INFLUENCE OF REVERSE LOGISTICS PRACTICES ON ENHANCING COMPETITIVENESS IN MANUFACTURING FIRMS IN KENYA: A CASE OF EAST AFRICAN BREWERIES LTD

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INFLUENCE OF REVERSE LOGISTICS PRACTICES ON ENHANCING COMPETITIVENESS IN MANUFACTURING FIRMS IN KENYA: A CASE OF EAST AFRICAN BREWERIES LTD

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Abstract

Purpose: The purpose of this study was to establish the influence of reverse logistics practices on enhancing competitiveness in manufacturing firms in Kenya.

Methodology: The study population was 240 staff in the department of logistics Procurement and Finance at East Africa Breweries Limited. A questionnaire with both open ended and closed questions was used to collect raw data from the respondents. The simple random was carried out and primary data was through the use of questionnaires. The secondary data was obtained from published documents such as journals, periodicals, magazines and reports to supplement the primary data. A pilot study was conducted to test the reliability and validity of the data collection instrument. The data was analyzed with the help of SPSS. The study adopted a regression analysis at 5% level of significance to determine strength and direction of the relationship of the variables under study. Descriptive statistics were used to analyze the data in frequency distributions and percentages presented herein in tables of frequency distribution, percentages, bar graphs and pie-charts. The study adopted a multiple regression analysis so as to establish the relationship of independent variables and dependent variables. The study applied SPSS compute the measurements of the multiple regression analysis.

Results: The findings revealed that there exists a relationship between independent variables and dependent variable with a correlation coefficient of 0.789. The coefficient of determination is between zero and one. The data showed that the high R square is 0.622. It showed that the independent variables in the study were able to explain 62.20% variation in the competitiveness of the manufacturing firms while the remaining 37.80% is explained by the variables or other aspects outside the model. This implies that these variables are very significant and they therefore need to be considered in any effort to boost competitiveness of the manufacturing firms.

Unique contribution to theory, practice and policy: Based on the findings, the study recommended that the manufacturing firms should collect used products to the repair workshops from customers to make new products. The firms should train their employees on repair and refurbishing of the products to meet customers' expectations. The manufacturing firms should

repackage the product and resend the same product to the market. There is need to enhance distributor returns the product for repackaging to the manufacturing firm and thus the firm is able to save transport costs. Through repackaging the manufacturing firm is able to portray high levels of responsibility and care for the end users. The study recommended that the manufacturing firms' returns used products and packaging to suppliers for recycling. There is need for awareness creation to the public about recycling of the products, have a well documented and implemented recycling policy. The study recommended that the manufacturing firm material handling, storage locations should be where the shipping of the products to minimize picking time. The storage locations will enable the firm to achieve competitive advantage by consistently reviewing sales data as the items are stored close to the shipping area. The firm warehouse layout should be in such that minimize travel time between picking locations. There is need to adopt material handling technologies such as hand-held reader, pick to light and voice recognition technology to enhance competitiveness of the firms.

Keywords: *Reverse logistics, practices, competitiveness, manufacturing firms*

1.0 INTRODUCTION

1.1 Background of the Study

According to Roberta, (2012), reverse logistics stands for all operations related to the reuse of products and materials. It is the process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of proper disposal. More precisely, reverse logistics is the process of moving goods from their typical final destination for the purpose of capturing value, or proper disposal.

Remanufacturing and refurbishing activities also may be included in the definition of reverse logistics. The reverse logistics process includes the management and the sale of surplus as well as returned equipment and machines from the hardware leasing business. Normally, logistics deal with events that bring the product towards the customer. In the case of reverse logistics, the resource goes at least one step back in the supply chain. For instance, goods move from the customer to the distributor or to the manufacturer (Roberta, 2012).The procedure of reverse logistics entails the entire logistics process in reverse. This means that the final products or goods need to be transported from their point of consumption or final destination back to their origin.

