the Theory of Constraints (Goldratt, 1990), the Transaction Cost Economics (TCE) Theory (Calantone & Stanko, 2007) and the Dynamic Capabilities Theory (Teece, Pisano & Shuen, 2008).

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The Theory of Constraints and Transaction Cost Economics (TCE) theory appear to complement each other as ways to approach business process outsourcing analysis (McIvor, 2000; Mohiuddin & Su, 2013). The findings have also supported previous studies (Gupta & Boyd, 2008; Sunders, Lewis & Thornhill, 2016) which have supported the joint influence of BPO, operational efficiency, firm characteristics and performance.

6.4.2 Policy Implications

The results of the study provide evidence that business process outsourcing, operational efficiency and firm characteristics in oil and gas distribution firms significantly contribute to performance in the Kenyan economy. The petroleum sector is very crucial to Kenya's economic development and contributes significantly to the gross domestic product. The Government of Kenya, in its Vision 2030 development policy, aims at transforming the country into a middle-income economy.

The oil and gas sector is prioritized as one of the infrastructural enablers to the achievement of this objective and therefore this study will form a useful guide to the government during the Vision 2030 implementation. The study indicated that increased results of both the financial and non-financial indicators might be achievable if the central government supported by county governments effectively address the limitations observed by the respondents. BPO's influence on performance is evidenced by the large number of oil and gas distribution firms in Kenya using outsourcing to control overhead costs and eliminate operational inefficiencies. The government should therefore enact authoritative laws and developed sustainable policies that protect the firms operating in this sector in order to enhance performance and efficiency.

The findings of this study offer suggestions that are beneficial to policy makers in the oil and gas distribution firms in Kenya. The Energy Regulatory Commission (ERC), The Communications Authority of Kenya (CA) and The Petroleum Institute of East Africa (PIEA) professional group may find this study useful for developing strategic policies and regulations that the industry will use to discharge obligations as stipulated in the Petroleum Exploration, Development and Production Bill, 2015 and The Energy Act, 2006.

The policy holders may be able to develop strategies that may reform the oil and gas distribution industry ensuring Kenya is globally competitive in conducting business and engaging in advocacy that promotes economic growth. In particular the industry regulator and policy maker, the Communication Authority of Kenya (CA) would find this study useful for purposes of coming up with policies and regulations that would help the business process and outsourcing industry to better evaluate, control, monitor and implement strategies. The Communication Authority would ensure that BPO players discharged obligations as stipulated in licenses and in keeping with the provisions of the Kenya Communications Act 1998 and the Kenya Communications Regulations 2001.

The results of the study show that independent firm characteristics have significant influence on the BPO that a firm can adopt. The findings that independent firm characteristics and operational efficiency provide better firm performance are areas which firms need to focus their efforts. They need to strengthen technologies, marketing and above all invest in their human capital.

This study will also create a clear road map and competitive advantage differences by managers on which firm characteristics and BPO dimensions to be pursued. The results of this study will assist policy makers to ensure oil and gas distribution firms provide adequate and timely data as incorrect information leads to poorly drafted policy decisions. These results will serve as guide to document that level of technology in use in the oil and gas distribution sector.

The information will be a useful guide to current and potential investors as well as useful to policy formulators. These results will also guide the government and its state agencies to develop policies for addressing the resource constraints that affect competitiveness of Kenya's energy sector against competitor countries. Oil and gas distribution firms require a stable and predictable policy environment in order to make plans for growth and expansion.

6.4.3 Implications to Management Practice

The results of this study demonstrate that although business process outsourcing significantly influence firm performance in the oil and gas distribution firms, operational efficiency and firm characteristics, intervene and moderate this relationship respectively. Firm managers and owners, should therefore recognize this interaction and formulate firm policies and procedures accordingly. This study further recognized that business process outsourcing dimensions manifest differently in the oil and gas distribution sector. Some dimensions such as logistics and distribution and ICT services are significant while other dimensions such as finance and tax are not so significant.

It is therefore prudent that oil and gas distribution firms should understand the BPO dimensions in order to carry out frequent analysis and develop BPO concepts relevant to operations. Owners/ Managers who develop BPO strategies to either adapt to changing external environment conditions or to proactively influence their environments should find the results of this study useful.

The findings that firm characteristics moderate the relationship between BPO and performance certainly make firm operations easier. The positive effects have higher contributions to the performance and this implies that owners/ managers should concentrate not only on monitoring the strategic behavior and culture but also on building on the areas that impact on performance. This should form the basis of how firm characteristics have to be observed by the firm if it has to succeed. They should not pay excessive attention to one factor as the performance is imperative.

The focus on identifying and developing firm characteristics and operational efficiency significantly related to performance in their BPO dimensions and adjust their focus and strategies accordingly. The management has to note that performance is a constellation of factors. The oil and gas distribution firms are highly encouraged to develop operational efficiency in terms of timeliness, customer satisfaction, quality, cost savings and flexibility in relation to the changes in the strategic behavior. This will allow them to benefit more from their unique resources and processes in order to improve its performance to achieve competitive advantage.

