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Influence of the Green Distribution Management on Competitive Advantage of Alcoholic Beverages Manufacturing Companies in Kenya

Felix O. Osano[1]*, Joseph Ngugi Kamau[2], Prescott B. Muhonza[3]
[1,2,3]United States International University – Africa, Kenya
**E-mail: osano2001@yahoo.com*

***Corresponding author**

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Abstract

This article examines the influence of the green distribution management on competitive advantage of alcoholic beverages manufacturing companies in Kenya. This study employed a positivism research philosophy and both descriptive and explanatory research designs were adopted. The target population was 394 consisting of Chief Executive Officers and heads of supply chain, corporate relations, human resource, finance, production, sales and marketing, quality control, logistics and warehousing in 41 alcoholic beverages manufacturing companies in Kenya. Yamane's Formula was applied to determine a sample size of 198 respondents. Stratified random sampling technique was utilized for selecting the sample. The data collection process incorporated both primary and secondary data. Secondary data was gathered from the annual reports of Kenya Association of Manufacturers (KAM) and individual alcoholic beverages manufacturing companies in Kenya with the help of a data collection checklist. Primary data was obtained using questionnaires. Thematic analysis was applied to analyze the qualitative data, while quantitative data was analyzed using SPSS statistical software to generate both descriptive and inferential statistics. Descriptive statistics contained mean, standard deviation, frequencies and percentages. Inferential statistics included Pearson correlation analysis, simple linear regression analysis and step-wise regression analysis. From the findings, the R-squared (R^2) results demonstrated that green distribution management explained 77.5% of the variance in competitive advantage ($R^2 = 0.775$). The regression coefficients revealed that green distribution management significantly predicted competitive advantage ($\beta = 0.870$, $p < 0.05$). The study suggests that the management of alcoholic beverages manufacturing companies in Kenya should integrate green distribution management practices into core operations to enhance competitive advantage. In addition, the study recommends improving resource efficiency through real-time monitoring and internal accountability.

Key Words: Competitive Advantage, Green Distribution Management, Manufacturing Companies, Transportation Efficiency, Warehousing, Reverse Logistics

Introduction

Business and management studies is a broad discipline that plays a vital part in optimizing resources, enhancing efficiency, and driving competitive advantage across various industries (Farida & Setiawan, 2022). It involves a variety of functions, like finance, marketing, human

resource management, and operations, all of which contribute to the effective functioning of organizations. Wagner and Hollenbeck (2020) indicate that by integrating analytical tools, strategic decision-making, and organizational behavior principles, business and management studies provide a framework for companies to enhance productivity, reduce costs, and improve service delivery. One of the critical subfields within this discipline is operations management, which focuses on the design, execution, and continuous improvement of business processes (Kumar, 2022). Operations management ensures that businesses can effectively manage their production, logistics, and service delivery systems to meet customer demands while maintaining cost efficiency (Heizer & Munson, 2020).

Green distribution management focuses on implementing environmentally friendly practices in transportation, warehousing, and logistics to lower environmental impact while optimizing efficiency (Ellibeş & Akçadağ, 2023). It involves transportation efficiency, which includes route optimization and the use of electric vehicles or fuel-efficient, green warehousing through energy-efficient storage facilities, and reverse logistics, which supports recycling and sustainable product returns (Nigatu, 2020). In Turkey, logistics companies have integrated green distribution by reducing packaging waste and selecting alternative distribution routes, leading to improved corporate performance (Ellibeş & Akçadağ, 2023). In Nigeria, Small and Medium Enterprises (SMEs) in the food and beverage sector have embraced green distribution to promote environmental sustainability, particularly through eco-friendly transportation and packaging (Babatunde et al., 2023). As observed by Panya et al. (2021) green distribution has contributed to cost mitigation and efficiency in Kenya's sugar sub-sector by reducing transportation and packaging expenses. In addition, Kariuki et al. (2021) indicate that firms in the horticulture sector have adopted green packaging and value-added processing techniques to support sustainability in the supply chain. Generally, GSCM significantly influences competitive advantage by enhancing operational efficiency, fostering innovation, and strengthening stakeholder relationships through sustainable practices.

