FACTORS AFFECTING THE PERFORMANCE OF DISTRIBUTION LOGISTICS AMONG MANUFUCTURING FIRMS IN KENYA: A CASE STUDY OF KIBOS SUGAR COMPANY LIMITED

BY

EVANCE OCHIENG ONGATI

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DECLARATION

I declare that this research project is my own work and has never been presented in any University for any award.

Evance Ongati

MSC/BE/00092/2016

Sign………………………………..   Date………………………………..

This research project has been presented for examination with my approval as the University supervisor.

Dr. Tambo Albert

School of Business and Economics

Department of Management Science

Maseno University

Sign………………………………..   Date………………………………..

ACKNOWLEDGEMENT

DEDICATION

I wish to dedicate this work to my late father Mzee Antipa Ongati and to my loving family, my wife Anjelyne, my brother Prof Omolo Ongati my children, Lindah Olivia and Ethan for their immense support and encouragement during this study.

ABSTRACT

Empirical studies shows that distribution logistics impact tremendously on performance of an entire organization as it links the organization to the customers. Kibos sugar company report in 2016 revealed that there was a performance drop from 56% in 2014 to 47% in 2015 and this was attributed to distribution logistics. Therefore this study established factors affecting performance of distribution logistics among production firms in Kenya: a case of Kibos Sugar Company limited and allied industries. The study specifically; determined the effect of product nature on performance of distribution logistics and the effect of distribution structure on performance of distribution. The conceptualization of the study was guided by game theory. The study applied descriptive approach through survey design. The target population comprised 26 employees. The sample size of the study was 24 respondents sampled using census sampling technique. Data analysis was done by descriptive statistics. The study realized that accuracy of data collected, size of data base and ability of management information system to predict future decisions are significant elements of information systems that has got vast influence on the performance of distribution logistics. This study filled the gap in empirical studies which reported that there is no existing relationship between information systems and distribution performance which the present study finds to be existing. The study therefore concludes that management information system coupled with various information technology are key in managing every distribution aspect for sure performance. The study also revealed that distribution structure is a factor which influences distribution performance through availability of regional depots which enables customers to easily reach the products limiting stock outs which in the long run translates to positive distribution performance. Besides, route-planning if considered, enables timely deliveries of products, cost reduction in regard to time, fuel and vehicle maintenance. The present study filled the gap in previous studies which reported that in logistics system, distribution cost is typically the highest single expense. That is, through implementing proper distribution structure, nearly all the avoidable costs may be limited. It is concluded that distribution structure used by a manufacturing firm have an impact on the ability of its Distribution Logistics to perform. The study recommends need of embracing modern and current technology which can help various users of organization information to collect, analyze, interpret and come up with various useful decisions affecting the organization. Further study needs to be done on the same topic but in other smaller institutions especially nationally so as to spur development in the country Kenya and in Africa at large.

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OPERATIONAL DEFINITION OF TERMS

Distribution channel   Consists of a group of individuals or organizations that assist in getting the product to the right place at the right time.

Distribution logistics   Is the management activities to pursue customer satisfaction and order fulfillment, connecting the main body of supply and demand, overcoming space and time obstacles to achieve efficient and rapid movement of goods.

Performance Logistics   Is the process of planning, implementing, and controlling the efficient, effective flow and storage of goods, services, and related

ABBREVIATIONS AND ACRONYMS

SCM	**:**	Supply Chain Management
USA	**:**	United States of America

CHAPTER ONE
INTRODUCTION

This chapter contains the background information of the study on the analysis of factors affecting the performance of distribution logistics among production firms in Kenya, the statement of the problem, the objectives of the study, the research questions that guided the study and the significance of the study.

1.1 Background of the study

Logistics is increasingly becoming a strategic source of competitive advantage with the increase in global production sharing, shortening of product life cycles and intensification of global competition. In the highly competitive business environment, quality of logistics has assumed great significance; it influences such decisions of firms as the choice of; country to locate in, suppliers to buy from, and/or consumer markets to enter in. Essentially, high logistics costs coupled with low service quality are a barriers to trade and foreign direct investment (FDI) and consequently to economic growth. Massive investments are being made worldwide with some of the best known investment gurus putting their bet on distribution industry which is directly linked to the growth of any economy (Prabhakarsri, 2010). Distribution is increasingly becoming a significant factor that can contribute to the realization of successful organizational strategy. However, performance of distribution logistics is still a challenge to major manufacturing firms Kibos sugar Company and allied industries being one of them and thus the need of the present study on performance of distribution logistics.

Today's business environment has become increasingly competitive. This causes enormous pressure for many companies in many industries. In such an environment, companies need to continuously search for ways to design and manufacture new products, and distribute these products in an efficient and effective fashion (Xu, 2013). For many years, companies focused their efforts on reducing costs occurring in the manufacturing processes as well as other operations. There are an increasing number of companies looking at distribution and recognizing it as the last frontier for cost reduction.Xu(2013) in his study points that companies need to design a distribution strategy that can ensure products are distributed in an efficient and effective

fashion. However, he does not clearly point put as to these strategies which thus necessitates the present study which intended to establish the strategies to be adopted to enable performance of distribution logistics.

According to Parthanadee and Logendran (2006) in 1991, the Council of Logistics Management, a trade organization based in the United States, defined logistics as the process of planning, implementing, and controlling the efficient, effective flow and storage of goods, services, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements. This is a frequently used definition, which originated in the military. The present study adopted this definition.

In United States logistics costs constitutes about 30% of the cost of the products sold (Eskigun, Uzsoy, Preckel, Beauj, Krishnan and Tew, 2005). In a logistics system, distribution cost is typically the highest single expense, which is usually greater than warehousing cost, inventory cost and order processing cost Parthanadee and Logendran (2006). Distribution has captured management's attention due to rapid wage and freight rate inflation, critical swing of transportation costs and regulation, the high cost of carrying inventory, and oil market uncertainties. From the study by (Eskigun, Uzsoy, Preckel, Beauj, Krishnan and Tew, 2005), and Parthanadee and Logendran (2006), it implies that logistics is major concern as most of the costs incurred in a production system are majorly in logistics. The present study therefore sought to find out if cost is a factor that affect performance of distribution logistics in production firms with specific reference to Kibos Sugar Company.

Since logistics advanced from 1950s, due to the trend of nationalization and Globalization in recent decades, the importance of logistics management has been growing in various areas. For industries, logistics helps to optimize the existing production and distribution processes based on the same resources through management techniques for promoting the efficiency and competitiveness of enterprises (Kahia, 2014). Distribution logistics makes goods and products movable and provides timely and regional efficacy to promote value-added under the least cost principle. Distribution affects the results of SCM activities and, of course, it influences production and sale. In the logistics system, transportation cost could be regarded as a restriction

of the objective market. Value of distribution varies with different industries. According to Knemeyer and Murphy, (2004) for those products with small volume, low weight and high value, distribution cost simply occupies a very small part of sale and is less regarded; for those big, heavy and low- valued products, distribution occupies a very big part of sale and affects profits more, and therefore it is more regarded. The demand for products can only be satisfied through the proper and cost-effective delivery of goods and services of which the present study sought to establish if there was proper and cost effective delivery of goods and services at Kibos Sugar Company.

