

**OPERATIONS MANAGEMENT PRACTICES AND SUPPLY
CHAIN PERFORMANCE OF ALCOHOLIC BEVERAGE FIRMS
IN KENYA**

BY

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DECLARATION

I declare that this research project is my original work and has never been submitted for award of a degree in any other University.

Signed..... Date.....

CHARITY MUTHONI WACHIRA

D61/74793/2014

This project has been submitted for examination with my authority as the university supervisor.

Signed..... Date

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DEDICATION

To my family and all those who supported me in the completion of this project.

Thank you and God bless you abundantly

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I would like to extend special thanks to all those who helped in one way or another in making this project a reality.

I am indebted to my supervisor Mr. Akelo for his scholarly guidance throughout the conduction of this research project. His useful criticism and comments were very instrumental in the implementation of this project.

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ABBREVIATIONS AND ACRONYMS

JIT – Just-In-Time

SCM - Supply Chain Management

KPI - Key Performance Indicators

OM - Operations Management

TOC – Theory of Constraints

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ABSTRACT

Operations management has evolved and the field has extended to incorporate service systems since an operation penetrates each utilitarian area of an organization. At the beginning of the twenty first century a number of manufacturers started harness and technology and supplier strength to support innovation and product development efforts. The aim of this research was to establish the operations management practices in alcoholic beverage firms, to determine the relationship between operations management practices and supply chain performance in alcohol beverage firms and to establish the challenges faced by alcohol beverage firms in the implementation of operations management practices. descriptive research design was used in analysing the data collected. The target population in this study was manufacturers and registered importers of alcohol and alcoholic beverages. The firms selected for the study were from a list of licensed excise manufacturers of alcohol and alcoholic beverages. Stratified random sampling technique was used to select a sample size of 48 respondents. Primary data was used in the study. It was obtained using questionnaires self-administered questionnaires. The mechanism was to drop and picked them later. The questionnaires consisted of open ended, closed ended questions and likert scales. Once the questionnaires were collected, grouping and arranging of data with respect to specific questions was conducted. In the case of the first objective, descriptive statistics such as means, standard deviation, mode and median were applied in analyzing the qualitative data that is obtained. The findings revealed that there were practices of quick product development and introduction time in the organization. There was simplification of component parts and earlier supplier investment. High costs associated with technology, cost of labour as well as miscellaneous costs were among the challenges that faced the firms during the implementation of operations management practices. The study recommends that alcoholic beverage firms should get some insights on how to implement operations management practices which will enable them increase productivity and enhance competitiveness. Management skills within the firms also need to be addressed.

CHAPTER ONE

INTRODUCTION

1.1 Background

In the recent past, there has been a great need to manage day to day organizational activities with the aim of achieving operational efficiency, effectiveness and competitive advantage (Ogonda, 2011). There has also been a changing pattern in operations management. In the past manufacturers applied large scale manufacturing to enhance profitability while negligible consideration was paid to product and process adaptability (Tan & Wisner, 2002). New product development was moderate and depended only on in-house innovation and limitations. Buyer supplier relationships did not exist, while bottleneck operations were cushioned with inventory to maintain material flows. In recent years however, manufacturing has become increasingly competitive and has created the need for firms to offer high quality, low cost products with greater design flexibility (Heizer & Render, 2006).

As worldwide markets advance, supply chain managers are confronted with numerous new difficulties as traditional ways to deal with overseeing supply chains are proving to be insufficient (Masindet & Ogollah, 2014). Supply chain management has emerged as a rationality by which firms can work inter-organizationally merging vital activities both upstream and downstream with a specific end goal to accomplish operations performance (Dale et al., 2003). Supply chain is an integral part of any business. The increased need for decreased costs, higher quality, enhanced client service and continuous supply have essentially increased supplies management stature within organizations. Supply chain deficiencies pose threats to most organizations that fail to recognize the importance of the supply chain in the overall organizations performance (Gunasekaran et al., 2004).

1.1.1 Operations Management Practices

Operations management practices are each strategy or methodological arrangement which is carried out on the shop floor and which is intended to enhance the effectiveness and efficiency of production procedures and logistics for goods (Battistoni et al., 2013). Operations management has evolved and the field has extended to incorporate administration frameworks since operations permeate each functional area of a firm. At the turn of the twenty first century manufacturers began adopting supplier involvement to enhance quality and innovation and bolster new product advancement endeavors (Morgan et al., 1995). Suppliers are presently taking part earlier on in the product creation process in order to render more savvy and cost effective plans, select the best segments and technological advancements and help in design assessment. There is increased enthusiasm for supplier advancement by purchasing firms to increase suppliers cost capabilities, technical and quality capabilities (Krause, 1997).

Designing new products and getting them to the market on time is an important activity for many manufacturers. Shortening of product life cycles and expansions of customers' needs and preferences makes new products design and development a key achievement for organizations. This can be identified as an arrangement of exercises that begin with reacting to a market opportunity and end with the conveyance of a differentiated product or service (Krishnan & Loch, 2005).

The basis of JIT is to pass on the right thing to the right people at the right time and appropriate quantity thereby eliminating the need for maintaining huge inventories. JIT questions everything in the framework including work powers, forms and the whole association. JIT endeavors to make a self-taught effortlessness in the workplace. Operators know precisely what to do under every condition. As a pull system, JIT philosophy places human-centric and employees as the fundamental drivers of the manufacturing system (Tatoglu & Wu, 2007).

Quality Management Practices have resulted from intense global competition among firms that has forced organizations examine how they manage quality as they try to improve their competitiveness (Malhotra, 2005). This was initiated by a shift from 'sell what you produce' to 'sell what customers want.' According to Mehra et al. (2001), the consumer population today has greater expectations and demands than ever before. Chorn (1991) asserts that the efforts aimed at improving quality should focus on both front and back end to be more effective.

1.1.2 Supply Chain Performance

Supply chain performance is the entire chains ability to meet end-customer needs through product availability and responsive on-time delivery (Hoek, 2001). Supply chain management (SCM) has been a major component of competitive strategy aimed at enhancing organizational productivity and profitability. With a specific end goal to determine supply chain performance, an analytical performance measurement system and a mechanism must be established to initiate steps for realizing key performance indicators (KPI) goals (Gunasekaran et al., 2004). Supply chain performance contains a set of variables that capture the impact of the workings of supply chains on earnings and costs of the whole system. These vary as drivers of supply chain performance are always gotten from supply chain management practices.

Supply chain Performance can be measured with regards to the following supply chain activities/forms, (1) planning, (2) sourcing, (3) assembly, and (4) delivery/consumer. These activities are applied at different levels of administration - strategic, tactical and operational levels (Stewart, 1995; Gunasekaran et al., 2001). Singular measures of supply chain performance have been characterized into four categories, quality, time, cost and flexibility (Gunasekaran et al., 2004). Moreover, they have additionally been grouped by quality and quantity, cost and none cost, strategic/operational/tactical focus, and supply chain processes. Performance measurement however has numerous irregularities because of the absence of a balanced approach since there are no particular recognizable measurements to be utilized. To address this issue subsequently, measures of dispersion i.e. Mean, standard deviation and variation can be utilized to asses supply chain performance.

1.1.3 Alcoholic Beverage Firms in Kenya

The alcoholic beverage industry in Kenya has been fast growing in recent years. There has been an influx of new entrants in the industry which has been fuelled by foreign investment and political stability (Research and Markets Business Report ,2015). Alcoholic beverage firms have assumed great role in the nation's financial development. They generate revenue to the government through taxes; create employment to the locals through product manufacturing, packaging and distribution to the retail outlets (Mwangulu, 2014).

