

THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

Supplier Integration and Competitive Advantage of Food and Beverages Manufacturing Firms in Kenya

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Abstract:

The major aim of this study was to establish the relationship between supplier integration and competitive advantage of food and beverages manufacturing firms in Kenya. The study adopted a cross sectional survey. The target population was managers working along the supply chain from 270 food and beverage manufacturing firms in Kenya. Two-stage sampling design was employed. First stage, cluster random sampling was used to obtain 73 food & beverages manufacturing firms. Second stage, convenience sampling was used to select two participants from the 73 selected firms. Thus, a sample size of 146. Questionnaires were used to collect primary data using both the drop and pick and mailing methods. Secondary data was obtained through document analysis. Data was analyzed using SPSS version 28 to generate descriptive and inferential statistics. The study found that supplier integration had a positive significant linear relationship with competitive advantage. Additionally, the competitive advantage is anticipated to grow for every unit increase in supplier integration. Thus, the study concludes that the parameters of supplier integration are crucial in enhancing a company's competitive advantage in the food and beverage industry. Consequently, the study recommends that improvements in integrating with suppliers should be strategically implemented.

Keywords: *Supplier integration, competitive advantage, early supplier involvement, vendor managed inventory, supplier relationship management, supplier development*

1. Introduction

Integration of vendors is upstream integration of logistics. A partnership between the company and the upstream suppliers is involved (Bennett & Klug, 2012). With the incorporation of vendors, vendors provide decision-making knowledge and involvement. In advanced businesses, such efficient relationships and interactions have a significant significance, because suppliers know the components supplied better than the businesses (Njagi&Muli, 2020). Integration of suppliers relates to the acquisition of suppliers' organizational, technological and financial details. Information regarding production schedules, demand forecasts including inventory levels can be exchanged by producers and suppliers (Prajogo&Olhager, 2012). This exchange of data leads to improved product and output specifications and better use of the capacities as well as cost structure of manufacturers and factories.

As a driving force for the long-term competitiveness of the supply chain as a whole, external integration is often stated (Cao & Zhang, 2011). For this purpose, contacts with suppliers focusing on integrating upward data and downward flows of materials across the supply chain are seen as a key problem in the successful management of the supply chain. This implies that after efficient implementation of internal integration, the efficacy of external integration is best seen (Lee, Seo, & Dinwoodie, 2016). The alignment and integration of a business with its vendors is the product of a partnership between them that is strategic and competitive. That's the product of a high degree of trust, engagement over time, long-term contracts, shared dispute resolution, as well as the sharing of risks and benefits in a reciprocal and continuing partnership (Salema&Buvik, 2016).

All these entities work together to improve the quality of the product and minimize costs that further leads to profits being shared (So & Sun, 2010). Generally, larger companies make secure deals with smaller firms, who are therefore able to act as primary suppliers. In order to achieve mission cooperation and overcome disputes, closer supplier collaboration helps (Salema&Buvik, 2018). Better teamwork and task alignment help to reduce the waste but also complexity of supply chain operations management activities. In addition, integration with suppliers also helps to build

routines for problem solving that allow for joint efforts in cost reduction and product design and development (Kull & Ellis, 2016). To achieve time-based efficiency and also product quality and innovation, such joint efforts are necessary.

2. Literature Review

2.1. Supplier Integration

For years, supplier integration was out of fashion as it is frequently connected to antitrust infringement and perceived to be detrimental to competition (Danese& Romano, 2011). As a result, instead of manufacturing them in-house, businesses tend to outsource intermediate parts. As integration restricts organizational flexibility in selecting the most cost-effective provider, the most popular outsourcing advantage is cost reduction (Alshahrani, Rahman & Chan, 2018). Besides that, with relatively lower costs becoming less of a consideration, companies are beginning to re-weight options, particularly taking into account the intangible costs incurred as a result of supply chain outsourcing (Flynn, Huo& Zhao, 2010). Time delays, loss of organizational expertise, supplier relationship management challenges, diminished flexibility, loss of control, including lack of operational confidentiality add considerable costs to business activities, processes and operations (Danese, 2013).