In the alcoholic beverage manufacturing sector, competitive advantage (CA) is largely driven by product differentiation, cost efficiency, brand equity, and customer loyalty (Tellier, 2021). Global firms such as Heineken and Diageo achieve CA through innovation, premium quality, and efficient supply chains, with Diageo leveraging data-driven marketing and Heineken offering health-conscious product lines (Badenhorst-Weiss & Naude, 2020). Locally, Kenya Breweries Limited maintains market leadership by combining strong brand heritage with innovation and extensive distribution networks (Karanja & Wagoki, 2021). Over the past two decades, firms have increasingly integrated green supply chain management (GSCM) and collaborative capabilities across operational levels (Situbi & Kadima, 2021). International competitors have also invested in circular economy models, sustainable packaging, and digital supply chain tracking, leading to improved brand image, reduced costs, and higher market share. Ideally, GSCM enhances resilience, agility, and sustainability, positioning firms ahead of competitors in a rapidly changing market. However, despite these global trends, Kenyan firms continue to face rising production costs, supply disruptions, and declining profitability, highlighting the need for more effective sustainability and green purchasing initiatives (Githinji & Kiarie, 2021; Okoth, 2023).

Globally, green purchasing and distribution management have been widely adopted to improve sustainability and operational efficiency, with firms such as The Wine Group and Diageo integrating these practices successfully in multiple markets (Coelho, 2024; Tellier, 2021). In contrast, Kenyan manufacturers, including East African Breweries Limited, struggle with

inefficiencies and declining competitive advantage despite efforts toward sustainable sourcing and energy-efficient operations (Karanja & Wagoki, 2021). Previous Kenyan studies on green distribution management, such as those by Yusuf (2020), Mumbi et al. (2021), Panya et al. (2021), and Kariuki et al. (2022), confirm its relevance but reveal conceptual and methodological inconsistencies across sectors and designs, with a primary focus on descriptive approaches. These gaps underscore the limited understanding of green distribution's impact on competitive advantage in the local alcoholic beverage sector. This study therefore sought to bridge these gaps by providing actionable insights for implementing green distribution management, helping Kenyan manufacturers to enhance sustainability, reduce costs, improve brand reputation, and strengthen market competitiveness.

Purpose of the Study

The study sought to examine the influence of the Green Distribution Management on Competitive Advantage of Alcoholic Beverages Manufacturing Companies in Kenya. It was further hypothesized that:

> H_0 Green distribution management has no statistically significant effect on competitive advantage.

Theoretical Review

The study applied triple bottom line (TBL) theory. The theory broadens the traditional attention on financial performance by incorporating three aspects of sustainability: economic, environmental, and social. The triple bottom line (TBL) theory explains the influence of green distribution management on the competitive advantage of alcoholic beverage manufacturing companies in Kenya by emphasizing the critical balance between social, environmental, and economic outcomes (Rashidi & Cullinane, 2020). Central to this theory is the recognition that companies should not solely focus on financial profits but also consider their broader impact on society and the environment. green distribution management, which includes transportation efficiency, green warehousing, and reverse logistics, supports environmental goals while also enabling cost efficiencies and regulatory compliance. By aligning these indicators with the TBL Theory, firms can create a comprehensive sustainability strategy that not only meets environmental and social objectives but also boosts their competitive advantage in the marketplace.

Conceptual Framework

Figure 1 presents the study's conceptual framework and demonstrates the connection between the independent and dependent variables. The study's independent variable in this study is green distribution management and the dependent variable is competitive advantage of alcoholic beverages manufacturing companies.