The results of this study will help management practitioners to make long term strategies to address Oil and gas distribution firms constraints that could have led to low capacity utilization and productivity in the sector. They will be able to source funds for research and development better quality products. The managers will also be able to address their internal weakness for the example the inefficient use of business process outsourcing.

6.5 Limitations of the Study

The main aim of the study was to establish the relationship of variables that have an impact on oil and gas distribution firms' performance. However, the study had a number of limitations. A cross sectional survey approach method was used for the study which captures only one respondent for the target firm. One issue that might have affected the response is the requested respondent in the organization in order to ensure that the answers are provided by individuals that are familiar and well-grounded with the operations of the firm.

The research aimed towards the owner / manager who might not always be available and have the time to respond. This brings in individual perception on the variables rather than a uniform generalization of the overall oil and gas distribution firms. The use of aggregated statistics for measures of the conceptualized variables on performance was with the assumption that those measures had not changed and that performance reflected the outcome of BPO dimension adopted. The implementation of operational efficiency dimensions by the individual oil and gas distribution firms was another limitation due to the uniqueness in their structures and priorities hence the varied responses.

Strategic behavior by the firms is different and how they respond to the changes in the environment is also different. The leadership and corporate governance within the oil and gas distribution firms takes different shapes and the conceptualization of these variations was a limitation and had to take a general view on how to incorporate all the their views. Oil and gas distribution firms in Kenya were the focus of the study which are many in number. The main challenge was lack of proper criteria of classification of the firms into unit of analysis. Other empirical studies both foreign and local on the same context were used as a guide to define the Oil and gas distribution firms in Kenya.

A sample of 130 firms was targeted for the study to fill the questionnaires. These firms are widely dispersed across the country and required a lot of resources and time and resources to reach all of them. One hundred and fifteen (115) questionnaires were filled and returned. Further scrutiny established that 6 questionnaires were poorly filled and hence excluded from analysis. The effective response rate of one hundred and nine (109) respondents formed 83.85% response rate was considered adequate for analysis and did not significantly affect the outcome of this research.

The other limitation was the study's focus which was only on oil and gas distribution firms. The study did not consider other energy firms such as electricity and renewable energy firms as part of the context. The data that was sought was through questionnaires and only one respondent was targeted on voluntary basis. The respondents were not obligated to provide the data and this lead to delays and affected the response rate. The information was for a five (5) year period and some respondent's length of service was less than the five year period.

The other limitation was capturing of the study variables. It was mainly on qualitative (subjective) aspects and limited on the quantitative which most respondents were hesitant to fill and this did not negatively affect the findings of the study. The study operationalized firm performance on five performance perspectives of financial, brand awareness, value added services, customer focus and new retail stations. These performance indicators are highly business specific.

The study did not consider environmental and social aspects as performance drivers. These would cover aspects like legality and freedom of action among others which are exposures on environmental and social in nature. The study did not take into consideration the effect of the moderating variables like oil and gas distribution firm's resources possession and organization capabilities on the impact of business process outsourcing. Despite the above limitations, the quality of the study was not compromised. The researcher contends that the challenges presented did not affect the results the research design, output and subsequent development of the research thesis.

6.6 Suggestions for Further Research

This study used firm characteristics and operating efficiency as moderating and intervening variables, business process outsourcing as independent variable and firm performance as dependent variable. Longitudinal studies should be carried out to test causal effects in future studies. The current study was cross-sectional. Since it is recommended to have continuous learning, a longitudinal study may show whether the findings vary over time.

It could further reveal how BPO affects performance as environmental changes take place over time and firms have to adjust to the changes in the business environment that could include increased competition, an increasing regulatory framework, varying economic set ups, or changing income levels. The other suggestion for further research is examining the direct role of operational efficiency and firm characteristics on firm performance in the oil and gas distribution firms sector.

Potential research efforts should also extend the scope of this study by including important contextual variables such as, the external environment (politics, competition), and/or strategy to the research framework, which may help explain some of the insignificant findings in this study. One direction for future research is to investigate the barriers that hinder firms' commitment to resource constraint as to lack of human, financial and technological resources.

Prospective research studies should focus on organizations outside the oil and gas distribution firms' spectrum and across other sizes of firms in order to determine whether the conclusions reached in this study are applicable in the context of other areas of Kenya's business community. For instance, future research should include coverage of firms operating in electricity and renewable energy sectors. The present study relied on a single informant (commercial manager or equivalent) who had the commercial awareness of the firm.

Future studies could make the use of multiple respondents from each firm to ease in the collection of data. Multiple respondents may be selected from several departments (marketing, finance) and various management levels, so that the analysis could be extended to see how employees in separate departments and at various management levels differ with respect to the major variables in this study.