According to James, (2010), reverse logistics is a broad concept, encompassing many activities within, and outside of, logistics. It has been defined as the term most often used to refer to the role of logistics in product returns, source reduction, recycling, material substitution, reuse of material, waste disposal, and refurbishing, repair and remanufacturing. Finding sufficient time to properly plan, implement and control reverse logistics strategies and programs are difficult. In retail companies or supermarkets, unwanted goods need to be returned to the manufacturer or distributor if they are damaged or do not meet the customers standards. Surplus goods also need to be returned through reverse logistics. Many retailers in the supply chain have an understanding with their manufacturer that goods, such as newspapers are returned if they are not sold. These goods need to be sent back to their place of origin for recycling or disposal.

The returned goods need to be transported back to their place of origin in the most economical and time conserving manner. In order for companies not to lose most of their profits on returned goods,

it is imperative for them to have an effective reverse strategy. Companies or retailers that frequently require reverse logistics often have more advanced reverse logistics solutions in place. The cost associated with reverse logistics must also be kept low in order for the retailer not to incur additional costs. A logistics company that offers a professional reverse logistics solution will ensure the time it takes to return the goods is as short as possible (Fleischmann et al., 2017).

Reuse of products and materials is not a new phenomenon (Fleischmann et al., 2017), waste paper recycling, deposit systems for soft drink bottles, and metal scrap brokers are all example that have been around for a long time. However, reverse logistics as a research field is relatively new. A body of knowledge is beginning to develop around the reverse logistics field (Rogers & Tibben Lembke, 2012) which only emerged within the last one decade or two. Conventional supply chain perspectives consider a set of processes, driven by customer demand, that convey goods from suppliers through manufacturers and distributors to the final customers. However, this is not where the story ends. Physical goods do not simply vanish once they have reached the customer. Nor does the value incorporated in them. Therefore, many goods move beyond the conventional supply chain horizon, thereby triggering additional business transactions: used products are sold on secondary markets; outdated products are upgraded to meet latest standards again; failed components are repaired to serve as spare parts; unsold stock is salvaged; reusable packaging is returned and refilled; used products are recycled into raw materials again. The set of processes that accommodate these goods flows, which can often be interpreted as running 'upstream' in a conventional supply chain scheme, is known as reverse logistics.

1.1.1 Global Perspective of Competitiveness of Manufacturing Firms

In the present competitive world the relationships with supplier and customer plays a significant role in a company's growth. Generally the companies seek benefits for both themselves and their clients; these benefits can be achieved by a formalized process known as Supply chain. According to Somoygi et al (2009) Supply chain includes managing supply and demand, purchasing raw materials and spare parts, manufacturing and assembling, warehousing and inventory managing, order entry and management, distribution and logistics across all channel and finally delivery to the customer. Supply chain management can be defined as the integration of all these activities in to seamless and formalized process (Somoygi et al, 2009). Initially the supply chain was introduced to integrate the key business process, from supplier to the end user, were the information's on the process adds value for the consumers.

Autry (2005) notes that in 2010,there were more than 1,000 different items recalled from the marketplace by various U.S. government regulatory agencies from manufacturing firms.Among others, these included recalls for toys, pharmaceuticals, consumer electronics, medical devices and automotive parts. The reasons for the recalls ranged from issues with packaging and warning labels to hazardous conditions created by the products. In addition to fines and penalties from regulatory agencies, there is a greater potential liability from lawsuits and the impact on company sales from bad press. Minimizing all of these potential risks from recalled products is a major driver behind the need to develop a comprehensive reverse logistics program to reduce costs and enhance profitability of firms. The weakness of this study is that it did not address issues of reverse logistics practices in large scale manufacturing firms.

Remanufacturing operations involve taking used products, bringing them back to as-new condition, and selling them again (Atasu et al. 2010). These activities in an industry can be carried out either

by third-party Independent Remanufacturers (IR) or by Original Equipment Manufacturers (OEM). Especially in the US, majority of remanufacturing is done by IRs (Hauser and Lund2008). The same study finds that the remanufacturing industry in the U.S. is worth$53 billion, which means that IRs is not an insignificant competitive threat to Original Equipment Manufacturers. Original Equipment Manufacturers try to fend off competition from IRs through limiting quantity, specifically by creating scarcity of cores available for remanufacturing (e.g., by offering free take-back of cores from consumers or making cores ineligible for remanufacturing, and knowledge that help a firm improves efficiency and effectiveness (Barney, 2011).