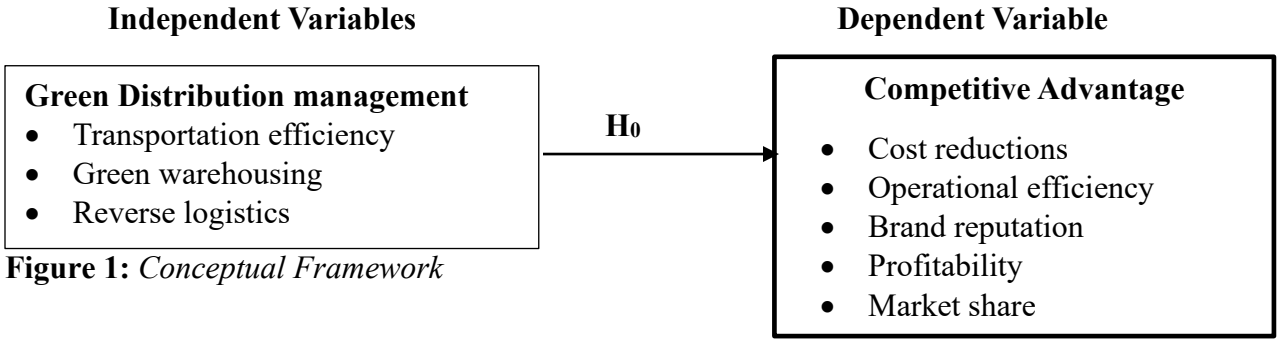

Figure 1: *Conceptual Framework*

Empirical Review

Green distribution management significantly influences competitive advantage by enhancing operational efficiency and fostering sustainability throughout the supply chain (Ellibeş & Akçadağ, 2023). Among small organizations in Iraq, Al-Murad (2022) examined the influence of green marketing strategy actions on market performance and competitive advantage and found that green marketing practices have a direct positive impact on market performance within small organizations. Ellibeş and Akçadağ (2023) investigated the impact of green distribution practices on corporate success, particularly within the logistics sector in Turkey and found green distribution practices have a significant and positive impact on corporate performance. Moreover, Babatunde et al. (2023) evaluated the impact of green distribution management on the environmental sustainability of SMEs in Nigeria using survey methodology and found significant influence of green distribution on the environmental sustainability of SMEs.

Further, Yusuf (2020) conducted research on the effect of green distribution on the performance of manufacturing companies in Kenya establishing that green distribution has a significant and positive influence on the performance of manufacturing companies. Similarly, Mumbi et al. (2021) examined the influence of green distribution on competitive advantage in Kenya's horticultural industry and established a significant positive influence of green distribution on competitive advantage in the horticultural industry in Kenya. Panya et al. (2021) assessed the effects of green distribution on Kenya's sugar subsector's organizational performance and found that green distribution is a critical component for cost mitigation and performance enhancement in the sugar sector. Kariuki et al. (2021) investigated the influence of green distribution on the performance of horticultural firms in Kenya and found a positive link between green distribution, measured in terms of green packaging and Value addition, and the performance of horticultural Kenyan firms.

Methodology

The study applied positivism research philosophy as it emphasized on objective, measurable outcomes based on observable data. This study was anchored on both descriptive study design and explanatory research design. The application of descriptive research design was justified as it had been successfully employed by Kariuki (2023) in studying sustainable supply chain management processes and their performance in horticultural companies in Kenya, providing a clear framework for examining existing trends and practices without manipulating variables. Explanatory research design aimed to explore and clarify the causes behind specific phenomena or patterns, often addressing “why” questions. The selection of explanatory research design was justified as it had effectively been used by Kenei and Wachiuri (2024) in examining the causal relationships between green supply chain practices and the performance of Nairobi City County, Kenya's food and beverage companies, providing valuable insights into the mechanisms that influenced competitive advantage.

The target population was 386 heads of supply chain, corporate relations, human resource, finance, production, sales and marketing, quality control, logistics and warehousing in 41 alcoholic beverages manufacturing companies in Kenya. The study used stratified random sampling in the selection of the sample size. The population was divided into homogenous strata. Since each department is homogenous, simple random sampling was utilized in the selection of the sample size using an online table of random numbers. Yamane (1967) sample size formula was employed to determine the size of the sample, which resulted to a sample size of 198 respondents.

Both primary and secondary data were utilized in this study. Secondary data was obtained from the annual reports with the help of a data collection checklist. Primary data was gathered by use of semi-structured questionnaires. Thematic analysis was analyzed using qualitative research and the results were presented in a narrative form. Quantitative data was analyzed by use of descriptive and inferential statistics with the help of Statistical Package for the Social Sciences (SPSS) version 28, statistical software. Descriptive statistics included measures like mean, mode, median, standard deviation (measure of dispersion), and frequency distributions. Inferential statistics were applied, specifically using Pearson correlation coefficient to examine the strength and direction of relationships between variables, as well as simple linear regression and step-wise regression analysis to model the complex interactions and predict outcomes (Casebeer, 2024).