Distribution channel consists of a group of individuals or organizations that assist in getting the product to the right place at the right time (Asiamah, Alfred and Solomon, 2013). Distribution plays a vital role, primarily because it ultimately affects the sales turnover and profit margins of the organization. If the product cannot reach its chosen destination at the appropriate time, then it can erode competitive advantage and customer retention. Therefore, distribution logistics is the link between a company and its customers (Skjoett, 2002); it comprises all activities related to the provision of finished products and merchandise to a customer. The products can be delivered directly from the production process or from the trader's stock located close to the production site or, possibly, via additional regional distribution warehouses. Like procurement logistics, distribution logistics is a market-linked logistics system. It links a company's production logistics with the customer's procurement logistics Kahia (2014). In distribution logistics, customer orientation plays a special role because of the close link to the customer. According to (Zheng and Zhang, 2010) distribution logistics is the management activities to pursue customer satisfaction and order fulfillment, connecting the main body of supply and demand, overcoming space and time obstacles to achieve efficient and rapid movement of goods. It also involves conveying of information related to the distribution of physical goods thus making it slightly distinct from physical distribution.

Performance of distribution logistics can be measured by on time delivery. This determines whether a perfect delivery has taken place or not, it thus measures customer service. Xu (2013) in Stewart (1995) identifies the following as the measures of performance logistics: delivery-to-request rate, delivery-to-commit date, order fill lead-time and goods in transit. Quality and the

way the information is exchanged determine performance of distribution logistics to a large extent; possible performance indicators are: number of faultless invoices, flexibility of delivery systems to meet particular customer needs.

1.1.2 Kibos Sugar Company and Allied Industries

Kibos Sugar Company is manufacturing organization based within the outskirts of Kisumu at Kibos center. Its mission statement is 'to maintain a competitive advantage by economical pricing, improving the production technology and empowerment of our stakeholders through skills, knowledge, inspiration and motivation. By strengthening commitment and partnership so as to achieve and sustain long term growth and wealth creating for all stakeholders while maintaining high health and safety standards. Focusing on differentiation and diversification of products by investing in research, development and innovation. Adapt environmentally friendly production techniques so as to reduce the global warming and embracing corporate governance practices'. Its main objective is to produce high quality refined sugar for the Kenyan market among other sugar products.

1.2 Statement of the Problem

Most manufacturing firms in Kenya currently are ensuring that customers are able to place orders on phone and via email such that the order processing is done so fast to enable loading and the forthcoming delivery at the customers' door. For instance, Equator Bottlers, equally a manufacturing firm currently uses ERP an information management system which is able to collect data from various transaction points, relate it to the requirements, generate back the feedback on the instructions given and proceed till the whole transaction process is achieved. This has made them a dynamic and an outstanding performing company. This is what is required by the current changes to be embraced by other companies. However, at Kibos sugar company, they still use the SERA system, an application which does not have the capability to post and put appropriately every detail needed in the distribution process from production to delivery point. This is one of the major factors that pose a great challenge to their distribution process and performance since they are not able to respond to customer enquiries' in time, they are not able to communicate between departments effectively such that credit control section cannot easily know the levels of stock from production department instantly unless a physical verification

from the manual bin cards is done. This implies that if a customer places an order, the invoicing department cannot proceed instantly implying time wastage which will spread to the customers. Besides, modern companies have networked their systems such that they are capable of accessing their bank accounts and instantly detecting payments that have been made by their customers in regard to their fresh orders. However, at Kibos Sugar Company and Allied industries, the customers still have to deliver the payment slips physically. That is, after depositing the cash, they have to find a way of the deposit slips reaching the credit controller. The time involved in doing all these equally spread to the whole distribution process. The present study therefore intended to establish how lack of modern information systems translates to poor distribution performance at Kibos Sugar Company and Allied Industries. Kibos Sugar Company and Allied Industries lack enough regional depots within the market that they serve. This has in fact been one of their major challenge which has affected their distribution system as the customers must wait until the truck comes all the way from the main plant. In addition, they have-not clearly mapped their network of clients that they serve so as to enable them to understands which markets to concentrate in and how to reactivate other dead markets. This therefore has negatively impacted on their logistics system which the present study seeks to find out.

1.3 Objectives of the Study
1.3.1 Main Objective
The study's main objective was to determine the effectsof factors affecting performance of distribution logistics in Kibos Sugar and Allied Industries Limited, Kenya.

1.3.2 Specific Objectives
The study was guided by the following specific objectives:

i. To determine the effects of information systems on performance of distribution logistics in Kibos Sugar and Allied Industries Limited, Kenya

ii. To establish the effects of distribution structure on performance of distribution in Kibos Sugar and Allied Industries Limited, Kenya

1.4 Research questions

The study was guided by the following research questions:

i. What was the effects of information systems on performance of distribution logistics in Kibos Sugar and Allied Industries Limited, Kenya?

ii. What was the effects of distribution structure on performance of distribution in Kibos Sugar and Allied Industries Limited, Kenya?

1.5 Scope of the study

The study was based at Kibos Sugar and Allied Industries Limited in Kisumu County, Kenya to analyze factors affecting the performance of distribution logistics. The period of the study was between January 2018 and August 2018. The main concepts of the study were the effects of; product nature, and distribution structure on performance of distribution logistics. The study gives recommendations on how to curb the latter challenges.

1.6 Justification of the Study

The current study aids in identifying the major challenges that affect the performance of distribution logistics. This aids the company managers to come up with various ways and approaches to curb the identified challenges thus enabling the achievement of the main goal of the organization. Besides, the present paper adds to the existing pool of knowledge on performance of distribution logistics.

The employees of Kibos Sugar and Allied Industries Limited are therefore enlightened by the findings of this study on the importance of managing distribution logistics and therefore they can therefore comprehend the usefulness of limiting un-necessary costs thereby enabling easy implementation of appropriate distribution structures and thus, the company's competitive advantage enhanced.

The results of this benefits not only the Kibos Sugar and Allied Industries Limited and also other manufacturing industries in Kenya and the international business arena which are experiencing problems in terms of having an effective and efficient distribution logistics which if the factors limiting the performance of logistics are identified, then this can enable the company's

competitive advantage. Also this study is significant in developing underachieving manufacturing companies and organizations as productive and effective entities in the future.

People interested in performance of distribution logistics and factors affecting them may use this study as a stepping stone for future studies in other manufacturing companies. The management of performance of distribution logistics of an organization may also find the study useful. It is through this that researchers are then able to find out how to focus on the investigation on a particular subject and also know the possible methods that can be used at the time that they may choose to conduct a new study. Thus, another significance of this study is that it serves as a guide for researches that focus on distribution logistics and general organizational performance.

1.7 Conceptual frame work

A conceptual framework is "the abstract, logical structure of meaning that guides the development of the study and enables the researcher to link the findings to the existing body of knowledge" (Burns & Grove 2005:37). It is an image or symbolic representation of an idea.