Finally, despite using multivariate analysis to test this study's propositions, perhaps future studies could use different statistical techniques (path analysis, structural equation modeling) that can provide better insights and understanding of the relationships among the core factors in the study. Future studies should consider utilizing multiple methodologies (quantitative and qualitative) to help identify the key factors behind firms' commitment to improving the performance of oil and gas distributions firms in Kenya. The aim behind using different statistical techniques and /or plural methodologies is to validate and further strengthen the existing research findings.

6.7 Chapter Summary

This chapter has presented the summary and conclusion of findings in the study. Implications to Theory, Policy and Management practice have been discussed at length. Limitations of the study and suggestions further research have also been discussed.

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APPENDICES

Appendix I: Letter of Introduction

Dear Sir/Madam,

RE: REQUEST FOR PARTICIPATION IN A RESEARCH STUDY

I am a student at University of Nairobi pursuing a Doctor of Philosophy studies in Business, Strategic Management. Part of the requirements for the award of the degree is to undertake a research study in the area interest. I am therefore, carrying out a survey titled "**Business Process Outsourcing, Operational Efficiency, Firm Characteristics and Performance of Oil and Gas Distribution Firms in Kenya"**.

The survey is only for academic purposes and policy enrichment. The outcome of the research will be used for academic purposes and policy recommendations to improve the performance of oil and gas distributions firms in Kenya. I am therefore seeking your participation and kindly request you to spare a few minutes and respond to all questions in the attached questionnaire as completely, accurately and honestly as possible. The information you provide will be treated with confidentiality and in aggregated form without revealing identity of the respondent. If you wish to have a summary of the findings of the study, kindly indicate at the end of the questionnaire.

Thank you in advance for your co-operation.

Yours Faithfully,

Karani Wairimu Jane

Appendix II: University Letter of Introduction for Research

UNIVERSITY OF NAIROBI
COLLEGE OF HUMANITIES & SOCIAL SCIENCES
SCHOOL OF BUSINESS

Telephone: 4184160-5 Ext 215
Telegrams: "Varsity" Nairobi
Telex: 22095 Varsity

P.O. Box 30197
Nairobi, KENYA

06th January, 2017

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

INTRODUCTORY LETTER FOR RESEARCH
JANE WAIRIMU KARANI– REGISTRATION NO. D80/61562/2011

The above named is a registered PhD candidate at the University of Nairobi, School of Business. He is conducting research on *"Business Process Outsourcing, Operational Efficiency, Firm Characteristics and Performance of Oil and Gas Distribution Firms in Kenya."*

The purpose of this letter is to kindly request you to assist and facilitate the student with necessary data which forms an integral part of the research project. The information and data required is needed for academic purposes only and will be treated in **Strict-Confidence**.

Your co-operation will be highly appreciated.

Thank you.

Dr. Florence Muindi
For Associate Dean, Graduate Business Studies
School Of Business

FMthuki

Appendix III: Energy Regulatory Commisison Letter of Introduction

Energy Regulatory Commission

Eagle Africa Centre, Longonot Road, Upperhill.
P.O. Box 42681-00100 GPO, Nairobi - Kenya
Tel: +254-20-2847000/200
Cell: +254 - 0722-200947/0734-414333
Email: info@erc.go.ke   Website: www.erc.go.ke

Ref: ERC/PET/1/SS/jj   26th January 2017

Oil Marketing Companies

RE: INTRODUCTORY LETTER FOR RESEARCH-JANE WAIRIMU
       KARANI-REG NO.D80/61562/2011

The above subject and the attached letter from the University of Nairobi refer.

The Energy Regulatory Commission (the Commission) notes that Ms. Jane Wairimu Karani a PhD candidate at the University of Nairobi wishes to undertake research on *"Business Process Outsourcing, Operational Efficiency, Firm Characteristics and Performance of Oil and Gas Distribution Firms in Kenya"*.

Accordingly, the Commission requests your assistance to the student and in particular in the provision of data required for the research

Your assistance will be highly appreciated.

Edward Kinyua
For: DIRECTOR GENERAL

Appendix IV: National Commission for Science, Technology and Innovation Authorization letter

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NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION

Telephone +254-20-2213471,
2241349, 3310571, 2219420
Fax +254-20-318245, 318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utali House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/17/47620/15532**

Date:
13th February, 2017

Jane Wairimu Karani
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *"Business process outsourcing, operational efficiency, firm characteristics and performance of oil and gas distribution firms in Kenya,"* I am pleased to inform you that you have been authorized to undertake research in **all Counties** for the period ending **11th February, 2018.**

You are advised to report to **the Chief Executive Officer, Petroleum Institute of East Africa, the County Commissioners and the County Directors of Education, all Counties** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The Chief Executive Officers
Petroleum Institute of East Africa.

The County Commissioners
All Counties.

