INFLUENCE OF VALUE DISCIPLINES STRATEGY ON THE MANAGEMENT OF EFFICIENCY LEVELS IN THE PHARMACEUTICAL INDUSTRY IN KENYA

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Influence of value disciplines strategy on the management of efficiency levels in the pharmaceutical industry in Kenya

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DECLARATION

This thesis is my original work and has not been presented for examination in any other University.

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DEDICATION

I dedicate this thesis and the arduous working hours to my family- Wife Ruth, Children Bridget, Adrian and Adelaide, my Mother Mary for being the pillar of my life, and for all their love and support.

God Bless You All!

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LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
APIs	Active pharmaceutical ingredients
BSC	Balanced Score Card
CEM	Customer
COGS	Cost of goods
COMESA	Common Market for Eastern and Southern Africa
EFM	Enterprise Feedback Management
Fig	Figure
GMP	Good Manufacturing Practice
GSK	GlaxoSmithKline
ISO	International Organization for Standardization
JIT	Just in Time
KAM	Kenya Association of Manufacturers
KEMSA	Kenya Medical Supplies Agency
M	Mean
NMRA	National Medicines Regulatory Authority
NVA	Non Value Adding
O.E	Operational Excellence
OEE	Overall Equipment Effectiveness
OTC	Over the Counter
Pharma	Pharmaceuticals
PPB	Pharmacy and Poisons board
PSP4H	Private Sector Innovation Programme for Health

RBV	Resource Based View
SD	Standard Deviation
SME	Small Medium Enterprise
TQC	Total Quality control
TPS	Toyota Production system
TRIPS	Trade-Related Aspects of Intellectual Property
UNIDO	United Nations Industrial Development Organization
VA	Value adding
VAT	Value Added tax
VDS	Value Discipline Strategy
VoC	Voice of the customer
WHO	World Health Organization

DEFINITION OF TERMS

Active pharmaceutical ingredient (API): Biologically active compound(s) in a drug formulation that imparts the desired therapeutic effect. Active pharmaceutical ingredients are usually first obtained in the crude state (if there is no biological activity they might be considered intermediates and subsequent production operations convert the crude material to the final API that meets the pharmacopoeia and/or similar requirements. A sterile API is an API that has been subjected to additional processing steps to remove micro-organisms (Dennis & Marks, 2015)

Customer Intimacy: This is an approach whereby a firm segments and targets the market by tailoring offerings to match the demands of the niche market by typically looking at the customer's lifetime value and not just the value of a single transaction as they continue to preempt and customize solutions that meet their customers' needs (Treacy & Wiersema, 1993).

Distribution Chain strategy : The way products are delivered to end customers, it involves picking the right intermediaries, ensuring that products are shipped quickly in correct quantities and flawless quality and taking care of product delivery within set time (Schöpperle, 2013).

Economies of scale: Efficiencies associated with supply-side changes, such as increasing or decreasing the scale of production (Rana & Ali, 2015).

Efficiency: Efficiency as the quality of doing something well with no waste of time or money, the ability to produce a product using the fewest resources possible. (Guesmi, 2013). Efficiency measures relationship between inputs and outputs or how successfully the inputs have been transformed into outputs (Low, 2000). The fewer the inputs used to generate outputs, the greater the efficiency. Pinprayong and Siengtai (2012) suggest measures of efficiency as profit, assets and revenues generation (sales).

Gemba: A Japanese term meaning the real place, or where the action is. In manufacturing, that means the production floor (Matthias, 2007).

Intermediate: a material produced during steps of the processing of an API that must undergo further molecular change or purification before it becomes an API (Dennis & Marks, 2015).

Just-In-Time: A system for producing and delivering the right products at the right time in the right amounts (Herron & Braident, 2007).

Local Production: No manufacturing facilities and dependency on imported, finished medicines. Packaging of already formulated medicines and small-scale local production of sterile or non-sterile formulations such as IV fluids. Formulation of drugs in final dosage form and some production from imported intermediates. Production from imported intermediates and manufacture of some

intermediates from local materials. Production of active substances and processing to produce the required pharmaceutical dosage forms (Lee & Marks, 2015)

Management: Art of knowing what you want to do and then seeing that it is done the best and cheapest way (Taylor, 1911), To manage is to forecast, to plan, to organize, to command, to co-ordinate and to control (Wren,Bedeian & Breeze, 2002).

Market share: Market share represents the percentage of an industry or market's total sales that is earned by a particular company over a specified time period. Market share is calculated by taking the company's sales over the period and dividing it by the total sales of the industry over the same period. This metric is used to give a general idea of the size of a company in relation to its market and its competitors (Farris,Bendle,Pfeifer & Reibstein, 2010).

Operating cost/ cost of goods: It is all the money that the company spends in order to turn inventory into finished goods (Maskell & Baggaley, 2003).

Operational Excellence: the ability of an organization to provide customers with reliable products and services at competitive prices and delivered with minimal difficulty and inconvenience (Treacy & Wiersema, 1993)

Pharmaceutical firms: These are firms that develop, produces and markets drugs licensed for use as medication (Pharmaceutical Society of Kenya, 2010).

Product Leadership: the ability of an organization to offer customers with leading edge products and services that consistently enhance the customer's usage or application of the product (Treacy & Wiersema, 1993).

Resource: A specific asset under the custodian of a firm, which can be used to create a cost or differentiation advantage (Otchere & Annan, 2013).

Value disciplines: Statement of strategic focus that describes different ways a firm can differentiate itself from competitors (Treacy & Wiersema, 1993).

Value Disciplines' Strategy: A model created by Michael Treacy and Fred Wiersema describing three generic "value disciplines" companies can adhere to. These disciplines are Operational Excellence, Product Leadership and Customer Intimacy (Treacy & Wiersema, 1993).

Visual Controls: Tracking performance that reflects actual performance compared with the expected performance of virtually any process in a lean operation (Mann, 2010).

Waste: Inefficiencies to be eliminated which includes over-production, waiting time, transportation, processing, inventory, excess motion and scrap/rework (non-value added) (Womack, Jones, & Roos, 2007).

ABSTRACT

Kenya vision 2030 has projected that pharmaceutical manufacturing as one of the possible areas of investment, yet doubts are often expressed as to the viability of pharmaceutical production in developing countries such as Kenya .The research assessed the influence of value disciplines strategy on the management of efficiency levels in the pharmaceutical industry in Kenya. The study had four objectives, namely, to establish the influence of operational excellence on the management of efficiency levels in the pharmaceutical industry in Kenya ; to examine the influence of customer intimacy focus on the management of efficiency levels in the pharmaceutical industry in Kenya; to determine the influence of product leadership on the management of efficiency levels in the pharmaceutical industry in Kenya and to establish the influence of distribution chain strategy on the management of efficiency levels in the pharmaceutical industry in Kenya . The literature review presented a theoretical review underlying the study, applicable theories or models to support the study that is; the resource-based view, Ansoff Product-Market Growth Matrix, Principal-Agent Theory and the Balanced Scorecard. In research methodology, the study adopted cross sectional survey design. The population of interest was composed of all registered Kenyan pharmaceutical manufacturing companies as availed by the KAM directory. The sampling frame was composed of only firms engaged in manufacturing, distribution and marketing of pharmaceutical products in Kenya that formed the researcher's body of interest. Sampling technique was purposively sampling. The research instrument was a questionnaire. Analysis of the data was done using descriptive statistics to generate information such as means, standard deviations, frequencies and percentages and to plot charts such as bar and pie charts . Inferential statistics software used was SPSS version 20. The study sought to collect data from 157 respondents working in procurement, manufacturing, warehousing, sales, marketing, customer service and finance departments of pharmaceutical manufacturing firms in Kenya but the researcher managed to collect 134 questionnaires representing 85% response rate. A questionnaire was used to collect primary data. Regression and correlation analysis was done to test the relationship between the study variables. The study findings indicated that there was a positive and significant relationship between operational excellence, customer intimacy, product leadership and distribution chain strategy on the management of efficiency levels in the pharmaceutical industry in Kenya. The hypotheses were tested and empirically support the study thus any positive change in operational excellence, customer intimacy, product leadership and distribution chain strategy led to increased efficiency levels in the pharmaceutical industry in Kenya. The study concluded that Kenyan pharmaceutical industry have put a lot effort in producing high quality generic pharmaceutical products but are trying to implement strategic management practices via value disciplines strategy as manifested in the form of operational excellence, customer intimacy, product leadership and distribution chain strategies. The study recommends that for pharmaceutical industry in Kenya to be market leaders, they have to embrace value disciplines strategies and practice them,

maintain threshold standards and dominate the market. The government should create an enabling environment for businesses to improve their market leadership in the industry.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Globalization and rapid technological advancement have immensely transformed the way companies do business worldwide, spurred innovation and development in various sectors, and driven the world economic changes (Kotler, 2001). This has added a new dimension to the concept of competition amidst which the developing countries find themselves in a position to keep abreast of the developments ushered in the process of technology acquisition, adoption and innovation to challenge the prevailing propriety of the developed bloc. In general, as (Langhorne, 2001) points out, it can be argued that globalization has presented both opportunities and threats. Regardless of supporting or opposing economic globalization, it is hard to deny the fact that global trade and international trade agreements have transformed the capacity of individual nation states to monitor and protect the public health, particularly in terms of the access to essential, life-saving medicines. The critics argue that these international trade agreements impose a particular set of rules which favor business concerns not only over the social and environmental priorities but also over the public health priorities (Shaffer & Brenner, 2004).

1.1.1 Global Pharmaceutical Industry

According to Statements (2016) consensus forecasts, the pharmaceutical industry is set to grow at 6.3% per year in compounded annual growth rate reaching $1.12trillion by 2022. There are two dynamics at play that could affect this optimistic outlook. Firstly, the $249billion of sales at risk between 2016 and 2022 signals that the pharma industry has just entered a second patent cliff era where top biologic blockbusters will be challenged by biosimilars. Secondly, the United States of America market access

landscape is rapidly transforming and the criteria set by payers, once losers, are much more stringent. These complex issues are growing more challenging by the day. Healthcare reform and changes in technology, government policy, and consumer expectations are revolutionizing relationships with key stakeholders and impacting operations in unforeseen ways. Globalization is presenting its own set of challenges that span multiple levels of most pharmaceutical organizations—from marketing to regulatory. Most experts believe that companies who succeed in the face of such challenges will do so by placing a renewed emphasis on innovation. Moreover, they will adapt effectively in the face of change and uncertainty and will position themselves as a vital partner in the healthcare delivery chain (Leslie & Palmisano, 2014). Therefore, fundamental goal of manufacturing firm's corporate and functional level strategies is the development of sustainable competitive advantage (Hitt,Ireland & Hoskisson, 2007). Thus, shifting exploration from conventional way of thinking to strategic thinking as one of the core elements enable organization to equip well in order to wave through competition (Giunipero, Handfield & Eltanawy, 2006) . There has been a realization that manufacturing is the lifeblood of an economy because of the critical role it plays in a country's long-term prosperity (Owuoth, 2010).

The United Nations Industrial Development Organization has embarked on a project to strengthen local manufacturing capacities in the production of a range of essential generic drugs in selected developing and Least Developed Countries, with funding from Germany's Federal Ministry for Economic Cooperation and Development. Kenya, which has a strong base from which to develop its pharmaceutical industry, decided to collaborate with UNIDO in an effort to further develop this sector. The project aims at the expansion and upgrading of small and medium size enterprises for the local manufacture of essential generic drugs with a particular emphasis on those combating the three major pandemics: HIV/AIDS, malaria and tuberculosis with the aim of improving access for the poor to these drugs at affordable prices (UNIDO, 2010).

It is against the backdrop of disease burdens for countries like Kenya that the African Union Commission resolved to develop a Pharmaceutical Manufacturing Plan for Africa within the framework of the New Partnership for Africa's Development , under the theme "to pursue, with the support of our partners, the local production of generic medicines on the continent, and to make full use of the flexibilities within the Trade and Related Aspects of Intellectual Property Rights and the Doha Declaration on Trade and Related Aspects of Intellectual Property Rights and Public Health ((African Union, 2012). This goal emphasizes access to medicines, patents, and prices. It supports research and development of vaccines and medicines for communicable and non-communicable diseases that largely affect developing countries and provide access to affordable essential medicines and vaccines and it is part of Sustainable Development Goals. Goal three of the Sustainable Development Goals is categorical: "Ensure healthy lives and promote wellbeing for all at all ages (Osborn, Cutter & Ullah, 2015).

1.1.2 Kenyan Pharmaceutical Industry

The Government of Kenya considers manufacturing firms a key pillar of its growth strategy. According to the Kenya Vision 2030, ROK, 2007, the manufacturing sector is one of the pillars of economic development. The sector is expected to play a key role in the growth of the Kenyan economy by contributing 20 percent of Gross Domestic Product (KAM, 2015). The manufacturing sector is currently employing 280,300 people directly, which represents 13 percent of total employment and additional of 1.6 million or 20 percent people employed in the informal side of the industry (KAM, 2015). However, the manufacturing sector in Kenya is facing supply chain vulnerability ranging from technological change, financial risk, political turbulence and mounting regulatory pressures, workforce strike, terrorism, drought incidences and influx of counterfeits (KNBS, 2013; Transparency International, 2013).

In Kenya, the Ministry of Health and Medical Services has the responsibility of overseeing the pharmaceutical companies, pharmacies and the trade in pharmaceutical products (Noah & Waithaka, 2005). This is done through the Pharmacy and Poisons Board, as provided for by Chapters 244 (The Pharmacy and Poisons Act) and 245 (The Dangerous Drugs Act) of the Laws of Kenya. Product registration is effected after a thorough evaluation of efficacy, safety and quality. According to Muiva (2001), the pharmaceutical industry in Kenya can be divided into multi-national companies, generic companies and consumers. Multinational companies are involved in research and developing original brands while generic companies on the other hand are involved in manufacturing and marketing imitated brands. Consumers can be categorized as direct or indirect. Direct consumers are individual patients who buy drugs for their own use, while indirect consumers are either companies such as hospitals and Health Management Organizations, or individuals who buy pharmaceutical products for their clients or patients but do not themselves consume the products. Vinayak (2001) further breaks the industry into manufacturing companies, multinationals, Kenyan agents and local traders and distributors.

According to Frost and Sullivan, (2013), Kenya's prescription pharmaceuticals market was worth $423.2 million and is set to increase at a compound annual growth rate of 11.8% to 2019. And while prescription drugs account for around 78% of the market, the fastest growth will occur for the over-the-counter product sales (Frost & Sullivan, 2013). The growth of the Kenyan pharmaceutical industry has been linked to an overall growth of the economy over the past decade and increased expenditure on health by the government and partners.

The Kenyan pharmaceutical sector supplies nearly half of the Common Market for Eastern and Southern Africa region market, with over half of manufacturers in the region having their operations bases in Kenya (Kenya Pharma Expo, 2014). Kenyan private firms enjoy negotiated duty exemptions in exports to several countries in the

region, including Tanzania, Uganda and Rwanda (Kenya Pharma Expo, 2014). However, Kenya's capacity to address a sizeable share of COMESA's needs is small thus Kenyan exports contribute only 0.2 to 0.3 per cent of COMESA's needs. Average annual capacity utilization is only about 60 per cent for the manufacture of most dosage forms (Kenya National Bureau of Statistics, 2014) .Furthermore, Kenya has relatively small total production capacity hence capacity utilization a challenge. About 50% of Kenya's pharmaceutical exports go the East African Community states (UNIDO 2010). The manufacturers engage almost exclusively in compounding and formulating active pharmaceutical ingredients into final dosage forms. Both sterile and non-sterile preparations are produced locally, with the latter forming the bulk of production. The active pharmaceutical ingredients imported into the country come mainly from Asian countries (UNIDO, 2010). The pharmaceutical industry in Kenya employs at least 2,000 staff, two thirds of whom are involved in direct importation arrangements with multinationals (Kenya Pharma Expo, 2014).

The Kenyan pharmaceutical industry is dominated by suppliers of generic medicines. According to a recent report, the value of generic medicines imported in 2008 exceeds the total value of medicines produced locally (UNIDO, 2010) However, clients are reported to have high preference for branded innovator products overall (Frost & Sullivan, 2013). This has been attributed to aggressive marketing by local importers and distributors affiliated to multinational pharmaceutical firms. The local firms have given the multinationals a strong presence in the Kenyan health system, thanks to large networks medical representatives and well- funded continuous medical education programs for prescribers. About 75 to 80 per cent of local production is sold in the domestic market. However, it meets only about a quarter of the local demand thus the share of local production in domestic sales could be improved (Commonwealth of Nations, 2017).

Local pharmaceutical manufacturing is thought to have the potential for substantial growth in the region. The pharmaceutical sector consists of about 23 licensed concerns include local manufacturing companies and large multinational corporations, subsidiaries or joint ventures. Most are located within Nairobi and its environs. The number of companies engaged in manufacturing and distribution of pharmaceutical products in Kenya continues to expand, driven by the Government's efforts to promote local and foreign investment in the sector (Were, Sharif, & Samuel, 2008). Effective procurement involves analysis of the two major procurers of medicines in the country who are the Kenya Medical Supplies Agency and the Mission for Essential Medicines Supplies (UNIDO, 2010).

1.1.3 Value Disciplines Strategy

Value-Disciplines Model strategy was first published in the ground-breaking Harvard Business Review article "Customer Intimacy and Other Value Disciplines," and was expanded in a book, "The Disciplines of Market Leaders" in 1995. The Value-Disciplines Model is a strategic tool that helps enterprises establish what they want their customers to value them for. The rules that govern market leaders' actions are; they provide the best offering in the market place by excelling in a specific dimension of value. Market leaders first develop a value proposition that is compelling and unmatched. The second rule is to maintain threshold standards on other dimensions of value hence you can't allow performance in other dimensions to slip. The third rule is to dominate your market by improving value year after year. The fourth rule is to build a well-tuned operating model dedicated to delivering unmatched value. The operating model is the market leader's ultimate weapon in its quest for market domination.

Value disciplines can be considered generic strategic directions that define the overall focus of an organization's strategy. The initial three value disciplines proposed are those by Treacy and Wiersema (1993). Operational excellence value disciplines focuses on optimizing the production and delivery of products or services. This results in products

or services that are reliable as well as competitively priced and delivered with minimal difficulty or inconvenience (Treacy & Wiersema; 1993). Product leadership value focuses on offering leading-edge products and services to customers that consistently enhance the customer's use or application of the product, thereby making rivals' goods obsolete (Treacy & Wiersema; 1993). It has to be creative and open-minded to new ideas and be quick in commercializing them while Customer intimacy focuses on customer intimacy segment their target markets precisely and subsequently tailor their offerings to closely match the demands of those niches. Tracey and Wiersema proposed that in order to be competitive, an enterprise must be competent in all three disciplines, but to be a market leader, an enterprise must excel in just one discipline. Treacy-Wiersema further propose that an enterprise cannot excel in all three disciplines because the basic enterprise culture, structures, people, facilities, processes and business models that lead to excellence in any one disciplines are incompatible with achieving excellence in the others. Value disciplines strategy is an extension to Michael Porter's generic strategies for competitive advantage.

A fourth value discipline has been derived by linking the original three value disciplines to the framework of Quinn and Rohrbaugh, (1983) and discovering that this framework suggests a fourth value discipline of supply comfort which is a concept proposed by Kellogg and Chase, (1995). Companies pursuing supply comfort are not so much focused on the products they are selling but on the configuration of services around the product. To link the value disciplines to the business model, the business model framework of Osterwalder, (2004) has been proposed which describes distribution strategy channels. The distribution strategy channel envisions that a company can deliver its value proposition to its targeted customers through different channels. Effective channels will distribute a company's value proposition in ways that are fast, efficient and cost effective. An organization can reach its clients either through its own channels (store front), partner channels (major distributors), or a combination of both.

1.1.4 Management of Efficiency

If economic planning is to concern itself with practical industries, it is important to know how far a given industry can be expected to increase its output by simply increasing its efficiency, without absorbing further resources (Farrell, 1957). In order to be competitive and sustainable, resources need to be used with increased productivity Jovane, Westkämper and Williams (2008); in a more efficient and effective way (Duflou, 2012). High values of both efficiency and effectiveness lead to high productivity and therefore increased competitiveness (Tangen, 2005). This view is also supported by Drucker (1974). The international standard organization (ISO) defines efficiency as effort related to the usage (International Standard Organization, Sept. 2013). The meaning of efficiency is mostly associated with the utilization of resources and a rather input oriented perspective of a transformation process. Profitability ratios designate a company's overall efficiency. It measures how the company uses its assets and control of its expenses to generate an acceptable rate of return (Faruk, & Habib, 2010).). The idea of formalization of management occurs within the quantitative management perspective so the managerial effect is measured in monetary units. Measuring managerial efficiency as the ratio of additional profit company from a decision to the cost of the decision Gorchakov (2003); Vasilyev, Parachina and Ushvitsky (2007).

1.2 Statement of the Problem

Many Manufacturing firms in Kenya have relocated or restructured their operations opting to serve the local market through importing from low-cost manufacturing areas such as Egypt, South Africa and India therefore resulting in job losses (Mutuku & Mahihu, 2014). This is an indication that many manufacturing firms in Kenya are experiencing efficiency challenges with many reporting profit warnings due to challenges in the operating environment (ROK, 2015). One of the industries that face this challenge is the pharmaceutical industry (Al Hasan & Al-Zu’bi, 2014).

To be market leaders, the local pharmaceutical industry need to overcome various constraints that hamper growth and development. The high cost of production resulting from high energy costs and unreliability of energy supply, reducing competitiveness (UNIDO, 2010). The government levies 16% value added tax on pharmaceutical raw materials, which makes production more costly. Purchasing of active raw materials is inhibited by low order quantities as the volume of raw materials requested by local industry is too small to justify shipment and wide fluctuations in cost per unit (Wamae & Kungu, 2014). Other factors are that plants are relatively old with high maintenance costs and poor efficiency; there is little emphasis on achieving large production runs and machine utilization rates are low thus the industry doesn't benefit from economies of scale in production, planned maintenance is given low priority and there is little availability of spare parts. Much of the equipment has not been replaced or maintained (UNIDO, 2010) hence the outdated management and production processes and low labor productivity reduces competitiveness (Negatu, 2013). There is limited diversification of the industry's activities in terms of product portfolio (Wamae & Kungu, 2014).

Pharmaceutical companies are not customer-centric, nor do they engage there customers to manufacture products based on what they want in order to create financial success (Gladd, 2012). Local manufacturers engage in minimal research and development as it is restricted to innovation in manufacturing processes rather than innovative pharmaceutical products (Lettington & Munyi, 2004). The pharmaceutical industry currently delegates distribution to third-party logistics providers and wholesalers and is less advanced in terms of channel management compared with other sectors thus the inefficient logistics systems and poor transport infrastructure, increases transport costs and decreases chances of being market leaders (Ricci & Fraser, 2006). In his study, Hassan (2012) asserts that supply chain management practices in humanitarian organizations are critical for the performance of the organizations. To be a market leader, local pharmaceutical industry will be efficient only if pharmaceuticals can be produced more cheaply locally than they can be imported on the open market.

Other studies on Pharmaceutical Manufacturing Companies in Kenya have been done by Orwa (2004) who studied the Influence of manufacturing practices on quality of pharmaceutical products manufactured in Kenya, A study on perception of pharmaceutical producers and end users towards the role played by pharmaceutical distributors using the value chain concept in Kenya by Ikundo (2007), Ogollah (2007) did a study of strategic practices of pharmaceutical importers and distributors in Kenya, Mbirwe (2007) did a study on positioning strategies used by retail pharmacies in Nairobi. Thoithi (2009) who studied about the workforce in pharmaceutical industry in Kenya, Kalunda (2012) who studied Pharmaceutical manufacturing companies in Kenya and their credit risk management practices, Muthiani (2012) who studied factors Influencing the Influx of Counterfeit Medicines in Kenya, Ngari (2012) who studied the relationship between intellectual capital accounting and business performance in the Pharmaceutical Firms in Kenya and Kinoti (2013) who investigated the market positioning strategies practiced by pharmaceutical firms in Nairobi. A perusal of past research indicates that there is a gap between the management of efficiencies to make Kenyan pharmaceutical industries become competitive and market leaders. This study, therefore, endeavored to find out the influence of value disciplines strategy on the management of efficiency levels in the pharmaceutical industry in Kenya so as to contribute to the growth of the Kenyan economy which is expected to grow at a rate of 10% per annum (ROK, 2015) as per the Vision 2030 growth assumptions.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of the study was to determine the influence of value disciplines strategy on the management of efficiency levels in the pharmaceutical industry in Kenya.

1.3.2 Specific Objectives

1. To establish the influence of Operational Excellence on the management of efficiency levels in the pharmaceutical industry in Kenya.
2. To examine the influence of Customer Intimacy focus on the management of efficiency levels in the pharmaceutical industry in Kenya.
3. To determine the influence of Product leadership on the management of efficiency levels in the pharmaceutical industry in Kenya.
4. To establish the influence of distribution chain strategy on the management of efficiency levels in the pharmaceutical industry in Kenya.

1.4 Research Hypotheses

A hypothesis is a researcher's anticipated explanation or opinion regarding the result of the study (Mugenda & Mugenda, 2003). The researcher adopted the following four hypotheses for this study:

H_1: There is a positive significant influence of operational excellence on management of efficiency levels in the pharmaceutical industry in Kenya.

H_2: There is a positive significant influence of customer intimacy on management of efficiency levels in the pharmaceutical industry in Kenya.

H_3: There is a positive significant influence of Product leadership on management of efficiency levels in the pharmaceutical industry in Kenya.

H_4: There is a positive significant influence of distribution chain strategy on management of efficiency levels in the pharmaceutical industry in Kenya.

1.5 Significance of the Study

Kenya is currently the largest producer of pharmaceutical products in the Common Market for Eastern and Southern Africa (COMESA) region, supplying about 50% of the regions' market. Out of the region's estimate of 50 recognized pharmaceutical manufacturers the majority are based in Kenya (Kenya Pharma Expo, 2014). Kenya's pharmaceutical industry is on a rebound, riding on the back of increased expenditure in healthcare and general economic growth over the year's .The rapid growth of the pharmaceutical market in the region has presented the need to increase quantity of production, and also increase the export ratio for quality products. The country's pharmaceutical and consumer health market is estimated to be worth an estimated USD 160 million each year (Moi, 2003). The growth in competition, liberalization of the economy and the environmental changes put additional challenges to organizations. As such, they need to respond to greater market imperatives and challenges. There is lack of a theoretically grounded understanding of the strategies underlying organization's success or failure in general (Coplin, 2002). The question posited is how a model can be created to the established organizations or those entering the market to perform well, succeed or produce a sustainable competitive advantage thus be market leaders. The study will generally contribute to the body of knowledge by filling the research gap regarding value disciplines adopted by Kenyan Pharmaceutical companies.

1.5.1 Benefits to the Pharmaceutical Industry

The study will benefit management of Pharmaceutical companies in understanding the concept of value disciplines, its benefits, challenges and its overall impact on the performance of their companies. The findings will be useful to the Pharmaceutical companies as a whole since they will have strategies which they can use to gain competitive advantage in their operations for superior organizational performance and attain market leadership. The management of Kenyan Pharmaceutical companies will have at their disposal recommendations on what strategies they can employ to achieve

value disciplines transformation. These strategies will benefit pharmaceutical companies through operational excellence" which describes a specific strategic approach to the production and delivery of products. The objective of the firm following this strategy is to lead its industry in price and convenience. Companies pursuing operational excellence are indefatigable in seeking ways to minimize overhead costs, to eliminate intermediate production steps, to reduce transaction and other "friction" costs, and to optimize business processes across functional and organizational boundaries (Treacy & Wiersema, 1993). They focus on delivering their products to customers at competitive prices and with minimal inconvenience. While companies pursuing operational excellence concentrate on making their operations lean and efficient, those pursuing a strategy of customer intimacy continually tailor and shape products to fit an increasingly fine definition of the customer. This can be expensive, but customer-intimate companies are willing to spend now to build customer loyalty for the long term. They typically look at the customer's lifetime value to the company, not the value of any single transaction. This is why employees in these companies will do almost anything—with little regard for initial cost—to make sure that each customer gets exactly what he or she really wants.

Companies that pursue the third disciplines, product leadership, strive to produce a continuous stream of state-of-the-art products (Treacy & Wiersema, 1993). Reaching that goal requires them to challenge themselves in three ways. First, they must be creative. More than anything else, being creative means recognizing and embracing ideas that usually originate outside the company. Second, such innovative companies must commercialize their ideas quickly. To do so, all their business and management processes have to be engineered for speed. Third and most important, product leaders must relentlessly pursue new solutions to the problems that their own latest product or service has just solved. If anyone is going to render their technology obsolete, they prefer to do it themselves. Moreover the staff of Kenyan Pharmaceutical companies will benefit greatly as they will be able to produce products which satisfy the customer's

needs leading to higher sales, profits hence eventually to higher salaries and bonuses. The study would also open up new opportunities for increasing the performance of other organizations which have not embraced value disciplines strategies and seek to attain market leadership.

1.5.2 Benefits to Policy Makers

The following policy makers will benefit from this study;

It is envisaged that results of the study could provide insight to the Government of Kenya (GOK) through the Ministry of Health and Kenya national industrialization policy framework as to why some of the reforms initiated in the pharmaceutical industry have either failed or partially implemented. The government could therefore be in a position to formulate and implement appropriate policies that could address the gaps in the management of efficiency levels with a view to make the Kenyan pharmaceutical industry competitive.

The results could also enhance understanding of the Kenya good manufacturing practices roadmap – a joint venture between Kenya and UNIDO and the Pharmacy and Poisons Board which is the drug regulatory authority established under the Pharmacy and Poisons Act on the factors influencing the implementation of the recommended changes in the Pharmaceutical Industry to attain world health organization / good manufacturing practices standards thus increase efficiency levels in the pharmaceutical industry and make adjustments to address the challenges which are within their jurisdiction.

The researcher expects that the stakeholders such as Kenya pharmaceutical association and Kenya association of pharmaceutical industries which aims to promote and provide good pharmaceutical practice ethically and the learners in the pharmacy field will benefit from the study by gaining relevant understanding of the influence of value

disciplines strategy on management of efficiency levels in the pharmaceutical industry in Kenya and attainment of market leadership.

Lastly, this study may inspire prospective researchers to explore more dimensions in the application of value disciplines in the Kenyan market and its effects on organizational performance.

1.6 Scope of the Study

This study surveyed the influence of value disciplines strategy on management of efficiency levels in the pharmaceutical industry in Kenya, taking pharmaceutical companies located in Nairobi and its environs. The study involved the pharmaceutical manufacturing companies registered with the KAM 2015 directory, and distributed within Nairobi and its environs.

1.7 Limitations of the study

Some respondents were hesitant to provide the researcher with the information due to the competitive nature of the pharmaceutical sector in Kenya which also meant that some of the information sought was of confidential nature and could not be divulged for fear of giving competitors an upper hand. Respondents were however re- assured that all information would be treated with confidentiality. Also, accessing the manufacturing firms was a challenge because of stringent security details. It required special permission be granted from those in authority. This was overcome by contacting and getting permission via telephone appointments. There was a limitation on the available literature on value disciplines strategy in the pharmaceutical industry in Kenya, from which lessons can be drawn from. To overcome the limitation, studies in other sectors were used to draw lessons to support empirical data, both globally and locally. Despite these limitations, the study provides important implications from theoretical and practical perspectives. The study contributes to ongoing discussions and discourses regarding the

role of pharmaceutical industry in Kenya and value disciplines related variables (operational excellence, customer intimacy, product leadership and distribution chain strategy) on the industry's commitment to management of efficiency levels thus being competitive and attaining market leadership.