An analysis by Deutsch Bank Market (2015) research showed that Kenya is Africa's' third largest alcohol consumer after Nigeria and South Africa with a 17% market share. The growth in the middle class of the country has created a need for consumers' goods of which alcohol is a part of. This business is of great importance as it has an annual tax contribution of just over 5% of Kenya's total revenues. It contributes more than half of the total excise duty collection. Manufacturers in Kenya have carried out consumer segmentation by creating products that target different consumer income groups. This has enabled the existing manufacturers to obtain a certain percentage of the total existing market share with local brands going for lower prices than imported brands. Beer producers have also embarked on cost reduction programs that will enable them to reduce the total cost of production through substitution of cereals used in the production process (Mwangulu, 2014).

For new firms, entry into this industry is very difficult due to the capital intensive nature of the business, the stiff government regulations, customer loyalty to various established brands and stiff competition from rival companies. Following the cut throat competition, the alcohol manufacturing industry has been forced to re-evaluate its goals, strategies and practices so as to attract and retain customers. As of 2015 the government set out to shut down over 100 alcohol manufacturing firms for failing to adhere to regulation (KRA, 2015).

1.2 Research Problem

In today's business environment customers are demanding better quality, greater speed and lower costs (Mehra et al., 2001). Tan and Wisner (2002) argue that in order to stay competitive, it is crucial for operations and supply chain professionals to implementing efficient practices that satisfy customer's needs and constantly keep up with the increasing expectation. The operations management field has therefore been undergoing a continuous change in order to achieve these objectives. Efforts to integrate organizational business functions and supply chain functions over the last decade have been furthered by the application of new practices (Chopra et al., 2004). Pressure of intense competition within the industry has put organizations in a place where they need to seek new apparatuses for handling their current processes and access new markets. Today's commercial center is portrayed as the "age of diversity" in which consumers demand and get huge variety in the products and services they purchase (David & Albert, 2006).

Many organizations would want to increase their performance levels yet the way to do that is a challenge. Supply quality management is normally one of the ways that can help a firm enhance operational and financial performance (Kitheka et al., 2013). The numbers of Alcoholic Beverage firms have significantly increased in Kenya. The impact of this has been decrease in firms' market share, declining profitability and stiff competition (Research and Markets Business Report, 2015). Thus organizations have been compelled to come up with strategies with a specific end goal to maintain or develop their market share, extend to new regions or markets, acquire new technologies, create brand or line extensions, lessen expenses and risks (Mwangulu, 2014). This study intends to answer the following questions; what are the operations management practices commonly applied by alcoholic beverage firms in Kenya? What relationship exists between the established operations management practices and supply chain performance of these firms? What challenges have alcoholic beverage firms encountered in the application of operations management practices.

1.3 Research Objectives

- i. To establish the operations management practices in alcoholic beverage firms.
- ii. To determine the relationship between operations management practices and supply chain performance in alcohol beverage firms.
- iii. To establish the challenges faced by alcohol beverage firms in the implementation of operations management practices.

1.4 Value of the Study

The research findings are significant in enhancing the effectiveness and efficiency in the general operations and supply chain sector. It also intends to enable the firms to analyze how the applied operations management practices have contributed to their performance as well as identify the loop holes that may hinder effective performance. This study will be very resourceful in providing information on challenges faced in implementation of these practices.

Other firms, who also are interested in operations management practices, will use this research to get some insights on how to implement these practices in order to increase productivity and enhance competitiveness.

Academicians/Researchers who are interested in doing research in this area will use this research as a form reference or a basis for further research. The study will also provide insight on supply chain performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This study provides a detailed theoretical framework based on the relationship between operations management practices and supply chain performance. This chapter introduces literature from various authors that relates to this study in order to establish the operations management practices and identify the measures used in establishing the relationship between operations management practices and supply chain performance.

2.2 Theoretical Literature Review

The widespread practice of Operations Management necessitates that practice-based writings be addressed in the advancement of this study. Two relevant theories identified in the case of operations management and supply chain performance are Theory of Constraints and Theory of Organizational empowerment which is also known as Kanter's Theory.

2.2.1 Theory of Constraints (TOC)

TOC is characterized by an administrative theory based on a couple of suppositions and intended to provide progressive change within an organization. For the most part, TOC is believed to maximize the performance of any system by identifying, managing and breaking the most restrictive limiting factor that constraints system performance (Masindet & Ogollah, 2014).

The principles of TOC based on Operations Management Practices serve as a guideline to help in seeing how to focus efforts in boosting supply chain performance through the application of operations management practices. It has the objective of setting up an effective supply chain system intended to actualize continuous profit improvement while meeting the fundamental condition of good quality (Zhang et al., 2000)

2.2.2 Theory of Organizational Empowerment (Kanter's Theory)

Kanter's theory of structural empowerment focuses on the structures inside the firm as opposed to the individual's own particular qualities (Bradbury-Jones, Sambrook, & Irvine, 2007). Kanter depicts a learning organization as an organization where the individuals are continuously gaining knowledge and improving their capacities to help the organization in adjusting to dynamic environments and remain competitively superior to their competitors. Supply Chain partners get to be learning partners, the supply chain then turns into a 'learning supply chain' that can utilize the knowledge to achieve its objectives and stay competitive in ever-changing markets (Sengeeta & Banwe, 2004).

For Supply chain partners to transform information into knowledge and manage that knowledge adequately, training of employees becomes key. Supply chain education furnishes workers with the vision and understanding of why SCM important and how it yields advantage. Such training is vital on the grounds that individuals tend to oppose change, particularly when it requires yielding up control, uncovering shortcomings or important information to others, and changing one's outlook (Ngowi, 2002).

SCM requires an adjustment in everyday basic leadership methodology, practices, and human interaction. This implies individuals will need to change their attitude and conduct (Gufreda & Maynard, 2000). Kanter's theory has proven to have quantifiable effect on employee empowerment and job satisfaction and additionally organizational morale and achievement. It has additionally been noticed that retention rates are enhanced when empowerment principles, for example, reduced work pressure, employee cohesion, management support and staff independence are set up (Lawler, Mohrman & Ledford, 2002).

2.3 Operations Management Practices

Operations Management Practices are significant to any firm in light of the fact that through effective administration of individuals, capital and materials that a firm can meet its objectives. There are competitive priorities that have been widely accepted and are the main focus of Operations Management Practices namely cost, quality,time

and flexibility. The major practices identified in this study are supplier assessment practices, new product design and development, just in time and quality management practices.

2.3.1 Supplier Assessment Practices

Suppliers play a key role in organizations performance. Manufacturers began exploiting the strength and technology of suppliers at the turn of the twenty-first century (Morgan & Monczka,1995).Over time there has also been an increased enthusiasm for supplier development by purchasing firms to build suppliers technical, delivery, quality and cost capabilities (Krause,1997). Instead of concerning themselves just with price, manufacturers are looking to suppliers to work co-operatively in providing improved service, technological innovation and product design (Gunasekaran et al., 2004).

Supplier involvement earlier on in product design process renders more practical and less costly design choices, develop alternative conceptual arrangements, select the best components and technologies and help in design assessment (Burt & Soukup, 1985). Then again, formal supplier appraisal is critical to the suppliers' continuous improvement (Watts & Hahn, 1993). Supplier assessment is recognized as a tool for monitoring and control within the supply chain.

With many players involved, it is imperative that organizations find a way to manage the parties within the value chain. Supplier appraisal permits suppliers to exhibit management quality through good practices and consistency and support investment in the best available technology (Tan & Wisner, 2003). Supplier certification focuses on purchased raw materials and components (Schneider et al., 1995).