Independent variable **Factors affecting distribution logistics**	**Dependent Variable** **Performance of distribution logistics**
• Information Systems • Distribution Structure	• Distribution Schedule • Quantity required • Quality of products • Distribution costs
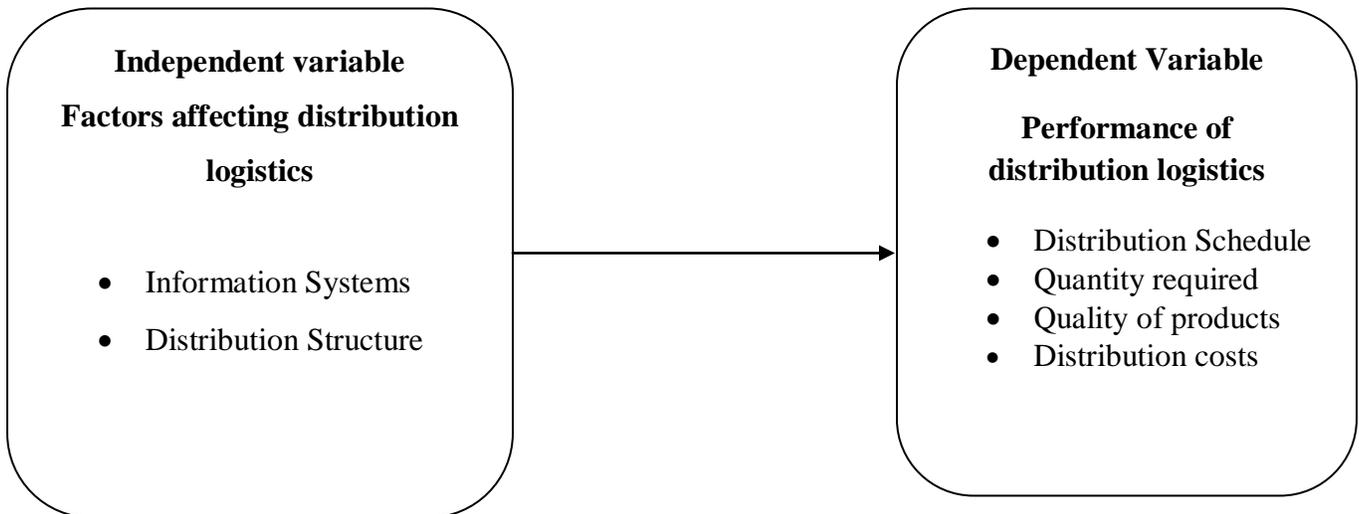
Figure 2.1: Conceptual framework on effects of distribution logistics factors on performance

Source: Author (2019)

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Referring to figure 2.1-conceptual framework, it is depicted that information system enable performance of distribution logistics by increasing efficiency, predictability and reducing waste in value chains, which has positive impact on all market players in the long run. Further, distribution structure pertains to how the distribution processes are set up. The distribution structure used by a manufacturing firm have an impact on the ability of its Distribution Logistics to perform, the various aspects of distribution structure including; availability of regional deports, route planning, and mode of transport used.

CHAPTER TWO
LITERATURE REVIEW

In this chapter the researchers reviewed the findings of research done in this area in order to identify the gap that needs to be filled. The purpose of literature review is to acquaint the researcher with the history of distribution logistics skill that has been adopted by other researchers. It establishes various principles adopted by previous researchers in related fields and at the same time acknowledging their contribution to management training in what firms do not regard as a fundamental aspect in management of a firm.

2.1 Theoretical Literature Review

Theories are important in predicting, explaining and mastering phenomenon (behavior of systems, events, activities of employees and time). Generalizations about observations are made in theories (Matalanga, 2014). A theoretical framework explains the existence of the problem under study. It mainly guides how the research will be conducted. It is important to the researcher because it provides a general framework of the study. The current study was guided by the game theory.

2.2.1 Game Theory
Game theory

Game theory is the formal study of decision-making where several players must make choices that potentially affect the interests of the other players; it is official study of conflict and cooperation (Xu, Pan & Ballot, 2013). Game theoretic concepts apply whenever the actions of several agents are interdependent (Dai & Chen, 2012). These agents may be individuals, groups, firms, or any combination of these. The concepts of game theory provide a language to formulate structure, analyze, and understand strategic scenarios (Dai &Chen, 2012).

According to (Xu, et al., 2013) the game theory is divided into two main approaches: the non-cooperative and the cooperative game theory. The cooperative game theory can be applied to the case where players can achieve more benefit by cooperating than staying alone (Xu, et al., 2013). The gain sharing issue was intensively investigated in the cooperative game theory; therefore we

adopted cooperative game theoretic approaches in constructing the hypothesis on transport management and firm performance. Today cooperation is becoming more and more crucial to improve the global performance of logistics (Drechsel & Kimms, 2010). As the complement of traditional vertical cooperation, a new cooperation model, the horizontal cooperation was proven efficient to reduce global cost and improve service rate in logistics (Drechsel & Kimms, 2010).

In game theory, horizontal cooperation in logistics was proved efficient to reduce global cost and improve the performance level (Cruijssen, Cools, &Dullaert, 2007; Pan, Ballot, Fontane &Hakimi, 2012). However, despite these advantages, horizontal cooperation is not considerably employed in logistics (Muir, 2010). One main obstacle in the implementation of horizontal cooperation is the absence of an appropriate cooperation decision making model (Xu, etal., 2013).

In regard to the present study, the game theory is applicable in that, Kibos Sugar Company and Allied Industries can decide to work hand in hand with their distributors. That is, they can outsource transportation services from their own distributors. Besides, they can also decide to empower one major distributor who can in most cases act as their point of sale so that at all times, the market is serviced and goods are at the reach of the customers.

2.2 Empirical Literature

2.2.1 Information system and Distribution Logistics Performance

Stank and Keller (2001) studied the 306 firms have been integrated in North America for logistical and performance benchmarking. The study identified and used six aspects of integration and six different measures of performance. Relationships influence internal, operational and customer, technology and planning integration vs information systems support and advanced shipment notification support. The researcher noted that there was no significant relationship. The present study is therefore of key since the relationship is not yet established specifically between information systems and distribution performance. Besides, Stank & Keller (2001), concentrated on planning integration and information systems while the present study concentrated on Information systems and distribution logistics thus need to research tis area as it has been researched yet.

According to Ceva (2010), one of the world's leading non-asset based supply chain management companies, in their study on Logistics and Competitive Strategy, they found that Information system to manage distribution increases efficiency, predictability and reduce waste in value chains, which has positive impact on all market players. However, the study did not exactly point out what information tools or applications can be used on each and every industry to achieve the latter advantages of information systems. Besides, the study was conducted on a wider concept;- mainly on large companies while the present study is based on a single medium sized company where the findings by Ceva (2010) may not exactly be used to generalize and to be applicable at Kibos Sugar and allied industries. This study by Ceva (2010) used survey methodology which has a limitation where by survey question answer options could lead to unclear data because certain answer options may be interpreted differently by respondents. The present study therefore used correlational study design which avoided bias and enabled understanding of the kind of relationships that naturally occur between variables under study.

Cooper (2006) in his study on Global complexities challenge and how IT managers handle distribution, recognized that such tools of information system as cell phone and internet services, radio, and a wide range of digital devices and related tools, including cameras, GIS, a wide range of hand-held computing devices if appropriately used, has a potential of raising efficiency in the following distribution activities: record keeping, monitoring field agent activities, procurement operations, credit and payment tasks, input distribution, measuring productivity, and forecasting. The findings by Cooper (2006) are in line with the present study. However, the study was not specifically in the distribution industry, instead it was a general study which was touching various modern technologies. The present study was in regard to the application of modern information systems and in relation to a specific organization which was Kibos Sugar Company and Allied Industries in Kenya.

2.2.2 Distribution Structure and Distribution Logistics Performance

Coyle et al (2009) in his study on Management of Business Logistics, a Supply Chain Perspective in South Western, Us, noted that distribution structure pertains to how the distribution processes are set up. The distribution structure used by a manufacturing firm may also have impact on the ability of its Distribution Logistics to perform, He further explained that the various aspects of distribution structure that can positively or negatively impact on the

performance of the firm's Distribution Logistics include availability of regional deports, route planning, mode of transport used. These were true factors however, they were too general and not substantiated and thus did not clearly bring out the sub-variables of regional deports, route planning, mode of transport and how they exactly relate to logistics performance.

Kahia (2014) on his study on factors affecting performance of distribution logistics in Bata shoe Company in Kenya, he noted that aavailability of regional depots refers to whether a manufacturing firm has set up depots in various regions so as to bring distribution near the customers. And that regional depots may allow for proper capacity utilization of transport over long distances as this is not dependent on individual customer orders. Regional depots also ensure that the products are in close proximity to the customer thus making it possible for deliveries under short notice. He also found that route planning pertains to matters of route selection, vehicle capacity utilization as well as planning for dispatches, He further discussed that route selection, involves the route selected which may impact highly on the ability to deliver goods in time as trucks can avoid traffic congestions or use the shortest routes available. However, the findings of Kahia (2014) were specifically in regard to the Bata shoe company which may not necessarily apply to the present study which was based in a different sugar manufacturing industry.