The chapter covered the background of the study where it presented key information relating to the study. The section also provided the statement of the problem, research objectives, research hypotheses, justification and scope.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter attempted to integrate value disciplines strategy and four theories/ models that include the resource-based view (RBV), Ansoff Product-Market Growth Matrix, Principal-Agent Theory and the Balanced Score Card with a view of establishing whether or not they have any impact on value disciplines strategy on the management of efficiency levels in the pharmaceutical industry in Kenya. The chapter reviewed how the conceptual frameworks have a direct bearing to the highlighted theories / models and finally reviewed the literature that is available with regard to these concepts. The chapter provided an overview of related literature and also looked at related past studies in the area and the gaps inherent in pharma organizations in terms of value disciplines strategy implementation and their performance. Specific areas covered include theoretical review, conceptual framework, and critique of existing literature, research gaps and summary

2.2.1 Value Disciplines Model

A business model, and a company's principal value proposition in particular is shaped by the firm's underlying value creation strategy or value disciplines, a term coined by Michael Treacy and Fred Wiersema in 1993 to describe different ways companies can differentiate itself from competitors. Value disciplines is more than just a benefit statement, it is a statement of strategic focus and provides a context for a company to set its corporate vision and objectives, to target its most profitable customers, and to focus and align its activities. In contrast to more traditional market segmentation strategies, which group customers by geography, product mix, or demographics, value disciplines segments customers according to the full range of benefits that are most valuable to

them. Specifically, Treacy and Wiersema identify three generic value disciplines: operational excellence, customer intimacy, and product leadership.

A fourth value discipline has been derived by linking the original three value disciplines to the framework of Quinn and Rohrbaugh (1983) and discovering that this framework suggests a fourth value discipline of supply comfort which is a concept proposed by Kellogg and Chase (1995). The rules that govern market leaders' actions are; they provide the best offering in the market place by excelling in a specific dimension of value. Market leaders first develop a value proposition that is compelling and unmatched. The second rule is to maintain threshold standards on other dimensions of value hence you can't allow performance in other dimensions to slip. The third rule is to dominate your market by improving value year after year. The fourth rule is to build a well-tuned operating model dedicated to delivering unmatched value. A strategy of operational excellence is defined by a relentless focus on providing customers with reliable products or services at competitive prices and delivered with minimal difficulty or inconvenience Companies pursuing operational excellence are relentless in seeking ways to minimize overhead costs, to eliminate intermediate production steps, to reduce transaction and other "friction" costs, and to optimize business processes across functional and organizational boundaries. They focus on delivering their products or services to customers at competitive prices and with minimal inconvenience. Because they build their entire businesses around these goals, these organizations do not look or operate like other companies pursuing other value disciplines.

An operationally excellent company proactively designs its entire business model for its targeted customer segments, paying particular attention to speed, efficiency, and cost. This includes critically reevaluating business processes, reassessing the complete supply chain, and reaching out to suppliers, distributors, and customers to create a larger, more integrated approach to meeting customer needs. With operational excellence, firms aim to have economical, efficient processes resulting in delivered values to customers like low prices and service convenience (Pokharel, 2011).

A focus on customer intimacy, the second value disciplines, means segmenting and targeting markets precisely and then tailoring offerings to exactly match the demands of those niches. Companies that excel in customer intimacy combine detailed customer knowledge with operational flexibility so they can respond quickly to almost any need, from customizing a product to fulfilling special requests. As a consequence, these companies engender tremendous customer loyalty. Companies pursuing a strategy of customer intimacy continually tailor and shape products and services to fit an increasingly fine definition of the customer. This can be expensive, but customer-intimate companies are willing to take a long-term perspective and invest to build lasting customer loyalty. They typically look at the customer's lifetime value to the company, not the value of any single transaction. This is why employees in these companies will do almost anything—with little regard for initial cost—to make sure that each customer gets exactly what he or she really wants. Customer-intimate companies understand the difference between profit or loss on a single transaction and profit over the lifetime of their relationship with a single customer. Most companies know, for instance, that not all customers require the same level of service or will generate the same revenues. Profitability, then, depends in part on maintaining a system that can identify, quickly and accurately, which customers require what level of service and how much revenue they are likely to generate (Parvatiyar & Sheth, 2011).

Product leadership, the third disciplines, means offering customers leading-edge products and services that consistently enhance the customer's use or application of the product, thereby making rivals' goods obsolete. Companies that pursue product leadership are innovation-driven, and they constantly raise the bar for competitors by offering more value and better solutions. Product leader's work with three basic principles. First, they focus on creativity; constant innovation is the key to their success. They look for new ideas inside as well as outside the company, have an "experimentation is good" mind-set, and reward risk taking.

Second, they know that in order to be successful, they must be fast in capitalizing on new ideas; they know how to commercialize new ideas quickly. To do so, all their business and management processes have to be engineered for speed. Third, product leaders must relentlessly pursue new solutions to the problems that their own latest product or service has just solved. In other words, if anyone is going to render their technology obsolete, they prefer to do it themselves. Product leaders avoid bureaucracy at all costs because it slows commercialization of their ideas. Managers make decisions quickly since, in a product leadership company, it is often better to make a wrong decision than to make a late or no decision at all. That is why these companies are prepared to decide today, then implement tomorrow. Moreover, they continually look for new ways—such as concurrent engineering—to shorten their cycle times.

Product leaders are their own fiercest competitors. They continually cross frontiers, then break more new ground. They have to be adept at rendering obsolete the products and services that they have created because they realize that if they do not develop a successor, another company will. Finally, product leaders also possess the infrastructure and management systems needed to manage risk well (Micheels & Gow, 2009).

A fourth value discipline has been derived by linking the original three value disciplines to the framework of Quinn and Rohrbaugh (1983) and discovering that this framework suggests a fourth value discipline of supply comfort which is a concept proposed by (Kellogg & Chase, 1995). Companies pursuing supply comfort are not so much focused on the products they are selling but on the configuration of services around the product. To link the value disciplines to the business model, the business model framework of Osterwalder (2004) has been proposed which describes distribution strategy channels. The distribution strategy channel envisions that a company can deliver its value proposition to its targeted customers through different channels. Effective channels will distribute a company's value proposition in ways that are fast, efficient and cost effective. An organization can reach its clients either through its own channels (store front), partner channels (major distributors), or a combination of both.

The value discipline strategy (Treacy & Wiersema, 1995) have been used in a wide range of contexts both conceptual and empirical. Within the conceptual literature, the value discipline strategy have been used in areas such as knowledge management Wiig (1997), human resource management Schuler (1996), customer value Christopher (1996) customer relationship management Langerak and Verhoef (2008), strategy mapping Scholey (2005) and educational service encounters (Chung & McLarney, 2000). Empirical studies have used value discipline strategy in areas such as knowledge management and organizational performance Zack,McKeen and Singh, (2009) market orientation (Micheels & Gow, 2009), Web strategies Wijaya, Spruit, Scheper and Versendaal (2011), customer preferences Dannhauser and Roodt (2001), the development of strategic advantage and Bendoly ,Rosenzweig and Stratman (2009) strategic purity Thornhill and White (2007).

2.2 Theoretical Framework

A theoretical framework can be defined as a collection of interrelated ideas based on theories. It is a reasoned set of prepositions, which are derived and supported by data or evidence. A theoretical framework accounts for or explains phenomenon (Mathooko, Mathooko, & Mathooko, 2011). In an attempt to explain the relationship between value disciplines strategy and management of efficiency levels in the pharmaceutical industries in Kenya, the researcher focused on four competing normative theories / models as debated by numerous researchers: resource-based view, Ansoff Product-Market Growth Matrix, Principal-Agent Theory and the balanced score card.

2.2.1 Resource Based View Theory

Researchers such as (Ansoff, 1965) and (Chandler, 1962) made important contributions towards developing the resource-based view of strategy (Hoskisson, Eden, Lau, & Wright, 2000). From the 1980s onwards, according to Furrer, Thomas and Goussevskaia, (2008), the focus of inquiry changed from the structure of the industry,

like structure-conduct-performance paradigm and the five forces model to the firm's internal structure, with resources and capabilities -the key elements of the resource-based view. The resource-based view of the firm draws attention to the firm's internal environment as a driver for competitive advantage and emphasizes the resources that firms have developed to compete in the environment. During the early strategy development phase of Hoskisson‟s account of the development of strategic thinking Hoskisson et al. (2000), the focus was on the internal factors of the firm. Since then, the resource-based view of strategy has emerged as a popular theory of competitive advantage (Furrer et al., 2008; Hoskisson et al., 2000). The term "resource-based view" was coined much later by Wernerfelt, (1984), who viewed the firm as a bundle of assets or resources which are tied semi-permanently to the firm. Barney (2008) also argued that the resources of a firm are its primary source of competitive advantage.

Researchers subscribing to the resource-based view of strategy argue that only strategically important and useful resources, competencies and capabilities should be viewed as sources of competitive advantage (Barney, 2008). Terms like core competencies, distinctive competencies and strategic assets indicate the strategically important resources and competencies, which provide a firm with a potential competitive edge. Strategic assets are, the set of difficult to trade and imitate, scarce, appropriable and specialized resources and capabilities that bestow the firm's competitive advantage. Powell, (2001) suggested that business strategy can be viewed as a tool to manipulate such resources to create competitive advantage. Core competencies are distinctive, rare, valuable firm-level resources that competitors are unable to imitate, substitute or reproduce (Barney, 2008)

The resource-based view as a basis for the competitive advantage of a firm lies primarily in the application of a bundle of valuable tangible or intangible resources at the firm's disposal Penrose, (1959) to transform a short-run competitive advantage into a sustained competitive advantage which requires that these resources are heterogeneous in nature and not perfectly mobile. Effectively, this translates into valuable resources that are

neither perfectly imitable nor substitutable without great effort (Barney, Firm Resources and Sustained Competitive Advantage., 1991).

If these conditions hold, the bundle of resources can sustain the firm's above average returns. Resource-based view of strategy has been extensively applied in management and marketing to identify the firm's potential key resources which evaluates whether these resources fulfill the following criteria: Valuable- A resource must enable a firm to employ a value-creating strategy, by either outperforming its competitors or reduce its own weaknesses. Relevant in this perspective is that the transaction costs associated with the investment in the resource cannot be higher than the discounted future rents that flow out of the value-creating strategy. Rare – To be of value, a resource must be rare by definition. In a perfectly competitive strategic factor market for a resource, the price of the resource will be a reflection of the expected discounted future above-average returns (Barney, 1991). In-imitable – If a valuable resource is controlled by only one firm it could be a source of a competitive advantage. This advantage could be sustainable if competitors are not able to duplicate this strategic asset perfectly.

The valuable-rare- in-imitable characteristics mentioned are individually necessary, but not sufficient conditions for a sustained competitive advantage (Makadok, 2001). Within the framework of the resource-based view, the chain is as strong as its weakest link and therefore requires the resource to display each of the four characteristics to be a possible source of a sustainable competitive advantage. A competitive advantage can be attained if the current strategy is value-creating, and not currently being implemented by present or possible future competitors. Although a competitive advantage has the ability to become sustained, this is not necessarily the case. A competing firm can enter the market with a resource that has the ability to invalidate the prior firm's competitive advantage, which results in reduced profits (Williamson, 1975). Non-substitutable – Even if a resource is rare, potentially value-creating and imperfectly imitable, an equally important aspect is lack of substitutability (Amit & Schoemaker, 1993). If competitors are able to counter the firm's value-creating strategy with a substitute, prices are driven

down to the point that the price equals the discounted future rents, resulting in zero economic profits. The theory was applicable in this study because the researcher had theorized that within the framework of the resource-based view and the variable operational excellence, is the assumption that resource bundles and capabilities are heterogeneous across firms.

This difference is manifested in two ways. First, firms with superior resources can earn profits in competitive markets because they produce more efficiently than others. What is key is that the superior resource remains in limited supply. Second, firms with market power can earn monopoly profits from their resources by deliberately restricting output. Heterogeneity in monopoly models may result from differentiated products, intra-industry mobility barriers, or first-mover advantages (Peteraf, 1993). To attain market leadership , the study assumed that pharmaceutical industry in Kenya have to mobilize their pertinent resources key among which organization structure, resources, leadership as well as corporate culture. Resource based view was thus employed to aid in the understanding of how well firms ought to mobilize the resources to achieve successful strategy execution in view of the highly dynamic and competitive business industry, for successful strategy execution.

2.2.2 Ansoff Matrix Growth Model

The Ansoff Product-Market Growth Matrix is a marketing tool created by Igor Ansoff and first published in his article "Strategies for Diversification" in the Harvard Business Review (Ansoff, 1965). The product-market matrix explores two key dimensions: Product and Market. Businesses are built around products and services that define their value offering. Most offerings are limited in at least two ways; time, in that their relevance diminishes and redesign or renewal is usually required, and transferability, in that they tend to work best under certain market conditions. Ansoff noted that modifying the core offering is a key strategic choice. Generally applied as Market options, this dimension distinguishes between customer markets that are well established and known

to the firm versus all the rest that are not. The matrix allows marketers to consider ways to grow the business via existing and/or new products, in existing and/or new markets – there are four possible product/market combinations. This matrix helps companies decide what course of action should be taken given current performance. The method typically starts with what is and ends with what is imaginable. Risk increases as strategy moves further from the current situation. The matrix consists of four strategies.

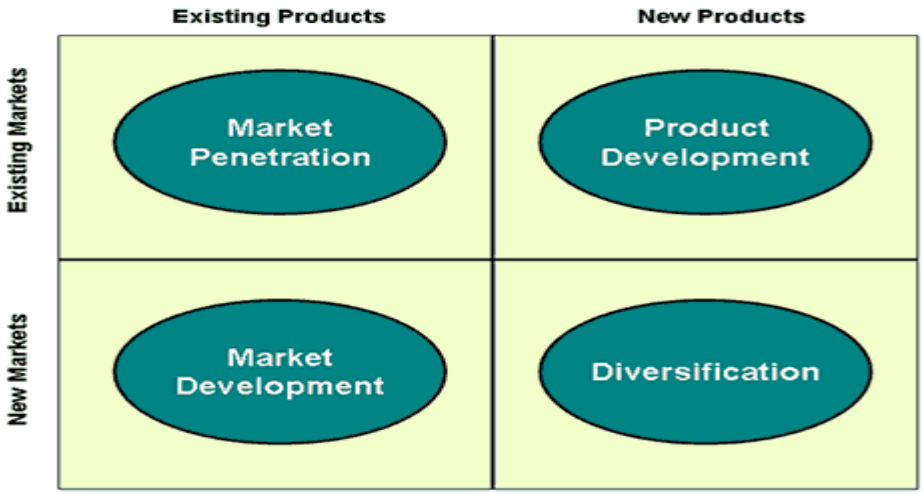

Figure 2.1: Ansoff's Growth Matrix; (Ansoff, 1957)

Market penetration; in market penetration strategy, the organization tries to grow using its existing offerings (products and services) in existing markets. In other words, it tries to increase its market share in current market scenario. This involves increasing market share within existing market segments. This can be achieved by selling more products or services to established customers or by finding new customers within existing markets. Here, the company seeks increased sales for its present products in its present markets through more aggressive promotion and distribution. This can be accomplished by: Price reduction, increase in promotion and distribution support, acquisition of a rival in the same market and modest product refinements. While in market development strategy, a firm tries to expand into new markets (geographies, countries etc.) using its

existing offerings. This can be accomplished by: different customer segments, industrial buyers for a good that was previously sold only to the households' new areas or regions of the country and foreign markets. This strategy is more likely to be successful where:- the firm has a unique product technology it can leverage in the new market, it benefits from economies of scale if it increases output, the new market is not too different from the one it has experience of and the buyers in the market are intrinsically profitable.

In product development strategy, a company tries to create new products and services targeted at its existing markets to achieve growth. This involves extending the product range available to the firm's existing markets. These products may be obtained by: investment in research and development of additional products, acquisition of rights to produce someone else's product, buying in the product and "branding" it and joint development with ownership of another product that need access to the firm's distribution channels or brands.

In diversification an organization tries to grow their market share by introducing new offerings in new markets. It is the most risky strategy because both product and market development is required. This can be achieved through concentric diversification, and vertical integration. In unrelated diversification, also termed conglomerate growth because the resulting corporation is a conglomerate, which is a collection of businesses without any relationship to one another. A strategy for company growth through starting up or acquiring businesses outside the company's current products and markets (Ansoff, Strategies for Diversification, 1965). The theory was applicable in this study because the researcher had theorized that within the framework of the Ansoff growth matrix and the variable product leadership, the matrix allows marketers to consider ways to grow the business via existing and/or new products. In market penetration the pharmaceutical industry could consider selling more established products into existing markets by increased promotion or price reductions or better routes to market, while in product development it will involve pharmaceutical industries developing new products and placing them into existing markets. This involves extending the product range available

to the firm's existing markets. These products may be obtained by investment in research and development of additional products thus achieve efficiency in the pharmaceutical industry (Bennett, 1994).

2.2.3 Principal-Agent Theory

This theory relates to business relationships that consist of a principal and an agent engaged in cooperative behavior but have differing goals and attitudes toward risks (Plambeck & Gibson, 2010; Fayezi, O'Loughlin & Zutshi, 2012; Eisenhardt, 1989) . Agency theory is relevant for the situations wherein one party (the principal) delegates authority – in terms of control and decision-making about certain tasks – to another party (the agent) (Eisenhardt, 1989; Mitnick, 1973; Ross, 1973; Zsidisin & Stephan, 2010). In agency relationships, typically, the principal will seek to minimize the agency costs, such as, specifying, rewarding and monitoring, and policing the agent's behavior, while the agent works towards maximizing rewards and reducing principal control (Fleisher, 1991). Efficient management of agency problems such as information acquisition (or communication), preference mismatch (or conflict of interest), effort (or moral hazard) and capability (or adverse selection), mainly associated with the agent (Fleisher, 1991), is also imperative to any principal-agent relationship. The Nature of the Relationship for agency theory is transactional.

Principal-agent theory has been applied to various activities associated to supply chain management including, risk management, outsourcing, sourcing and supply chain collaboration (Plambeck & Gibson, 2010). Normally, one partner in supply chain often has either more information or better bargaining power than the other partners (Zsidisin & Wagner, 2010). Based on this, principal agent theory recognizes two types of parties to a transaction within supply chain. The principal is a party who desires to secure provision of certain services or goods but does not have the needed specialized skills, understanding or assets (Plambeck & Gibson, 2010; Eisenhardt, 1989). Usually, the principal contracts an agent to undertake the task on their behalf and in the process

delegates some control to the agent (Bergen, Dutta & Walker, 1992; Zsidisin & Michael, 2005).

Distribution chain activities are often subject to ‘outsource or in-house’ decisions. In 2000, the most important reason for distribution chain activities was cost reduction, at a distance followed by service improvement (van Laarhoven, Berglund & Peters, 2000). But this situation is changing; Distribution chain is increasingly seen as a factor influencing a firm’s decision to be a market leader. The focus is shifting from simple make-or-buy decisions, motivated by the opportunity for cost reduction, to more strategic considerations such as service improvements and efficient transactions (Skjott-Larsen, 2000).

The theory was applicable in this study because the researcher had theorized that, the principal-agent theory was adopted to support an incentive alignment dimension of distribution chain collaboration to reduce risk factors posed by agents (Bergen et al., 1992) within the framework of agency theory and the variable distribution chain , the pharmaceutical industry manufacturers (principal) can appoint distributors (agents) to act on its behalf in terms of distribution of its goods through third party logistics thus increasing efficiency through customer focused planning and cycle time reduction thus achieve efficiency in the pharmaceutical industry.

2.2.4 The Balanced Score Card

A new approach to strategic management was developed in the early 1990s by Kaplan and Norton (1992) and they named this system the 'balanced scorecard'. It recognizes some of the weaknesses and vagueness of previous management approaches, the balanced scorecard approach provides a clear prescription as to what companies should measure in order to 'balance' the financial perspective. The balanced scorecard is a management system that enables organizations to clarify their vision and strategy and translate them into action. It provides feedback around both the internal business

processes and external outcomes in order to continuously improve strategic performance and results. The balanced scorecard transforms strategic planning from an academic exercise into the nerve center of an enterprise (Kaplan & Norton, 1996). The balanced scorecard suggests that we view the organization from four perspectives, and to develop metrics, collect data and analyze it relative to each of these perspectives: The Learning and Growth Perspective, the Business Process Perspective, the Customer Perspective and the Financial Perspective.

The Learning and Growth Perspective; this perspective includes employee training and corporate cultural attitudes related to both individual and corporate self-improvement. In a knowledge worker organization, people, the only repository of knowledge are the main resource. In the current climate of rapid technological change, it is becoming necessary for knowledge workers to be in a continuous learning mode. Kaplan and Norton emphasize that 'learning' is more than 'training'; it also includes things like mentors and tutors within the organization, as well as that ease of communication among workers that allows them to readily get help on a problem when it is needed. It also includes technological tools; what the Baldrige criteria call "high performance work systems (Kaplan & Norton , 2000).

The Business Process Perspective; this perspective refers to internal business processes. Metrics based on this perspective allow the managers to know how well their business is running, and whether its products and services conform to customer requirements (the mission). These metrics have to be carefully designed by those who know these processes most intimately; with our unique missions these are not something that can be developed by outside consultants. In addition to the strategic management process, two kinds of business processes may be identified: a) mission-oriented processes, and b) support processes. Mission-oriented processes are the special functions of government offices, and many unique problems are encountered in these processes. The support processes are more repetitive in nature, and hence easier to measure and benchmark using generic metrics (Kaplan & Norton, 2000).

The Financial Perspective; Kaplan and Norton do not disregard the traditional need for financial data. Timely and accurate funding data will always be a priority, and managers will do whatever is necessary to provide it. In fact, often there is more than enough handling and processing of financial data. With the implementation of a corporate database, it is hoped that more of the processing can be centralized and automated. But the point is that the current emphasis on financials leads to the "unbalanced" situation with regard to other perspectives (Kaplan & Norton, 2000).

The Customer Perspective; Recent management philosophy has shown an increasing realization of the importance of customer focus and customer satisfaction in any business. These are leading indicators: if customers are not satisfied, they will eventually find other suppliers that will meet their needs. Poor performance from this perspective is thus a leading indicator of future decline, even though the current financial picture may look good. In developing metrics for satisfaction, customers should be analyzed in terms of kinds of customers and the kinds of processes for which we are providing a product or service to those customer groups (Kaplan & Norton, 2000).The balanced scorecard, especially the latest version of the theory presented in The Strategy-Focused Organization is heavily based on the concepts presented by Michael Treacy and Fred Wiersema (1995) in Disciplines of Market Leaders. The customer perspective of a company's scorecard and strategy map, must match the company's strategy towards its customers. It must match its customer value disciplines (Knapp, 2001).

For this perspective, "customer" means the patient as the end-user of the product. This includes direct internal customers and, for multi-agency acquisitions various health management organizations, direct or external customers. Customers' concerns tend to fall into four categories: time, quality, performance and service, and cost. Lead time measures the time required for the company to meet its customers' needs. For existing products, lead time can be measured from the time the company receives an order to the time it actually delivers the product or service to the customer. For new products, lead time represents the time to market, or how long it takes to bring a new product from the

product definition stage to the start of shipments. Quality measures the defect level of incoming products as perceived and measured by the customer. Quality could also measure on-time delivery, the accuracy of the company's delivery forecasts. The combination of performance and service measures how the company's products or services contribute to creating value for its customers (Kaplan & Norton, 1996). The balanced scorecard demands that managers translate their general mission statement on customer service into specific measures that reflect the factors that really matter to customers.

The Customer perspective addresses how a company creates value for its customers (Atkinson, Kaplan, Matsumura & Young, 2012). The first step is to define its customer/market segments (Figge, Hahn, Schaltegger & Wagner, 2002). Once a company has identified its market segment, Kaplan and Norton (1996a) suggest it selects two sets of measures: generic measures (market share, customer retention, customer acquisition, customer satisfaction, and customer profitability) and performance drivers (product/service attributes, customer relationship, and image and reputation). Companies then must determine what customer's value and define how they differentiate (performance drivers) themselves from other companies to retain, attract, and satisfy (generic measures) their target customers (Kaplan & Norton 2001). In sum, the Customer perspective uses a value proposition to describe the product, price, and image that a company offers. The theory was applicable in this study because the researcher had theorized that within the variable customer intimacy, the balanced scorecard is a team effort both in decision making and responsibility. It complements traditional financial indicators with measures of performance for customers such as customer satisfaction, customer retention, new customer acquisition, customer profitability and market share by key accounts thus providing objective evidence that improvements in customer intimacy are being translated into tangible benefits in order to manage efficiency in the pharmaceutical industry (Slater & Olson, 2000).

2.3 Conceptual Framework

Shields and Rangarjan (2013) define a conceptual framework as the way ideas are organized to achieve a research projects purpose. The independent variables were operational excellence, customer intimacy, and product leadership and distribution chain strategy while management of efficiency levels was the dependent variable of the study.

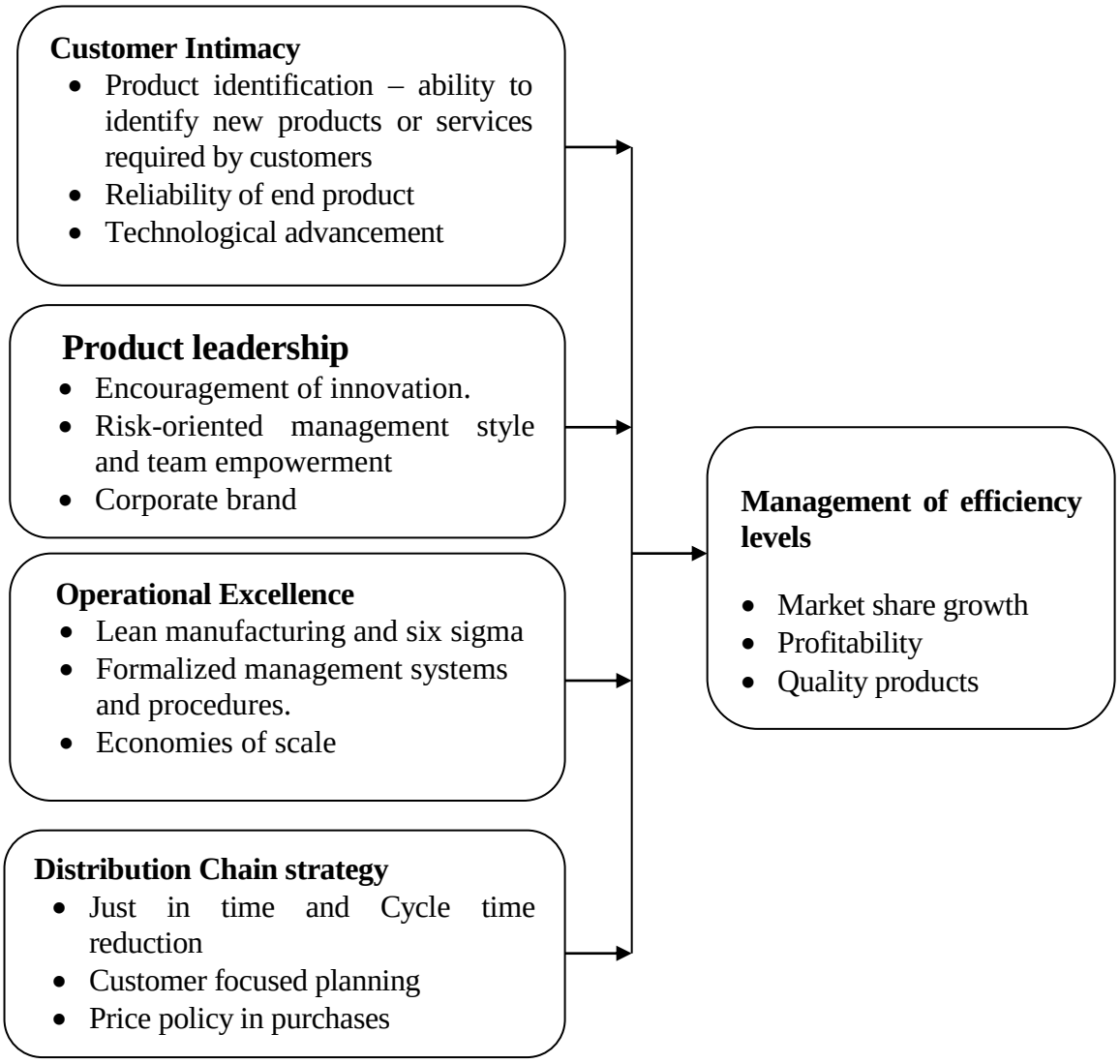

Figure 2.2: Conceptual Framework

2.4 Empirical Review

This section presented the empirical literature based on the study variables. These value disciplines can be seen as a unique way of doing business, because the product/service idea should be seen as more than just the product or service itself. It extends to everything the organization does to create value (Anderson & Narus, 1998). This implies, thinking beyond the product, to focus on customer service and adding value in the process, so that the product that is delivered exceeds customers' expectations. These three value disciplines are distinct customer-focused approaches. They are called disciplines because each one produces a different kind of customer value that is hardly esoteric. A fourth value discipline has been derived by linking the original three value disciplines to the framework of Quinn and Rohrbaugh (1983) and discovering that this framework suggests a fourth value discipline of supply comfort which is a concept proposed by (Kellogg & Chase, 1995). Companies pursuing supply comfort are not so much focused on the products they are selling but on the configuration of services around the product. To link the value disciplines to the business model, the business model framework of Osterwalder (2004) has been proposed which describes distribution strategy channels. The distribution strategy channel envisions that a company can deliver its value proposition to its targeted customers through different channels.

2.4.1 Operational Excellence

Vermaak (2008) examined the critical success factors for the implementation of lean thinking (operational excellence) in South African manufacturing organizations. The study was done with quantitative methods based and primary data was collected via questionnaire. The study concluded that senior leadership has the greatest influence on lean implementation and trade unions have no impact on lean implementation.

Henningsson and Nilsson (2009) conducted a research on Operational Excellence in supply chain management within Ericsson Mobile Platforms in Sweden. The purpose

was to achieve and/or create a foundation for future improvement regarding efficiency and effectiveness in the flow of goods and information and the way of work within the procurement process. The study clarified weaknesses / information gaps in the traceability of the order process. The study recommended use of the root causes analysis work and five-why methodology.

Benner and Tushman (2011) performed thorough, rigorous research on the effects of process management methods, Six Sigma in particular, on technological innovation measured by patents submitted by companies in the photography and paint industries. In their study, Benner and Tushman discovered that increased use of process management practices led to an increase of innovations built on knowledge existing within a firm. They suggested that process management practices lead to a focus on incremental efficiency improvements of existing processes.

Bortolotti (2012) studied High Performance Manufacturing plants which operate in machinery, electronics and transportation components based in Finland, US, Japan, Germany, Sweden, Korea, Italy, Austria, China and Spain. His study was titled "Achieving multiple performance excellence through Lean manufacturing –Empirical evidences using cumulative and trade off models". He concluded that just in time practices positively affect both efficiency and responsiveness performance, in contexts characterized by a high level of demand variability.