National Commission for Science, Technology and Innovation is ISO 9001-2008 Certified

Appendix V: National Commission for Science, Technology and Innovation Research Clearance Permit

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.
2. Government Officer will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one (1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEACH CLEARANCE PERMIT

Serial No.A 12739

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MS. JANE WAIRIMU KARANI
of UNIVERSITY OF NAIROBI, 7149-200
NAIROBI, has been permitted to conduct
research in *All Counties*

on the topic: *BUSINESS PROCESS OUTSOURCING, OPERATIONAL EFFICIENCY, FIRM CHARACTERISTICS AND PERFORMANCE OF OIL AND GAS DISTRIBUTION FIRMS IN KENYA*

for the period ending:
11th February,2018

Permit No : NACOSTI/P/17/47620/15532
Date Of Issue : 13th February,2017
Fee Recieved :Ksh 2000

....
Applicant's Signature

....
Director General National Commission for Science, Technology & Innovation

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Appendix VI: Research Questionnaire

Dear Respondent,

This questionnaire is designed to collect data from oil and gas distribution firms in Kenya on determining the influence of operational efficiency and firm characteristics on the relationship between BPO and performance. The data collected shall solely be used for academic research and will be treated with strict confidence. Your participation in facilitating the study is highly appreciated. I would therefore urge you to freely answer the questions as only the researcher will have access to the raw data and the development of the final report.

PART A: ORGANIZATIONAL INFORMATION

1. Year of incorporation or Registration_____

2. Ownership structure (Tick as appropriate)

        i. Sole Proprietorship   (   )

       ii. Partnership   (   ) please indicate number of partners_____

      iii. Limited Liability Company (   )

3. Size of your organization in terms of personnel please tick as appropriate
    a) Between 1-100   (   )
    b) Between 101-200   (   )
    c) Between 201-300   (   )
    d) Between 301-400   (   )
    e) Over 401   (   )

4. For how long has your firm been the industry?
    a) Less than 5   (   )
    b) 5 to 10 years   (   )
    c) 11to15 years   (   )
    d) 16 to 20 years   (   )
    e) Over 20 years   (   )

5. Please tick as appropriate the scope of your firm
    a) National (only within Kenya)   (   )
    b) Regional (only within East Africa)   (   )
    c) Continental (only in Africa)   (   )
    d) Globe   (Africa and other Continents)   (   )

PART B: BUSINESS PROCESS OUTSOURCING

The following statements describe the manifestations of different constructs of Business Process Outsourcing in your firm (BPO). Please indicate the extent to which they apply to your firm. Rate the statements by **TICKING** (√) as appropriate using the key below.

Key:

 1-Not at all;   **2**-To a less extent;   **3**- To a moderate extent;   **4**- To a large extent;

  5-To a very large extent

	Business Process Outsourcing dimensions	1	2	3	4	5
A	**Logistic and Distribution**					
i.	Our firm enjoys technical expertise from outsourced logistic services					
ii.	There has been enhanced distribution services in our firm as a results of outsourced services					
iii.	Our firm has managed to free space due to efficient logistic and distribution processes					
iv.	Our firm has gained competitive position arising from outsourced logistic and distribution services					
v.	There has been reduced costs of distribution as a result of outsourced logistic and distribution services					
vi.	The speed of product distribution had been enhanced by efficient logistic and distribution services					
B	**Finance and Tax**					
vii.	Our firm has simplified accounting and financial processes					
viii.	Our firm has acquired great expertise and technology resources					
ix.	Our firm has improved tax compliance as a result of better finance and tax systems in place					
x.	Our firm financial processes benchmark and baseline has improved over time					
xi.	There has been great focus to meet financial regulatory requirements in our firm					
C	**Human Resources**					
xii.	Our firm has acquired expertise services in areas of interest					
xiii.	Trainings of our staff has led to high propensity for internal innovation					

xiv.	There has been efficiency in service provision in our firm					
xv.	Our firm has enjoyed excellent quality from external vendors					
xvi.	There has been reduced workload on our staff on outsourced services					
xvii.	Our firm has focused on strategic decision making due to reduced non-firm oriented workloads					
xviii.	There has been efficiency handling of personnel related issues in our firm					
D	**ICT services**					
xix.	Our firm has widened specific technological assets and function s					
xx.	There has been enhanced operational efficiency in our firm					
xxi.	The cost of hiring IT experts has reduced significantly					
xxii.	The amount invested in ICT has reduced in our firm					
xxiii.	Our firm has integrated major functions for efficiency					
xxiv.	There has been improved management systems for decision making process in our firm					
E	**Procurement and Supply Chain management**					
xxv.	There has been quick processes in supply chain functions in our firm					
xxvi.	Our firm has not experienced any stock out due to proper inventory management system					
xxvii.	The firm has experienced accurate and proper record keeping					
xxviii.	There has been significant reduction in cost as a result of inventory management system in place					
xxix.	Suppliers have been integrated in our firm leading to reduced costs					
xxx.	There has been improved supplier-customer relationship in our firm					

PART C: OPERATIONAL EFFICIENCY

The following statements relates to manifestation of operational efficiency in the firms. To what extent do the following statements manifest your firm? Use a scale of 1 to 5 where **1**-Not at all; **2**-To a less extent; **3**- To a moderate extent; **4**- To a large extent; **5**-To a very large extent