Results

From a total of 198 questionnaires that were administered, 190 were returned fully completed, representing a response rate of 95.96 percent. In regard to general information, the findings indicated that the study successfully captured data from 40 out of the 41 targeted alcoholic beverage manufacturing firms in Kenya. In addition, 7.4% of the respondents had less than one year of experience working in the organizations while 34.2% had more than 6 years of experience. Further, 2.1% of the firms had been in existence for less than 5 years, while 44.7%, had been in operation for 55 years and above. The results indicated that 43.7% of the firms had fewer than 100 employees, while 13.2% reported having more than 500 employees. The demographics data covered, duration of working in the organization, organization years of operation and number of employees in the organization may influence the ability to implement green supply chain management on competitive advantage of alcoholic beverages manufacturing companies in Kenya.

Descriptive Analysis for Competitive Advantage

In regard to Cost Reductions, the results show strong agreement on the effectiveness of cost reduction strategies. The respondents indicated that streamlining supply chain processes to minimize costs was particularly effective (M=4.568, SD=0.636), closely followed by efforts to reduce operational costs such as utilities and administrative expenses (M=4.521, SD=0.640). The use of automation to enhance efficiency and lower labor costs was also rated highly (M=4.447, SD=0.716). The relatively low standard deviations across all measures, all below 1.0, suggest limited variability and a consistent consensus among respondents on the positive impact of cost reduction initiatives.

Pertaining operational efficiency, the findings reveal a generally strong agreement that the organization has adopted practices to enhance operational efficiency. Respondents agreed that resources such as staff, equipment, and materials are allocated efficiently to boost productivity (M=4.400, SD=0.718). They also agreed that the organization consistently meets its production targets while upholding quality standards (M=4.384, SD=0.738). Furthermore, respondents indicated agreement that the organization improves processes to minimize inefficiencies and eliminate bottlenecks (M=4.278, SD=0.763). The standard deviations, all below 1.0, reflect low variability in responses, demonstrating a consistent consensus among respondents on the organization's operational efficiency practices.

Regarding brand reputation, the findings reveal a generally positive perception of the organization's brand reputation, particularly in relation to sustainability practices. Respondents agreed that the organization's sustainability efforts have strengthened its brand reputation in the

market (M=4.347, SD=0.738). They also agreed that customers recognize the brand for its commitment to environmental responsibility (M=4.336, SD=0.668). In addition, respondents indicated that the organization's focus on sustainability has helped attract customers who value corporate responsibility (M=4.273, SD=0.726). The standard deviations, all below 1.0, suggest relatively low variability in responses, pointing to a consistent level of agreement among respondents regarding the organization's sustainability-driven brand reputation.

Based on the results in Table 1, the analysis shows that organizational revenues demonstrated a modest increase from a mean of Ksh. 12.42 billion in 2022 to Ksh. 14.31 billion in 2023. Similarly, the Cost of Goods Sold (COGS) rose from an average of Ksh. 8.40 billion in 2022 to Ksh. 9.24 billion in 2023. Despite the rise in both revenue and COGS, the Gross Profit Margin improved slightly from 32.5% in 2022 to 35.26% in 2023. This positive movement suggests that, on average, organizations were able to manage their costs more efficiently relative to revenues, thereby improving profitability. The relatively low standard deviations of the gross profit margins indicate moderate variability in performance across organizations, pointing to a general trend of improved cost management and profitability over the two-year period.

Table 1

Descriptive Statistics for Gross Profit Margin

		N	Minimum	Maximum	Mean	SD
2022	Revenue	190	0.95	125.00	12.42	20.19
	Cost of Goods Sold (COGS)	190	0.57	81.25	8.40	131.30
	Gross Profit Margin (%)	190	11	43	32.5	8.844
2023	Revenue	190	1.18	138.00	14.31	22.96
	Cost of Goods Sold (COGS)	190	0.65	85.86	9.24	14.16
	Gross Profit Margin (%)	190	5	45	35.26	11.313