The most prevalent form of logistics and supply chain integration is supplier integration (He, Lai, Sun & Chen, 2014). Integration of suppliers includes the efficient coordination, exchange of information and involvement in the interactions between companies and their suppliers (Lockströmet *al.*, 2010). Integration of suppliers requires a shift in mindset away from adversarial to cooperative, including collaborative efforts in product creation, problem solving, sharing of technologies and support for design. Integration of suppliers is accomplished by alignment, exchange of knowledge and interactions between companies and their suppliers (Shouet *al.*, 2018).

As this happens, it is much more likely to allow regular small batch deliveries, to use single or dual supply sources, to evaluate alternative supply sources on the basis of quality and delivery rather than price, and to create long-term supplier contracts to boost supplier delivery efficiency (Prajogoet *al.*, 2012). In addition, long-term strategic partnerships can have a beneficial effect on delivery capacity (Salema&Buvik, 2018). The exchange of business and operational information in a shared and timely manner enables producers to predict and respond more fully to changes in consumer needs (Zhang *et al.*, 2018).

The direct growth of suppliers and the strategic target alignment of suppliers have proven to be important predictors of purchasing success in terms including on-time delivery as well as quality performance and competitiveness (Wang *et al.*, 2016). In the other hand, supplier linkage deals with strategic supplier linkages, involving suppliers in new products during the design phase, in production planning and inventory management, implementing a rapid response order processing system with suppliers, creating a supply network that ensures timely distribution, and sharing information with suppliers (Ashenbaum&Maltz, 2017). The suppliers and customers of a business were its key sources of creative concept that 'out-innovate' systems with less productive routines for the sharing of information.

2.2. Competitive Advantage

Companies with expertise, practices and/or information that help them distinguish the value they deliver to their customers from that delivered by their rivals have the opportunity to build a competitive advantage and superior results for the company (Sandberg & Abrahamsson, 2011). The competitive advantage is upstream of the commodity markets and is focused on the idiosyncratic and hard-to-imitate capabilities of the business. The capacity of the organization to handle information stocks efficiently is precisely such an idiosyncratic capacity and difficult to emulate (Wen, 2012). It has been generally argued that the opportunity to learn, assimilate and incorporate new expertise from outside the business provides a major potential competitive advantage at the company level (Prajogo&Olhager, 2012).

Enhanced integration will contribute to improved customer experience, performance in logistics, and overall company performance (Liu & Luo, 2012). Businesses take production capabilities as a source of their competitive advantages in the form of cost, quality, and time (Vanpoucke, Vereecke&Wetzels, 2014). Moreover, in the eyes of its clients, competitive skills differentiate a corporation from its rivals. Competitive capacities are often expressed to define possible capacities as expected, realized capacities, or comparative capacities of order winners and qualifiers (Sakchutchawan, 2011).

These include trust between both the partner organizations as well as close relationships that take time to develop, in general (Ahmad & Saifudin, 2014). The strategic resources of the buyer company are embedded within those of the supplier with highly integrated logistics processes to establish processes, skills, and relationships which are discreet and intangible although usually important, concealed from and imperfectly imitable by competitors (Sukatiet *al.*, 2012).

- Hypothesis: H₀₁: Supplier integration has no significant effect on competitive advantage of Kenyan food and beverage manufacturing firms in Kenya.

2.3. Conceptual Framework

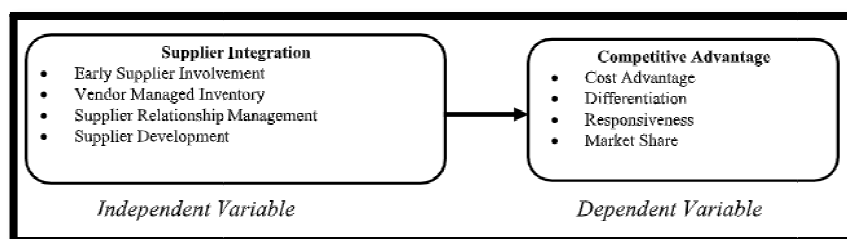


Figure 1: Conceptual Framework

3. Methodology

The research followed a cross-section survey design. Kothari (2017) noted that a cross-sectional survey design assists in formulating hypotheses and testing the relationship analysis among study variables. The choice of this design is suitable for this study since it makes use of a questionnaire as a data collection tool. The population of this study was 270 food and beverage manufacturing firms in Kenya (KAM, 2020). The sampling frame for this study was a list of managers working in operations, logistics and supply chain functions. Two-stage sampling was used by the study. In the first stage, cluster random sampling was used to select 73 food and beverages manufacturing firms from a list of 270 companies with the aid of the Nassiuma formula (2000).