Bellm (2015) studied operational Excellence in the Pharmaceutical Industry, an architecture for emerging markets. The research was undertaken to investigate the current status of pharmaceutical operational excellence at domestic manufacturing sites in emerging markets. The initial phase of the research process was characterized by two broad literature reviews. A comprehensive understanding of what constitutes and characterizes an emerging market as well as the markets' influences on manufacturing was elaborated on the first literature review. This literature review resulted in a summary of emerging markets' major influences on manufacturing sites. The second literature

review contributed to the understanding of the philosophy of operational excellence in general, and under pharmaceutical constraints in particular. The challenges for operational excellence in emerging markets were consolidated. Clustered into external and internal barriers towards operational excellence, into the markets' cultural influences on the concept, and in how to handle manufacturing failures, these challenges set the stage for the empirical research. Mixed findings of the quantitative research on the implementation of operational excellence in emerging and western markets and the organizations' performances provoked in-depth qualitative studies. As an intermediate outcome, theory was enhanced by a set of external and internal barriers towards pharmaceutical operational excellence in emerging markets.

Shehadeh, M.F.Al-Zu'bi, Abdallah, and Maqableh (2016) investigated critical factors affecting the operational excellence of service firms in Jordan. The main factors of interest were leadership, human resource management practices, operations strategy, and involvement culture. The research considered different service sub-sectors including banks, ICT, insurance, aviation, hotels and medical care. The research concluded that operational excellence is a competitive weapon that different service firms should recognize if they target world class performance level. Leadership is a critical factor to drive the operational excellence. When firms aim to make a unique difference or improvement such as the pursuit operational excellence as a part of business excellence, they should build their culture in a way that each one is involved.

Thomas, Nikolaus and Daniel (2014) conducted a research on pharmaceutical industry in Kenya. Their research was titled "Pharmaceutical Operational Excellence– A suitable concept for Kenya? They recommended that since the pharmaceutical industry was facing increasing challenges, like a rising complexity, the time has come to realize the potential of sustainably implementing operational excellence starting with total preventive maintenance and then total quality maintenance which will lead to the needed stability to also strive for the elimination of all kinds of waste.

Rono and Gachunga (2016) studied challenges influencing operational excellence in state corporations-A case of Postal Corporation of Kenya. The study findings established that there is a significant positive relationship between organizational structure, organizational culture and operational excellence. The findings also indicated that organizational structure followed by organizational culture influenced operational excellence in Postal Corporation. The study noted that organizational structure to be the major contributor towards realization of increased operational excellence in Postal Corporation.

2.4.2 Customer Intimacy

Agteren (2012) surveyed the alignment of knowledge management with the dominant customer value disciplines in Netherlands in twenty organizations. The survey indicated a clear coherence between the customer value disciplines and the knowledge management configuration. The key findings were that an organization can increase the focus towards a specific customer value disciplines. The survey questionnaire made it clear which choices have been made concerning the intended customer value offered by the available products and services and an organization can adjust the knowledge management configuration to make it more coherent with the customer value disciplines.

Kai-Uwe Brock and Yu Zhou (2012) studied Fujitsu Siemens Computers and developed a measure of customer intimacy in business-to-business contexts and to assess its reliability and validity, as well as its relevance, within a relationship marketing network. The research methodology involved a multi-method (qualitative/exploratory and quantitative/confirmatory structural modelling), multi-staged (test, re-test) research approach was used and applied in Britain and Germany. The results show that customer intimacy is a second order construct reflected by the three formative dimensions of mutual understanding, closeness, and value perception. The results also show that customer intimacy is a relevant relationship indicator, distinct from the central relationship indicators of trust and commitment. It impacts relationship commitment

levels, customer induced word-of-mouth, repurchase intentions, information disclosure, customer availability, and leads to an advisor status with the customer. Moreover, customer intimacy mediates relationship marketing's central trust commitment link. This study shows that achieving and managing customer intimacy is a relevant managerial goal and task for firms and shows managers how it can be measured and managed.

Cuganesan (2008) in Australia examined the role of accounting numbers in one organization's attempts to enact and calculate customer intimacy, given renewed interest in organization-customer relationships. The research methodology utilized actor-network theory in conducting an ethnography at a wholesale financial services firm pursuing a strategy of customer intimacy. The main empirical site was the sales and marketing department, where actors were attempting to further their knowledge of customer needs in the present and anticipate them into the future. The findings suggest that heterogeneous enactments of "customer intimacy" through a "numeric calculation network" and a "sales calculation network". The former sought to use accounting numbers to calculate how customer intimacy was enacted and impose upon a sales-force periphery a regime of performance measurement. The latter eventually destabilized the proposed performance measures by promoting their own basis for calculating customers. These were more diverse and "implicit", comprising talk and communication through co-location and proximity with customers. The paper provides a number of insights into the role of accounting as a calculative practice. The observed emergence of novel means of producing accounting numbers outside the domain of the accounting function and within the sales and marketing department has important implications for the practice and study of accounting. In addition, potential limits to the use of accounting in enabling "action at a distance" are identified through the observed contest between "hard" accounting' numbers and softer modes of calculation.

Today's marketing world realizes the need for customer centricity, which quite often is reflected in the use of customer data in market responsive decisions , often customized to a specific customer segment hence focusing on the following customer-related

activities: understand customer profitability, identify customer profit segments , understand customer needs, wants, benefits sought, and preferences , identify unmet customer needs, analyze user reaction surveys and customer reviews , and customer lifetime value analysis and customer relationship management activities (Kai-Uwe Brock & Yu Zhou, 2012); (Cuganesan, 2008); (Agteren van, Oldenkamp & Boersma, 2012).

Kibeh and Kinoti (2013) conducted a study on the relationship marketing and customer loyalty in mobile telecommunications industry in Nairobi, Kenya. The study found that, the quality of a service is subjectively perceived by customers during the interactions with a firm and has critical impact on customers' evaluation of service quality. The study also found that effective communication of pricing policies as well as flexible pricing for various services offered play a great role in customer loyalty. The study further concluded that a positive brand image makes it easier for a firm to convey its brand value to consumers and also generates favourable customer loyalty among people.

Muro, Getembe and Magutu (2013) studied "The strategic benefits and challenges in the use of customer relationship management systems among commercial banks in Kenya". The study found out that information technology ensured personalized attention to the customers and also facilitated variety of products offered by the bank. It also improved processes and relationships with its customers and business partners and further built a long lasting relationship with the customers, increased revenues and profits. The study concluded that customer relationship management is a useful business strategy and most essential to banks which have a day to day dealing with the customers.

Mosoti and Oloko (2014) studied "Influence of Customer Relationship Management Strategies on Performance of Public University Saving and Credit Cooperative Societies in Kenya". The study affirmed that customer acquisition strategies significantly influence the performance of saving and credit Cooperative Societies in Kenya like any other organization. Customer retention strategies has a proportional relationship with

organizational performance and ccustomers relationship management has the potential for achieving success and growth for organizations in the environment of extensive competition and rapid technological development. Customer relationship management enables organizations to know their customers better and to build sustainable relationships with them.

Kihara and Ngugi (2014) studied "Factors influencing customer loyalty in telecommunication industry in Kenya. The study revealed that service quality affects customer loyalty for telecommunications industries and a compromise to service quality can cost revenue to a company. The study revealed that value added services is a key point in customer loyalty and firm should always value add their services as one of the most critical point in customer loyalty. The study revealed that switching barriers are major problems that affect loyalty of customers although on short term basis. The study further concludes that brand and image are also major factors that affect customer loyalty.

Kangu, Wanjau, Kosimbei and Arasa (2017) studied the role of customer orientation on customer loyalty in the hotel industry in Kenya. The study findings showed that customer orientation had contributed to customer loyalty in the hotel industry in Kenya. The study showed that stakeholders in the hospitality industry should be aware that a loyal customer does not only engage in repeat patronage but also provides positive word-of-mouth to other people, thereby increasing the revenue of the hotel.

2.4.3 Product Leadership

Product Leadership references how the firm strives to offer the best available product (Treacy & Wiersema, 1995). This value discipline relates to the differentiation strategies that the firm may implement. The offered product may exceed competing offerings by "design, technology, features, customer service," or other complex element (Porter, 1980, p. 36). Strategies focused around product leadership allow the firm to narrow their

business focus to providing the best available offerings to improve their leadership position (Treacy & Wiersema, 1995).

Maffin (1998) studied the best Practice in product development, based on a study involving 58 medium and large United Kingdom engineering companies. The research methodology involved a case study. Twelve engineering establishments were studied in depth, supported by secondary sources, including the literature, company databases and company reports. The findings on product development is that companies are operating under similar competitive pressures for higher quality products, under shorter and more predictable lead times and at lower prices. The survey identified the existence of these competitive criteria in many cases, but there was some variability in the relative emphasis assigned to these by different establishments. Price was cited in nearly every case and most commonly top ranked, followed by quality and reliability, performance, delivery lead time and conformance issues. They concluded that best practice was revealed to have a narrow focus. First, the development of products may be realized through either product development projects or contract projects.

Rasmussen (2003) in Australia studied large multinational pharmaceutical firms and their implications of the business strategies of Pharmaceutical Companies for Industry Developments in Australia. The pharmaceutical companies formed alliances whose purpose was to enhance drug discovery or development, development of platform or other supporting technologies and product distribution. A significant proportion (23%) was concerned with drug development. These results provided further evidence of the more influential role product leadership. He concluded that the large pharmaceutical firms pursue blockbuster model involving the search for, and distribution of a small number of drugs that achieve substantial global sales say in excess of $1billion per annum and pursue diversification model in which a larger number of drugs are marketed to smaller niche markets.

Haarla (2003) researched on whether "Product differentiation; Does it provide competitive advantage for a printing paper company?'' in Finland. The study found out that Product differentiation has mainly been driven by customers tend to change to better quality standard products when a downturn starts and price difference diminishes. Other important drivers for product differentiation were found to be customer needs based reasons: a new end-use application, and price. The research findings indicate that the role of initiator in this process is gradually moving from the paper producer towards the customer. The findings of the research also indicate that value-based pricing should be considered for differentiated printing papers as an alternative to traditional cost based pricing.

Francis (2010) studied commoditization in the lodging industry in USA. The study concluded that to maintain customer loyalty, product leadership is attained by having differentiation through expensive switching costs that would traditionally deterred a consumer from utilizing a competing lodging offer. Lodging professionals utilize switching costs to maintain competitive advantage.

Lasseur (2011) studied the rate of diffusion of innovations on various consumer products such as jeans, coke, IPod in Holland. In the study a specific market group, people from 15 to 25 years of age, was tested on the determinants of the rate of diffusion. To do so, first the different kinds of innovations and the known adoption and diffusion theory were described. The study concluded that product and the marketing strategy are very important at the company side and that personal innovativeness is very important at the consumer side.

Leigh (2011) in Colorado, USA studied Organizational creativity: The relationship between creativity, values and performance in architectural practice. The study concluded that intellectual stimulation, the value discipline of product leadership, and workplace values appeared to have strong influences on a firm's creativity and to a lesser degree, challenging work.

Rahman (2011) in Australia studied four major international airlines on how they can differentiate their services and achieve competitive advantage by fulfilling the needs of physically challenged persons. The study concluded that the growing market of physically challenged persons can be a source of competitive advantage for the airlines if they differentiate their products and services by fulfilling the needs of physically challenged persons as disability affects 15─20% of every country's population thus attain product leadership.

Valipour, Birjandi and Honarbakhsh (2012) studied "The Effects of Cost Leadership Strategy and Product Differentiation Strategy on the Performance of Firms" in Iran. The results suggested that there were positive relationship between leverage and firm's size with performance in the firms with product differentiation strategy.

Kesting, Ulhøi, Song and Hongyi Niu (2015) studied the impact of leadership styles on innovation management in Denmark. The study concluded that charismatic and transformational leadership seem better suited to inspire and motivate followers and that this has a positive impact on the ideation stage and also seems to spur radical innovations thus attaining product leadership.

Muthiani (2008) studied the strategies used by oil companies to differentiate their products in the Kenyan market. The study concluded that Product differentiation is a more sustainable competitive strategy due to the inherent difficulty of imitation.

Mathenge (2013) investigated the effects of financial innovation on competitive advantages of telecommunication companies in Kenya. The study findings concluded that telecommunications companies indicated growth through financial innovations that gave them a competitive advantage in the Information, Communication and Technology field thus achieving product leadership.

Nyauncho and Nyagara (2015) studied Liquefied Petroleum Gas Companies in Eldoret, Kenya. They found out that keeping pace with changing business environment is so

dynamic. Hence the product leaders have a challenge on how to be very creative and fast in problem solving while maintaining their team work in order to succeed.

Kedera, Oloko, Sakataka and Oteki (2015) studied the effects of Product Differentiation Strategies on Firm Product Performance: A Case of Kenya Seed Company (KSC), Kitale. The study concluded that customer base of Kenya Seed Company showed a steady rise from 10-15 years ago and it was due to product differentiation strategies.

Munene (2016) explored strategies adopted by Kenyan pharmaceutical companies to achieve sustainable competitive advantage. The study concluded that the companies have attained product leadership by engaging in product differentiation through offering different needs to various customers. This is attained by offering tailor made products through research and development and the benefits of the products are well communicated.

2.4.4 Distribution Chain Strategy

An organization performance is partly determined by how effectively and efficiently its business strategy is implemented (Oslon, Slater & Hult, 2005). Those that do not adopt fast enough to a fast-paced economic environment quickly become unprofitable and fall out of business. Where competition is very stiff and rate of imitation is very high, commitment to customer value- focused innovation is vital to sustain competitive advantage (Dickson , 1992; Ghemawat, 1986). Slater and Narver, (1995) suggest that this can be achieved through developing new products or reformulating existing ones, creating new manufacturing methods or distribution channels. Denis and Depelteau, (1985) identified competitive factors that small firms use in relation to distribution strategy, that is similarity and number of models, intensity of contacts, and marketing coordination with intermediaries.

Chang, Jen-Yun (2009) in Edinburgh, Scotland carried out a study on the impact of the internet as a direct sales channel on established distribution channels and the

management of channel conflict-an exploratory study in the Taiwanese information telecommunications industry. The study found out that six main factors were identified as encouraging the manufacturer to develop the internet channel. These are, customer information management, retailer management issue, launching a new product, to be a secondary channel, management support, and me-too strategy. The study concluded by identifying three channel design patterns when manufacturers adopt the internet as a distribution channel, that is disintermediation, reinter mediation, and multi-channel structure.

Wei Guan (2010) in Sweden conducted a case study of a timber product distribution channel. The study described and analyzed the trends and developments of actors along distribution channel. In particular, the study focused on resellers and manufacturers based on the empirical material from one particular case study. The study had three main goals, of investigating the challenges arising from channel actor developments, the effects of these developments on the structure of the retailer supply chain and their implications for manufacturers and suppliers, identification of explanations for manufacturer's vertical integration of distribution and the resulting impacts and, conducting preliminary customer value analysis relating to the distribution channel of solid wood products.

The study produced several findings such as reseller developments which have promoted the formation of reseller demands, such as integrated solutions with respects to logistics, marketing, merchandising and innovations. The study recommended a framework which suppliers can use this when designing, customizing and marketing offerings for customers.

Schöpperle (2013) in UK carried out a study entitled analysis of challenges of medical supply chains in sub-Saharan Africa regarding inventory management and transport and distribution. The findings recommended that in general stakeholders should focus on well-functioning transport management systems and inventory management policies,

with strong political involvement, clear responsibilities and roles, good supervision systems and adequate budgeting. Recommendations include aspects such as building up knowledge in innovative ways, providing easy access information, creating awareness about the importance of guidelines and standardization, designing appropriate process performance indicators, focusing on regular monitoring, hiring dedicated employees for quantification and using new technologies to enhance efficient communication, real time tracking and data transfer.

Muthoni (2009) studied distributor's perception of Coca Cola distribution system in Nairobi, Kenya. The finding suggested that service accorded to distributors by Nairobi Bottlers Limited to the distributors was rated as good by a majority of the respondents. There existed a motivational strategy which was both financial and non-financial. Nairobi Bottlers Limited regularly reviewed the performance of products with the distributors and offered high quality services by consulting them after the promotions to advice on the results. The study concluded that the distributors have a positive perception of Nairobi Bottlers Limited distribution system in Nairobi and that it holds a positive image. The study recommended that Nairobi Bottlers Limited should form linkages to ensure better productivity and performance and invest more in transport trucks and vans so as to ensure constant supply of products at all times.

Kazi (2012) in Kenya studied supply chain management practices and performance at Kenya medical supplies agency. The study aimed at evaluating the supply chain management practices and performance at Kenya Medical Supplies Agency. The target population of interest in this study consisted of staff members at Kenya medical supplies agency representing the top, middle and low level management. The findings revealed that the major challenges that were identified by the respondents include, poor infrastructure, bulky materials to be transported and uncertainty in terms of demand. Lack of cold chain maintenance and lack of qualified personnel were considered as the least supply chain management challenges at Kenya medical supplies agency.

2.4.5 Management of Efficiency Levels

Guesmi (2013) studied the productive efficiency in agriculture by comparing the efficiency ratings of organic and conventional grape farms in Catalonia. To do so, he fitted a stochastic production frontier to cross sectional, farm-level data collected from a sample of 141 Catalan farms that specialize in grape growing. Results showed that organic farmers, on average, are more efficient than their conventional counterparts (efficiency ratings are on the order of 0.80 and 0.64, respectively). Apart from adoption of organic practices, experience was also found to improve technical efficiency. Conversely, technical efficiency tends to decrease with the relevance of unpaid family labor, farm location in less favored areas, and farmers' concerns for environmental preservation.

Lieder (2014) investigated approaches for resource efficiency and effectiveness in small and medium-sized enterprises tested within a single case study. The result consists of a comprehensive approach for small and medium-sized enterprises with focus on economic short-term and long-term improvements. Looking at the total cost and the share of value-adding expenses a cost efficiency of 94% can be concluded. In turn this means that an inefficiency of 6% in cost can be realized by infrastructural improvements, that is rather short-term improvements under the given capability constraints of the production system.

2.5 Critique of Existing Literature

Although the preceding literature implies that an organization's strategic focus is categorized as biased toward one particular strategy more so than others, firms are likely to be characterized by efforts along multiple dimensions simultaneously (Frohlich & Dixon, 2001).

Companies that pursue operational excellence provide consumers with products at the lowest total cost. The product line is standardized and limited, with highly reliable

products—operational excellence demands zero defects. Operational excellence is an ideal strategy for markets where customers prefer cost to a choice (Crego & Schiffrin, 1995). This is frequently the situation with respect to commoditized, mature markets where cost leadership offers a medium for continued growth. Businesses that excel in this strategy have a rule-based, standardized operation and strong organizational disciplines. They are also effectively centralized. Disciplines such as supply chain management, total quality management and Six Sigma are fostered in a volume-oriented business model. The operational excellence proposition for consumers relies on offering the best product value for a given price. A firm's logical consideration of a portfolio of performance metrics spanning multiple strategies is thus justified. Regardless, to develop parsimonious prescriptions for metric portfolios that can be supported empirically, it is helpful to use a categorical approach to describing the predominant strategic focus of individual organizations. All companies must do a reasonably good job in all three of the value disciplines, and that a firm can probably be successful if it is weak in one of the disciplines (Oakland & Tanner, 2007).

Firms that engage in the value disciplines of product leadership continue to innovate and stay ahead of their competition. They are "risk oriented and future driven. "These companies provide cutting-edge solutions to their customers. Employees of these firms are expected to think creatively and work in highly flexible, often shifting organizational structures. Rewards are based on an employee's ability to innovate and to bring innovative concepts to market as product. An organization that focuses on product leadership will always strive for product development and product innovation and want to be market leader of the specific product. However, the model says that a firm should choose at least one of the disciplines as being particularly important, while maintaining average performance in the other areas (Hooley, Greenley, Fahy & Cadogan, 2001).

For companies whose focus is on customer intimacy, the organization is continuously working to meet the customer's requirements and delivers mainly tailor-made work and one-on- one solutions in which the organization focuses on a long-term customer

relationship (Anderson, James & James, 2004) Customer retention is increasingly being seen as an important managerial issue, especially in the context of saturated market or lower growth of the number of new customers. It has been also acknowledged as a key objectives of relationship marketing, primarily because of its potential in delivering superior relationship economics, that is. It cost less to retain than to acquire new customers. A customer intimacy strategy requires a relatively flat management structure with decision-making authority being granted to people on the ground with your customers. The people on the ground need the authority to make things happen for the customer quickly. Intimacy generally refers to the feeling of being in a close personal association and belonging together. It is a familiar and very close affective connection with another as a result of a bond that is formed through knowledge and experience of the other. Genuine intimacy in human relationships requires dialogue, transparency, vulnerability and reciprocity (Johnson et al, 2008). Social media is a channel for raising the level of intimacy that we have with customers and prospects with that content. However, six ways that a company's overly zealous pursuit of one-on-one customer relationships can disappoint both the company and the customer are: creating engagement without clear benefit; seeking relationships where the balance of power tilts toward the company; fostering interaction that leads to unreasonable customer demands; spending too much time and money to engage low-involvement customers; failing to anticipate how customers can exploit the conversation in unexpected ways; and failing to realize that competitors may be listening. The suggestion is that companies can mitigate these effects by engaging in polylogues, multifaceted conversations that avoid the pitfalls of one-on-one customer communication (Ghavami & Olyaei, 2006)

The models criticism lies on the premise that it is suitable for business-level strategy not corporate strategy, hence it is recognized that within a corporate structure business units could be pursuing different value disciplines. They also emphasize that firms cannot ignore the other non-chosen disciplines; they have to be averagely good at these, but need to excel in one disciplines.

2.6 Research Gaps

Ashari Idris and Zairi (2006; Schrijver, Giulidori & Plug, (2011) in their studies concluded that operational excellence is a critical success factor in the banking sector. Domingos (2013) in Portugal did a study on wood-Plastic composite Industry using the variables of operational excellence (lean philosophy) and concluded that the results of the surveys helped identify the most important categories of time and flexibility and the most relevant performance measures thus identifying possible areas for improvement. This study therefore seeks to fill the knowledge gap by exploring the relationship between operational excellence and management of efficiency levels in the pharmaceutical industry in Kenya as there is no study available linking the variable operational excellence and value disciplines strategy in the Pharmaceutical Industries in Kenya. This study shall help pharmaceutical companies in Kenya reap the benefits of value disciplines strategies due to the awareness it will create.

Schrijver, Giulidori and Plug (2011; Chen (2012) concluded that customer intimacy were vital in banking and online retailing. Similar results were obtained by Jasper (2000) In Australia studied the relevance of customer intimacy among university students. The findings suggest that participants have highly positive perceptions regarding university contact, service continuatives and service withdrawal. Potgieter and Roodt, (2004) did a study in South Africa which showed a linkage between organization culture and customer intimacy for a company in the entertainment industry. Zomerdijk (2005) conducted a study on Dutch Law firms and concluded that customer intimacy or relationship management approach is the preferred value proposition of these law firms hence customer-intimate companies are those that have put the client in the center of their core processes. Kaithia (2014) conducted a study on the Kenyan banks and he concluded that service process innovations are very important in influencing competitive advantage in the banking sector. Brinkmann (2015) conducted a study in Germany concerning the potential strategic capability that can be improved from the deployment of business intelligence applications. His study concluded that organizations need to

forge connections with customers at every stage and become better at "listening" to broader online conversations. Delivery of superior value is a must for a company to be a market leader. This study therefore seeks to fill the knowledge gap by exploring the relationship between customer intimacy and management of efficiency levels in the pharmaceutical industry in Kenya as there is no study available linking the variable customer intimacy and value disciplines strategy in the Pharmaceutical Industries in Kenya. This study shall help pharmaceutical companies in Kenya reap the benefits of value disciplines strategies due to the awareness it will create.

Foley and Samson, (2003) conducted a study among the top 1000 Australian firms and concluded that firms with a product leadership strategy were the most likely to adopt internet-enabled business practices. Venkatraman (1989) and Anggraeni (2009) in Denmark studied product leadership by concluding that firms need to capture the extent of risks in various resource allocation decisions as well as choice of products and markets. Hoppe and Saboor (2010) in Sweden studied textiles and found out that products are either; updated, modified or copied of already existing ones. Turri, Smith and Kemp (2013) in U.S.A conducted a study on brand (product leadership) and concluded that firms stand to benefit from establishing emotionally based relationships between their brands and consumers. Consumers prefer products with images that are congruent with their self-concepts. This study therefore sought to fill the knowledge gap by exploring the relationship between product leadership and management of efficiency levels in the pharmaceutical industry in Kenya as there is no literature available on value disciplines strategy practices in Pharmaceutical Industries in Kenya as there is no study available linking the variable product leadership and value disciplines strategy in the Pharmaceutical Industries in Kenya.

Kristofer and Fredrik (2010) studied Swedish pharmaceutical distribution and concluded that manufacturers need to collaborate with distributors to reduce costs. Similar results were obtained by Kathleen (2011) in United States who confirm that distribution strategy is vital for pharmaceutical industry and increases efficiency. This study

therefore sought to fill the knowledge gap by exploring the relationship between distribution chain strategy and management of efficiency levels in the pharmaceutical industry in Kenya as there is no study available linking the variable distribution chain and value disciplines strategy in the Pharmaceutical Industries in Kenya.

2.7 Summary of literature review

This chapter reviewed literature on the research study with the first section exploring the theoretical review and associated theories such as the resource-based view (RBV), another model that has been explored is the Ansoff Product-Market Growth Matrix. Another model which has been explored in this study is the balanced scorecard and the Principal-Agent Theory. The conceptual framework, which shows the relationship between the variables of the study was also presented and the relationships explained. Empirical literature on different study variables has been presented from which different study gaps filled by the study having been highlighted. The chapter discusses the dependent variable of efficiency. The chapter critiques the existing literature and identifies the research gap that the study seeks to fill.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter set out various stages and phases that were followed in completing the study. This chapter presents the research methodology. The methodology entails research philosophy, research design, target population, sample frame, sample and sampling technique, research instruments, data collection procedure, piloting of research instruments and data processing and analysis. Reliability and validity of the research instrument is also presented.

3.2 Research Design

A research design is a plan showing how the problem of investigation was solved. This study adopted a cross-section survey design. According to Olsen and Marie (2004), a cross-section design involves surveying a population for purposes of collecting data from them at a given single point in time. These studies therefore reveal that cross-section designs aim to collect findings on the relationship of variables of interest to the researcher and at a given specific time. The purpose of survey was to produce quantitative descriptions of some aspects of the study population. It sought to seek to confirm hypotheses about phenomena hence use highly structured methods such as questionnaires which are closed-ended and which helped to predict causal relationships between the variables. The choice of survey as a preferred method was because survey analyses are primarily concerned with relationships between variables (Kothari, 2004).

Since the study aimed to investigate the influence of value disciplines strategy on the management of efficiency levels in the pharmaceutical industry in Kenya, a cross-sectional survey was able to present the researcher with this opportunity. The study collected findings concerning the problem at a single point because the aim was not to

show the trend of changes due to value disciplines strategies but rather to identify the responses without manipulating the variables in producing insights into the influence of value disciplines strategy in the management of efficiency levels in the pharmaceutical industry in Kenya.

3.3 Target Population

According to Burns and Grove, (1997), Mugenda and Mugenda, (2003) define the target population as the entire aggregation of respondents that meet the designated desires the researcher studies, and whose findings are used to generalize to the entire population. The target population for this research study consisted of manufacturing pharmaceutical companies. The population of interest under the study was a total population of 23 (twenty three) pharmaceutical companies registered with KAM. KAM is a manufacturers' advocacy body and is likely to share with member firms the different challenges that affect them due to efficiency. As such, members of KAM might be well informed of the responses to managing efficiency more than those who are not members hence only depend on their experiences to identify the responses. This means that the members of KAM were able to give intensive data concerning the responses to value disciplines strategy in the management of efficiency levels by pharmaceutical manufacturing firms than non-members.

Table 3.1: Location of the Pharmaceutical

Location	Number of firms	Percentage
Athi River	1	4.3
Kiambu	2	8.7
Nairobi	20	87.0
Total	**23**	**100.00**

Source: KAM, (2015)

2.4 Sampling Frame

The sampling frame describes the list of all population units from which the sample will be selected (Cooper & Schindler, 2003). It is a physical representation of the target population and comprises all the units that are potential members of a sample (Kothari, 2008). The total number of pharmaceutical manufacturing companies registered by KAM is 23 and have 3,389 employees UNIDO, (2010) of which 265 work in procurement, manufacturing, warehousing, sales, marketing, customer service and finance departments on permanent basis.

3.5 Sampling Technique and Sample size

3.5.1 Sample Size

A sample size refers to the actual respondents the researcher aims to interview (Barbie, 2010). Dawson, (2002) suggests that in quantitative research the larger the sample the more accurate the results. The researcher used sample size determination by Krejcie & Morgan, (1970) formula as given below;

$$s=X^2NP(1-P)/d^2(N-1)+X^2P(1-P)$$

Where

s = required sample size.

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841). N = the population size.

P = the population proportion (assumed to be .50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (.05)

Substituting for the values:

$$s = \frac{3.841 \times 265 \times 0.50\ (1-0.50)}{0.05^2\ (265-1) + 3.841 \times 0.5\ (1-0.5)}$$

s= 157

Using the Krejcie and Morgan formula from a population of 265, 157 respondents were the sample size for the study. 157 respondents represents 60% of the target population. Kerlinger, (1986) indicates that a sample size of 10% of the target population is large enough so long as it allows for reliable data analysis and allows testing for significance of differences between estimates. The sample size depends on what one wants to know, the purpose of the inquiry, what is at stake and what is useful.

Table 3.2: Sampling Distribution

Department	Population	Sample size
Procurement	35	21
Manufacturing	58	34
Warehousing	46	27
Sales	58	34
Marketing	23	14
Customer Service	23	14
Finance	23	14
Total	265	157

3.5.2 Sampling Technique

Babbie (2010) identifies a sampling technique (also known as sampling design) as a strategy through which the researcher will arrive to the most qualified respondents to the study questions. A sampling technique leads a researcher to a sample size, which can be easily managed by the researcher to collect the data needed. Tashakkori and Teddlie, (2003) categorizes sampling into probability and non-probability sampling. Non probability sampling under the category of purposive sampling technique was adopted. Purposive sampling relies on the judgment of the researcher when it comes to selecting the units that are to be studied. Purposive sampling was applied in carrying out the study as per the departments. In purposive sampling decisions concerning the individuals to be included in the sample are taken by the researcher, based upon a variety of criteria which may include specialist knowledge of the research issue. The research design necessitated the researcher taking a decision about the individual participants who contributed

appropriate data; both in terms of relevance and depth hence the individuals chosen from the employees working in procurement, manufacturing, warehousing, sales, marketing, customer service and finance departments at 23 pharmaceutical companies located within Nairobi and its environs as these are the only firms registered under KAM. This sample size represented more than the 10 % of the accessible population that is generally recommended by social researchers who generally recommend that 10 % of the accessible population is enough, and at least 30 cases are required for statistical data analysis (Mugenda & Mugenda, 2003). Orodho, (2005) states that most social researchers recommend at least 100 cases.