Tan and Wisner (2003) came up with a number of supplier assessment practices which include; supplier program for hygiene and safety , maintenance of suppliers comprehensive internal quality audit system, maintenance of sufficient records of all tests performed and inspections carried out, statistical techniques and process controls for use on a day to day basis, procedures for the control and verification of the design of the product, periodic investigation of causes of non-conformance and possible corrective actions, supplier documentation on their quality system, maintenance of

adequate gauging and testing devices for inspection and testing, provision for organization-wide preventive maintenance program.

2.3.2 New product design and development

New products lines allow firms to enter new markets, compete in an already existing market, make improvements on existing products and re-launch, reposition products and create substitutes to products at lower costs. At the point when enterprises are competing at equivalent cost and usefulness, design is the main differential matter (Gibney & Luscombe, 2000). Collaborative new product design and development involves inclusion of suppliers in the design process. Superior supplier capacity frequently leads to outstanding quality, cost effective design options, advancement in process and material technology and rapid integration of the most recent technological breakthrough in new product design and development (Prahalad & Hamel, 1990).

Organizations are currently utilizing modular design; concurrent engineering, simplification, standardization ; value engineering and quality enhancement tools like house of quality to reduce new product design and advancement time (Chase et al., 1998). Value engineering rearranges procedures, simplifies products and eliminates pointless expenses so as to accomplish better performance at lower cost while keeping all functional requirements (Tan & Wisner, 2003). Quality function deployment incorporates customers' needs and preferences into the design specifications of a product. Modular design makes product development, production and subsequent changes simpler thereby offering flexibility to production and marketing. Simplification and standardization enables producers to decrease the variations of materials and parts and help in cost reduction (Tan, 2003). There are no common set of new product and development practices, however Chase et al. (1998) and Heizer and Render (1999) identified early supplier involvement, simplification and standardization of parts, modular design, use of quality function and quality function deployment.

2.3.3 Just-in-time (JIT)

The method of reasoning of JIT is to deliver the right item to the right individuals at the correct time and right amount consequently disposing of the requirement for maintaining enormous inventories. On a basic level, JIT questions everything in the system including labour forces, processes and the whole organization (Tatoglu et al., 2007). This philosophy focuses on creating excellence in the details and a self-disciplined, simple work environment. Operators know exactly what to do under each circumstance. According to Schonberger (1982), preventive maintenance, mixed model production, JIT delivery by suppliers, set up time reduction, multifunction workers and small lot sizes are important practices in a JIT system. In a study carried out by White et al. (1999) reduced set up times, cross-trained workers and kanbans affected the performance of both small and large firms.

JIT has been extensively researched to determine its effect on performance. There have been notable economic benefits from waste reduction, improved efficiency in operations and continuous improvement. Battistoni et al. (2013) recognizes that the more JIT culture is spread within an organization and is effected, the more tangible the benefits to economic performance are observed and it should therefore be integrated with all other business functions. Sakakibara et al. (1997) identified six key JIT practices namely maintenance, kanbans, setup time reduction, JIT supplier relationships, scheduling flexibility. Available literature on JIT indicates that firms apply different JIT practices therefore there are no standard implemented practices (Harber et al., 1990).

2.3.4 Quality Management Practices

Quality management practices can generally be summed up into the following distinct set of generic practices: top management commitment, leadership and organization for quality, cross functional teams, employee participation, supplier quality management, customer focus and satisfaction, statistical quality technique and Total quality methods (Ahire et al., 1996), employee training (Tamimi, 1998), continuous support and improvement (Douglas & Judge, 2001)

The implementation of the above constructs is expected to have an effect on supply chain performance. It has been however observed that the poor performance of most quality projects to yield the expected results stems partially from uncertainty in how the projects are actualized (Greene, 1993). Ogonda (2011) recommends that companies' device practical means of ensuring their employees have relevant skills invest in technology and work towards meeting customer demands. The management should also offer facilities that support the production process and improve the relationship between employees. Ngeta (2009) found that 94% of firms applying quality practices ranked highest across all sectors. Firms realized cost reduction, improved product quality and reduced lead time upon adopting the practices. However, company culture and staff attitude posed the most challenges in implementation process.

2.4 Empirical Literature Review

Hanfield et al. 1999 and Powell (1995) demonstrated a positive relationship between quality practices and financial/market performance. Matsui (2004) performed a field study to evaluate the impact of just in time practices on the competitive performance and revealed that some of JIT practices play a positive role in reducing the production cycle time and production cost, in addition they improve production flexibility and increase inventory turnover. Zhu and Sarkis (2004) looked into the relationship between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing firms. They established that producers in Taiwan's electrical and electronic industry adopted green manufacturing practices and green procurement in light of the rush to international green practices and had generated favorable financial and environmental performances for their respective firms.

Kitheka et al.,2013 in a study on supplier quality management and organizational performance, identified that the advantages that arise from supplier quality management are, lessened lead times, increased responsiveness to clients requests and enquiries, client unwaveringness, increased productivity and profitability, diminished opportunity cost and successful correspondence between the organization suppliers as well as customers. Masindet and Ogollah (2014) concluded that total quality

management contributes towards supply chain performance. Matata and Wafula (2015) in their study on the effects of quality management systems on performance argue that Quality Management systems in any organization are a crucial factor in efficient and effective leadership for successful functioning of any organization.

2.5 Challenges in adopting operations management practices

The inability to keep up with technological advancements inhibits implementation of operations management practices in most alcoholic beverage firms in Kenya. Ogonda (2011) argues that technology is significant in enhancing quality since most operations that a company undertakes can only be achieved through use of technology.

Implementers of operations management practices fail to understand the concepts of operations practices and their implementation. Most directors have not attained graduate level in specialized areas of operations management. This therefore poses a major challenge in implementing operations management practices in most alcohol manufacturing firms in Kenya (Ogonda, 2011).

Lack of training and employee development programs is a factor that affects many organizations. Organizations rarely invest in employee training. This therefore renders them incapable of implementing/adopting operations practices especially if they do not have a background in operations management. High cost is also a major challenge in the adoption of operations management practices. Stewart (1995) identified information processing cost as the largest contributor to logistics costs. The adoption of technology, maintenance of a skilled workforce and adoption of systems to support these practices is costly. Fear of change is a huge factor in organizations stagnation. According to McKee (2009) organizations are unable to focus on new competencies; they have no competitive points of difference and do not have an innovative culture.

2.6 Summary of Literature Review and Knowledge Gaps

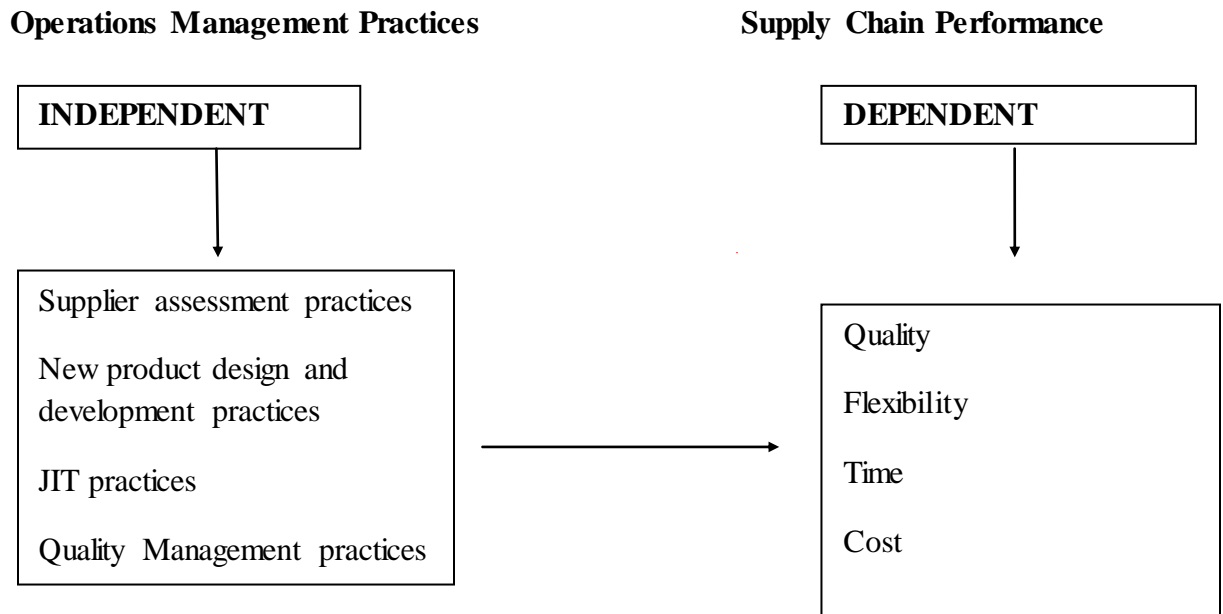
Operations management practices and supply chain performance are great variables within the manufacturing sector. The effect of both operations management practices and supply chain performance on overall organizational performance has been