	Operational Efficiency Dimensions	1	2	3	4	5
A	**Timelines**					
i.	Our firm has not experienced product shortages over the last five years					
ii.	There is database integrating all firms activities for quick response in decisions					
iii.	Our customers are served within the satisfactory time					
iv.	The process of product delivery is quick in our firm					
v.	The stock in our firm is managed efficiently to reduce time wastage					
vi.	There are reduced errors in counting and record keeping					
vii.	Our employees are encouraged to keep time in their roles					
B	**Customer Satisfaction**					
viii.	Our firm has customer management system in place					
ix.	Customer relationship is encouraged in our firm					
x.	Our firm encourages after sales services to our customers					
xi.	Our firm has a front office services for our customers					
xii.	Our firm has a proper customer complaint resolution system					
xiii.	There is complain boxes for our customers					
xiv.	Our firm has a call center for our customers					
xv.	Our customers decisions are taken into firms major decision making process					
C	**Quality**					
xvi.	There is proper inventory management that eliminates errors in our firm					
xvii.	Our management encourages completeness in any role assigned					

xviii.	Our systems are well maintained to keep accurate information					
xix.	There is proper channel of communication in our firm					
xx.	There is reduction is wastages of our products during handling					
xxi.	The activities in our firm are well coordinated					
xxii.	There is always a backup system for all the records in our firm					
D	**Cost Savings**					
xxiii.	There is cost efficiency order management system in our firm					
xxiv.	The handling of our products are well managed to reduce unnecessary wastage					
xxv.	The specialized personnel are keen on cost management in our firm					
xxvi.	All the processes are well researched for cost analysis before introduced in our firm					
xxvii.	There are well managed firm personnel to reduce unnecessary costs					
xxviii.	The outsourced services reduced our firms operational costs					
E	**Flexibility**					
xxix.	Our firm has real time access to business reports					
xxx.	There are diverse order management platforms like online services					
xxxi.	Our firm has put in place multiple checkout options					
xxxii.	Our firm personnel have been trained to handle various activities within the firm					
xxxiii.	There are various modes of transport to reduce chances of delay					
xxxiv.	There is a standby generator for power back up in our firm					

PART D: FIRM CHARACTERISTICS

1. The following statements relates to manifestation of firm characteristics in the firm. To what extent do the following statements apply in your firm? Use a scale of 1 to 5 where 1 is to a very great extent and 5 is to no extent.

		Statement	1	2	3	4	5
A		**Ownership Structure**					
	i.	Management and ownership are one and the same					
	ii.	Owners are separate from the firm managers					
	iii.	Ownership of the firm influences the vision and mission					
	iv.	Ownership of the firm determines the practice we undertake					
	v.	Ownership structure in our firm encourages quick decision making process					
B		**Size of Firm**					
	vi.	Our size matters in the business operations					
	vii.	The firm size has a bearing on our returns					
	viii.	The firm size has an implication on our organizational growth					
	ix.	Our firm size enables us achieve market dominance					
		Age of Firm					
	x.	The firm's age has been a critical factor in decision making within the firm					
	xi.	The firm's age has a major contribution to our corporate image					
	xii.	The firm's age has a major contribution to our operational successes					
	xiii.	The older our firm grows the more relevant it has become					
	xiv.	The older our firm grows the more viable it has become					
C		**Capital Structure and Liquidity**					
	xv.	We have sufficient financial resources to carry out planned activities throughout the year					
	xvi.	The firm has had adequate current assets (other than financial) to carry out planned activities throughout a financial year					
	xvii.	Our firm meets its debt obligations on time					
	xviii.	Our firm has never been in insolvent state					

		1	2	3	4	5
xix.	Our firm has multiple sources of capital					
D	**Number of Employees**					
xx.	The firm has had adequate management staff					
xxi.	The firm has had a highly qualified top management team					
xxii.	The firm has had adequate core staff to perform its functions					
xxiii.	Individual employees have had the relevant skills required for their specific roles.					
xxiv.	The firm has constantly acquired new knowledge related to its operations					
xxv.	The firm has deliberately facilitated knowledge sharing across its different departments.					
xxvi.	The firm has had an excellent reputation					

PART E: FIRM PERFORMANCE

6. Please indicate the extent to which the following statements describe your firm's performance over the past five years. Use the key to TICK as appropriate

Key:

1-Not at all;   **2**-To a less extent;   **3**- To a moderate extent;   **4**- To a large extent; **5**-To a very large extent