In the second stage, convenience sampling was used to select two participants from each of the participating organization. Thus, the sample size of the study was 146 respondents from 73 food and beverage manufacturing firms in Kenya. Primary data was obtained by means of research questionnaires. For secondary data collection, the study utilized document analysis. Data collection was carried out using the drop and pick method as well as mailing questionnaires. Quantitative data collected was analyzed by using SPSS version 28 to calculate the response rate using descriptive statistics including frequencies, percentages, mean, and standard deviation. Qualitative data analysis was conducted using content analysis (computer-aided). Inferential analysis focusing on correlation analysis, and regression analysis were done. The results were summarized in this analysis using tables.

4. Results

4.1. Competitive Advantage Findings

The study sought to examine the effect of supplier integration on the competitive advantage of food and beverages manufacturing firms in Kenya. According to Margaret (2017), the Likert scale of mean (\bar{x} = 4.2 to 5 Strongly Agree; 3.4 to 4.2 Agree; 2.6 to 3.4 Undecided; 1.8 to 2.6 Disagree; and 1 to 1.8 Strongly Disagree) was used. The findings are presented descriptively focusing on means and standard deviations. Competitive advantage was measured by the following constructs; Cost Advantage, Differentiation, Responsiveness and Market Share. The means and standard deviations are depicted in the descriptive findings of competitive advantage in table 1. On cost advantage, the findings illustrated that majority of food and beverages manufacturing firms did not balance between operational cost and product and service quality (\bar{x} = 2.355, σ = .4803). Given the five-point scale Likert mean of less than (\bar{x} = 2.6) and an average standard deviation, it is clear that a major section of the respondents disagreed with the statement. However, the importance of cost reduction in supply chains for cost leadership capacity and the need for strict quality control on operations for quality enhancement at the company level (Sakchutchawanet *al.*, 2011).

Further, the study found out that majority of food and beverages manufacturing firms did not facilitate the coordination and alignment of organizational processes (\bar{x} = 2.232, σ = .4236). Given the five-point scale Likert mean of less than (\bar{x} = 2.6) and an average standard deviation, it is clear that a major section of the respondents disagreed with the statement. However, agility, ability to adapt, and coordination characterized best-value supply chains have been theorized as a vital means for businesses to achieve a competitive advantage which is sustainable as well as superior company efficiency (Otchere, Annan & Anin, 2013). Moreover, Mutunga & Minja (2014), noted that there are multiple ways for a firm to acquire a cost advantage: by adopting a different or more efficient way to design, distribute, or market a product, or by redesigning the value chain through adopting a unique or more competitive way of designing, distribute, or sell a product by food and beverage manufacturers.

On differentiation, the findings illustrated that majority of food and beverages manufacturing firms have improved the quality of its products (\bar{x} = 3.512, σ = .4648). Given the five-point scale Likert mean of more than (\bar{x} = 3.4) and an average standard deviation, it is clear that a major section of the respondents agreed with the statement. The findings are in concurrence with those of Vanpoucke, Vereecke and Wetzels (2014), who stated that businesses take production capabilities as a source of their competitive advantages in the form of cost, quality, and time.

In addition, the study found out that majority of food and beverages manufacturing firms have not differentiated prices to broaden their market share (\bar{x} = 2.239, σ = .4281). Given the five-point scale Likert mean of less than (\bar{x} = 2.6) and an average standard deviation, it is clear that a major section of the respondents disagreed with the statement. Further, the study established that majority of food and beverages manufacturing firms do not have a differentiated service niche customer with premium price products (\bar{x} = 2.217, σ = .4139). Given the five-point scale Likert mean of less than (\bar{x} = 2.6) and an average standard deviation, it is clear that a major section of the respondents disagreed with the statement.