Based on the results in Table 2, respondents provided data on net income and total assets for 2022 and 2023, which were used to compute the Return on Assets (ROA). The findings indicate that organizations experienced an improvement in ROA over the two-year period. In 2022, the average net income stood at Ksh. 0.082 billion against average total assets of Ksh. 0.945 billion, resulting in a mean ROA of 13.14%. By 2023, both net income and total assets had increased slightly to Ksh. 0.108 billion and Ksh. 1.022 billion respectively, contributing to a higher mean ROA of 15.27%. This upward trend suggests that organizations were able to generate more profit per unit of asset in 2023 compared to the previous year, pointing to improved efficiency in asset utilization. The higher variability in ROA in 2023, as indicated by the larger standard deviation (3.73 compared to 2.22 in 2022), also shows that while many organizations improved their performance, differences in profitability across firms widened during the period.

Table 2

Descriptive Statistics for Return on Assets

		N	Minimum	Maximum	Mean	SD
2022	Net income in billions	190	0.009	1.100	0.082	0.213
	Total assets in billions	190	0.067	15.700	0.945	3.038
	ROA	190	5.41	17.95	13.14	2.22
2023	Net income in billions	190	0.012	1.300	0.108	0.281
	Total assets in billions	190	0.071	16.800	1.022	3.259
	ROA	190	7.440	20.000	15.274	3.730

In addition, the findings suggest that the organization has taken notable measures to enhance its market share. Respondents agreed that the organization's commitment to sustainability provides a competitive advantage in the market (M=4.357, SD=0.649). They further agreed that the implementation of efficient practices has contributed to the expansion of market presence (M=4.310, SD=0.700). In addition, respondents indicated that a growing number of customers prefer the organization's products over those of competitors (M=4.400, SD=0.718). The standard deviations, all below 1.0, reflect relatively low variability in responses, suggesting a consistent agreement among participants on the organizations' efforts to strengthen market share.

Descriptive Analysis for Green Distribution Management

The findings reveal that organizations have made notable efforts to enhance transportation efficiency as part of their sustainability practices. Respondents agreed that their organizations take measures to improve fuel and energy efficiency in transportation (M=4.357, SD=0.688), which emerged as the highest-rated measure. They also agreed that routes and logistics are optimized to enhance delivery efficiency (M=4.315, SD=0.701), underscoring the role of planning in reducing delays and operational waste. Additionally, respondents indicated that organizations implement strategies to reduce carbon emissions in transportation processes (M=4.278, SD=0.742). All the standard deviations were below 1.0, suggesting low variability in responses and indicating a relatively strong level of consensus among participants.

According to the results, the findings indicate that organizations have put notable emphasis on environmentally sustainable warehousing practices. Respondents agreed that the organization uses energy-efficient systems to reduce power consumption in warehouse operations (M=4.215, SD=0.735), pointing to deliberate efforts to lower energy usage. Similarly, they agreed that warehousing facilities incorporate sustainable materials and practices (M=4.221, SD=0.653), reflecting an organizational commitment to environmentally conscious infrastructure and resource management. The highest level of agreement was recorded for the statement that warehousing operations are regularly evaluated to ensure alignment with environmental standards (M=4.273, SD=0.719). All standard deviations were below 1.0, suggesting relatively low variability in responses and a consistent level of agreement among participants.

In addition, the findings suggest that the organization has implemented notable reverse logistics practices as part of its green supply chain initiatives. Respondents agreed that the organization has a system in place to manage product returns and recycle products efficiently (M=4.347, SD=0.738), reflecting an established infrastructure for handling post-consumer product flows.

They also agreed that the reverse logistics process focuses on reducing waste and encouraging recycling (M=4.227, SD=0.696), indicating integration of sustainability principles in the product lifecycle. In addition, respondents agreed that the organization encourages customers to return products for recycling or safe disposal (M=4.289, SD=0.724), showing efforts to engage consumers in environmental responsibility. All standard deviations were below 1.0, suggesting relatively low variability and a fair level of consensus among participants.

Correlation Analysis

As shown in Table 3, the results reveal a positive and statistically significant correlation between the two variables ($r = 0.881$, $p = 0.000$). This correlation, significant at the 0.05 level (2-tailed), suggests that improvements in green distribution practices, such as eco-efficient transportation, warehousing, and reverse logistics, are associated with enhanced competitive advantage. The findings imply that adopting sustainable distribution strategies may contribute positively to a firm's market positioning and operational success.