established. Application of various techniques and tools under these operations practices such as quality function deployment, supplier assessment practices, six sigma, preventive maintenance, production scheduling etc. have been noted to play a big role in affecting not only supply chain performance but overall organizational performance; however there are challenges that are encountered when trying to adopt the operations management practices. This challenges range from high cost to technological advancements and they need to be recognized in order to take precautionary measures as well as solutions to such issues. Studies covering quality management and organizational performance have been noted. This study however, intends to look into the relationship between operations management practices and supply chain performance.

2.7 Conceptual Framework

The conceptual Framework in Figure 1 shows the relationship between operations management practices and supply chain performance amongst alcoholic beverage firms.

Figure 2.1: Operations Management Practices and Supply Chain Performance



Source :Author (2016)

Operations Management practices are dependent variables. These practices affect the level of flexibility of the manufacturing process, time factor, cost implications all through the process and the quality levels all through the production process. The above variables have a positive relationship where the application of operations management practices improves supply chain performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter introduces the logical framework to be followed in the process of conducting the study. This methodology includes research design, target population, sample size, sampling procedure, data collection instruments, data collection procedures, data analysis procedures viewed with expected results as a representation of the study.

3.2 Research Design

The study applied a descriptive research design due to the simplicity in analysing the phenomena as it occurs naturally. Descriptive research design enables an in depth study of the occurrences. It seeks to answer the questions of how, why, when, which and who (Troachim, 2000). Descriptive research design allows for the discovery of associations between variables and necessitates the use of questionnaires and direct observation. The research design aimed at investigating the relationship between operations management practices and performance in alcohol manufacturing firms.

3.3 Population

The target population in this study was licensed excise manufacturers and registered importers of alcohol and alcoholic beverages. The organizations chose for the study were from a list licensed excise manufacturers and registered importers of alcohol and alcoholic beverages (Kenya Revenue Authority, 2015). There are 145 licensed alcohol manufacturers and importers (list 3.1)

3.4 Sampling Design

The study applied stratified random sampling technique to select a sample size of 48 respondents. Stratified random sampling involves grouping the data into homogenous groups known as strata after which selection is done at random from each stratum a

specified number of elements. This method is considered appropriate as it enables one to make proportionate, and therefore meaningful, comparisons between sub-groups. Stratified Random sampling was used to group data into two major classes. The first was a list of alcohol and alcoholic beverage manufacturers and the second was a list of alcohol and alcoholic beverage importers. Within these groups, the firms were grouped based on the type of alcoholic beverage they handle. The groups were; wines, beers, white spirit, spirit and spirituous beverages, opaque beer and isopropyl alcohol. One-third of the firms from each group were selected through proportionate allocation.

3.5 Data Collection

Primary data was used in this study. It was collected using self-administered questionnaires which were dropped and picked later. The questionnaires consisted of open ended, closed ended questions and likert scales (Wade, 2006) to determine the level of responsiveness of various variables. The first section sought data on the background of alcohol manufacturing firms, the second section sought data on operations management practices, the third section sought data on supply chain performance parameters and the fourth section sought to identify the level of responsiveness of supply chain performance parameters to operations management practices. The approach of the questionnaire aimed to reduce any demand bias and devise responses scales likely to increase the variability of the response ensuring high statistical value from the data. The selected respondents consisted of operations managers or their equivalents within the firms.

3.6 Data analysis

This is the categorizing, ordering, manipulating and summarizing data to obtain answers to research questions. Once the questionnaires were collected, the data was grouped and arranged with respect to specific questions. In the case of the first objective, descriptive statistics such as means, standard deviation, mode and median were applied in analyzing the qualitative data that was obtained. These were used to establish the operations management practices applied. Mean was used to determine the average response of the most frequent responses and mode for the most frequent

responses. For objective two, regression analysis was used to determine the relationship between operations management practices and supply chain performance. Regression was used due to its ability to test the nature of influence of independent variables on a dependent variable.

The regression model was of the form:

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

Where:

Y = Dependent Variable (Supply Chain Performance)

X_j = Operations Management Practice (supplier assessment practices, new product design and development, just-in-time, quality management practices)

B_j = Regression Coefficient for variable X_j

ε = error term

TABLE 3.1; SUMMARY OF DATA COLLECTION AND DATA ANALYSIS METHODS

OBJECTIVE	DATA COLLECTION	DATA ANALYSIS
General Information	SECTION A	Descriptive statistics
Objective 1	SECTION B	Descriptive statistics
Objective 2	SECTION C	Regression and correlation analysis
Objective 3	SECTION D	Descriptive statistics

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis and interpretation of the data collected pertaining to the study's research objectives. It explains how the data was analyzed, the findings and the interpretations. The study employed descriptive research design to analyze the data obtained. The findings were summarized and presented in their respective sections covering respondent profile. The study's objective was to establish the operations management practices and supply chain performance of alcoholic beverage firms in Kenya. Primary data was collected through use of questionnaires which were administered to the alcoholic beverage manufacturers and alcoholic beverage importers.

4.2: Background Information

4.2.1 Position in the organization

Table 4.1

Position in the organization	Frequency	Percentage
Operations Manager	27	56.2
Operations assistant	21	43.8
Total	48	100

The study sought to identify the position of the respondents in the organization. From the respondents, the dominant part of the respondents as shown by 56.2% held the operations manager position while 43.8% held the operations assistant position. This implies that the respondents were in a good position to answer the questions since they had a wide knowledge about the companies.

4.2.2 Period of work

Table 4.2

Period of work	Frequency	Percentage
Below 5 years	4	8.3
5-10 years	8	16.7
10-15 years	14	29.2
15 years and above	22	45.8
Total	48	100

The study looked to set up the period which the respondents had served for in the organization. From the research findings, the study established that the dominant part of the respondents as shown by 45.8 % had served the organization for over 15 years whereas 29.2 % of the respondents had served the organization for a period between 10 to 15 years, 16.7% had served the organization for a period between 5 - 10 years, while 8.3% of the respondents had served the organization for a period under 5 years. This infers the majority of the respondents had served the organization for an extensive timeframe and therefore they were in a position to give tenable data relating to this research.

4.2.3 Application of Operations Management Practices

Table 4.3

Operations management practices application	Frequency	Percentage
Yes	31	64.6
No	17	35.4
Total	48	100

The respondents were asked to indicate whether their companies apply operations management practices. From the findings, majority of the respondents as shown by 64.6% indicated that they applied operations management practices while 35.4% indicated they do not apply them. This shows that the information required would be credible in regard to the topic.