3.6 Data Collection Instruments

A standardized questionnaire was developed that captured the various variables under study. A questionnaire is a research instrument that gathers data over a large sample and its objective is to translate the research objectives into specific questions, and answers for each question provide the data for hypothesis testing. The advantages of a questionnaire over other instruments include: information can be collected from large samples, no opportunity for bias since it is presented in paper form and confidentiality is upheld. The questionnaire was divided into two sections. Part A was the identification section where the respondents identified themselves; job title and the number of years they have worked for the company. Part B asked the respondents to provide information concerning the major areas of the study. The questionnaire contained both closed and open ended questions. The closed ended questions were aimed at giving precise information which minimized information bias and facilitated data. Secondary data was collected through evaluation of reports, organizational journals, publications and review of information from the websites of the various corporate organizations in as far as they provided relevant and up-to-date information.

3.7 Data Collection Procedure

Data collection was conducted in two steps. The first involved, as a requirement, that prior to actual data collection the researcher securing a letter of introduction from the University department, stating the intention to carry out research and requesting the authorities permission to conduct the approved research. The researcher then sought a permit to carry out the empirical research from the National Council for Science, Technology and Innovation (NACOSTI). Two research assistants were identified to assist the researcher in administration of the questionnaire. The two assistants were briefed about the project and its objectives and then trained on the administration of the questionnaire. Preparation for data collection started by first contacting the twenty three chosen pharmaceutical companies in order to gain their cooperation, explain the purpose of the study, and assemble key contact information.

Primary data: Primary data included questionnaires. The achievement of such data required an active or direct approach. Primary data was collected using structured questionnaires. Structured questionnaires refer to questions which are accompanied by a list of all possible alternatives from which the respondents select the answer that best describe their situation, (Mugenda & Mugenda, 2003). Likert type of scale was used. Likert scales are often used in matrix questions and compose of a set of statements put by the questionnaire. The respondents were provided with a scale of possible responses (five) to the question – ranging from the attitude measure 'strongly agree' to the exact opposite measure of 'strongly disagree' and were ordered in such a way that they indicated the presence or absence of the characteristic being measured. The questionnaire was "dropped and picked later".

3.8 Pilot Study

A pilot study is a small scale preliminary study conducted in order to evaluate feasibility, time, cost, and adverse events, in an attempt to predict an appropriate sample size and improve upon the study design prior to performance of a full-scale research project (Teijlingen van, Rennie, Hundley & Graham, 2001) .One of the advantages of conducting a pilot study is that it might give advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated. The research instrument was pre-tested using a sample of 5%, which is 8 respondents from the population of 157 of the sample size as per recommendations by Mugenda and Mugenda (2003) who observe that a successful pilot study will use 1% to 10% of the actual sample size. These respondents, eight (8) in number were selected from a sample that is similar to the one under study. Procedures used in pre-testing the questionnaire were similar to those used in the actual study. This helped in clarifying questions and in refining the data analysis methods (Teijlingen van, Rennie,Hundley & Graham, 2001). The questionnaire was pretested to ensure clarity and content validity prior to them being administered.

3.8.1 Reliability of research Instruments

Reliability analysis for testing reliability and the internal consistency of the data items was conducted using the Cronbach's alpha. Data reliability which is a measure of internal consistency and average correlation was measured using Cronbach's alpha coefficient which ranges between 0 and 1. George and Mallery (2003) provide the following rules of thumb:"_ > .9 – Excellent, _ > .8 – Good, _ > .7 – Acceptable, _ > .6 – Questionable, _ > .5 – Poor, and_ < .5 – Unacceptable" . Higher alpha coefficient values means that scales are more reliable. Cronbach's alpha is a general form of the Kunder- Richardson (K – R) 20 formula.

The formula is as follows:

$$KR_{20} = \frac{(K)\,(S^2 - \sum\ ^2)}{(S^2)\,(K-1)}$$

KR_{20}= Reliability coefficient of internal consistency

K= Number of items used to measure the concept

S^2 = Variance of all scores

s^2 = Variance of individual items

The questionnaire guide was pilot tested on 8 respondents that is part of the target population but not in the sample. This represented 5 % of the accessible population (sample size) that is generally recommended by social researchers, according to Mugenda and Mugenda (2003).In choosing the 8 respondents for pilot testing, the researcher used simple random sampling. According to Orodho (2005), simple random sampling ensures that each unit has an equal probability of being chosen, and the random sample is the most representative of the entire population and least likely to result in bias. It has statistical properties that allow the researcher to make inferences about the population, based on the results obtained from the sample. After pilot testing, the questionnaire was revised to incorporate the feedback that was provided.

All constructs depicted that the value of Cronbach's Alpha are above the suggested value of 0.7 thus acceptable (George & Mallery, 2003) and the study was reliable (Nunnally & Bernstein, 1994). Reliability of the constructs is as shown below in table 3.3.

Table 3.3: Reliability test of constructs

Independent Variable	Reliability Cronbach's Alpha	Comments
Operational Excellence	0.745	Reliable
Customer Intimacy	0.723	Reliable
Product Leadership	0.894	Reliable
Distribution Chain strategy	0.843	Reliable

3.9.2 Validity

Validity refers to the extent to which an instrument will generate results which are consistent over time and an accurate representation of the total population under study (Joppe, 2000). In pre-testing the instrument to establish reliability, the researcher paid attention to whether the questions designed collected the responses desired. The questions were direct, clear and short as possible so as to eliminate ambiguity and the likelihood of collecting less valid content. The questionnaire provided choices so as to ensure that content validity is enhanced. The questionnaire was structured with open and closed questions. Content validity addresses the match between questions and the content or subject area they intend to assess. This validity test was conducted with help of six experts in the domain of pharmaceutical manufacturing at different occasions prior to and during the actual piloting who individually reviewed the questionnaires and their recommendations were implemented accordingly.

3.9 Data Analysis and Presentation

The data was processed through editing- a process of examining the collected raw data to detect errors and omissions and to correct these where possible. Data processing also involved classification- a process of arranging data in groups or classes on the basis of common characteristics. Data processing also involved tabulation-a process of summarizing raw data and displaying the same in compact form for further analysis. It is an orderly arrangement of data in columns and rows. According to Sekaran (2003) there are three objectives in data analysis: getting a feel for the data, testing the goodness of the data and testing hypothesis developed for the research. A feel for the data gave the researcher a good idea of how well the respondents have reacted to the items in the questionnaire and how good the items and measures are. This included descriptive statistics such as the response rate, mean and standard deviations of the observed variables. Establishing the goodness of the data lend credibility to all subsequent analysis and findings because it measured the reliability and validity of the measures used in the study. Once the data was ready for analysis, the researcher was ready to test the hypothesis already developed using appropriate statistical tests.

Analysis of data was done using descriptive statistics, mainly means, standard deviations, frequencies and percentages and later inferential analysis was used. Data analysis generated quantitative and qualitative data from the questionnaire. The data collected was cleaned, coded and systematically organized. Ms Office Excel was used to plot charts, graphs and pictorial diagrams (Dawson, 2002,). The charts made it very easy to compare the various parameters which influence the effect of value disciplines strategy in management of efficiency levels in the pharmaceutical industries in Kenya. It was seen from a glance what parameter is the highest and which one is the lowest for easy analysis and interpretation. For the bar charts the categories were shown along the horizontal axis and the frequencies indicated on the vertical axis for easy comparison of the parameters.

The pie charts were also to give a perfect presentation of what parameters have the highest percentage and which one is the least. The analyses focused on factual information from the closed and open ended questionnaires that were administered to ensure a scientific interpretation without any biasness.

The study sought to survey the influence of value disciplines strategy in the management of efficiency levels in the pharmaceutical industry in Kenya. From the literature review, we have seen various factors that determine the value disciplines strategy. Given these variables, and for the purpose of this study multiple regression analysis was carried out to establish the relationship between the independent and dependent variables as prescribed by various scholars (Faraway, 2002; Cohen, West & Aiken, 2003). Regression was preferred because it has ability to show whether there is a positive or a negative relationship between independent and dependent variables (Castillo, 2009). In addition regression would show whether the identified relationship is significant or not. Pearson correlation was used to measure the degree of association between variable under consideration that is, the independent and dependent variable.

3.9.1 Statistical Model

The main purposes of multiple regression analysis include: prediction, explanation and theory building. The design requirement included one dependent variable and four independent variables. In this study the dependent variable (Y) is management of efficiency while the independent variables are, operational excellence (X_1), customer intimacy (X_2), product leadership (X_3) and distribution chain strategy (X_4). The following is the model that was used in the study:

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

Where:

Y is the dependent variable (Management of efficiency) X is the set of four independent variables, that is.

X_1 – operational excellence X_2 – customer intimacy X_3 – product leadership X_4 – Distribution chain strategy.

$\beta_{i\ (i=1,2,3,4,)}$ are the parameters associated with the corresponding independent variables that are to be estimated (partial regression coefficients)

β_0 is the intercept

$\mathcal{E}$ is the error variability (error term).

The above multiple regression equation gave us the relationship between the dependent variable and the four independent variables. More specifically, regression analysis helped us understand how the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed. Regression analysis assisted the researcher understand which among the independent variables are related to the dependent variable, and to explore the magnitude and direction of these relationships.

3.9.2 Hypothesis Testing

A hypothesis is a statement or assumption concerning a population. The procedure which, on the basis of sample results, enable us to decide whether a hypothesis is to be accepted or rejected is called Hypothesis testing or Test of Significance (Monga, 2007). A hypothesis has to be verified then accepted or rejected for decision making. In hypothesis testing we make some inference about population parameters like the mean, the proportion etc. An assumption is made that the sample data come from a normal population. However, if the population is not normal or normality assumption is not proper, then parametric tests cannot be done Mugenda and Mugenda (2002).

Hypotheses were tested using Analysis of variance (ANOVA) which separates the variance ascribable to one group from variance ascribable to other groups. By using this method, the study was able to test whether the difference between the mean of three or more populations are significant or not. The ANOVA technique was also used to test the linearity of the regression line fitted to the data and hence its preference. The regression output using SPSS gives a one way classification table at 1% degree of freedom. The parameters given in the ANOVA table are the sum of squares, mean square, degree of freedom, F statistics and significance level. The F statistics and significance level were used to test and decide whether to reject or fail the hypothesis.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the empirical findings and results of the application of variables using techniques mentioned in chapter three of the methodology. Data analysis was in line with specific objectives where patterns were investigated, interpreted and implications drawn on them. The general objective of this research was to establish the influence of value disciplines strategy on management of efficiency levels in the pharmaceutical industry in Kenya. In an attempt to address the specific objectives of the study, this chapter provides a detailed description of descriptive and inferential statistics and research findings and discussions, clearly outlining how each of the hypothesis as stated in chapter two was tested.

4.2 Response Rate

The study sought to collect data from 157 respondents working in procurement, manufacturing, warehousing, sales, marketing, customer service and finance departments of pharmaceutical manufacturing firms in Kenya but the researcher managed to collect 134 questionnaires. This represents a response rate of 85 percent which is very good for analysis. According to Babbie (2004) a response rate of 60 percent is good and that of 70 percent is very good. The high response rate can be attributed to an overwhelming willingness of respondents to participate in the research. The recorded high response rate can be attributed to the data collection procedures for instance, the researcher pre-notified the potential participants for the survey, the researcher administered the questionnaire with the help of research assistants through drop and pick method and follow up calls were also made to clarify queries as well as to

prompt the respondents to fill the questionnaire. These methods facilitated the whole process of data collection hence the high response.

4.3 Results of Reliability Tests

4.3.1 Reliability Test

Reliability is a measure of the degree to which a research instrument yields consistent result or data after repeated trials (Mugenda and Mugenda, 2003). Reliability in research is influenced by random error. As random error increases, reliability decreases. Random error is the deviation from a true measurement due to factors that have not effectively been addressed by the researcher. According to Zikmund (2010), errors may arise from inaccurate coding, ambiguous instructions/questions to the subjects, interviewers fatigue, interviewee fatigue, interviewer's bias. These three types of errors combine to produce inconsistencies in the measurement, which ultimately affect the reliability of the data collected (Mugenda & Mugenda, 2003).

Reliability was tested using Cronbach's coefficient Alpha. Cronbach's Alpha measures how well a set of items or variables, measure a single one-dimensional latent construct that is a coefficient of reliability or consistency. Reliability is expressed as a coefficient between 0 and 1.00. The higher the coefficient, the more reliable the test. A threshold of a Cronbach Alpha of 0.7 and above is acceptable (Cronbach, 1951). Cronbach Alpha was used to test the reliability of the proposed constructs. The findings indicated that, operational excellence had a coefficient of 0.745, Customer Intimacy had a coefficient of 0.723, product Leadership had a coefficient of 0.894, and Distribution Chain strategy had a coefficient of 0.843. All constructs depicted that the value of Cronbach's Alpha were greater than 0.7000 and thus, the study constructs were reliable.

Table 4.1: Reliability Cronbach

Independent Variable	Reliability Cronbach's Alpha	Comments
Operational Excellence	0.745	Reliable
Customer Intimacy	0.723	Reliable
Product Leadership	0.894	Reliable
Distribution Chain strategy	0.843	Reliable

4.4 Sampling Adequacy

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000). Findings in table 4.2 showed that the KMO statistic was 0.708 which means that the degree of common variance among the variables is middling which was significantly high, that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). Bartlett's Test of Sphericity provided a significant value of 1395.650 ($p<0.000$, df =630). The KMO for the overall data set provided gave a result of 0.708 (Table 4.2) against the recommended minimum of 0.5, which was regarded as 'meritorious' (Kaiser, 1974). These statistics indicated that item correlations were compact, hence factor analysis should produce distinct and reliable factors.

Table 4.2: KMO and Bartlett's Test

Indicator	
Kaiser-Meyer-Olkin Measure of sampling Adequacy	0.708
Bartlett's Chi- Square	1395.650
Bartlett's Test of Sphericity df	630
Bartlett's Sig.	0.000

4.5 Demographic Characteristics

The section gives the general analysis on the demographic data received from the respondents which included;- years of operation of the company, number of employees, company turnover, company ownership , nature of products, designation of respondent and business unit level of the respondent.

4.5.1 Years of Operation of the Firm

The study sort to determine how long the firms have been operation. The study findings showed that 53% of the respondents responded over 25 years. 15% of the respondents responded 11-16 years. 23% of the respondents responded 17-25 years. 8% of the respondents responded 5-10 years. 1% of the respondents responded below 5 years as indicated in Figure 4.1. This is in line with the findings of Mboloi, (2007) who found out that the pharmaceutical industry in Kenya is young as majority of the firms have operated for around 25 years.

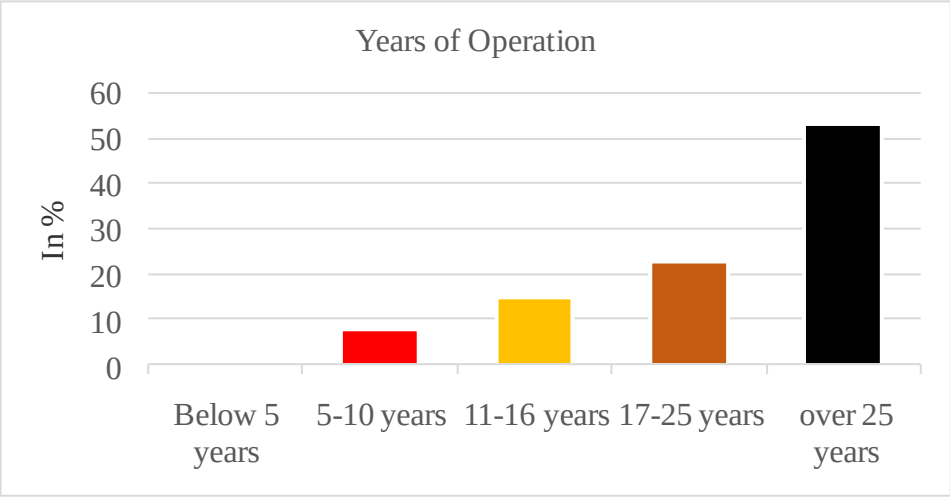

Figure 4.1: Chart for years of firm operation

4.5.2 Full Time Employees

The study sort to determine how many full time employees the firms have. The study findings showed that 72% of the respondents responded to have 21-50 employees. 14% of the respondents responded 51-100 employees. 9% of the respondents responded to have less than 20 employees. 4% of the respondents responded 101-200 employees. 1% of the respondents responded to have above 200 employees as indicated in Figure 4.2. These findings are in line with Kaplan and Laing, (2005) who observed that the pharmaceutical industry is capital and technology dependent and may not create entry-level employment.

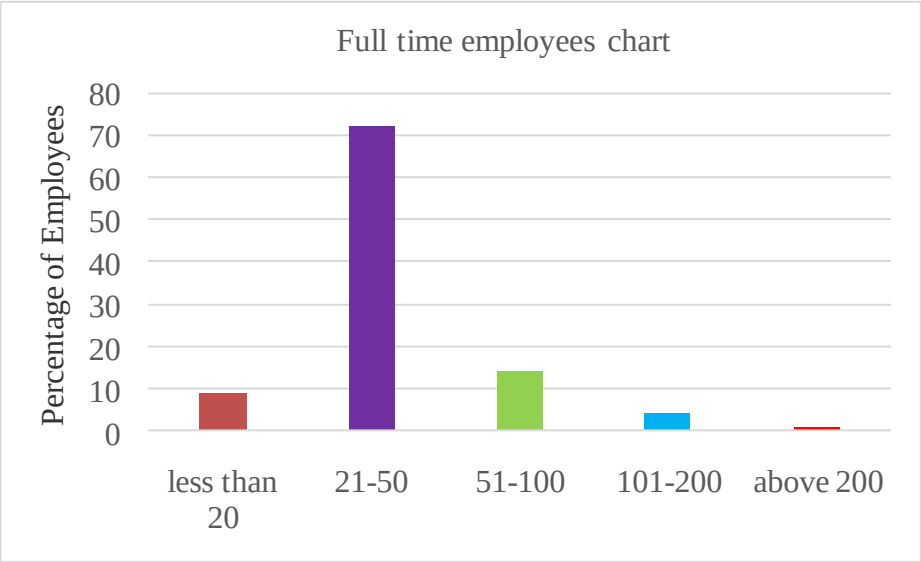

Figure 4.2: Chart for full time employees

4.5.3 Casual Employees

The study sort to determine the average casual employees per day. The study findings showed that 61% of the respondents responded to have 21-50 casual employees per day. 31% of the respondents responded to have 51-100 casual employees per day. 4% of the respondents responded to have both 101-200 and above 200 casual employees per day as indicated in Figure 4.3 These findings are in line with Were (2011) who observed that the proportion of casual workers employed in manufacturing firms increased over the period between 1990-2003 .

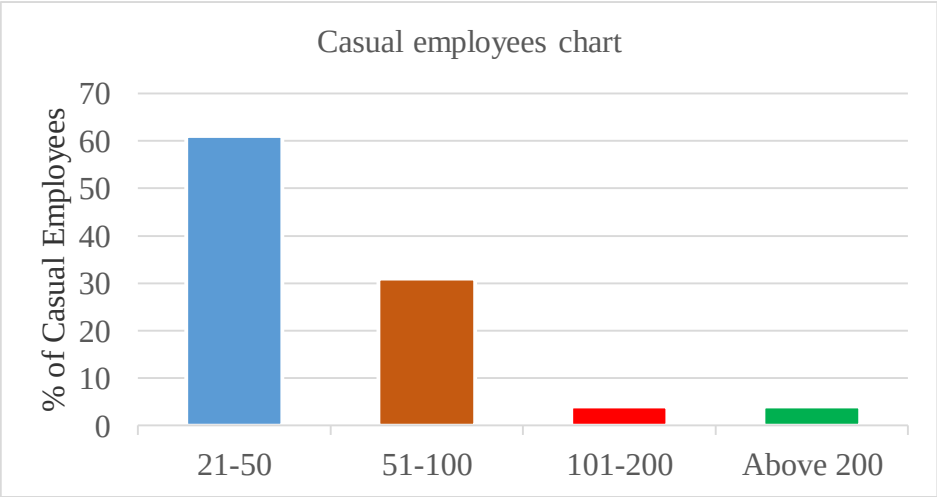

Figure 4.3: Chart for casual employees

4.5.4 Annual Turnover

The study sort to determine the annual turnover of the firms. The study findings showed that 53% of the respondents responded to have annual turnover of 500 to<1 billion Kenya shillings. 16% of the respondents responded to have annual turnover of 1 billion and above Kenya shillings. 21 % of the respondents responded to have annual turnover of 100 M to < 500 M Kenya shillings .5% of the respondents responded to have annual turnover of 50M to <100 M Kenya shillings and 5% of the respondents responded to have annual turnover less than 50 million Kenya shillings as indicated in Figure 4.4. This is in line with the findings of Aduda and Kalunda, (2012) who found out that most of the pharmaceutical firms studied being privately owned did not want to provide information on their financial performance.

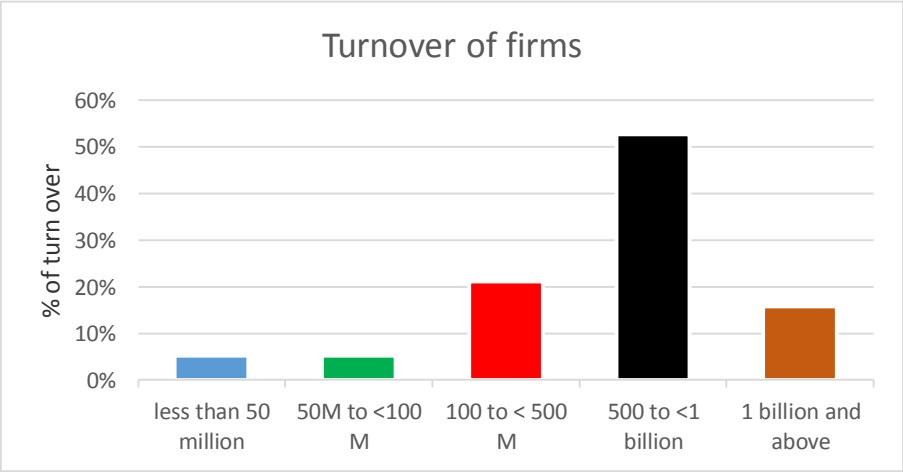

Figure 4.4: Chart for Turnover of firms

4.5.5 Firm Ownership

The study sort to determine firm ownership type. The study findings showed that 40% of the respondents responded that the firm was public/private owned. 26% of the respondents responded that the firm was private owned.16% of the respondents responded that the firm was foreign owned. 11% of the respondents responded that the firm was locally owned. 7% of the respondents responded that the firm was locally and foreign (joint) owned and 7% of the respondents responded that the firm was owned by local and foreign (joint) as indicated in Figure 4.5. This is in line with the findings of Mboli (2007) who found out that most of the firms are predominantly Kenyan owned.

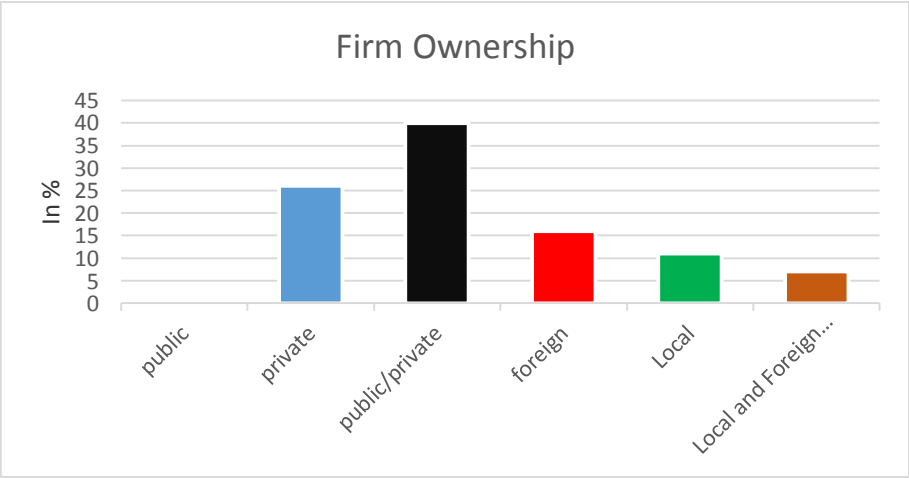

Figure 4.5: Chart for Firm Ownership

4.5.6 Nature of products

The study sort to determine the nature of products. The study findings showed that 67% of the respondents responded that their products were non-branded generic while 33% of the respondents responded that their products were branded generics. None of the respondents had their products as branded originals as indicated in figure 4.6. These findings are in line with the report by Karambu (2016) who observed that the use of generic drugs in Kenya dates back to the mid-1980s and local drug companies have since been making generic medicines, often priced lower than branded drugs, to meet local demand.

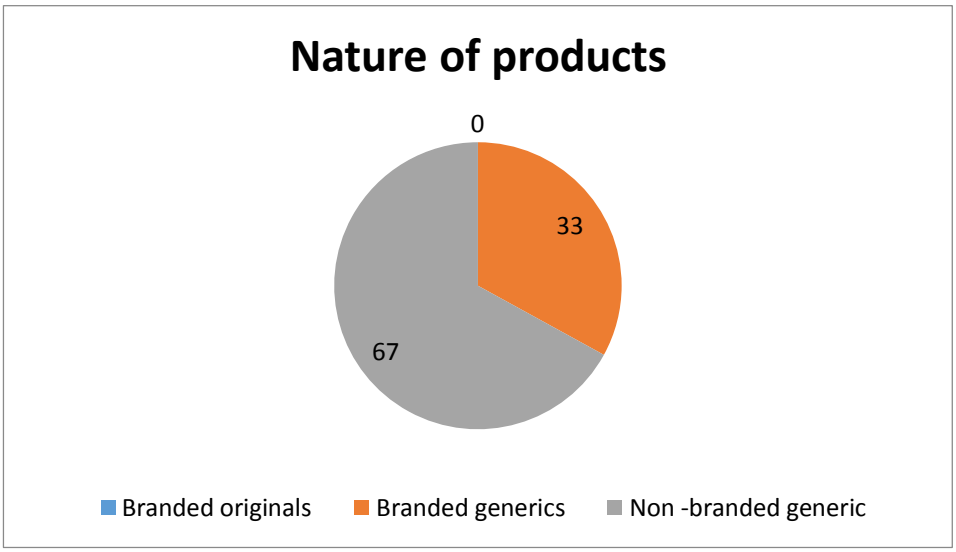

Figure 4.6: Chart for Nature of Products

4.5.7 Business Unit area Association of Respondent

The study sort to determine respondent business unit area associated with. The study findings showed that 18% of the respondents were associated with warehousing unit. 23% of the respondents were associated with manufacturing unit. 15% of the respondents were associated with the finance unit. 11% of the respondents were associated with the procurement unit while 11% of the respondents were associated with the customer service unit as indicated in figure 4.7. The findings are in line with Kenya Pharma Expo (2014) who have stated that majority (65%) of the employees in pharmaceutical industry work in production.

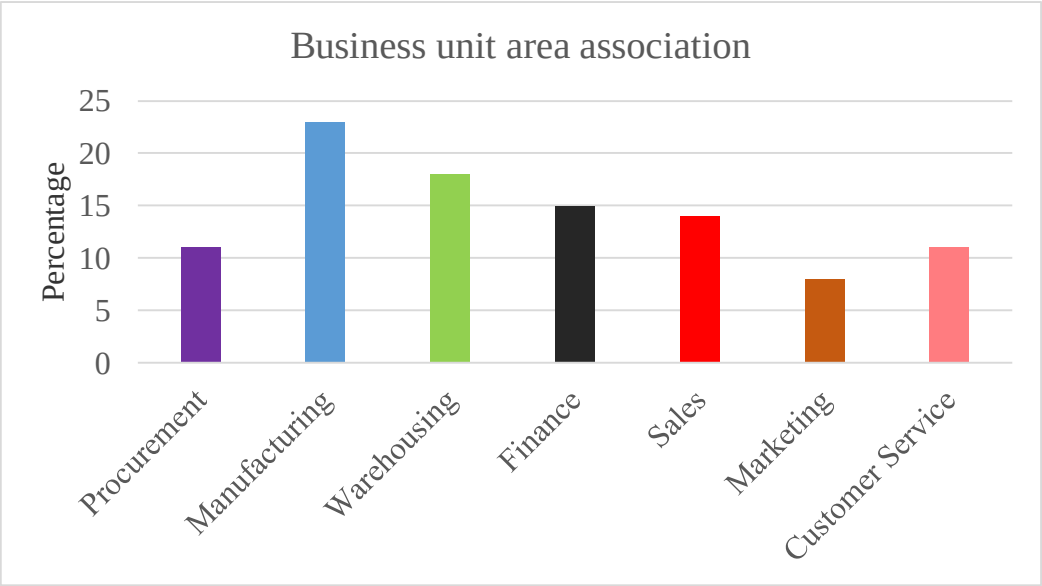

Figure 4.7: Graph for Business Unit

4.6 Operational Excellence and Management of Efficiency Levels

4.6.1 Factor Analysis

Factor analysis was conducted after successful testing of sampling adequacy and reliability using KMO coefficient and cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an eigenvalues of 1 or more indicates a unique factor. Total Variance analysis indicates that the 6 statements on waste reduction can be factored into 1 factor. The total variance explained by the extracted factor is 43.15% as shown in table 4.3.