The Organisation for Economic Co-operation and Development (2003) acknowledges that reverse logistics need to be developed. The imminent need in many countries to reduce, reuse and recycle waste will only become feasible with a transport system which carries used and returned goods for reuse and recycling (reversed logistics) in a cost-effective manner. The main reasons to become active in reverse logistics are different: environmental laws, economic benefits and the growing environmental consciousness of consumers (Roberta and Pier, 2012). In today's competitive marketplace, it's not enough to simply offer reverse logistics as a value-add to already-existing warehouse services. In fact, one of the most significant mistakes a company can make with regards to reverse logistics is to consider the process only as an afterthought, or assume that if the right components are in place, the desired result will magically happen. Balanced relationship between technology and forethought can propel any company offering reverse logistics to the top of its industry (Joe, 2008).

1.1.2 Regional Perspective of Competitiveness of Manufacturing Firms

Reverse logistics practices is one of the most essential tools in achieving this objective. Kenya aims to become the provider of choice for basic manufactured goods in Eastern and Central Africa This can be done through adoption of reverse logistics practices by all manufacturing firms in Kenya to increase production and enhance efficiency in production. The manufacturing industry is an important sector in Kenya as it makes a substantial contribution to the country's economic development. According to the Economic Recovery Strategy for Employment and Wealth Creation Report, the manufacturing sector in Kenya is amajor source of growth, still with high potential for growth and investment. The role of the manufacturing sector in Vision 2030 is to create employment and wealth (Gok, 2014).

As a result, this has heightened the need for alternative means to increase profitability to facilitate growth and expansion, many manufacturers are prepared to look at more effective and efficient ways of reducing both returns and their associated costs but are not prepared to allocate the necessary resources for this operation, most manufacturing firms are looking for ways to make RL a profit center instead of a cost center, such as deriving greater levels of residual value from returns is one way to reduce perceived costs (Genchev, Richey & Gabler, 2011).

1.1.3 Local Perspective of Competitiveness of Manufacturing Firms

According to Abdullah (2003) once company is pinpointed with their major wastes, the lean tools and methodologies should be implemented or practiced to eradicate these wastes. There were different tools suggested by different authors for lean manufacturing, from these techniques and tools the best is adapted. Due to its vital role, Kenya's vision 2030 identified the manufacturing sector as one of the key drivers for realizing a sustained annual GDP growth of 10 percent. Kenya Vision 2030 is the country's new development blueprint aimed at transforming Kenya into a newly

industrialized middle income country providing a high quality of life to all citizens by the year 2030.

According to Bigsten et al., (2010), manufacturing sector has high potential in employment creation and poverty alleviation. Kenya aims to become the provider of choice for basic manufactured goods in Eastern and Central Africa. This will be achieved through improved efficiency and competitiveness at firm levels. The manufacturing sector is experiencing a major problem of stiff competition emanating from illicit and illegal trade (Kenya manufacturing survey 2012). Government of Kenya interventions such as removal of price controls, foreign exchange controls and introduction of investment incentives aimed at improving performance of these organizations has not yielded any major changes (KAM, 2012). To drastically manage this challenge and achieve superior performance manufacturing firms in Kenya require strategy intervention. However, despite the highlighted benefits a study by Mwaura et al. (2015) found that due to lack of awareness on the importance of sustainability, there is a low level of adoption of reverse logistics practices in Kenya. The study recommended that organizational managers should enhance reverse logistics practices.