Table 3

Correlation Results

		Competitive Advantage	**Green Distribution Management**
Competitive Advantage	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	190	
Green Distribution Management	Pearson Correlation	.881**	1
	Sig. (2-tailed)	.000	
	N	190	190

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

Diagnostic Tests

Before conducting regression analysis, several diagnostic tests were performed to ensure that the data met the assumptions of multiple linear regression. These assumptions include normality, independence of errors, linearity and homoscedasticity.

Normality Test: The Shapiro-Wilk test was conducted to assess the normality of the green distribution management variable. The test yielded a statistic of 0.929 with a significance value (p-value) of 0.148. Since the p-value is greater than 0.05, there is no statistically significant deviation from normality. This indicates that the data for green distribution management is approximately normally distributed, thereby satisfying the normality assumption and supporting the appropriateness of applying parametric statistical methods in further analysis.

Independence of errors: The Durbin-Watson test was conducted to assess the independence of errors in the regression model involving green distribution management and competitive advantage. The test yielded a Durbin-Watson statistic of 1.999, which falls within the acceptable range of 1.5 to 2.5, indicating no autocorrelation in the residuals. This confirms that the assumption of independent errors is satisfied, thereby supporting the statistical validity and reliability of the regression results for this model.

Linearity: The scatter plot was used to test the linearity assumption between green distribution management and competitive advantage of alcoholic beverages manufacturing companies in Kenya. As depicted in the figure, there is a positive linear relationship between the two variables, suggesting that improvements in green distribution practices are linked to enhanced competitive advantage. The R-squared value of 0.775 indicates that approximately 77.5% of the variation in competitive advantage can be explained by green distribution management. This supports the assumption of linearity, confirming that the relationship between these variables follows a linear pattern.

Homoscedasticity: The Breusch-Pagan test was used to assess homoscedasticity, which evaluates whether the variance of the residuals remains constant across all levels of the independent variables. From the findings, the Chi-square statistic is 1.64 with a p-value of 0.200. Since the p-value is greater than 0.05, the result is not statistically significant, indicating no evidence of heteroscedasticity in the model. This confirms that the assumption of homoscedasticity is satisfied, thereby supporting the reliability and validity of the regression estimates.

Regression Analysis

Model Summary: R-squared (R^2) indicates the proportion of variance in the dependent variable (competitive advantage) that is explained by the independent variable, green distribution management. As presented in 2, the correlation coefficient (R) is 0.881, demonstrating a very strong positive relationship between green distribution practices and competitive advantage among alcoholic beverages manufacturing companies in Kenya. The R-squared value is 0.775, showing that 77.5% of the variation in competitive advantage can be attributed to green distribution management. These findings suggest that green distribution management makes a substantial contribution to enhancing competitive advantage in the industry.

Table 41

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.881[a]	.775	.774	.24585

a. Predictors: (Constant), Green Distribution Management
b. Dependent Variable: Competitive Advantage

Analysis of Variance: Table 5 presents the ANOVA results for the regression model assessing the influence of green distribution management on competitive advantage among alcoholic beverages manufacturing companies in Kenya. The model shows a regression sum of squares of 39.203 with 1 degree of freedom, resulting in a mean square of 39.203. The F-statistic is 648.603 with a p-value of 0.000, which is well below the 0.05 threshold. This indicates that the regression model is highly statistically significant, confirming that green distribution management has a strong effect on competitive advantage. Therefore, the model provides robust evidence that green distribution management is a valid and meaningful predictor of competitive advantage in this context.

Table 5

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.203	1	39.203	648.603	.000[b]
	Residual	11.363	188	.060		
	Total	50.566	189			

a. Dependent Variable: Competitive Advantage
b. Predictors: (Constant), Green Distribution Management

Table 6 presents the regression coefficients for the model examining the influence of green distribution management on competitive advantage among alcoholic beverages manufacturing companies in Kenya. The constant value of 0.649 indicates the expected level of competitive advantage when green distribution management is zero. The unstandardized beta coefficient for green distribution management is 0.870, suggesting that a one-unit increase in green distribution management results in a 0.870 unit or 87% increase in competitive advantage. This relationship is statistically significant, with a p-value of 0.000, which is well below the 0.05 significance level. Therefore, green distribution management has a strong positive effect on competitive advantage among alcoholic beverages manufacturing companies in Kenya. Based on these findings, the null hypothesis (H_0), which stated that green distribution management has no statistically significant effect on competitive advantage, is rejected.