2.3 Summary of Gaps
In the study by Parthanadee and Logendran (2006) in USA, they noticed that in logistics system, distribution cost is typically the highest single expense, which is usually greater than warehousing cost, inventory cost and which implies that logistics is major concern as most of the costs incurred in a production system are majorly in logistics. The present study therefore sought to find out if cost was a factor that affect performance of distribution logistics in production firms with specific reference to Kibos Sugar Company while relating it to distribution structures.

According to Knemeyer and Murphy, (2004) for those products with small volume, low weight and high value, distribution cost simply occupies a very small part of sale and is less regarded; for those big, heavy and low- valued products, distribution occupies a very big part of sale and affects profits more, and therefore it is more regarded. The demand for products can only be

satisfied through the proper and cost-effective delivery of goods and services of which the present study sought to establish, that is, if there was proper and cost effective mode of delivery of goods and services to clients of Kibos Sugar Company.

The performance of any distribution company is strongly dependent on application of proper information systems and applying proper distribution structure. Kibos sugar should not be an exception to applying the latter. However, according to Stank and Keller (2001) in their study, they did not find any relationship between information systems and distribution performance which the present study sought to find out at Kibos sugar Company and Allied Industries.

Kahia (2014) on his study on factors affecting performance of distribution logistics in Bata shoe Company in Kenya, he noted that aavailability of regional depots refers to whether a manufacturing firm has set up depots in various regions so as to bring distribution near the customers. However, the findings of Kahia (2014) were specifically in regard to the Bata shoe company which may not necessarily apply to the present study which was based in a different sugar manufacturing industry.

CHAPTER THREE
RESEARCH METHODLOGY

This chapter presented a detailed description of the selected research design. It described in details what had been done and how. It included the target population, sample design, procedure for data collection, validity and reliability tests.

3.1 Research design

This study was descriptive thus applied survey study design. Survey method research is where participants answer questions administered through interviews or questionnaires. After participants answer the questions, researchers describe the responses given. In order for the survey to be both reliable and valid, the questions were constructed properly. Questions should were written so that they were clear and easy to comprehend.

3.2 Study area

The study was based at Kibos Sugar and Allied Industries Limited in Kisumu County, Kenya to analyze factors affecting the performance of distribution logistics between January and June 2018. The main concepts of the study were the effects of; information system and distribution structure on performance of distribution logistics.

3.3 Target population

The target population of this study comprised of 4 retail and distribution managers, 4 store managers, 2 distribution center supervisors, 6 clerks, 6 distributors and 4 marketing executives, thus a target population of 26employees (Moonbluz Enterprises Limited organization data, 2018) with the sample size being 24. The sample size was arrived at by considering all the key persons as per the targeted respondents.

3.4 Sample and Sampling Technique

This study applied census sampling technique. This was so because census is a simple sampling method which allowed the researcher to collect data from each and every member in the population of which the sample size was arrived at by picking all the key respondents. This

therefore eliminated predisposition. The design besides, aids in collecting focused information and furthermore, saves time and money.

3.5 Data Collection

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research objectives, test hypotheses, and evaluate outcomes. The data collection components of the current research included physical collection of data by use of various data collection instruments.

3.5.1 Data Types and source's

The present study used primary data which was obtained from the original respondents. This was done with the aid of data collection instruments.

3.5.2 Data Collection Procedure

The researcher before proceeding to collect data sought permission which was granted with an introductory letter from School of Graduate studies to the persons to be interviewed. This was then followed by the training of the research assistant on ethical issues in research which was expected to be done within one day. Data was collected primarily using Semi structured questionnaire and secondary data through the relevant books, journals and periodicals.

3.5.3 Data Collection Instruments

The researcher used questionnaire to collect primary data. Questionnaires are commonly used to obtain important information about the population. According to Cooper and Schindler (2003), a self-administered questionnaire is the only way to elicit self-reports on people's opinion, attitudes, beliefs and values. The questionnaire had items aiming at answering the study questions so that it could meet research objectives. The choice of this tool of data collection was guided by the time available and the objectives of the study. Semi structured questionnaire were be used to collect data. The closed ended questions were used for easy coding and analysis while the open ended questions were used to elicit more information from respondents to complete the missing links. These types of questions were accompanied by a list of possible alternatives ranging from strongly disagree to strongly agree, from which respondents were required to select the answer that best described their situation i.e. strongly disagree on the one extreme to strongly agree on the other. The questionnaire was divided into two sections; part (A) which entails

questions on personal information of the respondents and Part (B) which entailed questions related to the objectives that the research intended to achieve. Secondary data was obtained from relevant books, journals and periodicals.

3.5.4 Instruments Reliability Test

The researcher took the following steps to ensure reliability: the questionnaire items were developed following the objectives of the study, the questionnaire items were written in simple language to facilitate respondents' understanding (comprehension), the items in the questionnaire were worded clearly, a pre-test was carried out on respondents with the same attributes, but who are not included in the main research. This was done to identify ambiguity in the wording, sensitive questions, or as well as wrongly placed questions with the aim of revising the questionnaire. Cronbach's alpha reliability statistics was also used to test the response rate as follows;

Table 3.1: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.667	.594	24

Source: (Author, 2018)

In table 3.2, Cronbach's Alpha has been used to interpret and test the reliability rate. Cronbach's alpha reliability coefficient normally ranges between 0 and 1. The closer the coefficient is to 1.0, the greater is the internal consistency of the items (variables) in the scale. The rule of George and Mallery (2003) has been used in interpreting the results, that is, > .9 (Excellent), > .8 (Good), > .7 (Acceptable), > .6 (Questionable), > .5(Poor), and < .5 (Unacceptable). As per table 2, Cronbach's Alpha is 0.667≈ 0.7 thus interpreted as Acceptable. It is therefore true to conclude that the data collection instruments were reliable and thus enabled achievement of the study objectives.

3.5.5 Instruments Validity

Validity of the research and research instrument was ensured by means of the following: a literature review conducted to find relevant questions for the questionnaire items, the sample size being large enough to be representative of the phenomenon under study and finally, a special

attempt was made to ensure similarity between research questions, objectives, investigation, findings and recommendations. Further validity test was done using SPSS version 21.0. All the variables were keyed into the variable view of the SPSS software. Then the Likert scale helped to key the data in the data view. After which analysis was done using the bivariate tool. In interpreting the data, every questionnaire item that had significance level (Sig. 2-tailed) of 0.000<0.05 was considered valid and thus all the questionnaire items were tested and interpreted as valid.

3.6 Data Analysis Method

This study used descriptive statistics to analyze quantitative data. Descriptive statistics involves the collection, organization and analysis of all data relating to some population or sample under study. Data was checked for completeness, accuracy, errors in responses, omissions and other inconsistencies. The data was then coded using numerals in order to put them in limited number of categories. The data was analyzed using the SPSS (version 21.0) as it was more user friendly and most appropriate for analysis of Management related attitudinal responses (Martin and Acuna, 2002) and then presented in the report in the form of tables and graphical presentations. Tables and other graphical presentations as appropriate were used to present the data collected for ease of understanding and analysis. Tables were used to summarize responses for further analysis and facilitate comparison. This generated quantitative reports through tabulations, percentages, and measure of central tendency. Cooper and Schindler (2003) notes that the use of percentages is important for two reasons; first they simplify data by reducing all the numbers to range between 0 and 100. Second, they translate the data into standard form with a base of 100 for relative comparisons. The mean score for each attribute was calculated and the standard deviation used to interpret the respondents deviation from the mean. The results were presented on frequency distribution tables, graphs, pie charts and bar charts. Here the interest was focused on frequency of occurrence across attributes of measures.