1.1.4 East African Breweries Ltd

According to the company's website, East African Breweries Limited (EABL) is East Africa's leading branded alcohol beverage business with an outstanding collection of brands that range from beer, spirits and adult non alcoholic drinks (ANADs) reaffirming its standing as a total adult beverage (TAB) company. With breweries, distilleries, support industries and a distribution network across the region, the group's diversity is an important factor in delivering the highest quality brands to East African consumers and long-term value to East African investors. Under the auspices of the EABL Committee, the company has taken further steps towards the adoption of best practice found worldwide including the U.S. Sarbanes-Oxley Act 2002, which involves a stringent self-assessment of internal controls. Risk monitoring activities continue to receive focus from Management and the Board (EABL 2013).

Although EABL owns and manages some warehousing assets, most is outsourced using third-party logistics (3PL) partners which includes global logistics solutions provider DHL. EABL is working very closely with these partners to implement Project MOVE, which delivers an integrated, streamlined, and agile logistics network, all the way from end of packaging line to the distributor. In-line with more mature markets such as Europe, this will exploit technology to measure how well the changes are performing. EABL has a four step process to ensure best practices are deployed which consists of measuring, monitoring, managing, and subsequently making a difference to its processes. Using reverse logistics practices gathered from packaging line all the way down to outlet level, the company is able to make informed decisions (backed up by a set of analytics tools) to create an atmosphere of continuous improvement. EABL's diversity as a robust regional company is revealed in its subsidiaries: Kenya Breweries Limited, Uganda Breweries Limited, Serengeti Breweries Limited, United Distiller Vintners, East African Malting Limited and East African Breweries International.The study will focus on the role of reverse logistics and competitive advantage in the manufacturing sector specifically Kenya Breweries Limited one of the subsidiaries

1.2 Statement of the Problem

The manufacturing industry is a fast growing sector in developing countries, Kenya included. In Kenya, the sector contributes over 10%to the GDP according to the 2015-2016 national budgets. However, high cost of production and often low quality of raw materials has become a major problem for leading manufacturers in the country (RoK, 2016). This, it is alleged, has made some players in the sector to implement a number of cost cutting measures some of which border on contravening internationally recognized best practices Muttimos, 2014). Critical reverse logistics functions can cost companies millions in lost profits due to damaged customer relationships and external liabilities that could have an enormous impact on their business. Effectively managed, however, reverse logistics can enable organizations to find hidden competitive advantage improve customer satisfaction and minimize liabilities.

Fleischmann and Kuik (2013) said that the average manufacturer will spend 9% to 15% of total revenue on returns, according to a 2010 Aberdeen Group study. They are often unaware of the impact returns management can have on their customers, their resources or their bottom line. In fact, improving reverse logistics can help company increase revenue up to 5% of total sales (Mukhopadhyay & Setoputro, 2004). Many research works have demonstrated that Reverse Logistics is important to enhance organizational performance (Lambert & Burduroglu, 2000; Zhao et al., 2001; Daugherty et al., 2002; Stock et al., 2002; Tibben-Lembke & Rogers, 2002; De Brito, 2004; Griffis et al., 2007; Sols et al., 2007). Reverse Logistics could be considered as important intangible asset of the firm (Wadhwa & Madaan, 2007).

Further, empirical evidence adduced shows that researchers such as Eltayeb et al. (2011), Rao and Holt (2005), De Giovanni and Vinzi (2012), Green etal. (2011) and Azevedo et al. (2011) have attempted to link adoption of reverse logistics practices to organizational performance. According to their research findings, Rao and Holt (2005) showed that there exists a positive relationship between reverse logistics practices and organizational performance, De Giovanni and Vinzi (2012) established that the existing relationship was not significant while Azevedo et al. (2011) found a combination of positive relationship as well as other relationships. Thus organizations that have been begun taking account these asset have obtained benefits that could support competitive advantage (Kannan & Aulbur, 2004). There is less research done on reverse logistics and competitive advantage locally. Therefore the study sought to investigate the role of reverse logistics in achieving competition advantage in the manufacturing sector in East Africa Brewery Limited.