Table 2

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.649	.147		4.404	.000
	Green Distribution Management	.870	.034	.881	25.468	.000

a. Dependent Variable: Competitive Advantage

Discussion of Results

The study findings revealed that green distribution management positively and significantly influence competitive advantage of alcoholic beverages manufacturing companies in Kenya. These findings concur with the findings by Al-Murad (2022), which indicated that adopting distribution management systems enhances operational efficiency, customer satisfaction, and brand image, since sustainable distribution reduces waste and cost inefficiencies while improving reputation. The findings are also consistent with Ellibeş and Akçadağ (2023) argument that eco-efficient transportation, energy-saving warehousing, and optimized routing improve delivery reliability and minimize carbon emissions, thereby strengthening firms' competitive edge through environmental responsibility and operational excellence. Similarly, the findings align with the findings of Babatunde et al. (2023), which concluded that firms implementing green distribution strategies

achieve superior competitiveness by balancing economic efficiency and ecological sustainability, as eco-conscious logistics promote cost reduction and long-term market differentiation.

Conclusion and Recommendations

The study found that green distribution management positively and significantly influence the competitive advantage of alcoholic beverages manufacturing companies in Kenya. The study therefore concludes that sustainable distribution practices encompassing eco-efficient transportation, energy-saving warehousing, optimized routing, and reverse logistics play a critical role in enhancing competitive advantage. The study thus recommends that management of alcoholic beverages manufacturing companies in Kenya should integrate green distribution management into core logistics and supply chain strategies to enhance competitiveness. Firms should adopt eco-efficient transportation, optimize delivery routes, and implement energy-saving practices in warehousing, including renewable energy and sustainable materials. Reverse logistics systems should be developed to manage product returns, recycling, and safe disposal, promoting sustainability and reducing waste. Management should embed distribution sustainability into performance evaluations, conduct regular audits, train staff on green logistics, and collaborate with supply chain partners to ensure operational efficiency, customer satisfaction, and long-term market differentiation.

References

Al-Murad, N. Y. M. (2022). Apply green marketing strategies to improve market performance by competitive advantage as mediating: An analytical study of some small organisations in Iraq. *Webology*, *19*(1), 1266-1281. https://doi.org/10.14704/WEB/V19I1/WEB19085

Babatunde, B. O., Ajayi, E. O. & Badiru, N. I. (2023). Green Distribution Management and Environmental Sustainability of Small and Medium-sized Enterprises (SMEs). *Applied Economics and Business, 7*(1), 34-48. https://doi.org/10.15714/WEB/V19I1/WEB17085

Badenhorst-Weiss, J. A., & Naude, R. T. (2020). The challenges behind producing a bottle of wine: Supply chain risks. *Journal of Transport and Supply Chain Management*, *14*(1), 1-15. https://doi.org/10.4102/jtscm.v14i0.471

Casebeer, B. J. (2024). *Research design simplified: A beginner's guide to qualitative and quantitative designs*. Amazon

Coelho, A. (2024). The Leading Wine Cooperatives in Argentina and Europe: What Are the Strategic Choices to Penetrate the Distribution Channels in the United States and Canada?. *Sustainability*, *16*(15), 6376. https://doi.org/10.3390/su16156376

Ellibeş, Ö., & Akçadağ, M. (2023). Determining the Impact of Green Distribution Activities on Perceived Business Performance: Kocaeli Logistics Enterprises Application. *Cumhuriyet University Journal of Economics and Administrative Sciences*, *24*(4), 519-526. https://doi.org/10.37880/cumuiibf.1288970

Farida, I., & Setiawan, D. (2022). Business strategies and competitive advantage: the role of performance and innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(3), 163. https://doi.org/10.3390/joitmc8030163

Githinji, M. J., & Kiarie, D. (2021). An Assessment of the Effect of Vendor Managed Inventory on Supply Chain Performance in Manufacturing Sector in Kenya: A Case of Eabl. *International Journal of Human Resources and Procurement*, *6*(2), 17-37. http://www.iajournals.org/articles/iajpscm_v1_i4_12_21.pdf

Heizer, J. & Munson, C. (2020). *Operations management: Sustainability and supply chain management*. Pearson.