Table 4.3: Elements of waste reduction

Waste Reduction	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
The teams understand the concepts of overproduction	0.688	.834	0.767	0.767	43.15%
The teams understand the concepts of waiting		.641		0.533	
The teams understand the concepts of inventory / working capital		.781		0.446	
The teams understand the concepts of underutilized talent		.688		0.422	
The teams are able to measure wastage per batch		.723		0.705	
The teams are organized and participate in continuous process improvement		.536		0.221	

Total Variance analysis indicates that the 6 statements on Management Practices can be factored into 1 factor. The total variance explained by the extracted factor is 52.42% as shown in table 4.4. All the factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. According to Rahn (2010) and Zandi (2006) a factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Black (2002) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

Table 4.4: Management Practices

Management Practices	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
Do you have modern manufacturing techniques including just-in-time delivery from suppliers, automation, flexible manpower, support systems?	0.627	.631	0.875	0.413	52.42%
Are process improvements made only when problems arise, or are they actively sought out for continuous improvement as part of a normal business processes?		.667		0.476	
Is tracking ad hoc and incomplete, or is performance continually tracked and communicated to all staff?		.743		0.476	
Is performance reviewed infrequently and only on a success/failure scale, or is performance reviewed continually with an expectation of continuous improvement?		.763		0.619	
Are the goals exclusively financial, or is there a balance of financial and non-financial targets?		.571		0.655	
Are performance measures ill-defined, poorly understood, and private, or are they well-defined, clearly communicated, and made public?		.634		0.786	

Total Variance analysis indicates that the 3 statements on Economics of Scale can be factored into 1 factor. The total variance explained by the extracted factor is 51.05% as shown in Table 4.5. All the factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. According to Rahn (2010) and Zandi (2006) a factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Black (2002) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

Table 4.5: Economies of Scale

Economics of Scale	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
Do Mergers and consolidations create more profit?	0.574	.787	0.757	0.635	51.05%
Does your firm have specialization and division of labor?		0.728		0.434	
Does your firm buy raw and pack materials in bulk?		.868		0.926	

Table 4.3, Table 4.4 and Table 4.5 shows the factor loadings for operational excellence statements. All the factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. According to Rahn (2010) and Zandi (2006) a factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Black (2002) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

4.6.2 Descriptive results

i. Lean Manufacturing and Six Sigma

The study sought to examine the respondent's level of extent with the variable concerning influence of lean manufacturing and six sigma. The findings in table 4.6 indicate that majority of the respondents (50%) agreed that the teams understand the concepts overproduction (Mean 1.52 and Std. Deviation 0.545). 81% of the respondents agreed that the teams understand the concepts of waiting with Mean 1.85 Std. deviation 0.416. 66% of the respondents agreed that the teams understand the concepts of inventory / working capital with Mean1.86 and Std. deviation 0.564. 67% of the respondents agreed that the teams understand the concepts of over processing with Mean 1.79and Std. deviation 0.536 64 % of the respondents agreed that the teams understand the concepts of underutilized talent with Mean 1.74 and Std. deviation 0.561. 57% of the respondents agreed that the teams are able to measure wastage per batch with Mean 1.72 and Std. deviation 0.596. 49% of the respondents strongly agreed that the teams have a formal wastage review meeting periodically with Mean1.52 and Std. deviation 0.531. 64% of the respondents also agreed that the teams have a wastage reduction strategy with Mean 1.66 and Std. deviation 0.492. 54% of the respondents strongly agreed that the teams are organized and participate in continuous process improvement with Mean 1.49 and Std. deviation 0.559

Table 4.6: Elements of waste reduction

Elements of waste reduction.	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean	S D
The teams understand the concepts overproduction.	49	50	0	1	0	1.52	.545
The teams understand the concepts of waiting.	17	81	2	0	0	1.85	.416
The teams understand the concepts of inventory / working capital.	24	66	10	0	0	1.86	.564
The teams understand the concepts of over processing.	27	67	6	0	0	1.79	.536
The teams understand the concepts of underutilized talent.	31	64	4	1	0	1.74	.561
The teams are able to measure wastage per batch	36	57	7	0	0	1.72	.596
The teams have a formal wastage review meeting periodically.	49	49	1	0	0	1.52	.531
The teams have a wastage reduction strategy.	35	64	1	0	0	1.66	.492
The teams are organized and participate in continuous process improvement.	54	43	3	0	0	1.49	.559

ii. Formalized Management Systems and Procedures

The study sought to examine the respondent's level of extent with the variable concerning influence of lean manufacturing and six sigma. The findings in table 4.7 indicate that majority of the respondents (99%) agreed that they have modern manufacturing techniques including just-in-time delivery from suppliers, automation, flexible manpower, support systems (Mean 1.54 and Std. Deviation 0.515). 95% of the respondents agreed that the process improvements made only when problems arise, or actively sought out for continuous improvement as part of a normal business processes with Mean 1.87 Std. deviation 0.472. The findings indicate that majority of the

respondents (88%) agreed Performance was reviewed infrequently and only on a success/failure scale, with Mean 1.88 and Std. deviation 0.649.

Table 4.7: Elements of management practices

Elements of management practices.	SA (%)	A (%)	N (%)	D (%)	SD (%)	Mean	S D
Do you have modern manufacturing techniques including just-in-time delivery from suppliers, automation, flexible manpower, support systems?	47	52	1	0	0	1.54	.515
Are process improvements made only when problems arise, or are they actively sought out for continuous improvement as part of a normal business processes?	19	76	5	0	0	1.87	.472
Is tracking ad hoc and incomplete, or is performance continually tracked and communicated to all staff?	28	65	7	0	0	1.78	.553
Is performance reviewed infrequently and only on a success/failure scale, or is performance reviewed continually with an expectation of continuous improvement?	25	63	9	2	0	1.88	.649
Are the goals exclusively financial, or is there a balance of financial and non-financial targets?	35	63	1	1	0	1.67	.531
Are performance measures ill-defined, poorly understood, and private, or are they well-defined, clearly communicated, and made public?	38	57	4	0	0	1.66	.561

iii. Economies of Scale

The study sought to examine the respondent's level of extent with the variable concerning influence of lean manufacturing and six sigma. The findings in table 4.8 indicate that majority of the respondents (49%) agreed that mergers and consolidations create more profit (Mean 1.567 and Std. Deviation 0.568). 81% of the respondents agreed that the firm have specialization and division of labor with Mean 1.821 Std. deviation 0.404. 99% of the respondents agreed that their firm buys raw and pack materials in bulk with Mean 1.597 and Std. deviation 0.522.

Table 4.8: Elements of economies of scale

Elements of economies of scale.	Strongly Agree (%)	Agree (%)	Neutral **(%)**	Disagree **(%)**	Strongly Disagree (%)	Mean	SD
Do Mergers and consolidations create more profit?	47	49	4	0	0	1.567	0.568
Does your firm have specialization and division of labor?	19	81	1	0	0	1.821	0.404
Does your firm buy raw and pack materials in bulk?	42	57	1	0	0	1.597	0.522

iv. Influence of Operational Excellence on the Management of Efficiency Levels

The first objective of the study was to establish the influence of Operational Excellence on the management of efficiency levels in the pharmaceutical industry in Kenya. From the summary in table 4.6, Table 4.7 and Table 4.8 above indicate that majority of the respondents (50%) agreed that the teams understand the concepts of overproduction. 81% of the respondents agreed that the teams understand the concepts of waiting. 66% of the respondents agreed that the teams understand the concepts of inventory / working capital with 57% of the respondents agreed that the teams are able to measure wastage

per batch. 49% of the respondents strongly agreed that the teams have a formal wastage review meeting periodically. The findings in table 4.6, Table 4.7 and Table 4.8 indicate that majority of the respondents (99%) agreed that they have modern manufacturing techniques including just-in-time delivery from suppliers, automation, flexible manpower, support systems. 95% of the respondents agreed that the process improvements are made only when problems arise, or are actively sought out for continuous improvement as part of a normal business processes. The findings indicate that majority of the respondents (88%) agreed performance is reviewed infrequently and only on a success/failure scale. The findings in Table 4.6, Table 4.7 and Table 4.8 indicate that majority of the respondents (49%) agreed that mergers and consolidations create more profit. 81% of the respondents agreed that their firm have specialization and division of labor with. 99% of the respondents agreeable that their firms buy raw and pack materials in bulk. These findings are in line with Philipp , Martin and Ulf , (2009) in their article titled "Maximizing efficiency in pharma operations" who concluded that by matching the productivity of top drug makers, average ones could enjoy labor and unit-cost savings worth five to six percentage points of earnings before interest and taxes.

4.6.3 Test of Assumptions of the Study Variables

When the assumptions of the linear regression model are correct, ordinary least squares (OLS) provides efficient and unbiased estimates of the parameters (Long & Ervin, 1998). To ensure that there was no violation of the assumptions, this study tested for linearity, homoscedasticity, and multicollinearity. Linearity refers to the consistent slope of change that represents the relationship between an independent variable and a dependent variable. If the relationship between the independent and the dependent variables is radically inconsistent, then structural equation modeling analyses will be difficult to carry out (Mark, 2003). If the significant value for deviation from linearity is less than 0.05, the relationship between independent and dependent variables is not

linear, and this presents problems during modeling. Mark also states that issues of linearity can also be fixed by removing outliers. This shall be shown by the normal Q-Q plot.

4.6.4 Outliers and Normality Tests of the Study Variables

Outliers were tested for Univariate outliers on the dependent variable because the dependent variable constructs were in continuous scales. Univariate outliers are extreme values for a single variable (Tabachnick & Fidell, 2007). The results did not show outliers. This was further evidenced in the testing of normality, where the cut-off points for skewness and kurtosis are shown to be outside the -1 and +1 range and more than three times the standard deviation (Kline, 2005).

4.6.5 Normality Test

The normality of data distribution was assessed by examining its skewness and kurtosis (Kline, 2005). A variable with an absolute skew-index value greater than 3.0 is extremely skewed while a kurtosis index greater than 8.0 is an extreme kurtosis (Kline, 2005). Cunningham and Heathcote (1989) stated that an index smaller than an absolute value of 2.0 for skewness and an absolute value of 7.0 is the least violation of the assumption of normality. The results of the normality test of the dependent variable indicated skewness and kurtosis in the range of -1 and +1 as shown in table 4.9. Table 4.9 shows that operational excellence had a skewness coefficient of -0.579 and its kurtosis coefficient being -0.243. Based on these it was concluded that data was normally distributed since they lie within the ± 1 range recommended by (Myoung , 2008).

Table 4.9: O.E Normality Test

Operational Excellence	Statistic	Std. Error
Mean	1.8103	.02456
Median	1.8848	
Std. Deviation	.28431	
Skewness	-.579	.209
Kurtosis	-.243	.416

To corroborate the skewness and kurtosis results, the graphical analysis results showed the line representing the actual data distribution closely follow the diagonal in the normal Q-Q plot as shown in Figure 4.8, suggesting normal distribution Hair,Black, Babin,Anderson & Tatham, (2006). In Q-Q plot, or the normal probability plot, the observed value for each score is plotted against the expected value from the normal distribution, where, a sensibly straight line suggests a normal distribution. By and large, if the points in a Q-Q plot depart from a straight line, then the assumed distribution is called into question (Aas and Haff, 2006).

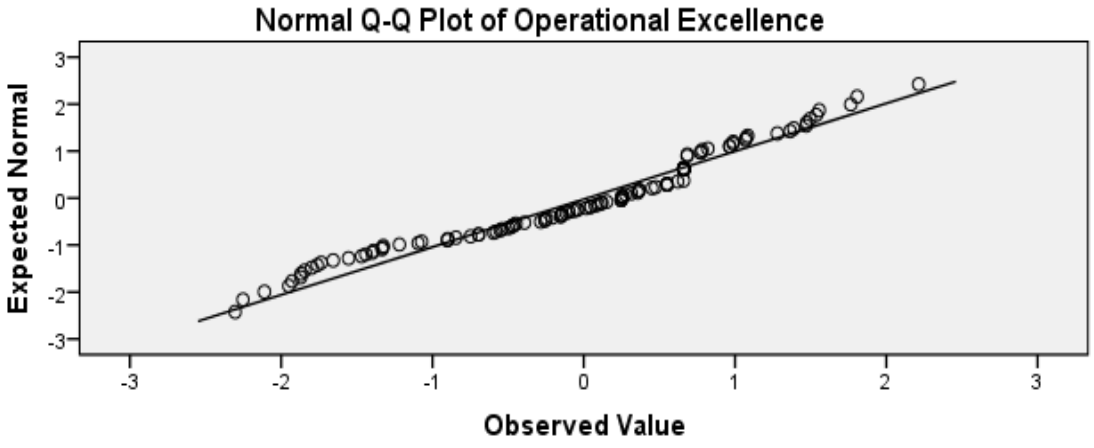

Figure 4.8: Q-Q Plot for O.E

The dependent variable should be normally distributed because the study was using a multiple linear regression model, where the condition of normality must be satisfied. One way to make it very likely to have normal residuals is to have a dependent variable that is normally distributed and predictors that are all normally distributed (Shenoy & Madan, 1994). Figure 4.8 shows the normal Q-Q plot which indicates that the condition of normality for operational excellence is satisfied .The quantile-quantile (Q-Q) plot is an excellent way to see whether the data deviate from normal (the plot has been set up to see whether the data deviate from other distributions but only interested in the normal distribution). Quantile plot determines whether the proportion of the observed scores fall below any one score, then the z score that would fit that proportion if the data were normally distributed is calculated, and finally that z score that would cut off that proportion (the expected normal value) is translated back into the original metric to see what raw score that would be. According to Shenoy and Madan (1994), for a variable to be normally distributed most of the points should lie on the theoretical Quantile line. The theoretical Quantile line of the data is fitted and from the Normal Q-Q Plot it indicates that the observed values versus the expected normal values are randomly distributed along the line of best fit indicating that the dependent variable is normally distributed. In case the dependent variable is not normally distributed then normality has to be sought for before proceeding to check whether the dependent variable is influenced by the other independent variables.

4.6.6 Relationship between O.E and the Management of Efficiency Levels

Table 4.10 shows the correlation results which indicate that there was a positive and significant relationship between operational excellence and the management of efficiency levels. This reveals that any positive change in operational excellence led to increased efficiency. The relationship has been illustrated by the correlation co-efficient of 0.182, implying a positive relationship between operational excellence and the

management of efficiency levels. This was also evidenced by the p value of 0.035 which is less than that of critical value (0.05).

Table 4.10: Correlation of O.E

Correlations

		Management Efficiency	Operational Excellence
Management Efficiency	Pearson Correlation	1	.182*
	Sig. (2-tailed)		.035
	N	134	134
Operational Excellence	Pearson Correlation	.182*	1
	Sig. (2-tailed)	.035	
	N	134	134

*. Correlation is significant at the 0.05 level (2-tailed). Hence it is positive and significant because 0.182, p value is 0.035 which is less than 0.05

Regression analysis was conducted to empirically determine whether operational excellence was a significant determinant of management of efficiency levels in pharmaceutical industry in Kenya. The coefficient of determination R^2 and correlation coefficient (r) shows that the degree of association between the independent variable and management of efficiency levels. The results of the linear regression indicate R^2= 0.145 and R= .380 as shown in Table 4.11. This is an indication that there is a significant relationship between independent variable operational excellence and the dependent management of efficiency levels.

From the model summary Table 4.11 adjusted R^2 was 0.137 this indicates that operational excellence can explain 14.5% of variations in management of efficiency levels. Therefore further research should be conducted to investigate these other factors that affect management of efficiency levels in pharmaceutical industry in Kenya.

Table 4.11: Model summary of O.E

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.380[a]	.145	.137	.80707

a. Predictors: (Constant), Operational Excellence
b. Dependent Variable: Management Efficiency

The overall model significance was presented in table 4.12 An F statistic of 7.247 indicated that the overall model was significant as it was less than the critical F value of 7.247 with (1, 109) degrees of freedom at the P=0.05 level of significance. The findings indicates that operational excellence was statistically significant in explaining management of efficiency in the pharmaceutical industry in Kenya.

Table 4.12: ANOVA of O.E

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.720	1	4.720	7.247	.008[b]
	Residual	70.347	108	.651		
	Total	75.067	109			

a. Dependent Variable: Management Efficiency
b. Predictors: (Constant), Operational Excellence

Table 4.13: Coefficients of O.E

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.280	.108		2.604	.011
	Operational Excellence	.477	.177	.380	2.691	.008

a. Dependent Variable: Management Efficiency

The operational excellence coefficients are presented in Table 4.13. The results show that operational excellence contributes significantly to the model since the p-value for the constant and gradient is less than 0.05. The fitted equation is as shown below.

Y= Management Efficiency; X_1= Operational Excellence

Y= 0.280+ 0.477 Operational Excellence

These findings are in line with Pavlovic and Božanic, (2012) who found out that lean thinking and Six Sigma have been utilized by manufacturing industries to decrease cost and improve quality and productivity by reducing variation and production defects. Because of the dramatic successes in manufacturing, there is rising interest among companies in the pharmaceutical industry, which chooses to implement lean in order to accomplish such goals as decreased wait time to release product to the market, reduce production waste, and improve communication with end users and raise quality level both in the production and in testing laboratories.

4.7 Customer Intimacy

4.7.1 Factor Analysis

Factor analysis was conducted after successful testing of sampling adequacy and reliability using KMO coefficient and cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an eigenvalues of 1 or more indicates a unique factor. Total Variance analysis indicates that the 9 statements on elements of customer intimacy can be factored into 1 factor. The total variance explained by the extracted factor is 53.30% as shown in Table 4.14.

Table 4.14: Elements of Customer Intimacy

Customer Intimacy	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
We continuously try to discover additional needs of our customers of which they are unaware?	0.669	.790	0.742	0.576	53.30%
We incorporate solutions to unarticulated customer needs in our new products?		0.696		0.405	
We innovate even at the risk of making our previous products obsolete.		.736		0.359	
We work closely with lead customers to try to recognize their needs months or even years before the majority of the market may recognize them		.777		0.436	
Members of our firm collect information concerning competitor's activities.			0.554	0.737	
We evaluate the strengths and weaknesses of key competitors			.775	0.751	
We regularly visit our current and prospective customers.			.852	0.774	
All of our business units (marketing, production, purchasing, finance, and sales) are integrated in serving the needs of our target markets.			.641	0.315	
People on our firm understand how everyone can contribute to creating customer value			.617	0.306	

Total Variance analysis indicates that the 5 statements on Product reliability can be factored into 1 factor, the total variance explained by the extracted factor is 57.06% as shown in Table 4.15.

All factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. A factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Hair, Black, Babin, Anderson and Tatham (2006) who assert that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

Table 4.15: Factor Loadings KMO

Product reliability	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
To the customers feel that your products will perform its intended function?	0.638	.712	0.739	0.697	57.06%
customer complaints lead to a change in the manufacturing process		.717		0.568	
The products deteriorate faster than the stipulated shelf life		.542		0.724	
The products undergo shelf life stability studies before launch		.844		0.655	
The packaging ensures product is attractive and lasts for the duration of the supply chain		.815		0.655	

Total Variance analysis indicates that the 2 statements on technology advancements can be factored into 1 factor, the total variance explained by the extracted factor is 52.21% as shown in Table 4.16. All factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. A factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Hair, Black, Babin, Anderson and Tatham (2006) who assert that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

Table 4.16: Factor loadings Tech Advancements

Technology Advancements	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
Your firm uses social networks such as twitter, face book etc. to get customers feedback	0.5	.723	0.823	0.802	52.21%
Your firm uses IT systems for example ERP such as SAP, QAD, MERPS,BPCS etc. for faster customer service		.723		0.802	

Table 4.14, Table 4.15 and Table 4.16 shows the factor loadings for customer intimacy statements. All the 9 statements on customer intimacy , 5 statements on Product reliability and the 2 statements on technology advancements attracted coefficients of more than 0.4 hence all the statements were retained for analysis. A factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Hair,Black, Babin,Anderson & Tatham, (2006) who assert that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

4.7.2 Descriptive Results

i. The study sought to examine the respondent's level of extent with the variable concerning customer intimacy. The findings in Table 4.17 for customer intimacy indicate that majority of the respondents (51%) agreed that they continuously try to discover additional needs of their customers of which they are unaware with (Mean 1.50 and Std. Deviation 0.531). 65% of the respondents agreed that they work closely with lead customers to try to recognize their needs months or even years before the majority of the market may recognize them with Mean 1.82 Std. deviation 0.586. 68% of the respondents agreed that members of their firms collect information concerning competitor's activities with Mean 1.81 and Std. deviation 0.537.

Table 4.17: Elements of Customer Intimacy

Elements of customer intimacy.	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean	SD
We continuously try to discover additional needs of our customers of which they are unaware?	51	47	1	0	0	1.50	.531
We incorporate solutions to unarticulated customer needs in our new products?	16	81	3	0	0	1.87	.414
We innovate even at the risk of making our previous products obsolete.	27	60	12	0	1	1.87	.665
We work closely with lead customers to try to recognize their needs months or even years before the majority of the market may recognize them	27	65	7	1	0	1.82	.586
Members of our firm collect information concerning competitor's activities.	25	68	7	0	0	1.81	.537
We evaluate the strengths and weaknesses of key competitors	26	64	10	0	0	1.84	.578
We regularly visit our current and prospective customers.	35	57	7	1	0	1.73	.615
All of our business units (marketing, production, purchasing, finance, and sales) are integrated in serving the needs of our target markets.	44	55	1	0	0	1.57	.512
People on our firm understand how everyone can contribute to creating customer value	35	63	2	0	0	1.67	.517

ii. Reliability of End Product

The study sought to examine the respondent's level of extent with the variable customer intimacy concerning reliability of end product. The findings in Table 4.18 indicate that majority of the respondents (51%) agreed that the customers feel that their products will perform its intended function with (Mean 1.49 and Std. Deviation 0.502). 63% of the

respondents agreed that the products undergo shelf life stability studies before launch with Mean 1.76 Std. deviation 0.564. 58% of the respondents agreed that the packaging ensures product is attractive and lasts for the duration of the supply chain with Mean 1.75 and Std. deviation 0.618.

Table 4.18: Elements of Product Reliability

Elements of product reliability.	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean	SD
Do the customers feel that your products will perform its intended function?	51	49	0	0	0	1.49	.502
Customer complaints lead to a change in the manufacturing process.	23	75	2	0	0	1.79	.460
The products deteriorate faster than the stipulated shelf life	32	60	6	1	1	1.78	.656
The products undergo shelf life stability studies before launch.	31	63	7	0	0	1.76	.564
The packaging ensures product is attractive and lasts for the duration of the supply chain.	34	58	7	1	0	1.75	.618

iii. Technological Advancement

The study sought to examine the respondent's level of extent with the variable customer intimacy concerning technological advancement. The findings in Table 4.19 indicate that majority of the respondents (64%) agreed that firm uses social networks such as twitter, face book etc. to get customers feedback with (Mean 1.69 and Std. Deviation 0.512). 98% of the respondents agreed that the firm uses IT systems for example ERP such as SAP, QAD, MERPS, BPCS etc. for faster customer service with Mean 1.60 Std. deviation 0.535.

Table 4.19: Elements of Tech Advancement

Elements of technological advancement.	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean	S D
Your firm uses social networks such as twitter, face book etc. to get customers feedback.	34	64	2	0	0	1.69	.512
Your firm uses IT systems for example ERP such as SAP, QAD, MERPS, and BPCS etc. for faster customer service.	42	56	2	0	0	1.60	.535

The second objective of the study was to examine the influence of Customer Intimacy focus on the management of efficiency levels in the pharmaceutical industry in Kenya. From the summary in Table 4.17, Table 4.18 and Table 4.19 above indicate that majority (51%) of the respondents for Product identification of the respondents agreed that they continuously try to discover additional needs of their customers of which they are unaware. 65% of the respondents agreed that they work closely with lead customers to try to recognize their needs months or even years before the majority of the market may recognize them. 68% of the respondents agreed that members of their firm collect information concerning competitor's activities. Concerning reliability of end product, the findings in table 4.24 indicate that majority of the respondents (51%) agreed that the customers feel that their products will perform its intended function. 63% of the respondents agreed that the products undergo shelf life stability studies before launch. 58% of the respondents agreed that the packaging ensures product is attractive and lasts for the duration of the supply chain. Concerning technological advancement, the findings in table 4.19 indicate that majority of the respondents (64%) agreed that there firm uses social networks such as twitter, face book etc. to get customers feedback . 98% of the respondents agreed that the firm uses IT systems for example ERP such as SAP,

QAD, MERPS, BPCS etc. for faster customer service . These findings are in line with Fox, Hofmann and Paley (2016) who observed that to connect with patients when they are looking for answers, pharma companies need to design a new approach based on an understanding of patients' experiences and how they make decisions. This will involve designing a CareFlow map which maps a patient's journey from the first awareness of a problem to treatment, examining the factors guiding their decisions at each stage. These insights enable pharma marketers to engage with patients in ways that feel natural and personal. That may mean providing information to help an important choice to be made, supporting the execution of that choice, or simply empathizing.

4.7.3 Normality Test

The normality of data distribution was assessed by examining its skewness and kurtosis (Kline, 2005). A variable with an absolute skew-index value greater than 3.0 is extremely skewed while a kurtosis index greater than 8.0 is an extreme kurtosis (Kline, 2005). Cunningham (2008) stated that an index smaller than an absolute value of 2.0 for skewness and an absolute value of 7.0 is the least violation of the assumption of normality. The results of the normality test of the dependent variable indicated skewness and kurtosis in the range of -1 and +1 as shown in table 4.26. This implies that the assumption of normality was satisfied

The results presented in Table 4.20 shows that customer intimacy had a skewness coefficient of -0.458 and its kurtosis coefficient being -0.003. Based on these it was concluded that data was normally distributed since they lie with the ± 1 range recommended by Myoung (2008).

Table 4.20: Customer Intimacy Normality

Customer Intimacy	Statistic	Std. Error
Mean	1.7990	.02603
Median	1.8412	
Std. Deviation	.30129	
Skewness	-.458	.209
Kurtosis	-.003	.416

To corroborate the skewness and kurtosis results, the graphical analysis results showed the line representing the actual data distribution closely follow the diagonal in the normal Q-Q plot as shown in Figure 4.9, suggesting normal distribution Hair, Tatham, Anderson and Black (2006). In Q-Q plot, or the normal probability plot, the observed value for each score is plotted against the expected value from the normal distribution, where, a sensibly straight line suggests a normal distribution. By and large, if the points in a Q-Q plot depart from a straight line, then the assumed distribution is called into question (Aas & Haff, 2006).

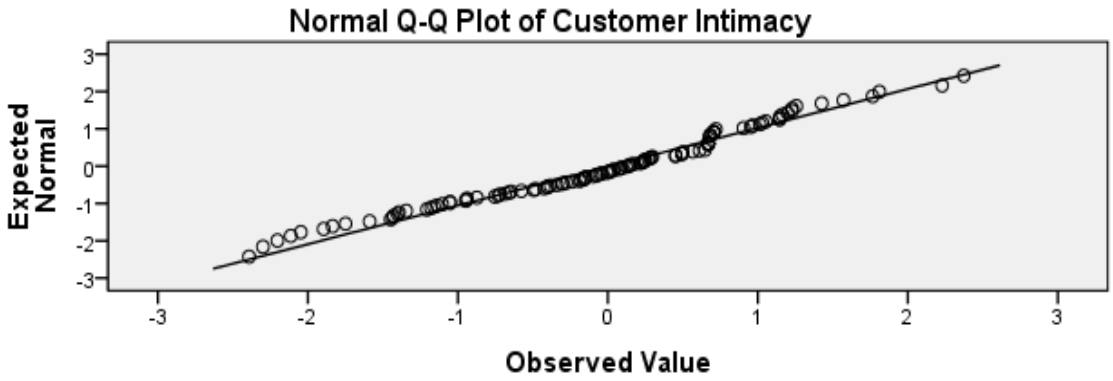

Figure 4.9: Q-Q Plot for Customer Intimacy

The dependent variable should be normally distributed because the study was using a multiple linear regression model, where the condition of normality must be satisfied. Figure 4.9 shows the normal Q-Q plot which indicates that the condition of normality for customer intimacy is satisfied. According to Shenoy and Madan (1994), for a variable to be normally distributed most of the points should lie on the theoretical Quantile line. The theoretical Quantile line of the data is fitted and from the Normal Q-Q Plot it indicates that the observed values versus the expected normal values are randomly distributed along the line of best fit indicating that the dependent variable is normally distributed.

4.7.4 Relationship between customer intimacy and the management of efficiency levels

Table 4.21: Correlations of Customer Intimacy

Correlations

		Management Efficiency	Customer Intimacy
Management Efficiency	Pearson Correlation	1	.357**
	Sig. (2-tailed)		.000
	N	134	134
Customer Intimacy	Pearson Correlation	.357**	1
	Sig. (2-tailed)	.000	
	N	134	134

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.21 shows the correlation results which indicate that there was a positive and significant relationship between customer intimacy and management of efficiency levels in the pharmaceutical industry in Kenya. This reveals that any positive change in customer intimacy led to increased management of efficiency levels. The relationship has been illustrated by the correlation co-efficient of 0.357, implying a positive relationship between customer intimacy and management of efficiency levels in the pharmaceutical industry in Kenya. This was also evidenced by the p value of 0.000 which is less than that of critical value (0.05).

Regression analysis was conducted to empirically determine whether customer intimacy was a significant determinant of management of efficiency levels in pharmaceutical industry in Kenya. The coefficient of determination $R^2$and correlation coefficient (r) shows that the degree of association between the independent variable and management of efficiency levels. The results of the linear regression indicate R^2= 0.221 and R= .470 as shown in Table 4.22. This is an indication that there is a significant relationship

between independent variable customer intimacy and the dependent management of efficiency levels.

From the model summary Table 4.22 adjusted R^2 was 0.214 this indicates that customer intimacy can explain 22.1% of variations in management of efficiency levels. Therefore further research should be conducted to investigate these other factors that affect management of efficiency levels in pharmaceutical industry in Kenya.

Table 4.22: Model summary Customer Intimacy

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.470[a]	.221	.214	.73583

a. Predictors: (Constant), Customer Intimacy
b. Dependent Variable: Management Efficiency

The overall model significance was presented in Table 4.23 , an F statistic of 30.641 indicating that the overall model was significant as it was less than the critical F value of 30.641 with (1, 109) degrees of freedom at the P=0.05 level of significance. The findings imply that customer intimacy was statistically significant in explaining management of efficiency levels in the pharmaceutical industry in Kenya.

Table 4.23: ANOVA Customer Intimacy

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.591	1	16.591	30.641	.000[b]
	Residual	58.477	108	.541		
	Total	75.067	109			

a. Dependent Variable: Management Efficiency
b. Predictors: (Constant), Customer Intimacy

Table 4.24: Coefficients Customer Intimacy

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.425	.144		2.952	.004
	Customer Intimacy	.725	.131	.470	5.535	.000

a. Dependent Variable: Management Efficiency

The customer intimacy coefficients are presented in table 4.24. The results show that there is a positive significant influence of customer intimacy on management of efficiency levels in the pharmaceutical industry in Kenya as the regression Coefficient of Customer Intimacy is .725 which is positive and significant (p value is 0.000 which is

less than 0.05) hence the study fails to reject the hypothesis and concludes that there is a positive significant influence of customer intimacy on management of efficiency levels in the pharmaceutical industry in Kenya. The fitted equation is as shown below.

Y= Management Efficiency; X_2= customer Intimacy

$Y=.425+.725X_2$ customer Intimacy

The study findings corroborate with those of MCE (2012) who conducted a survey among bio-pharmaceutical managers and executives during mid-2011. Of the 208 respondents, representing 47 bio-pharmaceutical companies, 87% confirmed that their top management had declared patient centricity "strategic". Respondents also recognized almost unanimously (98%) that patient-centricity was critically important or important for the success of their company (Bosch, 2012).

4.8 Product Leadership

4.8.1 Factor Analysis

Factor analysis was conducted after successful testing of sampling adequacy and reliability using KMO coefficient and cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an eigenvalues of 1 or more indicates a unique factor. Total Variance analysis indicates that the 5 statements on product leadership variable under product innovation can be factored into 1 factor. The total variance explained by the extracted factor is 60.96% as shown in Table 4.25.