1.3 Study Objectives

The study sought to be guided by the following specific objectives:

i. To examine how remanufacturing practices influence competitiveness in manufacturing firms in Kenya

ii. To establish how repackaging practices influence competitiveness in manufacturing firms in Kenya

iii. To investigate how recycling practices influence competitiveness in manufacturing firms in Kenya

iv. To determine how warehouse management influence competitiveness in manufacturing firms in Kenya

2.0 LITERATURE REVIEW

2.1 Conceptual Framework

The purpose of the conceptual framework was to show the aims which a research study strives to achieve. In essence, the conceptual framework organizes the ideas of the researcher by making theoretical distinctions in the intended study. Eriksson and Westerberg, (2011), describe it as a diagrammatical representation that shows the relationship between dependent and independent variables. It also explains the relationship among interlinked concepts and explains the possible connection between the variables. The following framework depicts the relationship between the independent and dependent variables based on four independent variables and a dependent variable as represented diagrammatically in Figure 2.1
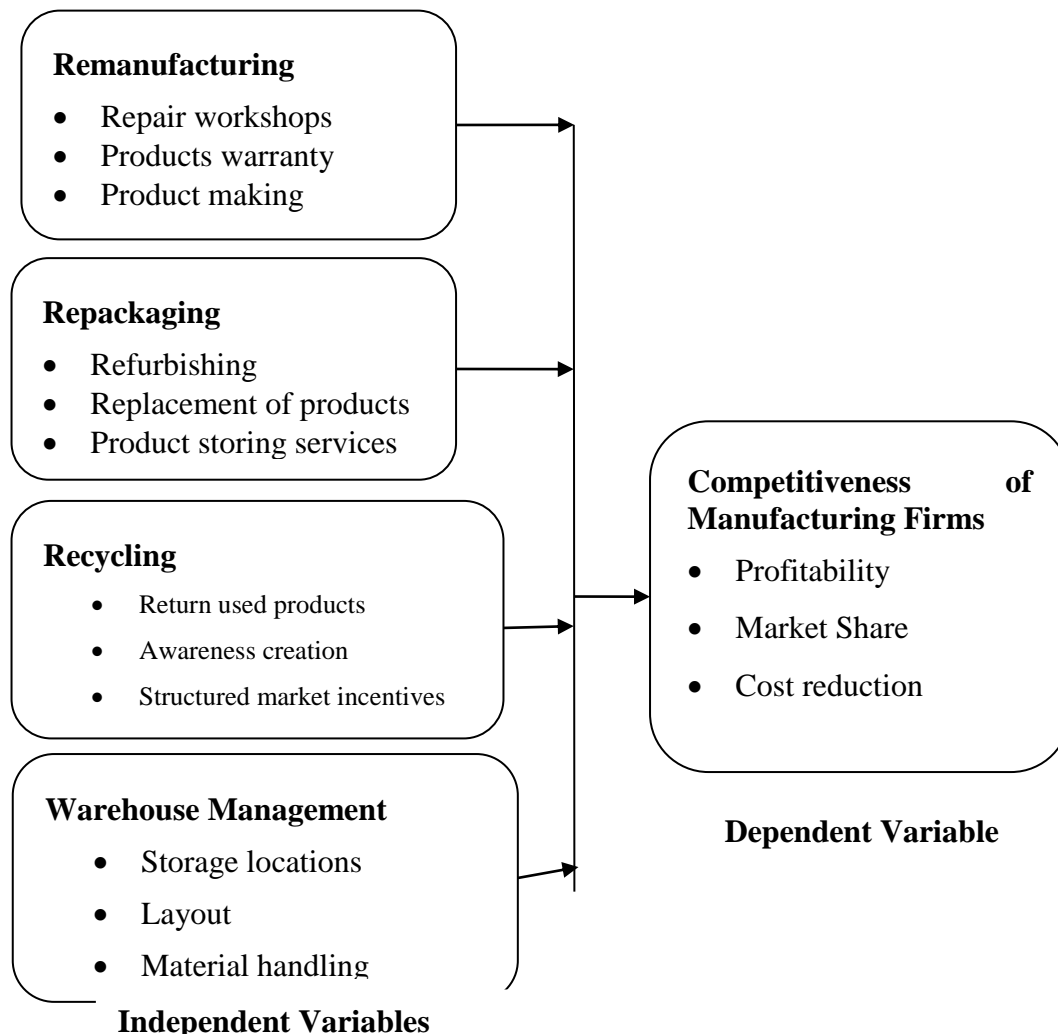
Figure 1: Conceptual Framework