CHAPTER FOUR
RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the analysis of information collected in relation to the analysis of factors affecting performance of distribution logistics in Kibos Sugar and Allied Industries Limited, Kenya.

4.2 Presentations of findings

The research data were analyzed according to the objectives of the study and findings presented in the form of figures and tables. The entire questions formulated were administered and the responses received were analyzed.

4.2.1 Demographic information

4.2.2 Gender of Respondents

From the respondents, 58.3% were male while 41.7% were female. It therefore implied that there was no biasness as the ratio of men to women were almost equal as illustrated in table 4.1.

Table 4.1: Gender of the respondents

		Frequency	Valid Percent	Cumulative Percent
	Male	14	58.3	58.3
Valid	Female	10	41.7	100.0
	Total	24	100.0	

4.2.3 Age group of the respondents

From the findings, 16% of the respondents were between the age of 20 -30years, 58.3% were in the age of 31-40 years while 17% were in the age of 41-40 years with the remaining 9% being over 41 years. Majority of the respondents were in the age group between 31-40 years. This is a

clear indicator that they had experience and could easily respond to the questionnaire items as illustrated in figure 4.1.
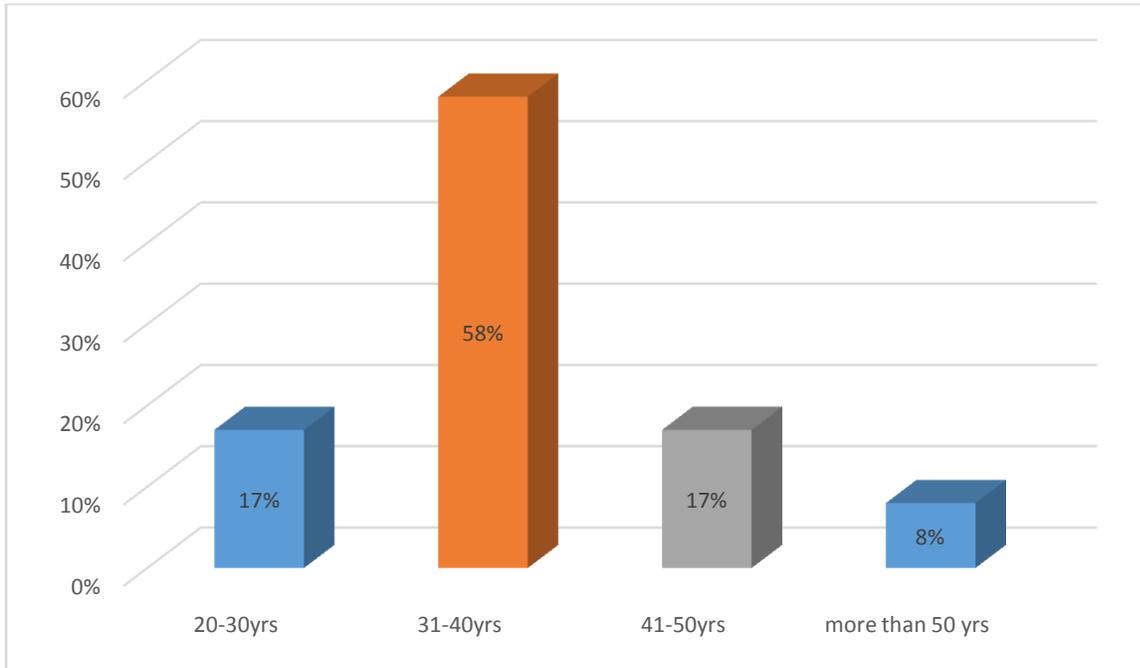
Figure 4.1: Age of the respondents

4.2.4 Work experience

In table 4.2, 12.5% of the respondents have got 0-2 years work experience at Kibos, 37.5% have got 2-4 years work experience, 29.2% have got 4-6 years while the remaining 20.8% have more than 6 years work experience at Kibos Sugar company. Majority of the respondents (66.7%) have got more than 4 years work experience which therefore will aid the study as the respondents fully have the knowledge of the questionnaire items as illustrated in 4.2.

Table 4.2: Work experience

		Frequency	Valid Percent	Cumulative Percent
Valid	0-2 years	3	12.5	12.5
	2-4 years	9	37.5	50.0
	4-6 years	7	29.2	79.2
	Over 6 years	5	20.8	100.0
	Total	24	100.0	

4.2.5 Education level

Table 4.3: Education level of the respondents

		Frequency	Valid Percent	Cumulative Percent
Valid	Less than degree	14	58.3	58.3
	Degree	8	33.3	91.7
	Masters degree	2	8.3	100.0
	Total	24	100.0	

It is evidenced that majority of the respondents had less than a degree, that diploma and other professional qualifications. Despite this, but it signified the literacy level therefor the ability to understand the theme of the study.

4.3 Study findings

4.3.1 Information systems related factors that influence the performance of distribution

In table 4.4, 16.7% of the respondents strongly agreed that accuracy of information influence performance distribution, 70.8% of the respondents agreed with the same opinion, 8.3% were neutral while the remaining 4.2% disagreed. It is therefore true to conclude that information accuracy is one element of information systems that has got influence on the performance of distribution logistics at Kibos sugar company since majority of the respondents(87%) supported the idea. The latter findings is affirmed by the study done on Global complexities challenge and how IT managers handle distribution by Cooper (2006) where he recognized that such tools of information system as cell phone and internet services, radio, and a wide range of digital devices and related tools, including cameras, GIS, a wide range of hand-held computing devices if appropriately used, has a potential of raising efficiency in the following distribution activities: record keeping, monitoring field agent activities, procurement operations, credit and payment tasks, input distribution, measuring productivity, and forecasting.

Table 4.4: Accuracy of information influence performance of distribution

		Frequency	Valid Percent	Cumulative Percent
	Strongly Agree	4	16.7	16.7
Valid	Agree	17	70.8	87.5
	Neutral	2	8.3	95.8
	Disagree	1	4.2	100.0
	Total	24	100.0	

In table 4.5, size of data base is considered; 4.2% strongly agree that the size of data base that a company keeps has got influence on its distribution performance, 62.5% agreed with this opinion, 20.8% were neutral while the remaining 12.5% disagreed. The study thus reveals that size of data base influences distribution performance at Kibos Sugar Company since majority of the respondents were in agreement with the same idea (67%).