4.2.4 Improvement of customer value

Table 4.4

Improvement of customer value	Frequency	Percentage
Yes	33	68.8
No	15	31.2
Total	48	100

The respondents were asked to indicate whether operations management practices improve customer value. From the findings, majority of the respondents as shown by 68.8% indicated that operations management practices improved customer value while 31.2% indicated that operations management did not improve customer value.

4.3 Operations Management Practices

4.3.1 Supplier assessment practices adoption

Table 4.5

Adoption of supplier assessment practices	Mean	Std Deviation
Supplier program for safety and hygiene	4.19	0.20
Maintenance of suppliers comprehensive internal quality audit system	4.15	0.20
Maintenance of adequate records of all inspections and tests performed	4.21	0.21
Statistical techniques and process controls were used on a daily basis	4.50	0.26
Procedures for the control used on verification of the design	4.23	0.21

of the product		
Periodic investigation were used on causes of non-conformance	4.39	0.25
Supplier documentation on their quality system	4.38	0.23
Maintenance of adequate testing devises for inspection	4.21	0.21

The study sought to establish which respondents concurred with the above statements relating to adoption of supplier assessment practices. From the research findings, a dominant part of the respondents unequivocally concurred that; statistical techniques and process controls were used on a daily basis as shown by a mean of 4.50, periodic investigations were used on causes of non-conformance as shown by a mean 4.39, supplier documentation were used on their quality system as shown by a mean of 4.38. Others agreed that procedures for the control were used for verification of the design of the product as shown by a mean of 4.23, maintenance of adequate testing devises maintenance of adequate records of all inspections and tests performed were used for inspection as shown by a mean of 4.21, supplier programs were used for safety and hygiene as shown by a mean of 4.19 and maintenance of suppliers comprehensive internal quality audit system were adopted as shown by a mean of 4.15.

The findings are in line Tan and Wisner (2003), who stated that supplier assessment allows suppliers to demonstrate management quality through good practices and compliance and encourage investment in the best available technology. They further indicated that supplier involvement earlier on in the product design process renders more cost effective design choices, develop alternative conceptual solutions, select the best components and technologies and help in design assessment.

4.3.2 New Product Design and Development Practices

Table 4.6

Practices of New Product Design and Development Practices	Mean	Std Deviation
Earlier supplier Investment	4.38	0.24
Standardization of component parts	4.19	0.21
Quick product development and Introduction Time	4.48	0.26
Simplification of component parts	4.14	0.20
Application of quality function deployment	4.02	0.17
The simplification of component parts	4.44	0.24

The study sought to establish the extent to which respondents agreed with the above statements relating to new product and development practices. From the research findings, majority of the respondents strongly agreed that; quick product development and introduction time was applied as shown by a mean of 4.48, there was simplification of component parts as shown by a mean of 4.44 and earlier supplier involvement as shown by a mean of 4.38. Others agreed that there was standardization of component parts as shown by a mean of 4.19, there was simplification of component parts as shown by a mean of 4.14 and there was application of quality function deployment as shown by a mean of 4.02. The findings concur with Gibney and Luscombe (2000), who indicated that new products lines allow firms to enter new markets, compete in an already existing market, make improvements on existing products and re-launch, reposition products and create substitutes to products at lower costs. When industries are competing at equal price and functionality, design is the only differential matters.

4.3.3 Just-in-Time practices

Table 4.7

Just-in-Time practices	Mean	Std Deviation
Preventive maintenance	4.39	0.24
To increase delivery frequencies	4.37	0.25
Reducing lot sizes	4.35	0.23
Sourcing from just-in-time suppliers	4.25	0.21
Maintaining a small supplier base	4.21	0.20
Reducing inventory to free up capital investment.	4.06	0.17
Reducing setup time	4.27	0.20
Monitoring manufacturing and scheduling for problems	4.15	0.14

The research sought to establish the level at which respondents agreed on the above statements relating to Just in Time practices. From the research findings majority of the respondents agreed to a great extent that JIT is used for preventive maintenance as shown by a mean of 4.39, to increase delivery frequencies as shown by a mean of 4.37, in reducing lot sizes as shown by a mean of 4.35. Others agreed that JIT reduces setup time as shown by a mean of 4.27, sourcing from just-in-time suppliers as shown by a mean of 4.25, maintaining a small supplier base as shown by a mean of 4.21, monitoring manufacturing and scheduling for problems as shown by a mean of 4.15 and in reducing inventory to free up capital investment as shown by a mean of 4.06. The findings are in line with Battistoni (2013), who recognizes that the more efficiently JIT is applied and the more its culture is spread within an organization the more tangible the benefits to economic performance are observed and it should therefore be integrated with all other business functions.

4.3.4 Quality Management Practices

Table 4.8

Quality Management Practices	Mean	Std Deviation
Process improvement	4.45	0.25
Statistical process control	4.23	0.21
Inspection	4.22	0.21
Employee training in quality management and control	4.27	0.22
Benchmarking	4.02	0.17
Simplifying the product	4.31	0.21
Top management communication of quality goals to the organization	4.39	0.24
Modular design of component parts	4.27	0.20
Using standard component parts	4.25	0.21
Designing quality products	4.17	0.20
Emphasis on quality instead of price in supplier selection process	4.19	0.19

The research sought to establish the extent to which respondents agreed with the above statements relating to application of quality management practices. From the findings, majority of the respondents agreed that quality management practices were used for process improvement as shown by a mean of 4.45, top management communication of quality goals to the organization as shown by a mean of 4.39, simplifying the product as shown by a mean of 4.31, modular design of component parts as shown by a mean of 4.27, using standard component parts as shown by a mean of 4.25, statistical process control as shown by a mean of 4.23, inspection as shown by a mean of 4.22. Others agreed that emphasises on quality instead of price in supplier selection process as shown by a mean of 4.19, designing quality products as shown by a mean of 4.17 and benchmarking as shown by a mean of 4.02. The findings are in line with Ngeta (2009), who found that 94% of firms applying quality practices ranked highest across all sectors. Firms realized cost reduction, improved

product quality and reduced lead time upon adopting the practices. However, company culture and staff attitude posed the most challenges in implementation process.

4.4 Operations Management Practices and Supply Chain Performance

4.4.1 Supplier assessment practices and supply chain parameters

Table 4.9

Supplier assessment practices and supply chain parameters	Mean	Std Deviation
Timeliness	4.37	0.22
Increased Flexibility	4.29	0.21
Lower Costs	4.08	0.18
Higher Quality	4.47	0.25

The study sought to establish which respondents concurred with the above statements relating to supplier assessment practices and supply chain parameters. From the research findings, majority of the respondents agreed to a great extent that supply chain performance parameters are responsive to supplier assessment practices as shown by a mean of 4.47 for quality, timeliness with a mean of 4.37, increase flexibility as shown by a mean of 4.29 and lower costs as shown by a mean of 4.08.

4.4.2 New product design and development practices and supply chain parameters

Table 4:10

New product design and development practices and supply chain parameters	Mean	Std Deviation
Timeliness	4.10	0.19
Increased Flexibility	4.25	0.21
Lower Costs	4.27	0.20
Higher Quality	4.50	0.26

The research sought to establish the degree to which respondents concurred with the above statements on new product design and development practices and supply chain parameters. From the research findings, a dominant part of the respondents agreed, as it were, that supply chain performance parameters were responsive to new product design and development practices as follows; Higher quality with a mean of 4.50, lower costs as shown by a mean of 4.27, increased flexibility as shown by a mean of 4.25, and Timeliness as shown by a mean of 4.10.