	Statement	1	2	3	4	5
A	**Financial**					
i.	The firm's return on capital have increased over the last five years					
ii.	Firm's gross profits have increased over the last five years					
iii.	The firm's investment and growth has increased					
iv.	The firm's sales revenue has improved due to repeat sales.					
B	**Brand Awareness**					
v.	Our firm in known to many segments of the market					
vi.	Our customers talk positive about our firm					
vii.	The management in our firm are known by their names					
viii.	Our firm is involved in social responsibilities					
ix.	Our firm image is known by the quality products and service we offer					

x.	Our firm engages all stakeholders in all segments to boost our image					
C	**Value Added Services**					
xi.	The firm's operational efficiency has improved as a result of business process re-engineering.					
xii.	The firm has improved its critical internal processes to sustain market leadership.					
xiii.	The firm always produces a production schedule for all its products.					
xiv.	The firm has gained market share through quality improvements.					
xv.	The firm introduced new products.					
xvi.	Firm's Market share has been improving					
xvii.	The firm's market share has improved due to increased marketing activities.					
D	**Customer Focus**					
xviii.	The firm has entered new markets					
xix.	The firm has created value for its customers through quality products and services.					
xx.	The firm's product/service quality has improved					
xxi.	The firm delivers goods and services to customers on time.					
xxii.	There have been good structures to support customer relationship management.					
xxiii.	The firm's delivery forecasts to its customers have been accurate.					
xxiv.	Managers have been able to define employee needs and development to enhance customer satisfaction.					
E	**New Retail Stations**					
xxv.	Our firm has entered new markets					
xxvi.	The number of retail stations are opened frequently					
xxvii.	There has been stations opened in strategic points					
xxviii.	The firm has attracted more dealers in different locations					
xxix.	Majority of our products are competitive in different segments					
xxx.	Our firm has distribution points across the segments					

THANK YOU VERY MUCH FOR YOUR PARTICIPATION.

Appendix VII: List of Oil and Gas Distribution Firms in Kenya

S/N	Company Name
1	Afri Oil International Limited
2	Afro Petroleum Limited
3	Ainushamsi Energy Limited
4	Aiveo Limited
5	Akadi Limited
6	Alpha Fuel Services Limited
7	Amana Petroleum Limited
8	Arman Agencies
9	Arman Agencies
10	Astrol Petroleum Limited
11	Austen Gas Company Limited
12	Austken Gas Company Limited
13	Bachulal Popatial Limited
14	Bakri International Limited
15	Banoda Oil Limited
16	Bazam Limited
17	Bushra Energy Limited
18	Chemi Gas Limited
19	Chemigas Limited
20	City Oil (K) Limited
21	Dalbit Petroleum Limited
22	Dominion Petroleum Limited
23	East Africa Gas Oil Limited
24	East Africa Liquefied Petroleum Gas Limited
25	East African Gasoil Limited
26	Eastern Gas Distribution Limited
27	Eco oil Kenya Limited

28	Eco-Energy East Africa Limited
29	Engen Kenya Limited
30	Eppic Oil Limited
31	Family Commercial Enterprises Limited
32	Faulu Gas Investment
33	Finejet Limited
34	Fossil Fuels Limited
35	Fratelli Investment
36	Futures Energy Company Limited
37	Galana Oil Kenya Limited
38	Gapco Kenya Limited
39	Gas Express Limited
40	Gazlin Energy Limited
41	Glevak Investments Limited
42	Glevax investment
43	Global Petroleum Limited
44	Global Solvchem Limited
45	Green Energy Limited
46	Hade Oil Company Limited
47	Hashi Energy Limited
48	Hass Petroleum Limited
49	Heritage Petroleum Limited
50	Hyva Investment Limited
51	Ilade Oil Company Limited
52	Imany Energy Limited
53	Impex General Merchants Limited
54	Jaflo Trading Limited
55	Jam Hauling Company Limited
56	Jamii Gas Limited

57	Jecal Energies Limited
58	Jobby Jobby Enterprises
59	Jophic General Agency
60	Juba link Petroleum Limited
61	Kamikazi Mandu Enterprises Limited
62	Kencor Petroleum Limited
63	Kenolkobil Limited
64	Kenya Petroleum Refineries Limited
65	Khetia Garments Limited
66	Kipeda TransAfrican Limited
67	Lake Gas Limited
68	Libya Oil kenya Limited
69	Link Oil Limited
70	Love Green Limited
71	Lubeschem Kenya Limited
72	Luqman Petroleum Limited
73	Mail Kenya Limited
74	Mapka Investment Limited
75	Max Gas and Petroleum Limited
76	Megtraco Limited
77	Midland Enegry Limited
78	Mitanna Gases Limited
79	Mogas Kenya Limited
80	Moiben Connections
81	Moreh International
82	Moto Gas Company Limited
83	MS Oil Limited
84	Mumtaaz Investment Limited
85	My Gas Limited

86	Net Gas Energy Limit
87	Nyanza Trading Company Limited
88	Ocean Energy Kenya Limited
89	Oceanic Oil Limited
90	Olympic Petroleum Limited
91	One Gas Limited
92	One Petroleum Limited
93	Orange Energy Limited
94	Oryx Energies Kenya Limited
95	Pacific Petroleum Limited
96	Performance Parts Limited
97	Petro Oil Kenya Limited
98	Petrocam Kenya Limited
99	Picallilly International Limited
100	Prime Regional Supplies Limited
101	Quick Cargo Services Limited
102	Raanle Transport Limited
103	Ramji Haribhai Deva Limited
104	Ranway Traders Limited
105	Regnol Oil(K) Limited
106	Rift Gas Limited
107	Rihal Energy Company
108	Riva petroleum Limited
109	Royal energy Limited
110	Safari Petroleum Limited
111	Sasa General Investment Limited
112	Savvanna Energy Limited
113	Shiny Investment Limited
114	Societe Petroliere Limited