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Table 4.5: Size of data base influences distribution performance

		Frequency	Valid Percent	Cumulative Percent
Valid	Strongly Agree	1	4.2	4.2
	Agree	15	62.5	66.7
	Neutral	5	20.8	87.5
	Disagree	3	12.5	100.0
	Total	24	100.0	

In figure 4.2, 16.7% of the respondents strongly agreed that satisfaction is an information factor affecting distribution, 58.3% agreed with the same opinion, 16.7% were neutral and the remaining 8.3% disagreed. At Kibos Sugar Company, from the responses gathered, it was realized that if there information system is not rusted it gives no confidence to the users and thus no satisfaction which is then detrimental to the distribution performance.
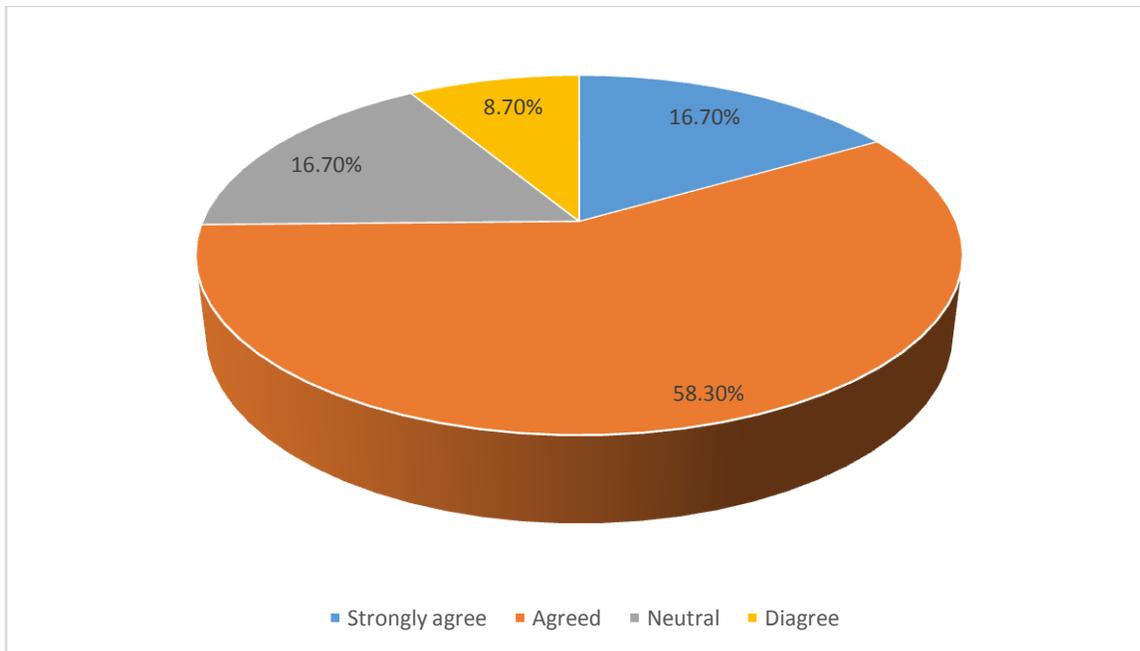

Figure 4.2:Satisfaction is an information element affecting distribution

In table 4.6, 8.3% of the respondents indicated that predictability of information influences performance of distribution logistics, 66.7% agreed with the same opinion, 12.5% were neutral while 12.5% disagreed. It is hence true to comment that predictability affects financial information element is an important factor which affect performance distribution. This is in line with the study by Ceva (2010), who noted in their study on Logistics and Competitive Strategy, that Information system to manage distribution increases efficiency, predictability and reduce waste in value chains, which has positive impact on all market players.

Table 4.6: Predictability of information influences distribution performance

		Frequency	Valid Percent	Cumulative Percent
Valid	Strongly Agree	2	8.3	8.3
	Agree	16	66.7	75.0
	Neutral	3	12.5	87.5
	Disagree	3	12.5	100.0
	Total	24	100.0	

4.3.2 Effect of distribution structure on performance of distribution in Kibos Sugar and Allied Industries Limited, Kenya

In figure 4.3, 20.3% strongly agreed that distribution structure used by a manufacturing firms have impact on the ability of its Distribution Logistics performance, 63% agreed with the same opinion, 8.3% were indifferent while the remaining 8.3% disagreed. It therefore clear that distribution structure is a factor which to a greater extent assist or influences distribution performance. This is in line with the findings of Coyle et al (2009) in his study on Management of Business Logistics, a Supply Chain Perspective in South Western, Us, where he noted that distribution structure pertains to how the distribution processes are set up and thus the distribution structure used by a manufacturing firm may also have impact on the ability of its Distribution Logistics to perform.

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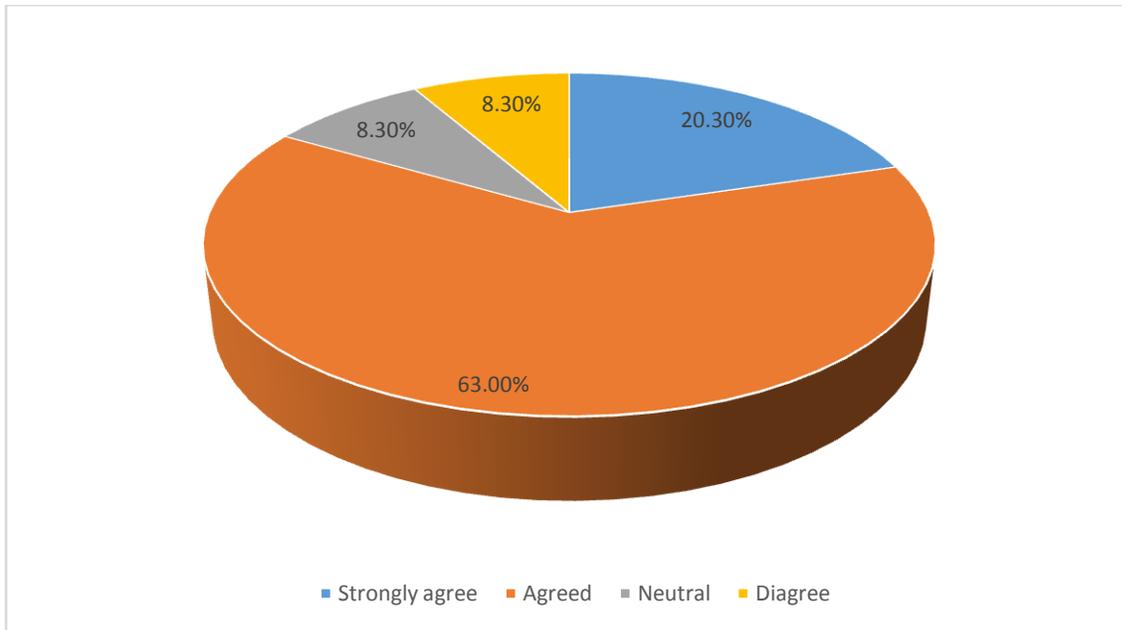
Figure 4.3: Distribution structure used by a manufacturing firms have impact on the ability of its Distribution Logistics performance

In figure 4.4, 10% of the respondents indicated that availability of regional depots affects distribution structure related factors that influence the performance of distribution logistics, 68% of the respondents agreed, 10% were neutral and 12% disagreed. Availability of regional depots therefore enables reach of the products and thus limited stock outs which in the long run translates to positive distribution performance. Coyle et al (2009) in his study on Management of Business Logistics, a Supply Chain Perspective in South Western, Us, affirms the latter finding that various aspects of distribution structure that can positively or negatively impact on the performance of the firm's Distribution Logistics include availability of regional deports, route planning, mode of transport used.
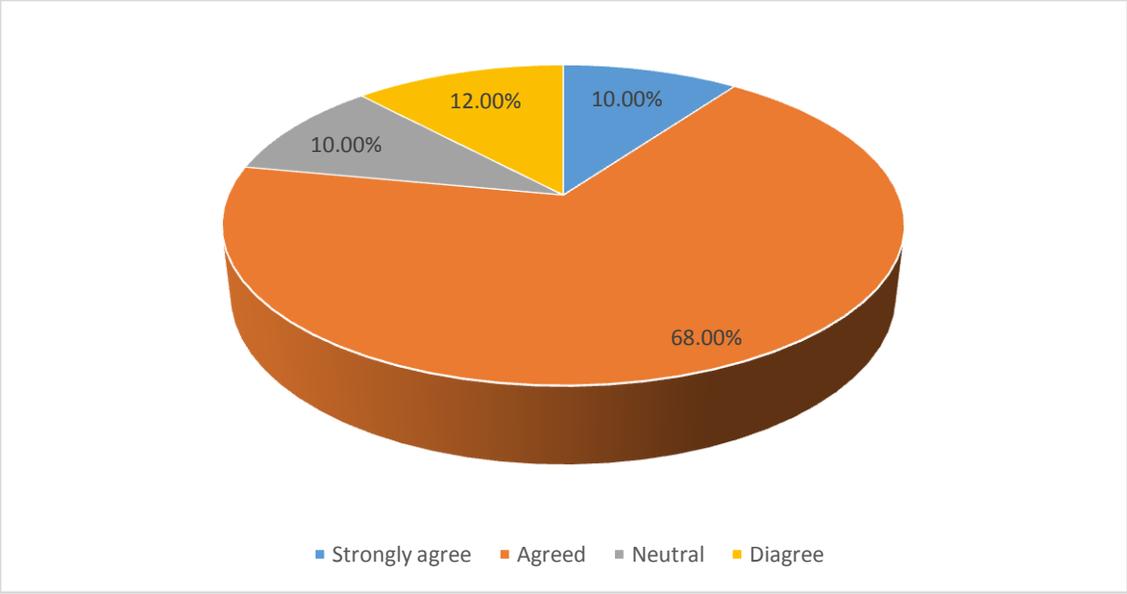
Figure 4.4: Availability of regional depots impacts positively on the ability of its Distribution Logistics performance