4.4.3 Just-in-Time practices and supply chain parameters

Table 4.11

Just-in-Time practices and supply chain parameters	Mean	Std Deviation
Timeliness	4.29	0.21
Increased Flexibility	4.20	0.20
Lower Costs	4.31	0.23
Higher Quality	4.08	0.20

The study sought to establish the degree to which respondents concurred with the above statements in relation to responsiveness of supply chain performance parameters and Just-in-Time practices. From the research findings, a majority of the respondents agreed, supply chain performance parameters were responsive to Just-in-time practices as follows; lower costs as shown by a mean of 4.31, timeliness as shown by a mean of 4.29, increment flexibility as shown by a mean of 4.20, higher quality as appeared by a mean of 4.08.

4.4.4 Quality Management Practices and supply chain parameters

Table 4.12

Quality Management Practices and supply chain parameters	Mean	Std Deviation
Timeliness	4.12	0.21
Increased Flexibility	4.41	0.24
Lower Costs	4.31	0.22
Higher Quality	4.29	0.23

The research sought to establish the extent to which respondents agreed with the above statements relating to responsiveness of supply chain parameters to quality management practices. From the research findings, the majority of the respondents agreed to a great extent that supply chain performance parameters were responsive as follows; flexibility as shown by a mean of 4.41, lowers costs as shown by a mean of 4.31, high quality as shown by a mean of 4.29 and timeliness as shown by a mean of 4.12.

4.5 Challenges affecting the implementation of Operations Management practices

Table 4.13

Challenges of implementation of Operations Management practices	Mean	Std Deviation
High costs associated with technology, cost of labour as well as miscellaneous costs	4.35	0.23
High capital investment making it difficult to implement operations practices	4.23	0.20
Fear of change among employees	4.08	0.18
High competition in the industry	4.39	0.24
Inadequate training offered to employees	4.10	0.19
Poor management skills	4.29	0.21

The study sought to establish the challenges affecting the implementation of Operations Management practices. From the research findings, majority of the respondents agreed to a great extent that high competition in the industry is a challenge as shown by a mean of 4.39, high costs associated with technology and cost of labour as well as miscellaneous costs as shown by a mean of 4.35, poor management skills as shown by a mean of 4.29, high capital investment making it difficult to implement operations practices as shown by a mean of 4.23. Others agreed that inadequate training offered to employees was a challenge as shown by a mean of 4.10 and fear of change among employees as shown by a mean of 4.08.

The findings are in line with Ogonda (2011) who indicated that most directors have not attained graduate level in specialized areas of operations management. This therefore poses a major challenge in implementing operations management practices in most manufacturing firms in Kenya. He also asserts that the adoption of technology, maintenance of a skilled workforce and adoption of systems to support these practices is costly. Also, fear of change is a huge factor in organizations stagnation.

4.6 Regression Analysis

“In this study, a multiple regression analysis was conducted to test the influence among predictor variables. The research used statistical package for social sciences (SPSS V 21.0) to code, enter and compute the measurements of the multiple regressions.”

Table 4.14: Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.187	0.039	.175	4.79	.002
	Supplier assessment practices (X ₁)	.575	.015	.484	38.333	
	New product design and development (X ₂)	.322	.160	.287	2.012	
	Just in Time practices (X ₃)	.257	.028	.236	9.178	
	Quality management practices (X ₄)	.134	.015	.129	8.933	

- a) Predictors: (Constant), supplier assessment practices, new product design and development, just in time practices and quality management practices.
- b) Dependent Variable: Supply Chain Performance.

The established regression equation was

$$Y = 0.187 + 0.575X_1 + 0.322X_2 + 0.257X_3 + 0.134X_4$$

“According to the intercept (B₀), when the four independent variables are held constant, the value of supply chain performance will be 0.187. The findings also shows that taking all other independent variables at zero, a unit increase in supplier assessment practices will lead to a 0.575 increase in the scores of the Supply Chain Performance. A unit increase in new product design and development will lead to a 0.322 increase in of Supply Chain Performance. On the other hand, a unit increase in just in time will lead to a 0.257 increase in Supply Chain Performance and unit increase in quality management practices will lead to a 0.134 increase in the Supply Chain Performance. This infers that supplier assessment practices influences Supply Chain Performance most followed by new product design and development, just in

time practices and finally quality management practices. The study also established a significant relationship between the Supply Chain Performance and the independent variables; supplier assessment practices ($p=0.002<0.05$), new product design and development ($p=0.001<0.05$), Just in time practices ($p= 0.002<0.05$), and quality management practices ($p=0.001<0.05$). The regression coefficients were tested for significance at $\alpha=0.05$. Significance occurs at p-values less than 0.05. From the above results, all the predictors are good predictors for the supply chain performance.”

Table 4.15: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.889	.790	.736	.22462

Source: Author, 2016

“The study used the R square. The R Square is called the coefficient of determination and tells us how supply chain performance varied with the operations management practices i.e supplier assessment practices, new product design and development, just in time practices and quality management practices. The four independent variables that were studied explain a 79% rate of influence on supply chain performance as represented by R Squared (Coefficient of determinant). This therefore means that other operations management practices not studied in this research contribute 21% of operations management practices influencing supply chain performance. The results of this study concur with Lapide (2000) who found that supply assessment practices play a significant role in supply chain performance.”

Table 4.16: Summary of One-Way ANOVA results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.293	4	0.431	3.814	.001 ^b
	Residual	13.108	44	0.113		
	Total	14.401	48			

Source: Author, 2016

The study used ANOVA to establish the significance of the regression model from which an f-significance value of p less than 0.05 was established ($p=0.001 <0.05$).

The model is statistically significant in predicting how supplier assessment practices, new product design and development, just in time practices and quality management practices affect Supply Chain Performance. This shows that the regression model has a less than 0.05 likelihood (probability) of giving a wrong prediction. This therefore means that the regression model has a confidence level of above 95% hence high reliability of the results. Using the F-test statistic, the sample F value had a value of 3.814 with critical f value at $\alpha = 0.05$, 5 degrees of freedom for the numerator and 86 degrees of freedom for the denominator; this implies that the regression model is statistically significant since $3.814 > 1.997$. According to (Hausman, 2003) this is model can be used for estimating purposes.

4.7 Discussion of the Findings

The study established that supplier assessment practices had a greater influence on supply chain performance in comparison to the other operations practices highlighted. The findings are in line Tan and Wisner (2003), who stated that supplier assessment allows suppliers to demonstrate management quality through good practices and compliance and encourage investment in the best available technology. They further indicated that supplier involvement earlier on in the product design process renders more cost effective design choices, develop alternative conceptual solutions, select the best components and technologies and help in design assessment

The study showed that new product design and development practices and supply chain parameters had a positive relationship. The findings concur with Gibney and Luscombe (2000), who indicated that new products lines allow firms to enter new markets, compete in an already existing market, make improvements on existing products and re-launch, reposition products and create substitutes to products at lower costs. When industries are competing at equal price and functionality, design is the only differential matters.

Just in Time practices were shown to contribute to supply chain performance through activities such as preventive maintenance, increased delivery frequencies and reduced lot sizes. The findings are in line with Battistoni (2013), who recognizes that the more efficiently JIT is applied and the more its culture is spread within an organization the

more tangible the benefits to economic performance are observed and it should therefore be integrated with all other business functions.

Quality management practices were applied for process improvement and for top management communication of quality goals to the organization. Ngeta (2009), found that 94% of firms applying quality practices ranked highest across all sectors. Firms realized cost reduction, improved product quality and reduced lead time upon adopting the practices. However, company culture and staff attitude posed the most challenges in implementation process.