Table 4.25: Product Innovation KMO

Product innovation	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
There are regular new product development forums in your firm	0.639	.693	0.785	0.417	60.96%
Our firm manufacturers customized products		.624		0.818	
Our products are available through preferred channels		.558		0.944	
We have a research and development (R&D) department		.743		0.73	
We relentlessly pursue new solutions		.726		0.752	

Total Variance analysis indicates that risk Orientation can be factored into 1 factor and had a total variance explained by the extracted factor is 46.30% as shown in Table 4.26 from the 3 statements. All the factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. A factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Hair, Black, Babin, Anderson and Tatham (2006) who assert that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

Table 4.26: Risk Orientation KMO

Risk Orientation	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
New product decisions are based on risk management forums	0.503	.813	0.773	0.603	46.30%
Creative thinking is encouraged and rewarded		.510		0.603	
Rewards are based on an employee's ability to innovate and to bring innovative product concepts		.685		0.667	

Total Variance analysis indicates that the 3 statements of corporate brand can be factored into 1 factor and had a total variance explained by the extracted factor is 50.41% as shown in Table 4.27. All the factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. A factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Hair, Black, Babin, Anderson and Tatham (2006) who assert that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

Table 4.27: Corporate Brand KMO

Corporate Brand	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
Our logo is legible in a wide range of sizes, from a tiny web icon to a large banner at a trade show.	0.548	.501	0.745	0.231	50.41%
The colors used by our company communicate many different messages and can sometimes be so iconic that our products can be recognized solely by a swatch of color		.778		0.745	
Our company has a specific font that is used throughout our company's materials		.810		0.917	

Table 4.25, Table 4.26 and Table 4.27 shows the factor loadings for product leadership statements. All the 5 statements on product leadership variable under product innovation , 3 statements on risk Orientation and the 3 statements and corporate brand factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. A factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Hair,Black, Babin,Anderson and Tatham (2006) who assert that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

4.8.2 Descriptive Analysis

i. Encouragement of Innovation

The study sought to examine the respondent's level of extent with the variable concerning product leadership. The findings in Table 4.28 concerning elements of product innovation indicate that majority of the respondents (56%) agreed that there are regular new product development forums in their firm with (Mean 1.59 and Std. Deviation 0.523). 72% of the respondents agreed that the firm manufacturers customized products with Mean 1.80 Std. deviation 0.487. Only 23% of the respondents agreed that they have a research and development (R&D) department with Mean 1.85 and Std. deviation 0.555.

Table 4.28: Elements of Product Innovation

Elements of product innovation.	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean	S D
There are regular new product development forums in your firm.	43	56	1	0	0	1.59	.523
Our firm manufacturers customized products.	24	72	4	0	0	1.80	.487
Our products are available through preferred channels	27	66	7	0	0	1.80	.545
We have a research and development (R&D) department.	23	69	7	1	0	1.85	.555
We relentlessly pursue new solutions.	34	60	4	1	1	1.75	.645

ii. Risk-oriented Management style and Team Empowerment

The study sought to examine the respondent's level of extent with the variable concerning product leadership. The findings in Table 4.29 concerning elements of risk

oriented management style indicate that majority of the respondents (65%) agreed that new product decisions are based on risk management forums with (Mean 1.75 and Std. Deviation 0.541). 57% of the respondents agreed that creative thinking is encouraged and rewarded with Mean 1.60 Std. deviation 0.521. 55% of the respondents agreed that team work is a way of working with Mean1.66 and Std. deviation 0.577. 60% of the respondents agreed that there is a great focus on speed, commercializing ideas quickly with Mean 1.66 and Std. deviation 0.536 .

Table 4.29: Risk and team empowerment

Risk-oriented management style and team empowerment.	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	M	S.D
New product decisions are based on risk management forums.	30	65	5	0	0	1.75	541
Creative thinking is encouraged and rewarded.	41	57	1	0	0	1.60	.521
Rewards are based on an employee's ability to innovate and to bring innovative product concepts.	28	69	4	0	0	1.76	.508
Team work is a way of working	40	55	5	0	0	1.66	.577
There is a great focus on speed, commercializing ideas quickly.	37	60	3	0	0	1.66	.536

iii. Corporate Brand

The study sought to examine the respondent's level of extent with the variable concerning product leadership. The findings in Table 4.30 concerning elements of corporate brand indicate that majority of the respondents (60%) agreed that there logo is legible in a wide range of sizes, from a tiny web icon to a large banner at a trade show with (Mean 1.64 and Std. Deviation 0.526). 74% of the respondents agreed that the colors used by their company communicate many different messages and can sometimes be so iconic that there products can be recognized solely by a swatch of color with Mean

1.84 Std. deviation 0.488. 63% of the respondents agreed that their company has a specific font that is used throughout the company's materials with Mean1.81 and Std. deviation 0.603.

Table 4.30: Elements of Corporate Brand

Elements of corporate brand.	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean	S. D
Our logo is legible in a wide range of sizes, from a tiny web icon to a large banner at a trade show.	38	60	2	0	0	1.64	.526
The colors used by our company communicate many different messages and can sometimes be so iconic that our products can be recognized solely by a swatch of color.	21	74	5	0	0	1.84	.488
Our company has a specific font that is used throughout our company's materials.	28	63	8	1	0	1.81	.603
Photos and all imagery have a consistent look and feel, that is . The photos are brightly lit and the subject is looking right into the camera.	27	63	9	1	0	1.84	.603
Our firm has a full library of graphic elements including background texture, a line style treatment, and use of white space or color blocks.	59	40	1	0	0	1.43	.526

The third objective of the study was to determine the influence of Product leadership on the management of efficiency levels in the pharmaceutical industry in Kenya. From the summary in Table 4.28, Table 4.29 and Table 4.30 indicate that majority (56%) of the respondents concerning elements of product innovation agreed that there are regular new product development forums in there firm. 72% of the respondents agreed that there firm manufacturers customized products. Only 23% of the respondents agreed that they have a research and development (R&D) department. The findings in Table 4.29 concerning elements of risk oriented management style indicate that majority of the respondents (65%) agreed that new product decisions are based on risk management forums. 57% of the respondents agreed that creative thinking is encouraged and rewarded. 55% of the respondents agreed that team work is a way of working. 60% of the respondents agreed that there is a great focus on speed, commercializing ideas quickly. Corporate brand indicate that majority of the respondents (60%) agreed that there logo is legible in a wide range of sizes, from a tiny web icon to a large banner at a trade show. 74% of the respondents agreed that the colors used by their company communicate many different messages and can sometimes be so iconic that there products can be recognized solely by a swatch of color. 63% of the respondents agreed that there company has a specific font that is used throughout the company's materials . Cha and Yu, (2014) analyzed 492 drug launches in 131 classes over a 27-year period (1986–2012). Their analysis showed that first-in-class players on average achieve a greater-than-fair market share hence overall, first-to-market players have a 6 percent market-share advantage over later entrants thus product innovation and having a research and development facilities are important for a company's sustainability.

4.8.3 Normality Test

The normality of data distribution was assessed by examining its skewness and kurtosis (Kline, 2005). A variable with an absolute skew-index value greater than 3.0 is extremely skewed while a kurtosis index greater than 8.0 is an extreme kurtosis (Kline,

2005). Cunningham (2008) stated that an index smaller than an absolute value of 2.0 for skewness and an absolute value of 7.0 is the least violation of the assumption of normality. The results of the normality test of the dependent variable indicated skewness and kurtosis in the range of -1 and +1 as shown in Table 4.31. This implies that the assumption of normality was satisfied. The results presented in Table 4.31 shows that Product Leadership had a skewness coefficient of -0.10 and its kurtosis coefficient being -0.075. Based on these it was concluded that data was normally distributed since they lie with the ± 1 range recommended by Myoung (2008).

Table 4.31: Product Leadership Normality Test

Product Leadership	Statistic	Std. Error
Mean	1.7873	.02624
Median	1.8041	
Std. Deviation	.30380	
Skewness	-.010	.209
Kurtosis	-.075	.416

To corroborate the skewness and kurtosis results, the graphical analysis results showed the line representing the actual data distribution closely follow the diagonal in the normal Q-Q plot as shown in Figure 4.10, suggesting normal distribution Hair, Tatham, Anderson and Black (2006). In Q-Q plot, or the normal probability plot, the observed value for each score is plotted against the expected value from the normal distribution,

where, a sensibly straight line suggests a normal distribution. By and large, if the points in a Q-Q plot depart from a straight line, then the assumed distribution is called into question (Aas & Haff, 2006).

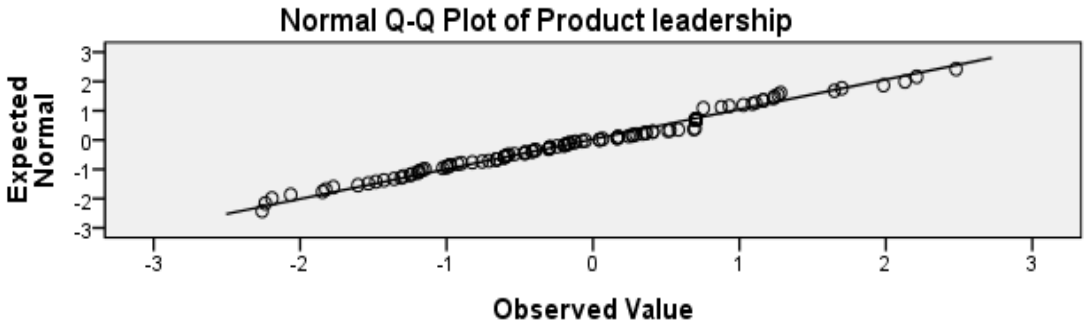

Figure 4.10: Q-Q Plot for Product Leadership

The dependent variable should be normally distributed because the study was using a multiple linear regression model, where the condition of normality must be satisfied. Figure 4.10 shows the normal Q-Q plot which indicates that the condition of normality for product leadership is satisfied. According to Shenoy and Madan (1994), for a variable to be normally distributed most of the points should lie on the theoretical Quantile line. The theoretical Quantile line of the data is fitted and from the Normal Q-Q Plot it indicates that the observed values versus the expected normal values are randomly distributed along the line of best fit indicating that the dependent variable is normally distributed.

4.8.4 Relationship between product leadership and the management of efficiency levels

Table 4.32: Product Leadership Correlation

Correlations

		Management Efficiency	Product leadership
Management Efficiency	Pearson Correlation	1	.267**
	Sig. (2-tailed)		.002
	N	134	134
Product leadership	Pearson Correlation	.267**	1
	Sig. (2-tailed)	.002	
	N	134	134

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.32 shows the correlation results which indicate that there was a positive and significant relationship between product leadership and management of efficiency levels in the pharmaceutical industry in Kenya. This reveals that any positive change in product leadership led to increased management of efficiency levels in the pharmaceutical industry in Kenya. The relationship has been illustrated by the correlation co-efficient of 0.267, implying a positive relationship between product leadership and management of efficiency levels in the pharmaceutical industry in Kenya. This was also evidenced by the p value of 0.002 which is less than that of critical value (0.05).

Regression analysis was conducted to empirically determine whether product leadership was a significant determinant of management of efficiency levels in pharmaceutical industry in Kenya. The coefficient of determination R^2 and correlation coefficient (r) shows that the degree of association between the independent variable and management of efficiency levels. The results of the linear regression indicate R^2= 0.127 and R= .357 as shown in Table 4.33. This is an indication that there is a significant relationship between independent variable product leadership and the dependent management of efficiency levels.

From the model summary Table 4.33 adjusted R^2 was 0.119 which indicates that product leadership can explain 12.7% of variations in management of efficiency levels. Therefore further research should be conducted to investigate these other factors that affect management of efficiency levels in pharmaceutical industry in Kenya

Table 4.33: Model Summary Product Leadership

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.357[a]	.127	.119	.77888

a. Predictors: (Constant), Product leadership
b. Dependent Variable: Management Efficiency

The overall model significance was presented in Table 4.34. An F statistic of 15.741 indicated that the overall model was significant as it was less than the critical F value of 15.741 with (1, 109) degrees of freedom at the P=0.05 level of significance. The

findings imply that product leadership was statistically significant in explaining management of efficiency levels in the pharmaceutical industry in Kenya.

Table 4.34: ANOVA Product Leadership

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.549	1	9.549	15.741	.000[b]
	Residual	65.518	108	.607		
	Total	75.067	109			

a. Dependent Variable: Management Efficiency

b. Predictors: (Constant), Product Leadership

Table 4.35: Coefficients Product Leadership

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.579	.139		4.165	.000
	Product leadership	.520	.131	.357	3.967	.000

a. Dependent Variable: Management Efficiency

The Product leadership coefficients are presented in Table 4.35. The results show that there is a positive significant influence of Product leadership on management of efficiency levels in the pharmaceutical industry in Kenya as the regression Coefficient of Product leadership is .520 which is positive and significant (p value is 0.000 which is less than 0.05) hence the study fails to reject the hypothesis and concludes that there is a positive significant influence of Product leadership on management of efficiency levels in the pharmaceutical industry in Kenya. The fitted equation is as shown below.

Y= Management Efficiency; X_3= Product leadership

$Y=.579+.520X_3$ Product leadership

These findings are in line with Petrova (2014) who found out that Continuous innovation is one of the pharmaceutical industry's most defining characteristics. Drug innovation as a business process requires savvy strategic, organizational, and managerial decisions. Behnke, Retterath, Sangster and Singh (2014) assert that in a changing industry, survival increasingly depends on leading in categories and distinctive business capabilities as winning companies all focused on building leadership in categories and capabilities as shown by leading value creators, including Roche in oncology and Novo Nordisk in diabetes care, generated at least 50% of their revenues from one therapeutic area or primary care. In two cases—Biogen Idec in neurology and Celgene in oncology—more than 90% of revenues came from a single therapeutic area.

4.9 Distribution Chain strategy

4.9.1 Factor Analysis

Factor analysis was conducted after successful testing of sampling adequacy and reliability using KMO coefficient and cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an eigenvalues of 1 or more indicates a

unique factor. Total Variance analysis indicates that the 3 statements on the variable distribution chain strategy concerning Just in time and Cycle time reduction can be factored into 1 factor. The total variance explained by the extracted factor is 46.24% as shown in Table 4.36.

Table 4.36: Just in Time KMO

Just in time	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
Scheduled preventive maintenance is considered an important part of production performance	0.52	.780	0.789	0.821	46.24%
Labor is not "kept busy" by building product when not needed at the next operation		.802		0.909	
Daily rate and level schedules are used and usually meet due dates		0.654		0.586	

Total Variance analysis indicates that the 4 statements of customer focused planning as shown in Table 4.37, can be factored into 1 factor. The total variance explained by the extracted factor is 40.63%. All the four factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. A factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Hair, Black, Babin, Anderson and Tatham (2006) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions

Table 4.37: Customer focused Planning KMO

Customer focused Planning	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
We have an ERP software that links customers' orders to manufacturing	0.554	0.665	0.75	0.485	40.63%
We measure forecast accuracy		.726		0.77	
We have a regular formal sales and operations planning meeting		.561		0.396	
We measure out of stocks (OOS) and act proactively to rectify the situation		.768		0.77	

Total Variance analysis indicates that the Price strategy has 4 statements and can be factored into 1 factor. The total variance explained by the extracted factor is 41.75% as shown in Table 4.38. All the four factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. A factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Hair, Black, Babin, Anderson and Tatham (2006) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

Table 4.38: Price strategy KMO

Price strategy	KMO	Factor loadings	Overall Cronbach's Alpha	Corrected Item-Total Correlation	Total variance explained
Product costs include scrap factor in bill of materials (BOM)	0.61	0.625	0.712	0.436	41.75%
Target costing is used during new product introduction		.725		0.305	
Purchase price variance is the primary measure of procurement effectiveness		.758		0.866	
Product costing is performed during introduction of a new product introduction		.610		0.459	

Table 4.36, Table 4.37 and Table 4.38 shows the factor loadings for just in time, Customer focused Planning and Price strategy. All the eleven factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. A factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Hair,Black, Babin,Anderson and Tatham (2006) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions.

4.9.2 Descriptive Analysis

i. Just in Time and Cycle Time Reduction

The study sought to examine the respondent's level of extent with the variable distribution chain strategy concerning Just in time and Cycle time reduction. The findings in Table 4.39 indicate that majority of the respondents (61%) agreed that scheduled preventive maintenance is considered an important part of production

performance with (Mean 1.44 and Std. Deviation 0.513). 56% of the respondents agreed that labor is not "kept busy" by building product when not needed at the next operation with Mean 1.70 Std. deviation 0.614. 55% of the respondents agreed that daily rate and level schedules are used and usually meet due dates with Mean 1.57 and Std. deviation 0.512.

Table 4.39: JIT Production Strategy

JIT production strategy.	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean	S D
Scheduled preventive maintenance is considered an important part of production performance	31	61	7	1	0	1.79	.626
Labor is not "kept busy" by building product when not needed at the next operation	37	56	6	1	0	1.70	.614
Daily rate and level schedules are used and usually meet due dates	44	55	1	0	0	1.57	.512

ii. Customer Focused Planning

The study sought to examine the respondent's level of extent with the variable distribution chain strategy concerning customer focused planning. The findings in Table 4.40 indicate that majority of the respondents (99%) agreed that they have an ERP software that links customers' orders to manufacturing with (Mean 1.60 and Std. Deviation 0.522). 78% of the respondents agreed that they measure forecast accuracy with Mean 1.82 Std. deviation 0.440. 63% of the respondents agreed that they have regular formal sales and operations planning meeting with Mean 1.79 and Std. deviation

0.576. 60% of the respondents agreed that they measure out of stocks (OOS) and act proactively to rectify the situation with Mean 1.73 and Std. deviation 0.590.

Table 4.40: Elements of Customer Focused Planning

Elements of customer focused planning	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean	S D
We have an ERP software that links customers' orders to manufacturing.	42	57	1	0	0	1.60	.522
We measure forecast accuracy.	20	78	2	0	0	1.82	.440
We have a regular formal sales and operations planning meeting.	29	63	8	0	0	1.79	.576
We measure out of stocks (OOS) and act proactively to rectify the situation.	34	60	5	1	0	1.73	.590

iii. Price Policy in Purchases

The study sought to examine the respondent's level of extent with the variable concerning variable distribution chain strategy concerning price policy in purchases. The findings in Table 4.41 indicate that majority of the respondents (52%) agreed that product costs include scrap factor in bill of materials (BOM)with (Mean 1.52 and Std. Deviation 0.501). 76% of the respondents agreed that target costing is used during new product introduction with Mean 1.82 Std. deviation 0.456. 66% of the respondents agreed that purchase price variance is the primary measure of procurement effectiveness with Mean 1.73 and Std. deviation 0.523. 63% of the respondents agreed that product costing is performed during introduction of a new product introduction with Mean 1.78 and Std. deviation 0.584 .

Table 4.41: Price policy in purchases

Price policy in purchases	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean	S D
Product costs include scrap factor in bill of materials (BOM)	48	52	0	0	0	1.52	.501
Target costing is used during new product introduction	21	76	3	0	0	1.82	.456
Purchase price variance is the primary measure of procurement effectiveness	31	66	4	0	0	1.73	.523
Product costing is performed during introduction of a new product introduction	30	63	6	1	0	1.78	.584

The fourth objective of the study was to determine the influence of distribution chain strategy on the management of efficiency levels in the pharmaceutical industry in Kenya. From the summary in Table 4.39, Table 4.40 and Table 4.41 above indicate that majority (61%) of the respondents concerning just in time and cycle time reduction agreed that scheduled preventive maintenance is considered an important part of production performance. 56% of the respondents agreed that Labor is not "kept busy" by building product when not needed at the next operation . 55% of the respondents agreed that daily rate and level schedules are used and usually meet due dates. concerning customer focused planning, the findings in Table 4.40 indicate that majority of the respondents (99%) agreed that they have an ERP software that links customers' orders to manufacturing. 78% of the respondents agreed that they measure forecast accuracy. 63% of the respondents agreed that they have regular formal sales and operations planning

meeting. 60% of the respondents agreed that they measure out of stocks (OOS) and act proactively to rectify the situation .Concerning price policy in purchases, the findings in Table 4.41 indicate that majority of the respondents (52%) agreed that product costs include scrap factor in bill of materials (BOM). 76% of the respondents agreed that target costing is used during new product introduction. 66% of the respondents agreed that purchase price variance is the primary measure of procurement effectiveness. 63% of the respondents agreed that product costing is performed during introduction of a new product introduction. Ebel, Larsen and Shah (2013) obsevered that by learning from the experience of industries such as fast-moving consumer goods (FMCG), the health-care sector could cut lead times while manufacturers, distributors, could carry significantly smaller inventories. Improving the health-care supply chain also could give millions of people around the world access to safer and more affordable health care, reduce costs, and provide new revenue sources for manufacturers thus changing the sector's inefficient supply chain may eliminate the dangers posed by counterfeiting and medication errors.

4.9.3 Normality Test

The normality of data distribution was assessed by examining its skewness and kurtosis (Kline, 2005). A variable with an absolute skew-index value greater than 3.0 is extremely skewed while a kurtosis index greater than 8.0 is an extreme kurtosis (Kline, 2005). Cunningham (2008) stated that an index smaller than an absolute value of 2.0 for skewness and an absolute value of 7.0 is the least violation of the assumption of normality. The results of the normality test of the dependent variable indicated skewness and kurtosis in the range of -1 and +1 as shown in table 4.48. This implies that the assumption of normality was satisfied. The results presented in Table 4.42 shows that distribution chain strategy had a skewness coefficient of -0.142 and its kurtosis coefficient being -0.430. Based on these it was concluded that data was normally distributed since they lie with the ± 1 range recommended by Myoung (2008).

Table 4.42: Distribution Chain Normality

Distribution chain strategy	Statistic	Std. Error
Mean	1.7656	.02637
Median	1.8422	
Std. Deviation	.30524	
Skewness	-.142	.209
Kurtosis	0.430	.416

To corroborate the skewness and kurtosis results, the graphical analysis results showed the line representing the actual data distribution closely follow the diagonal in the normal Q-Q plot as shown in Figure 4.11, suggesting normal distribution Hair, Tatham, Anderson and Black (2006). In Q-Q plot, or the normal probability plot, the observed value for each score is plotted against the expected value from the normal distribution, where, a sensibly straight line suggests a normal distribution. By and large, if the points in a Q-Q plot depart from a straight line, then the assumed distribution is called into question (Aas & Haff, 2006).

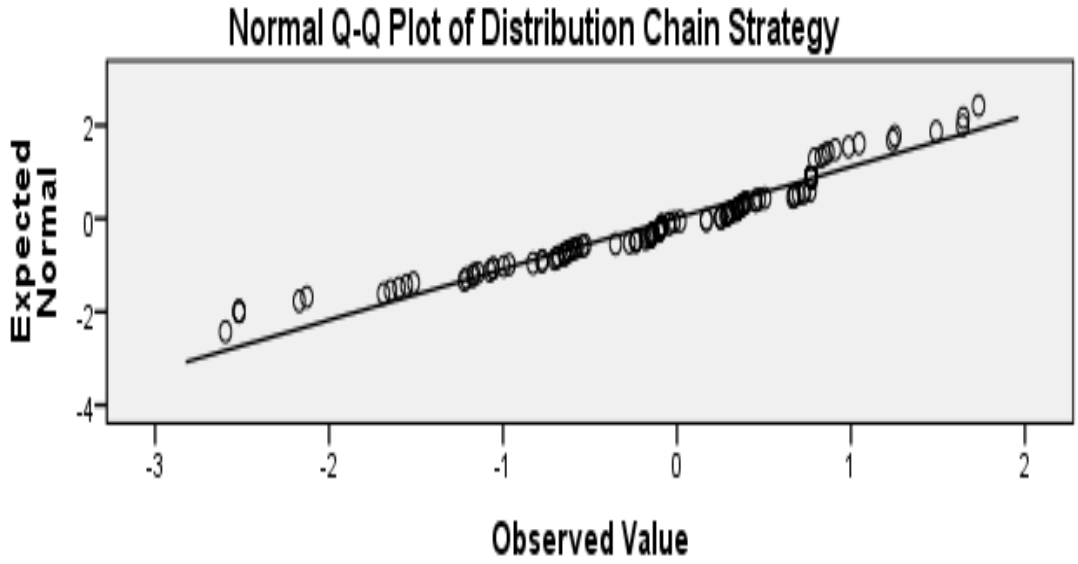

Figure 4.11: Q-Q Plot for Distribution Chain Strategy

The dependent variable should be normally distributed because the study was using a multiple linear regression model, where the condition of normality must be satisfied. Figure 4.11 shows the normal Q-Q plot which indicates that the condition of normality for distribution chain strategy is satisfied. According to Shenoy and Madan (1994), for a variable to be normally distributed most of the points should lie on the theoretical Quantile line. The theoretical Quantile line of the data is fitted and from the Normal Q-Q Plot it indicates that the observed values versus the expected normal values are randomly distributed along the line of best fit indicating that the dependent variable is normally distributed.

4.9.4 Relationship between distribution chain strategy and the Management of Efficiency levels

Table 4.43: Correlations Distribution Chain Strategy

Correlations

		Management Efficiency	Distribution
Management Efficiency	Pearson Correlation	1	.263**
	Sig. (2-tailed)		.002
	N	134	134
Distribution	Pearson Correlation	.263**	1
	Sig. (2-tailed)	.002	
	N	134	134

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.43 shows the correlation results which indicate that there was a positive and significant relationship between distribution chain strategy and management of efficiency levels in the pharmaceutical industry in Kenya. This reveals that any positive change in distribution chain strategy led to increased management of efficiency levels in the pharmaceutical industry in Kenya. The relationship has been illustrated by the correlation co-efficient of 0.263, implying a positive relationship between distribution chain strategy and management of efficiency levels in the pharmaceutical industry in Kenya. This was also evidenced by the p value of 0.002 which is less than that of critical value (0.05).

Regression analysis was conducted to empirically determine whether distribution chain strategy was a significant determinant of management of efficiency levels in

pharmaceutical industry in Kenya. The coefficient of determination $R^2$and correlation coefficient (r) shows that the degree of association between the independent variable and management of efficiency levels. The results of the linear regression indicate R^2= 0.133 and R= .364 as shown in Table 4.44. This is an indication that there is a significant relationship between independent variable distribution chain strategy and the dependent management of efficiency levels.

From the model summary Table 4.44 adjusted R^2 was 0.124 this indicates that distribution chain strategy can explain 13.3% of variations in management of efficiency levels. Therefore further research should be conducted to investigate these other factors that affect management of efficiency levels in pharmaceutical industry in Kenya.

Table 4.44: Model summary Distribution Chain Strategy

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.364[a]	.133	.124	.81248

a. Predictors: (Constant), Distribution
b. Dependent Variable: Management Efficiency

The overall model significance was presented in Table 4.45 with an F statistic of 5.717 indicating that the overall model was significant as it was less than the critical F value of 5.717 with (1, 109) degrees of freedom at the P=0.05 level of significance. The findings imply that distribution chain strategy was statistically significant in explaining management of efficiency levels in pharmaceutical industry in Kenya.

Table 4.45: ANOVA Distribution Chain Strategy

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.774	1	3.774	5.717	.019[b]
	Residual	71.293	108	.660		
	Total	75.067	109			

a. Dependent Variable: Management Efficiency

b. Predictors: (Constant), Distribution

Table 4.46: Coefficients Distribution Chain Strategy

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.773	.132		5.856	.000
	Distribution	.409	.171	.364	2.391	.019

a. Dependent Variable: Management Efficiency

The distribution chain strategy coefficients are presented in Table 4.46. The results show that there is a positive significant influence of distribution chain strategy on management of efficiency levels in the pharmaceutical industry in Kenya as the regression Coefficient of distribution chain strategy is .409 which is positive and

significant (p value is 0.019 which is less than 0.05) hence the study fails to reject the hypothesis and concludes that there is a positive significant influence of distribution chain strategy on management of efficiency levels in the pharmaceutical industry in Kenya. The fitted equation is as shown below.

Y= Management Efficiency; X_4= distribution chain strategy

Y=.773+.409X_4 distribution chain strategy

These findings are in line with the report prepared by Chakravarty (2014). who observed that pharmaceutical industries need to shift from distributing larger pallet quantities to wholesalers to distributing smaller package-to-pallet quantities across a more diverse customer base (Keah-Choon et al., 2005) posit that to achieve superior customer service levels at competitive prices, specific measures must be adopted for the supply chain itself, allowing trading partners to adjust their specific performance, to further align with supply chain objectives.

4.10 Management of Efficiency Levels

The study sought to determine the influence of value disciplines strategy on the management of efficiency levels in the pharmaceutical industry in Kenya. This section presents the results for the dependent variable which is management of efficiency levels in the pharmaceutical industry in Kenya.

4.10.1 Factor Analysis

Factor analysis was conducted after successful testing of sampling adequacy and reliability using KMO coefficient and cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an eigenvalues of 1 or more indicates a unique factor. Total Variance analysis indicates that the 2 statements on management of

efficiency levels can be factored into 1 factor. The total variance explained by the extracted factor is 60.96% as shown in Table 4.47.

Table 4.47: Product Quality KMO

Product Quality.	**KMO**	**Factor loadings**	**Overall Cronbach's Alpha**	**Corrected Item-Total Correlation**	**Total variance explained**
Quality Management has a critical role in the success of the business	0.5	.781	0.785	0.775	60.96%
There are defined specification limits for Critical to Quality Product Attributes		.781		0.775	

Table 4.47 shows the factor loadings for management of efficiency levels. All the two factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. A factor loading equal to or greater than 0.4 is considered adequate. This is further supported by Hair, Black, Babin, Anderson and Tatham (2006) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions

4.10.2 Descriptive Analysis

The study sought to examine the respondent's level of extent with the dependent variable management of efficiency levels.

The summary of the findings in Table 4.48 indicate that majority of the respondents (60%) agreed that profit was within expectations. This is in line with the report by Simonetti, Clark and Wamae (2016) who concluded that Kenya's pharmaceutical production grew continuously from 2007 to 2013. In that period total production of

tablets, capsules, liquid preparations for oral use and creams/ointments alone increased from US$34.1 million to US$154 million.

Table 4.48: Profitability for Four Years

Overall level of profitability for the last four years		
	Frequency	**Percentage**
profit above expectation	2	1
profit within expectations	80	60
profit below expectations	6	4
Break even within expectations	45	34
Loss making bearable	1	1
Total	134	100

The summary of the findings in Table 4.49 indicate that turnover was within expectations at (99%).

This is in line with the report by Simonetti, Clark and Wamae, (2016) who concluded that Kenya's pharmaceutical production grew continuously from 2007 to 2013. In that period total production of tablets, capsules, liquid preparations for oral use and creams/ointments alone increased from US$34.1 million to US$154 million.

Table 4.49: Turnover Expectations

rating turnover	Frequency	Percentage
turn over above expectation	2	1
turn over within expectations	132	99
Total	134	100

Most respondents felt that the overall performance peaked between 2014- 2015 at (95%) as shown in Table 4.50. This is in line with the report by Simonetti, Clark and Wamae, (2016) who concluded that Kenya's pharmaceutical production grew continuously from 2007 to 2013. In that period total production of tablets, capsules, liquid preparations for oral use and creams/ointments alone increased from US$34.1 million to US$154 million.

Table 4.50: Performance

Performance / Year	Increase (%)	Neutral (%)	Decrease (%)
Perf 2012	73	27	0
Perf 2013	78	22	0
Perf 2014	95	5	0
Perf 2015	95	5	0

Most respondents (100%) felt that there was an in increase of assets as shown in Table 4.51.

This is in line with the report by Simonetti, Clark and Wamae, (2016) who concluded that Kenya's pharmaceutical production grew continuously from 2007 to 2013. In that period total production of tablets, capsules, liquid preparations for oral use and creams/ointments alone increased from US$34.1 million to US$154 million.

Table 4.51: Assets

Asset / Year	Increase (%)	Neutral (%)	Decrease (%)
Asset 2012	49	46	5
Asset 2013	59	41	0
Asset 2014	100	0	0
Asset 2015	100	0	0

90-100% of the respondents felt sales grew between the years 2014-2015 as shown in Table 4.52.

This is in line with the report by Simonetti, Clark and Wamae, (2016) who concluded that Kenya's pharmaceutical production grew continuously from 2007 to 2013. In that period total production of tablets, capsules, liquid preparations for oral use and creams/ointments alone increased from US$34.1 million to US$154 million.