In table 4.7, route planning is strongly agreed with to be enabling distribution performance to n extent of 30%, 58% agreed while the remaining 12% were indifferent and disagreed consecutively. Route-planning is therefore a main element of distribution structure that if considered by the management at Kibos sugar company, then this can lead to increased distribution performance. This finding is supported by Kahia (2014) in his study on factors affecting performance of distribution logistics in Bata shoe Company in Kenya, noted that regional depots may allow for proper capacity utilization of transport over long distances as this is not dependent on individual customer orders.

Table 4.7: Route planning influences distribution performance

		Valid Percent	Cumulative Percent
	Strongly Agree	30.0	30.3
Valid	Agree	58.0	88.0
	Neutral	6.0	94.0
	Disagree	6.0	100.0
	Total	100.0	

In table 4.8, mode of transport is considered and 12% of the respondents strongly agrees that the mode of transport is a factor, 48% are supporting the idea, 20% are neutral while the remaining 20% are disagreeing. It is true therefore that the mode of transport like using a trailer instead of a ten wheeler is recommended as it encourages performance distribution.

Table 4.8: Mode of transportinfluences distribution performance

		Valid Percent	Cumulative Percent
	Strongly Agree	12.0	12.0
Valid	Agree	48.0	60.0
	Neutral	20.0	80.0
	Disagree	6.0	100.0
	Total	100.0	

In figure 4.5, it is clearly evidenced that availability of regional depots allows proper capacity utilization supported by 22% of the respondents, brings products closer to the customer (34%), enable deliveries within short notice (24%) and reduces the lead time (20%). It is true then that the most significant factor affecting distribution logistics is availability of depot which brings products closer to the customers.

Strongly agree ■ Agreed ■ Neutral ■ Diagree
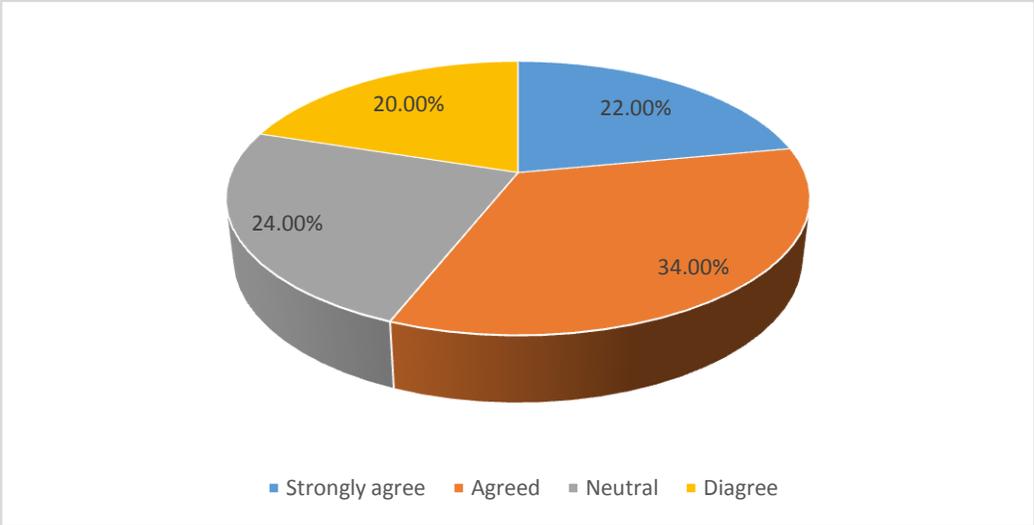
Figure 4.5: Merits of regional depots

In table 4.9, majority of the respondents 78% indicated that one of the importance of route planning is that it enables timely deliveries of products, and that it enables cost reduction as the customer is already predetermined therefore no more trials to consume cost in regard to time, fuel and vehicle maintenance costs.

Table 4.9: Merits of route planning

		Valid Percent	Cumulative Percent
	Timely deliveries	78.0	78.0
Valid	Cost reduction	22.0	22.0
	Total	100.0	

Figure 4.6 clarifies the importance of adopting a given mode of transport where by 52% of the respondents support that transportation means determines flexibility and that transportation means also enables door to door deliveries thus enabling distribution performance in the long run.
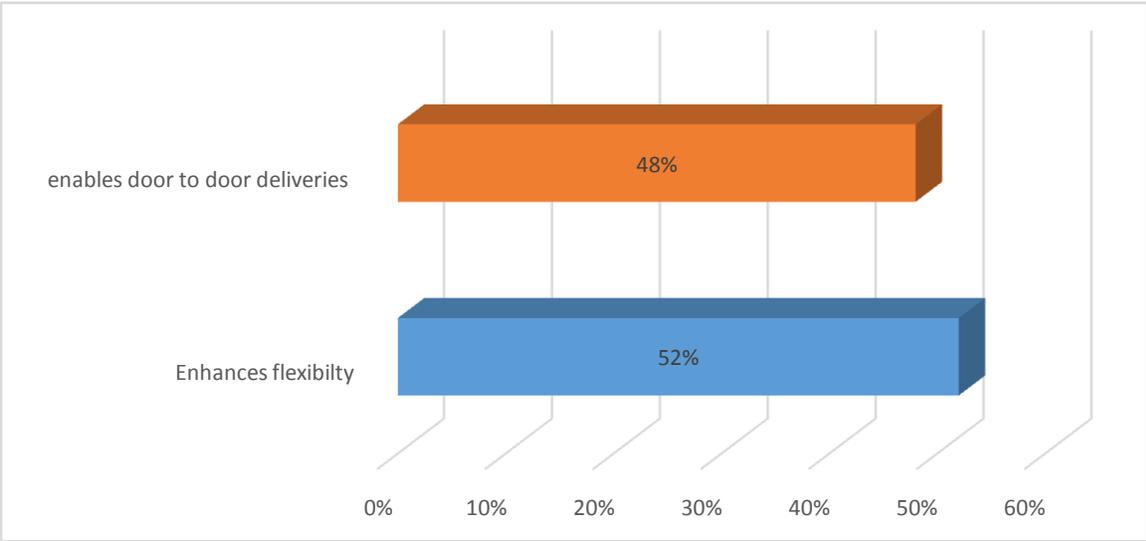
Figure 4.6: Importance of adopting a particular mode of transport

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the summary of findings, answers to research questions, recommendations arising from the study and conclusions drawn. It also suggests area for further research. The objective of the study was to analyze factors affecting the performance of distribution logistics among manufacturing firms in Kenya; case of Kibos Sugar and Allied Industries.