It was however noted that the firms experienced challenges that affected their ability to improve performance as well adopt operations management practices. The greatest challenge was in line with Ogonda (2011) who indicated that most directors have not attained graduate level in specialized areas of operations management. This therefore poses a major challenge in implementing operations management practices in most alcohol manufacturing firms in Kenya. He also asserts that the adoption of technology, maintenance of a skilled workforce and adoption of systems to support these practices is costly. Also, fear of change is a huge factor in organizations stagnation.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

From the data collection and analysis, the following discussions, conclusion and recommendations were made. The responses were based on the objectives of the study. The study sought to establish the operations management practices in alcoholic beverage firms, the relationship between operations management practices and supply chain performance in alcohol beverage firms and the challenges faced by alcohol beverage firms in the implementation of operations management practices.

5.2 Summary of the Findings

This section presented the key findings of the study;

5.2.1 Adoption of supplier assessment practices

From the findings, the study established that statistical techniques and process controls were used on a daily basis, periodic investigations were used on causes of non-conformance while supplier documentation was used on their quality system. The study further revealed that procedures for the control were used for verification of the design of the product. Maintenance of adequate testing devices, maintenance of adequate records of all inspections and tests performed were used for inspection. The findings also indicated that supplier programs were used for safety and hygiene, maintenance of supplier's comprehensive internal quality audit system were adopted. The study further revealed that supplier assessment practices were responsive to supply chain parameters since they had a high quality, timeliness, increased flexibility and helped in lowering costs.

5.2.2 New Product Design and Development Practices

On new product design and development practices, the study findings established that there were practices of quick product development and introduction time in the organization. There was simplification of component parts and earlier supplier investment. The findings further indicated that there was standardization of component parts and application of quality function deployment. The study further

revealed that supply chain performance parameters were responsive to new product design and development practices

5.2.3 Just-in-Time practices

From the findings it was revealed that JIT practices were used for preventive maintenance, to increase delivery frequencies and in reducing lot sizes. The findings further revealed that JIT reduces setup time, supplier's source from just-in-time practices, they help in monitoring manufacturing and scheduling for problems and in reducing inventory to free up capital investment.

5.2.4 Quality management practices

From the findings, quality management practices were applied for process improvement and for top management communication of quality goals to the organization. It was observed that the practices simplified the product and modular design of component parts. The findings stated that the quality management practices were applied in standardizing component parts, inspection, to emphasis on quality instead of price in supplier selection process, designing quality products and benchmarking.

5.2.5 Challenges affecting the implementation of Operations Management practices

The findings revealed that high competition in the industry was a challenge. High costs associated with technology and cost of labour were among the major challenges. Poor management skills and high capital investment made it difficult to implement operations practices. Inadequate training offered to employees and fear of change among employees were among the issues that proved to affect the culture of an organization and were among the issues that were affecting supply chain performance parameters.

5.3 Conclusions

It was observed that there is a very strong acknowledgement of operational management practices and its effect on firms performance. In alcohol beverage firms in Kenya there was evidence of superior supply chain performance within the firms that adopted this practices.

The firms' efforts are driven by profitability through increased sales from their operations. This research showed evidence of the need for determining the new markets and new products, adoption of supplier assessment practices, new product design and development practices and Just in Time practices. The operations management practices adopted by the alcoholic beverage firms have a great impact on supply chain performance.

While the findings give the alcoholic beverage firms a good standing in terms of supply chain performance, it should be noted that many supply chain partners in this industry suggest that more needs to be done to manage the supply chain for sustainable supply chain performance within the industry. This can be done by curbing the challenges faced which include poor management skills, high capital investment, inadequate training offered to employees and fear of change among employees.

5.4 Recommendations

This study recommends that alcoholic beverage firms should get some insights on how to implement operations management practices which will enable them increase productivity, performance and enhance competitiveness. The management skills of staff in organizations need to be addressed. These firms needs to institute performance measurement practices that will appraise the performance of the supply chain and recommend new ideas and innovations as well as manage the existing ideas in the supply chain.

Alcoholic beverage firms in Kenya need to consider improving employee training so as to cater for the needs of the growing market. The firms need to make additional investments to cater for the growing number of consumers in the industry. Alcoholic beverage firms in Kenya also need to work with players in the industry in order to come up with various operations management practices that will help to improve their

supply chain performance as there exists an opportunity to share infrastructure and expand into new markets.

The alcoholic beverage firms in Kenya being among the largest contributors in Kenya's gross domestic product needs to put some effort in order to remain competitive. This requires the firms to adopt operations management practices best suited for their sector of operation. They also need to establish the supply chain performance measures that best determine the appropriateness of the practices adopted.

5.5 Suggestion for further studies

Research on operations management practices in other industries should be conducted in future in order to shed light on the effect on supply chain performance. The involvement of Kenya's alcoholic beverage firms in global trade requires that future research into more operations management practices that can be adopted should be done. This will ensure that the industries will be conversant with not only regional practices but international practices to better trade with international firms and also avoid the emergence of multinationals in the industry that have more knowledge in ensuring operation management along their supply chains.

There is also the need for a performance management system instituted in the industries supply chain. This is in order to sustain the good ideas and innovations that are constantly being added to the supply chain. In future, research can focus on how performance management can be instituted within the alcoholic beverage firms supply chain and suggest sustainable ways of making sure that the performance management techniques will continuously appraise and improve supply chain performance

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APPENDICES

Appendix I: Research Questionnaire

Introduction

This questionnaire has been designed for the sole purpose of collecting data on the relationship between operations management practices and supply chain performance in alcoholic beverage firms in Kenya. The data collected will be treated with a very high degree of confidentiality and is meant for academic purposes only.

Section Background information

1. Name of the Company.....

2. What is your position in this Company?

- a) Operations Manager
- b) Operations Assistant
- c) Other (specify).....

3. How long have you been in this position?

Less than 5yrs 5-10yrs 10-15yrs above20yrs

4. Does this company apply Operations Management Practices?

Yes..... No.....

5. If so kindly outline any practices that you are aware of:

.....
.....

6. In your opinion do you think operations management practices improve customer value?

Yes.....

No.....

SECTION B, Operations Management Practices

(I) Supplier assessment practices

To what extent have the following supplier assessment practices been adopted in this organization, according to the scale **(1-not at all, 2-least extent, 3-moderate extent, 4-great extent, 5- very large extent)**.

Scale	1	2	3	4	5
Supplier program for safety and hygiene					
Maintenance of suppliers comprehensive internal quality audit system					
Maintenance of adequate records of all inspections and tests performed					
Statistical techniques and process controls for use on a daily basis					
Procedures for the control and verification of the design of the product					
Periodic investigation of causes of non-conformance					
Supplier documentation on their quality system					
Maintenance of adequate testing devises for inspection					

(ii) New Product Design and Development Practices

To what extent are the following new product and development activities practiced within this organization, according to the scale **(1-not at all, 2-least extent, 3-moderate extent, 4-great extent, and 5- very large extent)**.

Scale	1	2	3	4	5
Earlier supplier Investment					

Standardization of component parts					
Quick product development and Introduction Time					
Simplification of component parts					
Application of quality function deployment					
The simplification of component parts					

(iii) Just-in-Time practices

To what extent are the following activities relating to JIT practiced within this organization, according to the scale **(1-not at all, 2-least extent, 3-moderate extent, 4-great extent, 5- very large extent)**.

Scale	1	2	3	4	5
Preventive maintenance					
Increased delivery frequencies					
Reducing lot sizes					
Sourcing from just-in-time suppliers					
Maintaining a small supplier base					
Reducing inventory to free up capital investment.					
Reducing setup time					
Monitoring manufacturing and scheduling for problems					

(iv) Quality Management Practices

To what extent are the following quality management practices applied in this supermarket, according to the scale **(1-not at all, 2-least extent, 3-moderate extent, 4-great extent, 5- very large extent)?**

Scale	1	2	3	4	5
Process improvement					
Statistical process control					
Inspection					
Employee training in quality management and control					
Benchmarking					
Simplifying the product					

Top management communication of quality goals to the organization					
Modular design of component parts					
Using standard component parts					
Designing quality products					
Emphasis on quality instead of price in supplier selection process					

Section C, Operations Management Practices and Supply chain Performance

(I) Supplier assessment practices and supply chain parameters

To what extent are the following supply chain performance parameters responsive to supplier assessment practices, according to the scale (1-not at all, 2-least extent, 3-moderate extent, 4-great extent, 5- very large extent)?