115	Solution East Africa Limited
116	Soma Industries Limited
117	Stabex International Limited
118	Stiff Enterprises Limited
119	Taurus Energy Limited
120	Tex Trading Limited
121	Texas Energy Limited
122	Tiba oil Company Limited
123	Tobento Investment Limited
124	Tojan International Limited
125	Tosha Petroleum Limited
126	Total Kenya Limited
127	Towba Petroleum Company Limited
128	Towfiq Transporters Limited
129	Tuangaze Limited
130	Venus Energy Limited

Source: Energy Regulatory Commission (ERC), 2017.

Appendix VIII: Factor Analysis

Table A1: KMO and Bartlett's Test for Business Process Outsourcing

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.749
Bartlett's Test of Sphericity	Approx. Chi-Square	1440.984
	df	300
	Sig.	.000

Table A2 : Total Variance Explained for Business Process Outsourcing

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.643	22.571	22.571	5.643	22.571	22.571	3.548	14.191	14.191
2	5.094	20.378	42.948	5.094	20.378	42.948	3.464	13.856	28.047
3	1.948	7.791	50.740	1.948	7.791	50.740	3.315	13.258	41.305
4	1.638	6.553	57.292	1.638	6.553	57.292	2.465	9.861	51.166
5	1.347	5.390	62.682	1.347	5.390	62.682	2.340	9.360	60.525
6	1.230	4.921	67.604	1.230	4.921	67.604	1.770	7.078	67.604
7	.951	3.805	71.408						
8	.896	3.584	74.993						
9	.795	3.180	78.173						
10	.695	2.779	80.952						
11	.600	2.402	83.354						
12	.541	2.163	85.516						
13	.526	2.104	87.620						
14	.483	1.934	89.554						
15	.433	1.733	91.287						
16	.367	1.466	92.753						
17	.321	1.285	94.038						
18	.276	1.105	95.143						
19	.260	1.041	96.184						
20	.235	.940	97.124						
21	.174	.695	97.819						
22	.160	.640	98.459						
23	.142	.567	99.026						
24	.133	.532	99.558						
25	.111	.442	100.000						

Extraction Method: Principal Component Analysis.

Table A3: Component Transformation Matrix for Business Process Outsourcing

Component	1	2	3	4	5	6
1	-.295	.621	.609	-.115	.323	.199
2	.694	.302	.211	.521	-.275	.186
3	-.044	-.016	-.438	.364	.602	.558
4	.276	-.641	.569	.013	.434	-.027
5	.576	.298	-.260	-.523	.415	-.257
6	-.148	.150	-.044	.556	.311	-.740

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Table B1: KMO and Bartlett's Test for Operational Efficiency

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.811
Bartlett's Test of Sphericity	Approx. Chi-Square	2476.681
	df	741
	Sig.	.000

Table B2 : Total Variance Explained for Operational Efficiency

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.041	30.873	30.873	12.041	30.873	30.873
2	3.023	7.752	38.625	3.023	7.752	38.625
3	2.509	6.434	45.059	2.509	6.434	45.059
4	2.171	5.568	50.627	2.171	5.568	50.627
5	1.750	4.487	55.114	1.750	4.487	55.114
6	1.710	4.385	59.499	1.710	4.385	59.499
7	1.327	3.402	62.901	1.327	3.402	62.901
8	1.221	3.130	66.031	1.221	3.130	66.031
9	1.144	2.933	68.964	1.144	2.933	68.964
10	.994	2.548	71.512			
11	.931	2.388	73.901			
12	.906	2.322	76.223			
13	.873	2.238	78.461			
14	.827	2.121	80.582			
15	.709	1.817	82.398			
16	.612	1.569	83.967			

17	.608	1.558	85.525			
18	.542	1.389	86.914			
19	.493	1.264	88.178			
20	.461	1.182	89.361			
21	.434	1.112	90.473			
22	.398	1.021	91.494			
23	.395	1.012	92.506			
24	.360	.924	93.430			
25	.333	.855	94.285			
26	.275	.705	94.990			
27	.259	.663	95.653			
28	.232	.596	96.248			
29	.213	.547	96.796			
30	.185	.475	97.270			
31	.176	.450	97.720			
32	.158	.405	98.126			
33	.151	.386	98.512			
34	.134	.343	98.856			
35	.112	.288	99.144			
36	.100	.256	99.400			
37	.091	.232	99.632			
38	.084	.215	99.847			
39	.060	.153	100.000			
Extraction Method: Principal Component Analysis.						