5.2 Summary of findings

From the questionnaires issued, all the respondents, that is, the 24 respondents who were included in the sample size responded. They all marked the questionnaires before they were picked by the researcher. Both genders were well represented and thus, this limited bias. A greater percentage of the respondents were college graduates/professionals meaning they were all literate and thus easily interpreted the questionnaire items. Most respondents were between the age of 31 - 40 therefore were mature enough to tackle the questionnaire items. It was also confirmed by the respondents themselves as per their response that they were experienced and could tackle the questionnaire items since majority had more than 4 years working experience at Kibos Sugar and Allied Industries.

The summary of the findings has been done according to the research questions. They were as follows:

5.2.1 Effects of information systems on performance of distribution logistics in Kibos Sugar and Allied Industries Limited, Kenya

The study revealed that information accuracy is one element of information systems that has got influence on the performance of distribution logistics at Kibos Sugar Company since majority of the respondents supported the idea. The study also found that size of data base influences distribution performance at Kibos Sugar Company since and that if information system is not trusted it gives no confidence to the users and thus no satisfaction which is then detrimental to the distribution performance. Finally on this objective, the study realized that predictability affects future financial information and therefore is an important factor which affect performance

distribution. This is in line with the findings of Coyle et al (2009) in his study on Management of Business Logistics, a Supply Chain Perspective in South Western, Us, where he noted that distribution structure pertains to how the distribution processes are set up and thus the distribution structure used by a manufacturing firm may also have impact on the ability of its Distribution Logistics to perform

5.2.2 Effect of distribution structure on performance of distribution in Kibos Sugar and Allied Industries Limited, Kenya

It was evidenced from the study that distribution structure is a factor which to a greater extent assist or influences distribution performance. Besides, the study revealed that availability of regional depots enables customers to easily reach the products and thus limited stock outs which in the long run translates to positive distribution performance. The study found that route-planning is therefore a main element of distribution structure that if considered by the management at Kibos sugar company, then this can lead to increased distribution performance, that is, route planning enables timely deliveries of products, and that it enables cost reduction as the customer is already predetermined therefore no more trials to consume cost in regard to time, fuel and vehicle maintenance costs. This finding is supported by Kahia (2014) in his study on factors affecting performance of distribution logistics in Bata shoe Company in Kenya, noted that regional depots may allow for proper capacity utilization of transport over long distances as this is not dependent on individual customer orders. Also learnt is that the mode of transport like using a trailer instead of a ten wheeler is recommended as it encourages performance distribution.

5.3 Conclusions

The findings of this study fills the gap left out in previous theoretical and qualitative studies on distribution and logistics performance. From the findings the study found that the main sub variables of distribution affects the distribution performance. On the effects of information systems on performance of distribution logistics, the study realized that accuracy of information/data collected, size of data base and ability of management information system to predict future decisions are significant elements of information systems that has got vast influence on the performance of distribution logistics. *This fills the gap in the study by Stank and*

*Keller (2001), they did not find any relationship between information systems and distribution performance while the **present study** finds that indeed there exist a relationship between information systems and logistics performance at Kibos sugar Company and Allied Industries.* The study therefore concludes that management information system coupled with various information technology are key in managing every distribution aspect for sure performance.

From the findings on effects of distribution structure on performance of distribution, the study realized that distribution structure is a factor which influences distribution performance through availability of regional depots which enables customers to easily reach the products limiting stock outs which in the long run translates to positive distribution performance. Besides,route-planning which is still part of the distribution structure if considered enables timely deliveries of products, cost reduction as the customer is already predetermined therefore no more trials/voluntary selling, reduces cost in regard to time, fuel and vehicle maintenance costs. *The present study hence fill the gap in the study by Knemeyer and Murphy, (2004) and in the study by Parthanadee and Logendran (2006) in USA, where he noticed that in logistics system, distribution cost is typically the highest single expense.* That is, through implementing proper distribution structure, nearly all the avoidable costs will be limited. The study therefore concludes that distribution structure used by a manufacturing firm have an impact on the ability of its Distribution Logistics to perform.

5.4 Recommendations

There is need of embracing modern and current technology which can aid various user of organization information to collect, analyze, interpret and come up with various useful decisions affecting the organization.

Finally, the researcher recommends that Kibos Sugar Company and Allied Industries should consider the findings of this study on distribution structure which in the long run will give them an edge over other sugar suppliers/manufacturers. That is, distribution structure which is more organized enables flow of information and activities which enables easy order tracking, efficient loading and delivery to the customers.

5.5 Suggestion for further study

This study provides quantitative evidence for the implication of managing distribution channels and how this translates to the overall organizational goals. Therefore, this evidences that there is need to emphasize the need of proper distribution structure. Further, this study was only carried out in Kisumu specifically at Kibos Sugar Company and Allied Industries therefore the findings are only limited to this organization. Further study needs to be done on the same topic but in other smaller institutions especially nationally so as to spur development in the country and in Africa at large.

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APPENDICES

APPENDIX I: BUDGET

Activity	Amount in Ksh.
Transport[1]	5,000
Research assistants[2]	30,000
Typing, Photocopying and Binding[3]	10,500
Internet[4]	8,000
Laptop[5]	105,000
Publication[6]	13,000
Total	**171,500**

Source: *Author (2018)*

PART A: DEMOGRAPHICS

1. What is your gender?

      1=Female [   ] 2=Male [   ]

2. In which age group do you belong?

1=20-30 years	[ ]
2=31-40 years	[ ]
3=41-50 years	[ ]
4=51-60 years	[ ]
5=More than 60 years	[ ]

3. No. of years served in Kibos ?

0 – 2 years	[ ]
2 – 4 years	[ ]
4 – 6 years	[ ]
Over 6 years	[ ]

4. What is the highest education you achieved?

Less than degree	[ ]
Degree	[ ]
Masters degree	[ ]

PART B: Objectives Questions

1. What are the information systems related factors that influence the performance of distribution?

	Strongly Agree=1	Agree=2	Neutral=3	Disagree=4	Strongly Disagree=5
Speed					
Accuracy					
Size of data base					
Satisfaction					
Predictability					

2. **a).Do**es distribution structure used by a manufacturing firms have impact on the ability of its Distribution Logistics performance**?**

1=Strongly Agree   ( )

2=Agree   ( )

3=Not sure   ( )

4=Disagree   ( )

b). What are the distribution structure related factors that influence the performance of distribution logistics?

	Strongly Agree=1	Agree=2	Neutral=3	Strongly Disagree=4
Availability of regional depots				
Route planning				
Mode of transport				

c). How does availability of regional depots impacts on DL performance

Allows proper capacity utilization   1=Yes[ ]   2=No [ ] 3=Not Sure [ ]

Brings products closer to the customer   1=Yes[ ]   2=No [ ] 3=Not Sure [ ]

Enable deliveries within short notice   1=Yes[ ]   2=No [ ] 3=Not Sure [ ]

Reduces the lead time   1=Yes[ ]   2=No [ ] 3=Not Sure [ ]

Any other …………………………………………………………………

d). Impact of route planning on distribution logistic performance

Timely deliveries of products 1=Yes[ ]   2=No [ ]

Cost reduction   1=Yes[ ]   2=No [ ]

 Add at least two……………………………………………………………………….

e). What is the effect of transportation means on Distribution Logistics performance

Determines flexibility   1-Agree [ ]   2=Disagree   3=Not certain

Enhances door to door deliveries   1-Agree [ ]   2=Disagree   3=Not certain

Add at least two……………………………………………………………………

THANK YOU FOR TIME AND YOUR PARTICIPATION