Scale	1	2	3	4	5
Timeliness					
Increased Flexibility					
Lower Costs					
Higher Quality					

(II) New product design and development practices and supply chain parameters

To what extent are the following supply chain performance parameters responsive to new product design and development practices, according to the scale (1-not at all, 2-least extent, 3-moderate extent, 4-great extent, 5- very large extent)?

Scale	1	2	3	4	5
Timeliness					
Increased Flexibility					
Lower Costs					
Higher Quality					

(III) Just-in-Time practices and supply chain parameters

To what extent are the following supply chain performance parameters responsive to just-in-time practices, according to the scale (1-not at all, 2-least extent, 3-moderate extent, 4-great extent, 5- very large extent)?

Scale	1	2	3	4	5
Timeliness					
Increased Flexibility					
Lower Costs					
Higher Quality					

(IV) Quality Management Practices and supply chain parameters

To what extent are the following supply chain performance parameters responsive to Quality Management Practices, according to the scale (1-not at all, 2-least extent, 3-moderate extent, 4-great extent, 5- very large extent)?

Scale	1	2	3	4	5
Timeliness					
Increased Flexibility					
Lower Costs					
Higher Quality					

Section D, Challenges of implementation of Operations Management practices

To what extent do you believe the following challenges have affected operations management practices in your organization, according to the scale (1-not at all, 2-least extent, 3-moderate extent, 4-great extent, 5- very large extent).

Scale	1	2	3	4	5
High costs associated with technology, cost of labour as well as miscellaneous costs					
High capital investment making it difficult to implement operations practices					
Fear of change among employees					

High competition in the industry					
Inadequate training offered to employees					
Poor management skills					

Appendix II

Licensed Excise Manufacturers of Alcohol & Alcoholic Beverages	22. Magnum Ventures
	23. Mambo Leo Wines & Spirits Ltd
Ethyl Alcohol	24. Malkar Agency
1. Agro Chemical & Food Company Ltd	25. Maxam Ltd
2. Mumias Sugar Company Ltd	26. Max Distributors Ltd
	27. Mashwa Breweries Ltd
Wines	28. Meera Umoja Kenya Ltd
1. Kenya Nut Company Ltd	29. Mega Wines & Spirits
2. Kenya Wine Agencies Ltd	30. Milestone City Hotel Ltd
	31. Monte Bello Wines Ltd
Beers	32. Mohans Oysterbay
	33. Monwalk Inv Ltd
1. Big Five Breweries Ltd	34. MRG Trading
2. East africa Breweries Ltd	35. Museum Hill Wines Ltd
3. Sirville Investments Ltd	36. Nihonshu Ltd
4. Top Rank Industries Ltd	37. Nairobi Vintners (K) Ltd
5. Keroche breweries	38. New Italycor Ltd
6. Mount Kenya breweries	39. New Westlands Stores
	40. Nyawa Agency
Registered Importers of Alcohol & Alcoholic Beverages	41. Naivasha Distillers Ltd
	42. Patialla Distillers Kenya Ltd
Spirits & Spirituous Beverages	43. Pernod Ricardo (K) Ltd
1. Algar Aguilar Investment Ltd	44. Primento Trading Co Ltd
2. Branded Beverages	45. Posner & Klein Company Ltd
3. C & C Polaken Ltd	46. Rostrum EA Ltd
4. Chareth General Agencies	47. Seven Days International Ltd
5. Chemi Chemi Wines & Spirits Ltd	48. Slater & Whittaker
6. Crown Beverages Ltd	49. Sherehe Breweries (K) Ltd

7. Decanter Limited	50. Sunrise Supplies Ltd
8. Distell Winemasters Ltd	51. Swift Klein Global Limited
9. Domaine Kenya Limited	52. The Choice of E.A Ltd
10. Echerenet Company Ltd	53. The Wine Company
11. First Drinks Kenya Ltd	54. Tropic Trade Market Ltd
12. Goldensea Global Logistics Ltd	55. UDV (K) Ltd
13. Goldust Ltd	56. UDV Holdings Ltd
14. Huashi Wines Importers	57. Viva Global Ltd
15. Imperial Liquors Ltd	58. Wines of The World
16. Jeca Concept Ltd	Beer
17. Jaj Superpower Cash & Carry	1. Crown Beverages Ltd
18. Kapari Ltd	2. Graella Distillers Ltd
19. Kenya Wines Agency Ltd	3. Heineken E.A. Import Co. Ltd
20. Liquid Africa	4. Jeca Concept Ltd
21. Liquid Point Ltd	5. Jovet K Ltd
6. King beverages Ltd	32. Maxam Ltd
7. Kapari Ltd	33. Mega Wines & Spirits
8. Monwalk Investments Ltd	34. Mia Wines & Spirit International Ltd
9. Rio Kenya Ltd	35. Mig Trading Company Ltd
10. Slatter & Whittaker Ltd	36. Milestone City Hotel Ltd
11. Viva Global Ltd	37. Monte Bello Wines Ltd
12. Wines of The World	38. Monwalk Inv Ltd
White Spirit	39. MRG Trading
1. Basco Products (Kenya) Ltd	40. Museum Hill Wines Ltd
2. Crown Paints (K) Ltd	41. Nairobi Vintners(K) Ltd
3. Nasib Industrial Products Ltd	42. New Italycor Ltd
ISO Propyl Alcohol (IPA)	43. New Westlands Stores
1. Pantel Chemicals	44. Nyawa Agency
Wines	45. Patialla Distillers Kenya Ltd
1. Agric Produce Importers K Ltd	46. Pernod Ricardo (K) Ltd

2. Algar Aguilar Investment Ltd	47. Primento Trading Co Ltd
3. All Drinks Ltd	48. Redcrest Wines Ltd
4. Balmoral Ltd	49. Roads Into Africa Company Ltd
5. Branded Beverages	50. Rostrum EA Ltd
6. Brilliant Secrets Group Ltd	51. San Giorgio Ltd
7. Brown Biashara Ltd	52. Slater & Whittaker
8. C & C Polaken Ltd	53. Spanwell Limited
9. Cama Trading Ltd	54. Sunrise Supplies Ltd
10. Casks And Barrels	55. The Choice of E.A Ltd
11. Chareth General Agencies	56. The Wine Company
12. Chemi Chemi Wines & Spirits Ltd	57. The Wine Shop Ltd
13. Crown Beverages Ltd	58. Tropic Trade Market Ltd
14. Decanter Limited	59. UDV (K) Ltd
15. Distell Winemasters Ltd	60. Verum Kenya Ltd
16. Domaine Kenya Limited	61. Viva Global Ltd
17. Echerenet Co Ltd	62. Westlands Hotel Ltd
18. Fairview Hotel	63. Wines of The World
19. Famaco Limited	
20. First Drinks Kenya Ltd	
21. Jambo Italia Ltd	
22. Jeca Concept Ltd	
23. Jos Hansen & Soehen East Africa Ltd	
24. Kapari Ltd	
25. Kenruss Limited	
26. Kenya Nut Company Ltd	
27. Kenya Wines Agency Ltd	
28. Liquid Africa	
29. Mambo Leo Wines & Spirits Ltd	
30. Magnum Ventures	
31. Malkar Agency	