Table 4.52: Sales

Sales / Year	Increase %	Neutral %	Decrease %
Sales 2012	85	15	0
Sales 2013	95	5	0
Sales 2014	100	0	0
Sales 2015	90	10	0

80% of the respondents felt that there was customer's growth in 2015 as shown in Table 4.53.

This is in line with the report by Simonetti, Clark and Wamae, (2016) who wrote that Kenya's pharmaceutical production grew continuously from 2007 to 2013. In that period total production of tablets, capsules, liquid preparations for oral use and creams/ointments alone increased from US$34.1 million to US$154 million. This is also reflected as market share. Armstrong & Greene, (2007) refer to market share is a measure of the consumers' preference for a product over other similar products. A higher market share usually means greater sales, lesser effort to sell more and a strong barrier to entry for other competitors.

Table 4.53: Customers

Customer / Year	Increase %	Neutral %	Decrease %
Cust 2012	49	51	0
Cust 2013	63	37	0
Cust 2014	93	7	0
Cust 2015	80	20	0

83%-73% of the respondents for the period 2014-2015 felt that there was an increase of Profit growth rate as shown in table 4.54.

Table 4.54: Profit Trend

Profit / Year	Increase %	Neutral %	Decrease %
Profit 2012	73	20	7
Profit 2013	93	7	0
Profit 2014	83	0	17
Profit 2015	73	10	17

78% of the respondents felt that expenses grew in the period 2014-2015; as shown in Table 4.55.

This is in line with the report by Simonetti, Clark and Wamae, (2016) who concluded that Kenya's pharmaceutical production grew continuously from 2007 to 2013. In that period total production of tablets, capsules, liquid preparations for oral use and creams/ointments alone increased from US$34.1 million to US$154 million.

Table 4.55: Expenses Trend

Expenses / Year	Increase %	Neutral %	Decrease %
Exp 2012	49	51	0
Exp 2013	56	44	0
Exp 2014	78	22	0
Exp 2015	78	22	0

Most respondents between the years 2012-2015, felt that their firms were continuously introducing new products as evidenced by increasing percentage trend between 39-100%. This is in line with the report by Simonetti, Clark and Wamae, (2016) who observed that Kenya's the composition of products in Kenyan pharmaceutical industry has changed over these years, with creams and ointments becoming more popular, although virtually all product types have steadily increased with the possible exception of capsules.

Table 4.56: New Products

Products / Year	Increase %	Neutral %	Decrease %
Prod 2012	39	61	0
Prod 2013	51	49	0
Prod 2014	100	0	0
Prod 2015	100	0	0

4.10.3 Normality Test

The normality of data distribution was assessed by examining its skewness and kurtosis (Kline, 2005). A variable with an absolute skew-index value greater than 3.0 is extremely skewed while a kurtosis index greater than 8.0 is an extreme kurtosis (Kline, 2005). Cunningham (2008) stated that an index smaller than an absolute value of 2.0 for skewness and an absolute value of 7.0 is the least violation of the assumption of normality. The results of the normality test of the dependent variable indicated skewness

and kurtosis in the range of -1 and +1 as shown in Table 4.57. This implies that the assumption of normality was satisfied. The results presented in Table 4.57 shows that management of efficiency levels had a skewness coefficient of -0.642 and its kurtosis coefficient being -0.331. Based on these it was concluded that data was normally distributed since they lie with the ± 1 range recommended by Myoung (2008).

Table 4.57: Normality of Management of Efficiency Levels

Management of efficiency levels		Statistic	Std. Error
	Mean	3.8528	.09964
	Median	3.5587	
	Std. Deviation	1.15343	
	Skewness	.642	.209
	Kurtosis	-.331	.416

To corroborate the skewness and kurtosis results, the graphical analysis results showed the line representing the actual data distribution closely follow the diagonal in the normal Q-Q plot as shown in Figure 4.12, suggesting normal distribution Hair, Tatham, Anderson and Black (2006). In Q-Q plot, or the normal probability plot, the observed value for each score is plotted against the expected value from the normal distribution, where, a sensibly straight line suggests a normal distribution. By and large, if the points in a Q-Q plot depart from a straight line, then the assumed distribution is called into question (Aas & Haff, 2006).

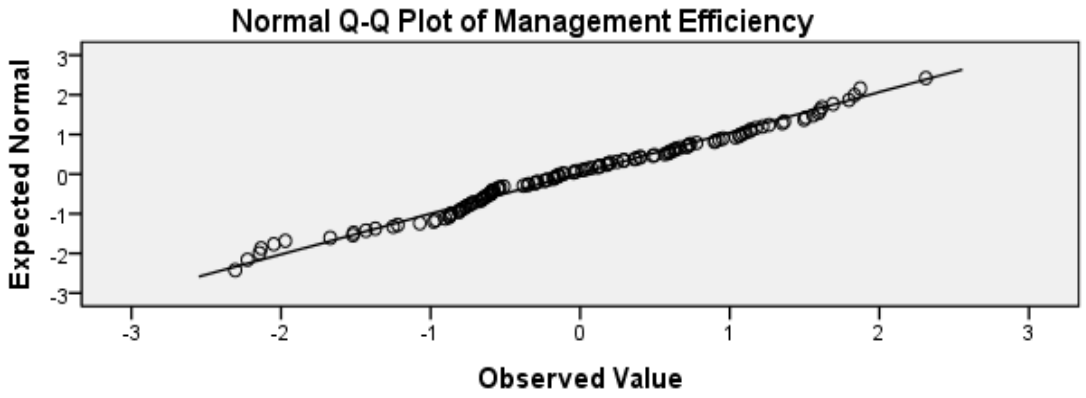

Figure 4.12: Q-Q Plot Management of Efficiency

The dependent variable should be normally distributed because the study was using a multiple linear regression model, where the condition of normality must be satisfied. According to Shenoy and Madan (1994), for a variable to be normally distributed most of the points should lie on the theoretical Quantile line. The theoretical Quantile line of the data is fitted and from the Normal Q-Q Plot it indicates that the observed values versus the expected normal values are randomly distributed along the line of best fit indicating that the dependent variable is normally distributed.

4.10.4 Multicollinearity check

Multicollinearity is the undesirable situation where the correlations among the independent variables are strong. In other words, multicollinearity misleadingly bloats the standard errors. Thus, it makes some variables statistically insignificant while they should be less significant. Tolerance of a respective independent variable is calculated from 1 - R2. A tolerance with a value close to 1 means there is little multicollinearity, whereas a value close to 0 suggests that multicollinearity may be a threat (Belsley, Kuh, and Welsch, 1980) . The reciprocal of the tolerance is known as Variance Inflation Factor (VIF). Equally, the VIF measures multicollinearity in the model in such a way that if no two independent variables are correlated, then all the VIF values will be 1, that

is, there is no multicollinearity among factors. But if VIF value for one of the variables is around or greater than 5, then there is multicollinearity associated with that variable. Table 4.58 indicates the test results for multicollinearity, using both the VIF and tolerance. With VIF values being less than 5, it was concluded that there was no presence of multicollinearity in this study. The VIF shows us how much the variance of the coefficient estimate is being inflated by multicollinearity

Table 4.58: Multicollinearity check

	Collinearity Statistics	
Variables	Tolerance	VIF
Operational Excellence	.639	1.565
Customer Intimacy	.690	1.449
Product leadership	.626	1.598
Distribution Chain Strategy	.679	1.472

4.10.5 Heteroscedasticity Test

Heteroscedasticity happens when the variance of the errors varies across observations (Long & Ervin, 2000). When the errors are heteroscedasticity, the OLS estimator remains unbiased, but becomes inefficient, and essentially, the usual procedures for hypothesis testing are no longer appropriate. In this study the Breusch-Pagan / Cook-Weisberg test was used to test for heteroscedasticity. Breusch-Pagan / Cook-Weisberg tests the null hypothesis that the error variances are all equal versus the alternative that the error variances are a multiplicative function of one or more variables (Sazali,Haslinda, Jegak & Raduan, 2009) . Table 4.59 shows the result of the test by use of the Breusch-Pagan / Cook-Weisberg test. A large chi-square value, greater than 9.21

(Sazali et al., 2009), would indicate that heteroscedasticity was present. Table 4.59 below shows the result of the test by use of the Breusch-Pagan, the chi-square value was small, that is, 0.888, indicating heteroscedasticity was not a problem.

Ho: Constant variance

Variables: Distribution Chain strategy, Customer Intimacy, Operational Excellence, Product leadership

Table 4.59: Heteroscedasticity test

Ho	Variables	Chi2 **(4)**	Prob > Chi2
Constant Variance	Distribution Chain strategy, Customer Intimacy, Operational Excellence, Product leadership	0.888	0.926

4.11 Test of Operational Excellence Hypothesis

The hypothesis states that there is a significant positive influence of operational excellence on management of efficiency levels in the pharmaceutical industry in Kenya.

To test the hypothesis linear multiple regression is done which gives outputs given in Table 4.60, Table 4.61 and Table 4.62. The value of R = 0.380 which shows that the relationship between operational excellence and management of efficiency levels in the pharmaceutical industry in Kenya is strong and positive. Coefficient of determination is 0.145 which implies that 14.5% changes in management of efficiency can be explained by variation in operational excellence.

Table 4.60: O.E Hypothesis Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.380[a]	.145	.137	.80707

a. Predictors: (Constant), Operational Excellence
b. Dependent Variable: Management Efficiency

The ANOVA Table 4.61 shows F value = 7.247, alpha (α) = 0.01 and P value = 0.008. F value falls within the rejected region. Since α is > than P value, and we fail to reject the Alternative hypothesis.

Table 4.61: O.E Hypothesis ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.720	1	4.720	7.247	.008[b]
	Residual	70.347	108	.651		
	Total	75.067	109			

a. Dependent Variable: Management Efficiency
b. Predictors: (Constant), Operational Excellence

Table 4.62: O.E Hypothesis Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.280	.108		2.604	.011
	Operational Excellence	.477	.177	.380	2.691	.008

a. Dependent Variable: Management Efficiency

There is a positive significant influence of operational excellence on management of efficiency levels in the pharmaceutical industry in Kenya as the regression Coefficient of Operational Excellence is .477 which is positive and significant (p value is 0.008 which is less than 0.05) hence the study fails to reject the hypothesis and concludes that there is a positive significant influence of operational excellence on management of efficiency levels in the pharmaceutical industry in Kenya

4.12 Test of Customer Intimacy Hypothesis

The hypothesis states that there is a significant positive influence of customer intimacy on management of efficiency levels in the pharmaceutical industry in Kenya.

To test the hypothesis linear multiple regression is done which gives outputs given in Table 4.63, Table 4.64 and Table 4.65. The value of R = 0.470 which shows that the relationship between customer intimacy and management of efficiency levels in the pharmaceutical industry in Kenya is strong and positive. Coefficient of determination is 0.221 which implies that 22.1% changes in management of efficiency can be explained by variation in customer intimacy.

Table 4.63: Customer Intimacy Hypothesis

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.470[a]	.221	.214	.73583

a. Predictors: (Constant), Customer Intimacy

b. Dependent Variable: Management Efficiency

The ANOVA Table 4.64 shows F value = 30.641, alpha (α) = 0.01 and P value = 0.000. F value falls within the rejected region. Since α is > than P value, and we fail to reject the hypothesis.

Table 4.64: Customer Intimacy Hypothesis

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.591	1	16.591	30.641	.000[b]
	Residual	58.477	108	.541		
	Total	75.067	109			

a. Dependent Variable: Management Efficiency
b. Predictors: (Constant), Customer Intimacy

Table 4.65: Customer Hypothesis Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.425	.144		2.952	.004
	Customer Intimacy	.725	.131	.470	5.535	.000

a. Dependent Variable: Management Efficiency

There is a positive significant influence of customer intimacy on management of efficiency levels in the pharmaceutical industry in Kenya as the regression Coefficient of Customer Intimacy is 0.725 as shown in Table 4.65 which is positive and significant (p value is 0.000 which is less than 0.05) hence the study fails to reject the hypothesis and concludes that there is a positive significant influence of customer intimacy on management of efficiency levels in the pharmaceutical industry in Kenya. A customer-centric strategy makes customer relationships a major dimension for driving business Performance, along with shareholder value, employee satisfaction and corporate stewardship (Brückner, Schulz & Wiedenhöft, 2009).

4.13 Test of Product Leadership Hypothesis

The hypothesis states that there is a significant positive influence of Product leadership on management of efficiency levels in the pharmaceutical industry in Kenya.

To test the hypothesis linear multiple regression is done which gives outputs given in Table 4.66, Table 4.67 and Table 4.68. The value of R = 0.357 which shows that the relationship between Product leadership and management of efficiency levels in the

pharmaceutical industry in Kenya is strong and positive. Coefficient of determination is 0.127 which implies that 12.7% changes in management of efficiency can be explained by variation in Product leadership.

Table 4.66: Product Leadership Hypothesis

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.357[a]	.127	.119	.77888

a. Predictors: (Constant), Product leadership
b. Dependent Variable: Management Efficiency

The ANOVA Table 4.67 shows F value = 15.741, alpha (α) = 0.01 and P value = 0.000. F value falls within the rejected region. Since α is > than P value, and we fail to reject the hypothesis

Table 4.67: Product Leadership Hypothesis

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.549	1	9.549	15.741	.000[b]
	Residual	65.518	108	.607		
	Total	75.067	109			

a. Dependent Variable: Management Efficiency
b. Predictors: (Constant), Product Leadership

Table 4.68: Product Leadership Hypothesis

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.579	.139		4.165	.000
	Product leadership	.520	.131	.357	3.967	.000

a. Dependent Variable: Management Efficiency

There is a positive significant influence of Product leadership on management of efficiency levels in the pharmaceutical industry in Kenya as the regression Coefficient of Product leadership is 0.520 as shown in Table 4.68 which is positive and significant (p value is 0.000 which is less than 0.05) hence the study fails to reject the hypothesis and concludes that there is a positive significant influence of Product leadership on management of efficiency levels in the pharmaceutical industry in Kenya.

4.14 Test of Distribution Chain Strategy Hypothesis

The hypothesis states that there is a significant positive influence of distribution chain strategy management of efficiency levels in the pharmaceutical industry in Kenya.

To test the hypothesis linear multiple regression is done which gives outputs given in Table 4.69, Table 4.70 and Table 4.71. The value of R = 0.364 which shows that the relationship between distribution chain strategy and management of efficiency levels in the pharmaceutical industry in Kenya is strong and positive. Coefficient of determination is 0.133 which implies that 13.3% changes in management of efficiency can be explained by variation in distribution chain strategy.

Table 4.69: Distribution Chain Hypothesis

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.364[a]	.133	.124	.81248

a. Predictors: (Constant), Distribution
b. Dependent Variable: Management Efficiency

The ANOVA Table 4.70 shows F value = 5.717, alpha (α) = 0.01 and P value = 0.019. F value falls within the rejected region. Since α is > than P value, and we fail to reject the hypothesis

Table 4.70: D. C Hypothesis ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.774	1	3.774	5.717	.019[b]
	Residual	71.293	108	.660		
	Total	75.067	109			

a. Dependent Variable: Management Efficiency
b. Predictors: (Constant), Distribution

Table 4.71: D. C Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.773	.132		5.856	.000
	Distribution	.409	.171	.364	2.391	.019

a. Dependent Variable: Management Efficiency

There is a positive significant influence of distribution chain strategy management of efficiency levels in the pharmaceutical industry in Kenya as the regression Coefficient of distribution chain strategy is 0.409 as shown in Table 4.71 which is positive and significant (p value is 0.019 which is less than 0.05) hence the study fails to reject the hypothesis and concludes that there is a positive significant influence of distribution chain strategy management of efficiency levels in the pharmaceutical industry in Kenya.

4.15 Multivariate Regression

A multiple regression analysis was conducted to investigate the joint causal relationship between the independent variables and dependent variable (Management of Efficiency). This is represented by the overall model $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$

The coefficient of determination R square and correlation coefficient (r) shows the degree of association between the independent variables and management of efficiency levels. The results of the multiple regression indicate $R^2 = .611$ and $R = .781$ as shown in Table 4.72. This is an indication that there is a strong relationship between independent variables and the dependent variable management of efficiency levels in the pharmaceutical industry in Kenya. From the model summary Table 4.72 adjusted R^2 was

0.607; this indicates that value disciplines strategy practices explain 60.7% of variations in management of efficiency levels in the pharmaceutical industry in Kenya.

Table 4.72: M. R Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.781[a]	.611	.607	.73713

a. Predictors: (Constant), Distribution, Customer Intimacy, Product leadership, Operational Excellence
b. Dependent Variable: Management Efficiency

The overall model significance was presented in Table 4.73. An F statistic of 8.288 indicated that the overall model was significant as it was larger than the critical F value with (4, 109) degrees of freedom at the P=0.05 level of significance. The findings imply that value disciplines strategy practices were statistically significant in explaining management of efficiency levels in the pharmaceutical industry in Kenya.

Table 4.73: M. R ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.014	4	4.504	8.288	.000[b]
	Residual	57.053	105	.543		
	Total	75.067	109			

a. Dependent Variable: Management Efficiency
b. Predictors: (Constant), Distribution, Customer Intimacy, Product leadership, Operational Excellence

Regression results in Table 4.74 indicated that the relationship between Operational Excellence and management of efficiency levels was positive and significant (b1=0.487, p value, 0.000). Results further indicated that Customer Intimacy had a positive and significant relationship with management of efficiency levels (b1=0.503, p value, 0.000). This implies that an increase in Customer Intimacy by 1 unit leads to an increase efficiency levels in the pharmaceutical industry by 0.503 units.

The results further indicated that the relationship between Product leadership and product management of efficiency levels was positive and significant (b1= 0.432, p value, 0.001). This implies that an increase in product leadership by 1 unit leads to an increase of efficiency levels in the pharmaceutical industry by 0.432 units. The results further indicated that the relationship between Distribution Chain Strategy and management of efficiency levels was positive and significant (b1= 0.355, p value, 0.003). This implies that an increase in distribution chain strategy by 1 unit leads to an increase of efficiency levels in the pharmaceutical industry by 0.355 units.

Table 4.74: M. R Coefficients

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.883	.136		6.469	.000
Operational Excellence	.487	.133	.292	3.663	.000
Customer Intimacy	.503	.115	.306	4.381	.000
Product leadership	.432	.125	.266	3.442	.001
Distribution Chain Strategy	.355	.115	.230	3.088	.003

a. Dependent Variable: Management Efficiency

After the analysis the model arrived at was as follows;

$Y=.883+.487X_1+.503X_2+.432X_3+.355X_4+ Ɛ$

Management Efficiency = 0.883 + 0.487 Operational Excellence + 0.503 Customer Intimacy+ 0.432 Product leadership + 0.355 Distribution chain strategy

The Y- intercept is 0.883 which is the predicted value of the management of efficiency levels in the pharmaceutical industry when all the others variables are 0. The other coefficients tell about the relationship between independent and dependent variables.

This implies that an increase in operational excellence by 1 unit leads to an increase of management of efficiency levels in the pharmaceutical industry by 0.487 units when holding other determinant variables constant. The results agree with studies by (Bellm, 2015; Singh, 2005) who confirm that operational excellence improves efficiency in the pharmaceutical manufacturers in emerging markets. An increase in customer intimacy by 1 unit leads to an increase of management of efficiency levels in the pharmaceutical industry by 0.503 units when holding other determinant variables constant. The results agree with studies by Concannon (2008); Amofah and Ijaz (2005) who confirm that customer relationship management improves efficiency in the pharmaceutical industry. Likewise an increase in product leadership by 1 unit leads to an increase of management of efficiency levels in the pharmaceutical industry by 0.432 units when holding other determinant variables constant. Frost and Sullivan (2014); Matikainen (2015); Atterfors and Farneman (2012); Raja and Sambandan (2015); Munene (2016) affirm that product leadership, improves efficiency in the pharmaceutical industry. Likewise an increase in distribution chain strategy by 1 unit leads to an increase of management of efficiency levels in the pharmaceutical industry by 0. 0.355 units when holding other determinant variables constant. There is a high degree of correlation (linear dependency) among independent variables. Similar results were obtained in the study by (Schöpperle, 2013; Campos & Galve, 2011; Shetu, 2014; Dickov, 2011; Iacocca, 2011) who confirm that distribution strategy is vital for pharmaceutical industry and increases efficiency.

4.16 Overall Conceptual Framework

Arising from the optimal model derived from the inferential analysis an optimal conceptual frame work corresponds with the proposed frame work shown in Figure 2.1 in chapter two. All the hypotheses were fully supported.

4.17 Discussion of Research Findings

The result on the determination of the influence of value disciplines strategy on the management of efficiency levels in the pharmaceutical industry in Kenya has shown a relatively strong positive relationship. The overall model was found to have a fit with a high Pearson‘s correlation coefficient. The research found that some strategies were more popular than others, but all the four strategies: operational excellence, customer intimacy, and product leadership and distribution chain strategy have a strong combined positive correlation.

There is a significant positive influence of operational excellence on management of efficiency levels in the pharmaceutical industry in Kenya. If the firm’s cost of sale or cost of raw material is lower than its competitors, then the firm can offer lower prices, higher quality, or both (Spulber, 2009). Operationally excellent companies deliver a combination of quality, price, and ease of purchase that no one else in their market can match. They are not product or service innovators, nor do they cultivate one-to -one relationships with customers. They execute extraordinarily well, and their proposition to customers is guaranteed low price or hassle-free service, or both. Supply chains and basic services that have been optimized and streamlined to minimize costs and hassle. Operations that are standardized, simplified, tightly controlled, and centrally planned, leaving few decisions to the discretion of rank-and-file employees. Management systems that focus on integrated, reliable, high-speed transactions and compliance to norms. A culture that abhors waste and rewards efficiency. Operational excellence originates in the 20th century and its main focus is standardization Carvalho, Sampaio, Rebentisch,

Carvalho and Saraiva, (2017). Russell (2005) defines standardization as "The process of articulating and implementing technical knowledge". Within organizations, standardization can create "intra-firm and inter-firm efficiencies." This is attained by facilitating economies of scale and promoting interoperability between complementary products (Russell, 2005). Standardization led to specialization in jobs and operations. Management planned the tasks and delivered clear instructions on how to perform them (Taylor, 1911).

The study reported a significant positive influence of customer intimacy on management of efficiency levels in the pharmaceutical industry in Kenya. A company that delivers value via customer intimacy builds bonds with customers like those between good neighbors. Customer-intimate companies don't deliver what the market wants but what a specific customer wants. The customer-intimate company makes a business of knowing the people it sells to and the products and services they need. It continually tailors its products and services and does so at reasonable prices. Customer-intimate companies don't pursue transactions; they cultivate relationships. They are adept at giving the customer more than he or she expects. By constantly upgrading offerings, customer-intimate companies stay ahead of customers' rising expectations - expectations that, by the way, they themselves create. Again, the operating model of the customer-intimate company is quite different from that of businesses pursuing other disciplines. Its features include, an obsession with helping the customer understand exactly what's needed and ensuring the solution gets implemented properly. A business structure that delegate's decision-making to employees who are close to the customer. Management systems that are geared toward creating results for carefully selected and nurtured clients. A culture that embraces specific rather than general solutions and thrives on deep and lasting client relationships. The theme of customization, or personalization, is growing strong in the industry—particularly with the future of personalized medicine. They need to add flexibility to product design and packaging. Pharmaceutical companies should manage

product demand volatility in low-margin drugs by implementing pack-to-order strategies (Ehrhardt, Hutchens & Higgin, 2012).

The study reported a significant positive influence of Product leadership on management of efficiency levels in the pharmaceutical industry in Kenya. The study findings collaborate with brand perceived quality concept and its effectiveness which has received considerable attention and acceptance by both marketing scholars and practitioners such as Hooley, Nicoulaud, and Piercy (2011). Competition in the pharmaceutical industry occurs on the development of new drugs, and the sale of drugs (Aitken, Berndt & Cutler, 2009). Companies compete to be the first in the market with a drug to meet an unmet medical need or with a drug that is safer or more effective at treating a condition or disease than current treatments. The first in the market will often gain a substantial first-mover advantage, largely as a result of establishing standard physician prescribing practices. Pharmaceutical companies also compete in marketing of drugs. Several different market participants are involved today in purchasing pharmaceuticals, which may complicate market definition analyses. The competitive environment is dynamic and continually evolving. As soon as one company augments its product to gain a competitive advantage, its competitors seek to nullify the threat by adding a similar attribute to their own product (Mitra, 2006). Companies pursuing product leadership continually push products into the realm of the unknown, the untried, or the highly desirable. Reaching that goal requires that they challenge themselves in three ways. First, they must be creative. More than anything else, being creative means recognizing and embracing ideas that may originate anywhere inside the company or out. Second, they must commercialize their ideas quickly. To do so, all their business and management processes are engineered for speed. Third and most important, they must relentlessly pursue ways to leapfrog their own latest product or service. If anyone is going to render their technology obsolete, they prefer to do it themselves. Product leaders do not stop for self-congratulation. They are too busy raising the bar. Product leaders have a vested interest in protecting the entrepreneurial environment that they

have created. To that end, they hire, recruit, and train employees in their own mold. However, the Kenyan pharmaceutical industry research and development is in its infancy (Simonetti,Clark & Wamae, 2016). The main features is a focus on the core processes of invention, product development, and market exploitation. A business structure that is ever-changing to adjust to the entrepreneurial initiatives and directions that characterize working in unexplored territories, Management systems that are results-driven, that measure and reward new products success, and that don't punish the experimentation needed to get there and a culture that encourages individual imagination, accomplishment, out-of-the- box thinking, and a mind-set driven by the desire to create the future. Product innovation is broadly seen as an essential component of competitiveness, embedded in the organizational structure, processes, products, operations, and services within a firm.

The research finding reported a significant positive influence of distribution chain strategy on the management of efficiency levels in the pharmaceutical industry in Kenya. These findings collaborate with Deep , Singh, Mand and Singh (2003) who view that Lean logistics is focused on eliminating waste from the internal and external supply chains and this is achieved by reducing excessive inventories, shortening replenishment times and eliminating unnecessary costs. Lean supply chains are designed to pull, not push and to replenish inventory levels. It further mentions that lean operations need to be responsive to market changes. They need to be agile and able to quickly change processes and products as changes emerge from operations and market demand.

These findings collaborate with Brew,Kwabena and Addae-Boateng, (2013); Ruston, Croucher and Baker (2010) who concluded that distribution is the only element in the marketing mix that makes the product of the manufacturer available to the customers. No matter how excellent the other elements of the marketing mix are, a firm cannot succeed in today's competitive world without good distribution channel strategy; that is the product of the manufacturer should be at the right place at the right time. These findings collaborate with the report by Yadav (2012) who wrote that Kenya medical

supply agency needs to build triple-A in its supply chain that is agility in the operations at Kenya medical supply agency so as to provide it the ability to react speedily to unpredictable changes in demand or supply as agility will guarantee that products are always available and service to counties is not compromised, align its interests and objectives with those of the counties and be ready to change and adapt its internal structure as market conditions change.

One of the ways of improving efficiency on manufacturing firms is to improve logistics performance. That is why if manufacturing firms needed to become efficient and flexible in their manufacturing methods, they need different strategies to manage the flow of goods from the point of production to the end user, Awino (2011); Pride and Ferrel, (2006). Distribution of pharmaceutical products has emerged as an important element for reconfiguration as it occupies a large percentage of total products costs (Yadav, Smith & Hanson, 2012). Organizations are constantly striving for better results, influence and competitive advantage.

Among the common measures of the organizational performance are efficiency Bounds, Dobbins and Fowler, (1995); Robbins (2000) which relates to the optimal use of resources to achieve the desired output (Chavan, 2009). Some researchers suggest measuring managerial efficiency as the ratio of additional profit company from a decision to the cost of the decision (Gorshkova, 2003; Svirina, 2010; Vasilyev, Parachina & Ushvitsky, 2007). A number of researchers explore the relation between managerial efficiency and different factors that influencing it. For example, Klein, (2002) finds that more independent board members have higher quality accruals. Huang, Rajgopal and Zang, (2006) examine the relationship between earnings and CEO reputation while Bertrand and Schoar (2003) estimates the influence of management style on managerial efficiency.

Farole and Mukim (2013) concludeded that only 10 percent of manufacturing firms in Kenya utilize more than 90 percent of installed capacity, indicating large scope for improvements in firm efficiency. The same sentiments are shared by Gaye (2014) who reported that manufacturing performance over the past seven years in Kenya was disappointing, with manufacturing growth (3.1 percent) significantly lagging overall economic growth (5.0 percent). Kenya needs to increase the competitiveness of the manufacturing sector so that it contributes more to growth and employment. Over a long period, the relative size of the sector has been stagnant, it has lost market share abroad, and it is struggling with structural inefficiencies. Dimitroff (2011) however suggests in his article “Why is Treacy and Wiersema's book, Disciplines of Market Leaders, still relevant?” by stating that a company can ever excel / lead a market in only one of the 3 dimensions, and therefore must make a critical strategic choice. Too many (good) companies struggle because they try to lead in all three disciplines, which requires conflicting capabilities. Some suggested adopting a 'vector' model whereby the competitive focus of a company is a composite sum with 'projections' (weights) of all the disciplines and distribution chain strategy.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of major findings of the study, conclusions and the recommendations as guided by the specific objectives. The chapter finally gives direction on areas of further research.

5.2 Summary of key Findings

The general objective of this study was to determine the influence of value disciplines strategy on the management of efficiency levels in the pharmaceutical industry in Kenya. The study findings indicated that the Kenyan pharmaceutical industry have put a lot effort in producing high quality generic pharmaceutical products but are trying to implement strategic management practices via value disciplines strategy as manifested in the form of operational excellence, customer intimacy, product leadership and distribution chain strategies. There was a positive and significant relationship between operational excellence, customer intimacy, product leadership and distribution chain strategy on the management of efficiency levels in the pharmaceutical industry in Kenya. This reveals that any positive change in operational excellence, customer intimacy, product leadership and distribution chain strategy led to increased efficiency.

5.2.1 Influence of Operational Excellence on the Management of Efficiency Levels

The first objective of the study was to establish the influence of operational excellence on the management of efficiency levels in the pharmaceutical industry in Kenya. The study findings indicated that there was a positive and significant relationship between operational excellence and the management of efficiency levels. This reveals that any positive change in operational excellence led to increased efficiency.

These results are in line with the resource-based view (RBV) theory as a basis for the competitive advantage of a firm which lies primarily in the application of a bundle of valuable tangible or intangible resources at the firm's disposal Penrose (1959) to transform a short-run competitive advantage into a sustained competitive advantage which requires that these resources are heterogeneous in nature and not perfectly mobile. The firm is a bundle of resources and capabilities. These resources and capabilities are made up of physical, financial, human and intangible assets. The theory is conditioned on the fact that resources are not homogenous and are limited in mobility. The firm can translate these resources and capabilities into a strategic advantage if they are valuable, rare, and inimitable. This difference is manifested in two ways. First, firms with superior resources can earn profits in competitive markets because they produce more efficiently than others. What is key is that the superior resource remains in limited supply. Second, firms with market power can earn monopoly profits from their resources by deliberately restricting output. Heterogeneity in monopoly models may result from differentiated products, intra-industry mobility barriers, or first-mover advantages.