Karanja, N. & Wagoki, S.J. (2021). Effect of Strategic Material Sourcing on Operational Performance of Manufacturing Firms: A Case of East African Breweries Ltd, Kenya. *International Journal of Science and Research, 3*(11), 11-23. https://doi.org/10.21275/OCT14800

Kariuki, M. M. (2023). Sustainable Supply Chain Management Practices and Performance of Horticultural Firms in Kenya. *International Journal of Social Sciences Management and Entrepreneurship*, *8*(1), 90-112. http://localhost/xmlui/handle/123456789/6186

Kariuki, M. M., Ngugi, P. K. & Mburu, D. K. (2021). Green Packaging, Green Distribution and Competitive Advantage in the Horticultural Sector in Kenya. *International Journal of Social Sciences Management and Entrepreneurship, 4*(2), 93-111. https://doi.org/10.5281/zenodo.6579724

Kenei, K., & Wachiuri, E. (2024). Green Supply Chain Practices and Performance of the Food and Beverage Firms in Nairobi City County, Kenya. *International Journal of Management and Business Research*, *6*(1), 225-238. https://grandmarkpublishers.com/index.php/IJMBR/article/view/8

Kenya Association of Manufacturers (2023). *Growth & Gains*. Retrieved from https://kam.co.ke/media-centre/downloads/kam-growth-and-gains/

Kumar, R. (2022). *Operations management*. Jyothis Publishers.

Mumbi, K. M., Karanja, N. P., & Kiarie, M. D. (2021). Green packaging, green distribution and competitive advantage in the horticultural sector in Kenya. *International Journal of Social Sciences Management and Entrepreneurship (IJSSME)*, *4*(2). https://doi.org/10.5281/zenodo.6579724

Nigatu, M. (2020). The Effect of Green Logistics Practice on the Performance of Large Manufacturing Firms Located in Debre Birhan Town. *Sustainability*, *15*(2), 1045. https://doi.org/10.47119/IJRP100571720201331

Okoth, J. (2023). *EABL Records a 21% fall in Net Profit to KSh 12 B as Taxes Bite Hard*. Retrieved from https://kenyanwallstreet.com/eabl-blames-ex

Panya, K. O., & Marendi, P. G. (2021). Effects of reverse logistic practices on the performance of fast-moving consumer goods companies in Kenya. *The Strategic Journal of Business & Change Management*, *8*(4), 747-762. https://doi.org/10.61426/sjbcm.v8i4.2139

Panya, K. O., Ochiri, G. & Gakure, R. W. (2021). Effects of green distribution on the organizational performance of sugar sub-sector in Kenya. *The Strategic Journal of Business & Change Management*, *8*(3), 939-952. https://doi.org/10.61426/sjbcm.v8i3.2074

Rashidi, K. & Cullinane, K. (2020). Applying the triple bottom line in sustainable supplier selection: A meta-review of the state-of-the-art. *Journal of Cleaner Production*, *269*, 122001. https://doi.org/10.1016/j.jclepro.2020.122001

Situbi, R. & Kadima, R. (2021). Effects of Strategic Product Innovation on Sustainable Competitive Advantage of Alcoholic Beverage Industry: A Case of Keroche Breweries Company Limited; Kenya. *Strategic Journal of Business & Change Management, 8*(1), 531-544. https://doi.org/10.61426/sjbcm.v8i1.1930

Tellier, N. (2021). Environmental, Social, and Governance Performance of Top-Rated Supply Chain Companies: A Quantitative Assessment Model. *European Journal of Glass Science and Technology, 65*(1), 13. https://doi.org/10.1111/jbl.12368

Wagner III, J. A., & Hollenbeck, J. R. (2020). *Organizational behavior: Securing competitive advantage*. London: Routledge. https://doi.org/10.4324/9781003009580

Yusuf, R. (2020). Effect of green distribution on the performance of manufacturing firms in Kenya. *Journal of Business and Management*, *22*(4), 1-13. https://doi.org/10.9790/487X-2204040107