Table C1: KMO and Bartlett's Test for Firm characteristics

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.704
Bartlett's Test of Sphericity	Approx. Chi-Square	1307.950
	df	325
	Sig.	.000

Table C2: Total Variance Explained for Firm Characteristics

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.121	23.544	23.544	6.121	23.544	23.544	3.299	12.688	12.688
2	2.794	10.746	34.290	2.794	10.746	34.290	2.950	11.347	24.035
3	2.279	8.765	43.055	2.279	8.765	43.055	2.776	10.676	34.712
4	1.994	7.670	50.725	1.994	7.670	50.725	2.177	8.374	43.085
5	1.640	6.306	57.031	1.640	6.306	57.031	2.098	8.068	51.153
6	1.429	5.497	62.528	1.429	5.497	62.528	2.022	7.775	58.928
7	1.254	4.824	67.352	1.254	4.824	67.352	2.020	7.768	66.696
8	1.020	3.922	71.273	1.020	3.922	71.273	1.190	4.578	71.273
9	.921	3.541	74.815						
10	.820	3.154	77.969						
11	.687	2.643	80.612						
12	.597	2.296	82.907						
13	.577	2.221	85.128						
14	.539	2.072	87.200						
15	.457	1.757	88.958						
16	.417	1.604	90.562						
17	.389	1.495	92.057						
18	.345	1.326	93.382						
19	.316	1.217	94.599						
20	.286	1.101	95.700						
21	.279	1.072	96.772						
22	.219	.843	97.615						
23	.191	.733	98.348						
24	.171	.658	99.006						
25	.141	.542	99.548						
26	.117	.452	100.000						
Extraction Method: Principal Component Analysis.									

Table C3: Component Transformation Matrix for Firm Characteristics

Component	1	2	3	4	5	6	7	8
1	.597	.370	.485	.315	.230	-.131	.320	.009
2	-.337	.800	-.361	.189	-.107	-.261	.037	-.004
3	-.241	-.106	.142	.569	-.503	.456	.343	.097
4	.052	.132	-.369	.100	.604	.681	.055	-.033
5	-.496	.073	.377	-.361	.296	.010	.404	.474
6	.012	.359	.418	-.119	-.169	.388	-.678	.208
7	-.358	-.224	.184	.604	.445	-.281	-.381	.028
8	-.308	.104	.356	-.148	.060	.116	.087	-.849

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Table D1: KMO and Bartlett's Test for Firm performance

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.724
Bartlett's Test of Sphericity	Approx. Chi-Square	1650.349
	df	435
	Sig.	.000

Table D2 :Total Variance Explained for Firm performance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.525	25.084	25.084	7.525	25.084	25.084	4.100	13.666	13.666
2	4.128	13.759	38.843	4.128	13.759	38.843	3.993	13.311	26.977
3	2.227	7.423	46.266	2.227	7.423	46.266	3.434	11.448	38.425
4	1.942	6.472	52.738	1.942	6.472	52.738	2.368	7.894	46.319
5	1.625	5.417	58.155	1.625	5.417	58.155	2.309	7.698	54.017
6	1.410	4.700	62.855	1.410	4.700	62.855	2.273	7.577	61.594
7	1.031	3.435	66.291	1.031	3.435	66.291	1.242	4.139	65.733
8	1.019	3.397	69.687	1.019	3.397	69.687	1.186	3.954	69.687
9	.943	3.143	72.830						

10	.851	2.838	75.668						
11	.837	2.790	78.457						
12	.720	2.400	80.857						
13	.665	2.218	83.075						
14	.594	1.980	85.056						
15	.543	1.810	86.866						
16	.461	1.536	88.402						
17	.436	1.453	89.855						
18	.423	1.412	91.267						
19	.377	1.255	92.522						
20	.357	1.191	93.713						
21	.294	.980	94.693						
22	.272	.907	95.601						
23	.249	.831	96.432						
24	.246	.822	97.254						
25	.212	.707	97.960						
26	.183	.611	98.571						
27	.131	.438	99.009						
28	.116	.387	99.395						
29	.097	.322	99.718						
30	.085	.282	100.000						
Extraction Method: Principal Component Analysis.									

Table D3: Component Transformation Matrix for Firm Performance

Component	1	2	3	4	5	6	7	8
1	.632	.007	.524	.360	.333	.249	.119	.093
2	.072	.976	.048	.008	-.163	-.100	.035	-.053
3	-.462	.004	.506	.150	-.376	.547	-.236	-.109
4	.397	.056	-.446	-.348	-.103	.675	-.230	.008
5	-.177	.088	.325	-.657	.572	.062	-.002	-.304
6	-.330	.139	-.404	.516	.521	.297	.095	-.273
7	-.204	.034	-.007	-.169	-.045	.285	.798	.456
8	-.205	.129	.005	.004	.331	-.006	-.479	.776
Extraction Method: Principal Component Analysis.								
Rotation Method: Varimax with Kaiser Normalization.								