5.2.2 Influence of Customer Intimacy focus on the Management of Efficiency Levels

The second objective of the study was to examine the influence of customer intimacy focus on the management of efficiency levels in the pharmaceutical industry in Kenya. The study findings indicated that there was a positive and significant relationship between customer intimacy and the management of efficiency levels. This reveals that any positive change in customer intimacy led to increased efficiency.

These results are in line with the balanced scorecard model that enables organizations to clarify their vision and strategy and translate them into action. It provides an organization with feedback of both the internal business processes and external outcomes, which allows for continuous improvement of strategic performance and

results. The model was applicable in this study because the researcher had theorized that the balanced scorecard is a team effort both in decision making and responsibility. Participants within the different sectors, departments, in this instance the persons responsible for operational excellence, customer care, product leadership and distribution bear responsibility for some portion of the pie and know how their portion contributes to overall success, the intervening steps between measuring performance and excelling and how strategy-consistent performance measurement manifest itself in more effective motivation and reward systems or in more effective planning systems . In a balanced scorecard evaluation, five attributes which can be developed in order to measure customer intimacy are customer knowledge, offered solutions, penetration, culture of driving client success, and relationships in the long-term. Key to balanced scorecard implementation is the ability to manage performance and control progress by measuring and recording results on a regular basis which means that every scorecard objective needs to be measureable. The pharmaceutical companies will benefit from direct interaction with their customers, thus get a better view of customer needs and their transformation into the development of individualized products.

5.2.3 Influence of Product leadership on the Management of Efficiency Levels

The third objective of the study was to determine the influence of product leadership on the management of efficiency levels in the pharmaceutical industry in Kenya. The study findings indicated that there was a positive and significant relationship between product leadership and the management of efficiency levels. This reveals that any positive change in product leadership led to increased efficiency.

These results are in line with the Ansoff Product-Market Growth Matrix model. The matrix allows marketers to consider ways to grow the business via existing and/or new products. There are four possible product/market combinations. This matrix helps companies decide what course of action should be taken given current performance. The matrix consists of four strategies;-Market penetration, product development strategy,

product diversification and new product development. The model was applicable in this study because the researcher had theorized that within the framework of the Ansoff growth matrix and the variable product leadership, the matrix allows marketers to consider ways to grow the business via existing and/or new products. In market penetration the pharmaceutical industry could consider selling more established products into existing markets by increased promotion or price reductions or better routes to market, while in product development it will involve pharmaceutical industries developing new products and placing them into existing markets. This involves extending the product range available to the firm's existing markets. These products may be obtained by investment in research and development of additional products thus achieve efficiency in the pharmaceutical industry.

5.2.4 Influence of Distribution Chain Strategy on the Management of Efficiency Levels

The fourth objective of the study was to determine the influence of distribution chain strategy on the management of efficiency levels in the pharmaceutical industry in Kenya. The study findings indicated that there was a positive and significant relationship between distribution chain strategy and the management of efficiency levels. This reveals that any positive change in distribution chain strategy led to increased efficiency.

These results are in line with the Principal-Agent Theory-(Plambeck & Gibson, 2010); Fayezi, O'Loughlin & Zutshi, 2012;Eisenhardt, 1989). Channel coordination aims at improving supply chain performance by aligning the plans and the objectives of individual enterprises, which control the flow of information, materials (or service) and financial assets along the chains, focusing on inventory management. The theory was applicable in this study because the researcher had theorized that, the principal-agent theory was adopted to support an incentive alignment dimension of supply chain collaboration to reduce risk factors posed by agents (Bergen et al., 1992) within the framework of agency theory and the variable distribution chain , the pharmaceutical

industry manufacturers (principal) can appoint distributors (agents) to act on its behalf in terms of distribution of its goods through third party logistics thus increasing efficiency through customer focused planning and cycle time reduction thus achieve efficiency in the pharmaceutical industry.

5.3 Conclusions

Following the study findings, it is possible to conclude that Kenyan pharmaceutical industry have put a lot of effort in producing high quality generic pharmaceutical products but are trying to implement strategic management practices in the form of operational excellence, customer intimacy, and product leadership and distribution chain strategies. The study concludes that for pharmaceutical industry in Kenya to be competitive, they have to embrace value disciplines strategies and practice all of them.

5.3.1 Influence of Operational Excellence on the Management of Efficiency Levels

Operational excellence was found to be statistically significant in explaining management of efficiency levels in the pharmaceutical industry in Kenya. It is possible to conclude that the value disciplines of operational excellence which aims to achieve efficiency and cost reduction in operations can make the pharmaceutical industry in Kenya to significantly lower costs. Operationally excellent firms create value by offering customers a low-cost product made possible through efficiency and cost reductions in operations.

From the findings, the study concludes that Operational excellence practices implementation benefits which includes; quality improvement of products, services, people, processes and environment, maximization of organizational competitiveness, increased productivity and efficiency and better employee morale and improvement in the organization's financial performance have a major effect on organization's performance thus management of efficiency levels in the pharmaceutical industry in Kenya. Achieving operational excellence is more important now than it has ever been

due to globalization. A global economy has led to stiff competition hence more competitive threats. A strategy to compete in that environment will not be sustainable if a company is unable to consistently and reliably execute that strategy.

5.3.2 Influence of Customer Intimacy focus on the Management of Efficiency Levels

Companies pursuing a strategy of customer intimacy thoroughly understand their customers and tailor their products to those customers' needs. Customer-intimate companies invest in advertising and promotions and encourage their employees to maintain excellent relationships with customers. Customer intimacy can also play an important role in the markets because it can inform the firm as to how to enhance its offerings or better serve its customers. Improving any aspect that leads to customer intimacy has been the driving force for the management of the industry as when the customer is satisfied, loyalty towards the company is strengthened. Superior customer insight is a key success factor for pharmaceutical companies, to identify and leverage growth opportunities and to defend against market share erosion as access to markets becomes more restricted and competitive intensity increases. Excellence in customer insight requires companies to adopt a customer-centric philosophy, set clear priorities among customer groups, and ensure they have talented marketers and market researchers working in partnership and using the best available tools and techniques for generating insights. The study therefore concludes that firms should embrace and engage in being intimate to their customers as a means to achieving management of efficiency levels in the pharmaceutical industry in Kenya.

5.3.3 Influence of Product Leadership on the Management of Efficiency Levels

The focus of product leadership is on constant innovation and the development of the firm's product portfolio, and the offerings of product leaders typically stand out in terms of design and brand image. Product leadership can allow the firm to appeal to diverse

demand. Product leadership was found to be statistically significant in explaining management of efficiency levels in the pharmaceutical industry in Kenya. The study found out from the respondents the elements needed by pharmaceutical companies to raise its brand equity. Building brand equity is considered an integral part of brand building. Brand equity is supposed to firm competitive. For instance, high levels of brand equity are known to lead to higher consumer preferences and purchase intentions. Firms with high brand equity are also known to have high stock returns. Furthermore, branding is a powerful tool for differentiation hence highlighting the importance of consumer-based brand equity. The findings established that the pharmaceutical industry in Kenya has over time faced competition both locally and regionally owing to globalization and technological improvement. Unlike before when pharmaceutical firms used to market and sell their products through facts and data, and new drugs were easy to separate from their competitors, this has now changed. Thus, in order to keep up with fierce competition, pharmaceutical companies seek to transform their businesses. These firms have recognized the importance of branding. Building a differentiated brand positioning is a cornerstone of success in today's increasingly competitive marketplace. Doing so requires a clear definition of the target for whom you are building the brand and the bundle of benefits that will drive their brand choice. With these questions answered, marketers can focus their limited resources on delivering the functional and emotional attributes that engender customer loyalty.

5.3.4 Influence of Distribution Chain Strategy on the Management of Efficiency Levels

Distribution chain strategy was found to be statistically significant in explaining management of efficiency levels in the pharmaceutical industry in Kenya. The study revealed that most pharmaceutical firms in Kenya had invested heavily in the electronic supply chain. The system had helped in monitoring inventory flow among the pharmaceutical manufacturing firms in Kenya. It had also helped greatly in reducing

follow-up time. The system had, in addition, helped reduce ordering time in most of these firms in Kenya. Investing in e-supply chain had generally improved the performance of the firm since suppliers for the firms also had the necessary infrastructure to support e-supply chain. The study also revealed that most pharmaceutical firms in Kenya had manufacturing rates which were sufficient to meet any unexpected demands. This was attributed to the firm having suppliers deliver the raw materials required in the right quantity and at the require time and also because most of the firms had enough employees to meet their labor requirements. Channel distribution strategy is about choosing the right distributors. This will involve selecting the most effective distributors, the appropriate level of intensity and the degree of channel integration. The study concludes that in a competitive environment, superior customer service and distribution systems can be the key to keeping (or losing) customers.

5.4 Recommendations

Based on the results, findings and conclusions the following recommendations have been proposed.

The study established that the pharmaceutical firms were adopting various competitive strategies in order to achieve market leadership. It is recommended that the firms adopt strategies that would ensure that the production of drugs is maintained at its lowest cost so that they can offer products at the lowest price and achieve market leadership over its competitors thus provide the best offering in the marketplace, maintaining threshold standards on other dimensions of value, dominating the market by improving value year after year and building a well-tuned model dedicated to delivering unmatched value.

Operational excellence, customer intimacy, product leadership and distribution strategy were found to be statistically significant in explaining management of efficiency levels in the pharmaceutical industry in Kenya and therefore in order to survive and prosper in

a rapidly changing environment, the firms should strive to implement operational excellence by providing value by offering the best total cost for a product, with an emphasis on a combination of quality, price and delivery systems. Given two companies with the same strategy, the operationally excellent company will have lower operational risk, lower operating costs and increased revenues relative to its competitors, which creates value for customers and shareholders.

In order to be intimate to the customers, at competitive prices, the focus shall be on providing value of products by developing the best total solution for a customer. This will entail focusing on this strategy typically attempt to achieve long-term customer loyalty through constantly refining products and services.

The firms should implement appropriate product leadership strategies and take immediate reaction to the competition. Focus should be on providing value by developing the best product. Pharma companies focusing on this strategy should display an emphasis on creativity and innovation and typically produce a continuous stream of state-of-the-art products. The government should create an enabling environment for businesses to improve their overall competitiveness in the industry. The regulatory issues should encourage instead of hampering business success. This can be done by regular plan-do-check-act feedback loop via member associations such as KAM. Firms should cooperate instead of competing with one another to gain stronger market power and competitive market position. Collaborating with other firms not only alleviates competition and improves their competitive position in the market, but also helps them avoid potential costs resulting from intensified competition.

Manufacturing pharmaceutical firms must adopt specific measures for the distribution strategy. This would further lead to improved firm performance. These measures include: cash-to-cash cycle time, production flexibility, delivery performance, perfect order fulfillment performance, and e-business performance and total supply chain management costs. Embracing technology in the healthcare sector will help improve

service delivery, quality and significantly reduce cost of operations. Unique innovations such as MyDawa launched on 28th March 2017, a revolutionary e-health solution into the Kenyan market makes it possible for consumers to purchase high quality healthcare, fitness and wellness products on their mobile phones by offering customers the confidence of purchasing quality medicine in a reliable, convenient and secure way. Improvement in distribution strategy would really help to improve the performance of pharmaceutical companies since the findings indicate that there is a strong relationship between supply chain performance and the overall performance of a company.

5.4.1 Contribution to Body of Knowledge

In terms of theoretical contributions, this study has developed a framework which can efficiently consider deployment of value disciplines strategy model whose variables are operational excellence, customer intimacy, product leadership and distribution chain strategy to gain market leadership in any industry such as pharmaceutical industry. The output of the framework can be practically used as standards to enhance efficiency. The link between Academia and Industry can further be explored as envisaged by the joint publication by Overseas Development Institute (ODI) and KAM Kenya-July 2017 spelling out ten policy priorities for transforming manufacturing and creating; Policy No.6; advocates for creation of an exports push for manufactured products in Kenya through promoting and leveraging on 'Build Kenya Buy Kenya' by increasing awareness and strengthening branding and marketing of Kenyan products. Policy No. 7 advocates for developing worker skills and support innovation for increased labor productivity as manufacturers need workers who either have a technical skill set or possess trade-based skills that machines cannot adequately perform while policy No. 9.advocates for development of a coordinated value chain approach by embracing and implementing international productivity standards. The study has therefore added knowledge in improving the understanding of academia and industry.

5.5 Areas for further research

The study confined itself to the pharmaceutical manufacturing industries operating in Kenya, and the findings should not be generalized to other sectors as a result of the uniqueness of pharmaceutical industry. It is therefore recommended that the study is replicated in other sectors within the pharma business including distributors, wholesalers and pharmacy retailer's outlets to get further insight on practices within the pharmaceutical industry. Case study research could also be undertaken focusing on individual organizations in order to gain an in-depth understanding of practices being utilized by specific firms within the pharmaceutical and other industries. This would provide helpful information for benchmarking among companies.

The study did not concentrate on customers/ consumers/ patients, a highlight is just given, and therefore an in-depth analysis on how customers/ consumers/ patients requirements on pharmaceutical products dosage and packaging could be considered as an area for further research.

The study was conducted in one section of manufacturing industry in Kenya. Therefore, the results reflect the perceptions of individuals within this industry and hence results are not generalizable. The study can also be extended to other manufacturing sector or industries such as local sugar manufacturing firms in Kenya and see whether the findings hold true as well so as to ensure that these sectors also reap the benefits of value disciplines strategy.

The study focused on four variables (operational excellence, customer intimacy, product leadership and distribution chain strategy) on management of efficiency levels. These variables only influenced 60.7% which means the remaining percentage is influenced by other factors. Therefore, further research can be done on the other variables other than those indicated for example the skill levels of employees.

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APPENDICES

Appendix I: Letter of Introduction

Complementary Letter to the Respondents

1 June, 2016

Antony Muse,

Jomo Kenyatta University of Agriculture and Technology (JKUAT),

P.O Box 62000-00100,

NAIROBI.

Dear Respondents,

==========

I am the above mentioned PhD student from Jomo Kenyatta University of Agriculture and Technology. In partial fulfillment of the requirements of the award of Doctor of philosophy Degree, I am conducting an academic research on Influence of Value Disciplines strategy on the management of efficiency levels in the Pharmaceutical Industry in Kenya. This letter is to humbly request you to respond to the questions in the attached questionnaire to enable me carry out this research. This is an academic exercise and you are assured of anonymity and confidentiality.

Thanks in advance for your willingness to generously contribute to this research.

Yours faithfully,

Antony Muse

Appendix II: Research Questionnaire

SECTION A: BACKGROUND INFORMATION

Please tick  in the appropriate box

A1. Name of the firm…….

A2. How long has your firm been in operation?

Below 5 years ☐

5-10 years ☐

11-16 years ☐

17-25 years ☐

Over 25 years (Specify please) …….

A3. How many full time employees does your firm have?

Less than 20 ☐

21-50 ☐

51-100 ☐

101-200 ☐

Above 200 ☐

A4. How many casual employees on average does your firm have per day?

21-50 ☐

51-100 ☐

101-200 ☐

Above 200 ☐

A5. What is the annual turnover of your firm (in Kenya Shillings?)

Less than 50 million ☐

50 M < 100 M ☐

100 M < 500 M ☐

500 M < 1 billion ☐

1 billion and Over ☐

A6. What is your firm ownership type (Tick in the appropriate box?)

1	2	3	4	5	6
Public	Private	Public /Private	Foreign	Local	Local & Foreign (Joint) Ownership

A7. Nature of products:

Branded originals ☐ Branded generics ☐ Non-branded generic ☐

A8. What is your designation in the firm_____?

A9. With which business unit area are you associated with?

Procurement ☐ Manufacturing ☐ Warehousing☐ Finance☐ Customer service☐

Other (please state) ----------

Part B: Influence of Operational Excellence

Part i: Influence of Lean manufacturing and six sigma.

B1. What is the understanding of your team on the concepts of zero defects?

Quality Products ☐ It's normal to have defective products ☐

B2. What is the understanding of your team on the concepts of waiting?

Waiting is necessary ☐ Waiting is unnecessary ☐

B3. How does your firm measure yield per batch?

Calculated at the end of batch ☐ not measured ☐

What is your level of agreement with the following statements relating to Lean Manufacturing in your company?

On a scale of **[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D- Disagree | SD - Strongly Disagree]** give your opinion

Elements of waste reduction	S. A (1)	A (2)	N. A nor D (3)	D (4)	S. D (5)
B4. The teams understand the concepts of overproduction					
B5. The teams understand the concepts of waiting					
B6. The teams understand the concepts of inventory / working capital					
B7. The teams understand the concepts of underutilized talent					
B8. The teams are able to measure wastage per batch					
B9. The teams are organized and participate in continuous process improvement					

In your view, what do you recommend the management of your company should do in managing wastage?

……

……

Part ii: Influence of formalized management systems

In this section, the questions relate to the link between formalized management system that is performance management and operational excellence.

B10. To what extent are senior managers evaluated and held accountable for attracting, retaining, and developing talent throughout the organization?

High ☐ Medium ☐ Low ☐

B11. To what extent are people in the firm rewarded equally irrespective of performance level, or is performance clearly related to accountability and rewards?

High ☐ Medium ☐ Low ☐

To what extent do you agree with the statements below?

[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree |

SD - Strongly Disagree] give your opinion

Elements of management practices	S.A (1)	A (2)	N .A nor D (3)	D (4)	S .D (5)
B12. Do you have modern manufacturing techniques including just-in-time delivery from suppliers, automation, flexible manpower, support systems?					
B13. Are process improvements made only when problems arise, or are they actively sought out for continuous improvement as part of a normal business processes?					
B14. Is tracking ad hoc and incomplete, or is performance continually tracked and communicated to all staff?					
B15.Is performance reviewed infrequently and only on a success/failure scale, or is performance reviewed continually with an expectation of continuous improvement?					
B16. Are the goals exclusively financial, or is there a balance of financial and non-financial targets?					
B17. Are performance measures ill-defined, poorly understood, and private, or are they well-defined, clearly communicated, and made public?					

Part iii: influence of economies of scale

In this section, the questions relate to the link between economies of scale and operational excellence.

B18. How many manufacturing lines do you have? _____

B19.How many packaging lines do you have? _____

B20. What kind of shift patterns do you have? _____

B21. Do the machines stop during comfort breaks? _____

B22. Do the production machines pack only 1 type of product? Yes ☐ No ☐

To what extent do you agree with the statements below?

[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree |

SD - Strongly Disagree] give your opinion

Elements of Economies of scale	**S.A (1)**	**A (2)**	**N. A nor D (3)**	**D (4)**	**S. D (5)**
B23. Do Mergers and consolidations create more profit?					
B24. Does your firm have specialization and division of labor?					
B25. Does your firm buy raw and pack materials in bulk?					

B26. How many staff in your firm do you have who can handle operational excellence implementation?

None ☐ between 1-5 ☐ More than 5 ☐

In your view, what do you recommend the management of your company in the manpower development which can make adoption of operational excellence strategies in management of efficiency levels easier?

……
……
……
……
……..…

Part C: Influence of Customer Intimacy

Part i: Influence of Product identification – ability to identify new products required by customers.

In this section, the questions relate to the link between ability to identify new products required by customers and customer intimacy.

C1. Please tick what is more important to your firm.

Customer loyalty ☐ Customer satisfaction ☐ Customer retention ☐ All the three ☐

To what extent do you agree with the statements below?

[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree |

SD - Strongly Disagree] give your opinion

Elements of customer intimacy	**S.A (1)**	**A (2)**	**N. A nor D (3)**	**D (4)**	**S. D (5)**
C2. We continuously try to discover additional needs of our customers of which they are unaware?					
C3. We incorporate solutions to unarticulated customer needs in our new products?					
C4. We innovate even at the risk of making our previous products obsolete.					
C5. We work closely with lead customers to try to recognize their needs months or even years before the majority of the market may recognize them					
C6. Members of our firm collect information concerning competitor's activities.					
C7. We evaluate the strengths and weaknesses of key competitors					
C8. We regularly visit our current and prospective customers.					
C9. All of our business units (marketing, production, purchasing, finance, and sales) are integrated in serving the needs of our target markets.					
C10. People on our firm understand how everyone can contribute to creating customer value					

Part ii: Effect of reliability of end product

In this section, the questions relate to the link between reliability of end products required by customers and customer intimacy. To what extent do you agree with the statements below?

[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree |

SD - Strongly Disagree] give your opinion

Elements of product reliability	**S. A (1)**	**A (2)**	**N. A nor D (3)**	**D (4)**	**S. D (5)**
C11. Do the customers feel that your products will perform its intended function?					
C12.customer complaints lead to a change in the manufacturing process					
C13. The products deteriorate faster than the stipulated shelf life					
C14. The products undergo shelf life stability studies before launch					
C15. The packaging ensures product is attractive and lasts for the duration of the supply chain					

Part iii: Influence of technological advancement

In this section, the questions relate to the link between technological advancement and customer intimacy. To what extent do you agree with the statements below?

[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree |

SD - Strongly Disagree] give your opinion

Elements of technological advancement	**S. A (1)**	**A (2)**	**N.A nor D (3)**	**D (4)**	**S. D (5)**
C16. Your firm uses social networks such as twitter, face book etc. to get customers feedback					
C17. Your firm uses IT systems for example ERP such as SAP, QAD, MERPS,BPCS etc. for faster customer service					

Part D: Influence of Product leadership

Part i: Encouragement of innovation

In this section, the questions relate to the link between motivation for product innovation and product leadership. To what extent do you agree with the statements below?

[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree | SD - Strongly Disagree] give your opinion

Elements of product innovation	**S .A (1)**	**A (2)**	**N. A nor D (3)**	**D (4)**	**S. D (5)**
D1. There are regular new product development forums in your firm					
D2.Our firm manufacturers customized products					
D3. Our products are available through preferred channels					
D4. We have a research and development (R&D) department					
D5. We relentlessly pursue new solutions					

Part ii: Influence of risk-oriented management style and team empowerment

In this section, the questions relate to the link between risk oriented management style and product leadership. To what extent do you agree with the statements below?

[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree | SD - Strongly Disagree] give your opinion

Elements of risk-oriented management style and team empowerment	**S.A (1)**	**A (2)**	**N.A nor D (3)**	**D (4)**	**S. D (5)**
D6. New product decisions are based on risk management forums					
D7. Creative thinking is encouraged and rewarded					
D8. Rewards are based on an employee's ability to innovate and to bring innovative product concepts					

Part iii: Assessment of presence of corporate brand

D9. What is your current situation related to corporate brand? Please tick one box.

The brand delivers a clear, credible and memorable message ☐

The brand connects with its intended audience at an emotional level ☐

The brand motivates customers and reinforces their loyalty ☐

All of the above ☐

In this section, the questions relate to the link between corporate brand and product leadership.

To what extent do you agree with the statements below?

[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree |

SD - Strongly Disagree] give your opinion

Elements of corporate brand	**S. A (1)**	**A (2)**	**N. A nor D (3)**	**D (4)**	**S.D (5)**
D10. Our logo is legible in a wide range of sizes, from a tiny web icon to a large banner at a trade show.					
D11. The colors used by our company communicate many different messages and can sometimes be so iconic that our products can be recognized solely by a swatch of color					
D12. Our company has a specific font that is used throughout our company's materials					

Part E: Influence of distribution Chain

Part i: Influence of Just – in – Time (JIT).

E1. What is your current situation related to Just-in-time system? Please tick one box.

Implementing ☐

Plan to implement ☐

No plan to implement ☐

E2. How is the inventory of the warehouse tracked?

Use of manual records ☐ Use of computer software ☐

E3. What kind of KANBAN systems are in use in the warehouse?

Sound signal ☐ Traffic light signal ☐ none ☐

What is your level of agreement with the following statements relating to just in time production in your company? **[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree | SD - Strongly Disagree]** give your opinion

JIT production strategy	**S. A (1)**	**A (2)**	**N. A nor D (3)**	**D (4)**	**S. D (5)**
E4. Scheduled preventive maintenance is considered an important part of production performance					
E5.Labor is not "kept busy" by building product when not needed at the next operation					
E6. Daily rate and level schedules are used and usually meet due dates					

In your view, what do you recommend the management of your company should do in adoption of just in time as a means of distribution Chain?

……

Part ii: Influence of customer focused planning

In this section, the questions relate to the link between customer focused planning and distribution chain. To what extent do you agree with the statements below?

[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree |

SD - Strongly Disagree] give your opinion

Elements of customer focused planning	**S.A (1)**	**A (2)**	**N.A nor D (3)**	**D (4)**	**S. D (5)**
E7. We have an ERP software that links customers' orders to manufacturing					
E8. We measure forecast accuracy					
E9. We have a regular formal sales and operations planning meeting					
E10. We measure out of stocks (OOS) and act proactively to rectify the situation					

Part iii: Influence of price policy in purchases

E11. What is your current situation in relation to price policy? Please tick appropriately.

Fixed and variable cost form part of the pricing strategy ☐

The pricing strategy is based on profit maximization ☐

The pricing strategy is based on revenue maximization ☐

The pricing strategy is based on price stabilization ☐

All of the above ☐

E12. What constitutes the cost of goods (COGs) in your firm?

Labor ☐ Materials ☐ Both labor and Materials ☐

E13. How are overheads absorbed in your firm?

By a factor multiplication ☐ not applicable ☐

E14. Do you have a formal meeting to review product costs?

Yes ☐ no ☐

What is your level of agreement with the following statements relating to pricing in your company? **SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree | SD - Strongly Disagree]** give your opinion

Price strategy	**S. A (1)**	**A (2)**	**N.A nor D (3)**	**D (4)**	**S. D (5)**
E15. Product costs include scrap factor in bill of materials (BOM)					
E16. Target costing is used during new product introduction					
E17. Purchase price variance is the primary measure of procurement effectiveness					
E18. Product costing is performed during introduction of a new product introduction					

Part F: Assessment on the management of efficiency levels

F1. Regarding the following aspects of your firm, insert letter **(I)** for **Increase (D)** for **Decrease** and **(N)** for **No-change.**

Item/Year	2012	2013	2014	2015
Sales growth rate				
Customers growth rate				
Profit growth rate				
Overall performance				
Assets				
Expenditure				
New products				

F2. Based on your profit expectations how would place your firm's overall level of profitability for the last four years that is . , (2015, 2014, 2013, and 2012) (tick one expectation as appropriate)

Expectation	
Profit above expectation	☐
Profit within expectation	☐
Profit below expectation	☐
Break even within expectation	☐
Loss making bearable	☐

F3. Based on your expectations on turnover how would you rate your firm's turnover for the last four years that is . , 2015,2014, 2013 & 2012 (tick one expectation as appropriate)

Expectation	
Turnover above expectation	☐
Turnover within expectation	☐
Turnover below expectation	☐

This section seeks to evaluate the link between management of efficiency levels and Product Quality. To what extent do you agree with the statements below that relate to Product Quality?**[SA - Strongly Agree | A - Agree | N/A – Neither agree nor disagree | D-Disagree | SD - Strongly Disagree]** give your opinion

Elements of Product Quality	**S. A (1)**	**A (2)**	**N. A nor D (3)**	**D (4)**	**S. D (5)**
F4. Quality Management has a critical role in the success of the business					
F5. There are defined specification limits for Critical to Quality Product Attributes					

THANK YOU FOR TAKING YOUR TIME TO COMPLETE THE QUESTIONNAIRE

Appendix III: List of Pharmaceutical manufacturers and importers in Kenya

Local and Multi-national pharmaceutical firms in Kenya	
Local and Multi-national pharmaceutical firms in Kenya	Cosmos , DAWA , Regal , Universal , Betacare , sphinks , njimia
Top multi-nationals in Kenya (by market size)	GSK (UK), Pfizer (US), Novartis (Switzerland), Sanofi-Aventis (France), Roche (Switzerland), Bayer (Germany), Adcock (South Africa), Astra Zeneca (UK), Jansen (Belgium), MSD (UK), Abbot (US)
Local distributors that deal with generics	Glenmark, Laborex (Kenya), Philips, Sunpar (Kenya), Sun, Europa, Harleys, Galaxy, Medox, Lords, Surgilinks, Surgipharm, PSM, Betacare, Njimia, Denk, Pan, Simba, Ranbaxy
Top multi-nationals dealing with generics in Kenya (by size)	Top multi-nationals dealing with generics in Kenya (by size)

Source: (Hasan & Wanyanga, 2010)

Appendix IV: Summary of the key groups within the Kenyan pharmaceutical sector

Actor	Roles and responsibilities
PUBLIC SECTOR	
Ministry of Health (MOH)	Policy leadership on pharmaceutical matters, and initiation and supporting of pharmaceutical legislative processes
Pharmacy and Poisons Board (PPB)	Oversight and implementation of regulation of pharmaceutical manufacturing, importing, distributing and retailing establishments, as well as all cadres of pharmaceutical personnel
Kenya Medical Supplies Authority (KEMSA)	Procurement, distribution and warehousing of medicine and medical commodities
PRIVATE SECTOR	
Mission for Essential Drugs and Supplies (MEDS)	Procurement, distribution and warehousing of medicine/medical commodities to non-profit organizations mainly, but also public facilities and selected commercial facilities
Manufacturers	Production and marketing of pharmaceutical commodities. Production in Kenya typically entails buying the active pharmaceutical ingredients and formulating and packaging these into the final dosage forms for consumers
Distributors/wholesalers	Link between manufacturers and retailers. 'Distributors' refers to larger firms that supply wholesalers directly. Wholesalers supply retailers directly.
Actor	Roles and responsibilities
Actor	Roles and responsibilities
Retailers	Suppliers directly responsible for selling medicines to end users. In Kenya, these include pharmacies (all types of medicines) and general shops (specific pre-packaged medicines classified by law as over-the-counter)
Pharmaceutical Society of Kenya	Representing interests of member pharmacists in Kenya. Pharmacists include all personnel with a minimum of a degree qualification in pharmacy from a recognized institution
Kenya Pharmaceutical Association	Representing interests of pharmaceutical technologists in Kenya. Pharmaceutical technologists include all personnel with a minimum of a diploma qualification in pharmaceutical technology from a recognized institution
TRAINING INSTITUTIONS	
Universities	Training of pharmacists, and supply of interns to manufacturers, wholesalers and retailers
Mid-level colleges	Training of pharmaceutical technologists, and supply of interns to manufacturers, wholesalers and retailers

Source: (psp4h, 2014)

Appendix V: List of registered Pharmaceutical Manufacturing Companies in Kenya

	Name	**Location**
1	Alpha Medical Manufacturers	Nairobi
2	Bayer East Africa Limited	Nairobi
3	Beta Healthcare International	Nairobi
4	Biodeal Laboratories Ltd	Nairobi
5	Biopharma Limited	Nairobi
6	Cosmos Limited	Nairobi
7	Dawa Pharmaceuticals Limited	Nairobi
8	Elys Chemical Industries Ltd	Nairobi
9	Gesto Pharmaceuticals limited	Nairobi
10	Glaxo SmithKline	Nairobi
11	Ivee Aqua EPZ Limited	Athi River
12	Laboratory & Allied limited	Nairobi
13	Manhar Brothers (Kenya) Ltd	Nairobi
14	Medivet Products limited	Nairobi
15	Novelty Manufacturers Ltd	Nairobi
16	Osschemie (K) Ltd	Nairobi
17	Regal Pharmaceutical Ltd	Nairobi
18	Skylight Pharmaceutical Ltd	Nairobi
19	Universal Pharmaceutical Limited	Kiambu

Source: (KAM, 2015)