3.0 RESEARCH METHODOLOGY

3.1 Research Design

The research design facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible hence yielding maximum information with minimal expenditure of effort, time and money (Mugenda, 2008). This study used descriptive research design. This design refers to a set of methods and procedures that describe variables. It involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data. Descriptive studies portray the variables by answering who, what, and how questions (Babbie, 2009). The study sought to be descriptive in nature as it is deemed appropriate because it involves use of written questionnaires administered to respondents. Yin (2013) recommended descriptive design as it allows the researcher to describe record, analyze and report conditions that exist or existed. Since this study sought to establish the influence of reverse logistics on competitiveness of manufacturing firms in Kenya this has the advantage of providing an in-depth investigation of the problem under study.

3.2 Target Population

Mugenda and Mugenda (2012) define target population as the entire group of individuals or objects to which researchers are interested in generalizing the conclusions on. EABL's diversity as a robust regional company is revealed in its subsidiaries: Kenya Breweries Limited, Uganda Breweries Limited, Serengeti Breweries Limited, United Distiller Vintners, East African Malting Limited and East African Breweries International.The study will focus on the role of reverse logistics and competitive advantage in the manufacturing sector specifically Kenya Breweries Limited one of the subsidiaries In this study the population was 240 staff drawn from the supply chain related departments in the Kenya Breweries Limited. This is illustrated in Table 1;

Table 1: Target Population

Strata	Target Population	Percentage
Managing Director-manufacturing	1	1.0
Accounts Department	48	2.42
Purchasing Department	60	25.00
Transport Department	71	29.58
Stores Department	60	25.00
Total	**240**	**100.0**

Source: Kenya Breweries Ltd (2018)

3.3 Sample and Sampling Technique

According to Kothari (2005) sampling is the process by which a relative small number of individual, object or event is selected and analyzed in order to find out something about the entire

population from which will be selected. A Sample is a small proportion of targeted population selected using some systematic form. The research used stratified random sampling because it enables generalization of a greater population with a margin of error that is statistically determinable. The manual calculation method was used to arrive at the sample size using the following Taro Yamane (1973) formula: Sample Size (n) = N/ [1 + (N) $(e)^2$ where N is the total population (1973), e is the level of significance(10%) = 240/ [1 + (240) (0.1x0.1) = 72. The sample size therefore becomes 72.

Table 2: Sample size Distribution

Strata	Population(N)	Sample Size(n)
Managing Director- manufacturing	4	2
Accounts Department	46	14
Purchasing Department	60	18
Transport Department	70	24
Stores Department	60	14
Total	**240**	**72**

3.4 Data Collection Instruments

According to Kumar and Phrommathed (2005) data collection instrument is the means by which information is obtained from the selected subject of an investigation. The study collected primary data using questionnaires. The respondents were specifically targeted for their ability to provide pertinent information to the study. The questionnaire contained both structured and unstructured questions. According to Babbie (2009), the questionnaires are used for data collection because of their simplicity in the administration and scoring of items as well as data analysis. Secondary data was gathered from existing credible and recognized sources. The secondary data comprised of materials that were relevant such as library text books, internet, magazines and reports in the manufacturing firms.

4.0 RESULTS AND DISCUSSION

4.1 Response Rate

A total of 72 questionnaires were distributed to the targeted respondents. Out of the population covered, 58 were responsive representing a response rate of 80.55%. This was above the 50% which is considered adequate in descriptive statistics according to Mugenda & Mugenda (2012). Contacts prior to the dispatch of the questionnaires and follow up calls could account for the fairly high response rate. Quantitative data obtained from the questionnaires were presented in tables, frequencies and percentages as shown hereafter.

Table 3: Showing Response Rate of Respondents

Response	Frequency	Percentage
Actual Response	58	80.55%
Non-Response	14	19.45%
Total	**72**	**100%**

4.2 Pilot Study

A pilot study was carried out to determine reliability and validity of the data collection instrument. To measure the reliability of the gathered data, Cronbach's alpha was applied. Cronbach's alpha is a coefficient of reliability at an alpha coefficient of 0.70 or higher indicates that the gathered data was reliable. Table 4 illustrates that all the four variables were reliable as their reliability values exceeded the prescribed threshold of 0.7. The content validity formula Content Validity Index (CVI) of 0.78 was used. From the results in Table 4, it illustrates that all the four variables were valid as their CVI values exceeded the prescribed threshold of 0.7

Table 4: Reliability of Test Results

Scale	Cronbach's Alpha	CVI	Remarks
Remanufacturing practices	.890	.890	Accepted
Repackaging practices	.760	.843	Accepted
Recycling practices	.729	.827	Accepted
Warehouse management practices	.702	.889	Accepted

4.3 Multiple Regression Analysis

The study adopted a multiple regression analysis so as to establish the relationship of independent variables and dependent variables. The study applied SPSS compute the measurements of the multiple regression analysis. According to the model summary Table 5, the coefficient of determination (R^2) is used to measure how far the regression model's ability to explain the variation of the independent variables. It is notable that there exists a relationship between independent variables and dependent variable with a correlation coefficient of 0.789. The coefficient of determination is between zero and one. The data showed that the high R square is 0.622. It shows that the independent variables in the study were able to explain 62.20% variation in the competitiveness of the manufacturing firms while the remaining 37.80% is explained by the variables or other aspects outside the model. This implies that these variables are very significant and they therefore need to be considered in any effort to boost competitiveness of the manufacturing firms.

Table 5: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
	.789	.622	.599	.004

The study further used Analysis of Variance (ANOVA) in order to test the significance of the overall regression model. Green and Salkind (2013) posit that Analysis of Variance helps in determining the significance of relationship between the research variables. The results of Analysis of Variance (ANOVA) reveal that the significance of the F-test was done to test the effect of independent variables on the dependent variable simultaneously. The F-statistic test basically shows whether all the independent variables included in the model jointly influence on the dependent variable. Based on the study results of the ANOVA Test or F-test in Table 5, obtained F-count (calculated) value was 17.159 greater the F-critical value (Table 6) (13.890) with significance of 0.0024. Since the significance level of 0.002< 0.05 we conclude that the set of independent variables influence the competitiveness in the manufacturing firms (Y-dependent variable) and this shows that the overall model was significant. Thus the four variables play a significant role in the competitiveness in the manufacturing firms in Kenya.

Table 6: ANOVA

Model	Sum of Squares	d.f	Mean Square	F	Sig.
Regression	10.220	4	2.5550	17.159	.004
Residual	7.890	53	.1489		
Total	18.110	57			

NB: F-critical Value = 13.890;

The results of multiple regression analysis obtained regression coefficients t value and significance level as indicated in Table 6. The study conducted a multiple regression analysis so as to determine the relationship between the dependent variable and independent variables. The general form of the equation was to predict competiveness of the manufacturing firms from remanufacturing, repackaging, recycling and warehouse management practices is:$(Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon)$ becomes: $Y= 10.562+ 0.760X_1+ 0.679X_2+ 0.629X_3 + 0.588X_4 + 1.860$. This indicates that competiveness of the manufacturing firms = 10.562 + 0.760* Remanufacturing + 0.679*Repackaging practices + 0.629*Recycling practices + 0.588*Warehouse management + 1.860.

From the study findings on the regression equation in Table 7, established, taking all factors into account (independent variables) constant at competiveness of the manufacturing firms would be 10.562.The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in remanufacturing practices would lead to a 0.760 increase in competitiveness of the manufacturing firms; a unit increase in repackaging would lead to a 0.679 increase in competitiveness of the manufacturing firms, a unit increase in recycling practices would lead to

0.629 increase in competitiveness of the manufacturing firms and a unit increase in warehouse management would lead to 0.588 increase in competitiveness of the manufacturing firms This infers that remanufacturing practices contributed most to competitiveness of the manufacturing firms Based at 5% level of significance, remanufacturing practices had a .000 level of significance; repackaging practices showed a .002 level of significance, recycling practices show a .004 level of significance and warehouse management show a .005 level of significance hence the most significant factor was remanufacturing Practices.

Table 7: Regression Coefficient Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	β	Std. Error	β		
(Constant)	10.562	1.860		5.679	.000
Remanufacturing	.760	.143	.665	5.325	.000
Repackaging	.679	.138	.654	4.908	.002
Recycling	.629	.149	.455	4.221	.004
Warehouse management	.588	.150	.332	3.908	.005

5.0 DISCUSSION CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion of the Study

Based on the study findings, the study concludes that competitiveness of the manufacturing firms is affected by reverse logistics practices The study concludes that remanufacturing practices are the first important factor that affects competitiveness of the manufacturing firms in Kenya The regression coefficients of the study show that remanufacturing practices has a significant influence on competitiveness of the manufacturing firms in Kenya. This implies that increasing levels of remanufacturing practices would increase the levels of competitiveness of the manufacturing firms in Kenya. This shows that remanufacturing practices have a strong positive influence on competitiveness of the manufacturing firms in Kenya.

The study concludes that repackaging practices are the second important factor that affects competitiveness of the manufacturing firms in Kenya. The regression coefficients of the study show that repackaging practices has a significant influence on competitiveness of the manufacturing firms in Kenya. This implies that increasing levels of repackaging practices would increase the levels of competitiveness of the manufacturing firms in Kenya. This shows that repackaging practices have a strong positive influence on competitiveness of the manufacturing firms in Kenya

Further, the study concludes that recycling practices is the third important factor that affects competitiveness of the manufacturing firms in Kenya. The regression coefficients of the study

show that repackaging practices has a significant influence on competitiveness of the manufacturing firms in Kenya. This implies that increasing levels of repackaging practices would increase the levels of competitiveness of the manufacturing firms in Kenya. This shows that repackaging practices have a strong positive influence on competitiveness of the manufacturing firms in Kenya

Finally, the study concludes that warehouse management practices is the fourth most important factor that affects competitiveness of the manufacturing firms in Kenya The regression coefficients of the study show that warehouse management practices has a significant influence on competitiveness of the manufacturing firms in Kenya. This implies that increasing levels of warehouse management practices would increase the levels of competitiveness of the manufacturing firms in Kenya. This shows that warehouse management practices have a strong positive influence on competitiveness of the manufacturing firms in Kenya

5.2 Recommendations of the Study

The study recommends that the manufacturing firms should collect used products to the repair workshops from customers to make new products. The firms should train their employees on repair and refurbishing of the products to meet customers' expectations. There is need to implement product warranty to meet the customers' expectations and have manufacturing firm use reverse logistic to have competitive advantage and reduce customer risk when buying products to enhance competitiveness of the firms.

The manufacturing firms should repackage the product and resend the same product to the market. There is need to enhance distributor returns the product for repackaging to the manufacturing firm and thus the firm is able to save transport costs. Through repackaging the manufacturing firm is able to portray high levels of responsibility and care for the end users. The manufacturing firms should repackage damaged products which are beyond salable attractiveness to enhance its competitiveness

The study recommends that the manufacturing firms' returns used products and packaging to suppliers for recycling. There is need for awareness creation to the public about recycling of the products, have a well documented and implemented recycling policy. The manufacturing firms should have a structured market incentives on the recycling of the products.

The study recommends that the manufacturing firm material handling, storage locations should be where the shipping of the products to minimize picking time. The storage locations will enable the firm to achieve competitive advantage by consistently reviewing sales data as the items are stored close to the shipping area. The firm warehouse layout should be in such that minimize travel time between picking locations. The manufacturing firms should develop processes to regularly monitor picking travel times and storage locations. There is need to adopt material handling technologies such as hand-held reader, pick to light and voice recognition technology to enhance competitiveness of the firms.

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