However, Curzi and Olper (2012), stated that differentiated products enhance the performance and competitiveness of a food and beverage manufacturing firm.

On responsiveness, the findings illustrated that majority of food and beverages manufacturing firms improved responsiveness ($\bar{x} = 3.688$, $\sigma = .5895$). Given the five-point scale Likert mean of more than ($\bar{x} = 3.4$) and an average standard deviation, it is clear that a major section of the respondents agreed with the statement. The findings concur with those of Leuschner, Rogers, and Cheruiyot (2013), who indicated that the responsiveness of a company's supply network will boost the company's ability to quickly launch new products and functionality in the industry (i.e., compete on the basis of product creativity and lead times), as well as boost the company's ability to deliver on time (i.e., increase its delivery reliability).

In addition, the study found out that majority of food and beverages manufacturing firms developed responsiveness strategies to improve on volume flexibility ($\bar{x} = 3.841$, $\sigma = .7569$). Given the five-point scale Likert mean of more than ($\bar{x} = 3.4$) and an average standard deviation, it is clear that a major section of the respondents agreed with the statement. Further, the study established that majority of food and beverages manufacturing firms improved delivery schedules to achieve efficient customer response ($\bar{x} = 3.638$, $\sigma = .8099$). Given the five-point scale Likert mean of more than ($\bar{x} = 3.4$) and an average standard deviation, it is clear that a major section of the respondents agreed with the statement. The findings are in agreement with those of Vanathi and Swamynathan (2014), who indicated that, in terms of time and efficiency, a supply chain characterized by rapid customer responsiveness would be competitive.

Statements	Mean	Std. Deviation
Our firm balances between operational cost and product and service quality.	2.355	.4803
Our firm facilitates the coordination and alignment of organizational processes.	2.232	.4236
Our firm has improved the quality of its products.	3.512	.4648
Our firm has differentiated prices to broaden our market share.	2.239	.4281
Our firm has a differentiated service niche customer with premium price products.	2.217	.4139
Our firm improved responsiveness.	3.688	.5895
Our firm developed responsiveness strategies to improve on volume flexibility.	3.841	.7569
Our firm improved delivery schedules to achieve efficient customer response.	3.638	.8099

Table 1: Competitive Advantage Descriptive Statistics

4.2. Descriptive Analysis for Supplier Integration

The study participants were asked to indicate the extent to which they agreed with the effect of supplier integration on the competitive advantage of food and beverages manufacturing firms in Kenya using the five-point Likert scale of 5= [SA] Strongly Agree, 4= [A] Agree, 3= [N] Neutral, 2= [D] Disagree, 1= [SD] Strongly Disagree). To exhibit the key findings of supplier integration, the study used mean average and standard deviations. According to Margaret (2017), the Likert scale of mean (\bar{x} =4.2 to 5 Strongly Agree; 3.4 to 4.2 Agree; 2.6 to 3.4 Undecided; 1.8 to 2.6 Disagree; and 1 to 1.8 Strongly Disagree) was used.

The means and standard deviations are depicted in the descriptive findings of supplier integration in table 2. On early supplier involvement, the study found out that majority of food and beverages manufacturing firm's suppliers do not know and do not understand about firms' manufacturing needs ($\bar{x} = 2.348$, $\sigma = .6904$). Given the five-point scale Likert mean of less than ($\bar{x} = 2.6$) and an average standard deviation, it is clear that a major section of the respondents disagreed with the statement. However, early supplier involvement enables suppliers to learn about and understand customer needs (Van-Weele, 2018).

Moreover, the study established that majority of food and beverages manufacturing firms did not enhance resource deployment, did not reduce supply instability, as well as did not boost consumer value ($\bar{x} = 1.899$, $\sigma = .4725$). Given the five-point scale Likert mean of less than ($\bar{x} = 2.6$) and an average standard deviation, it is clear that a major section of the respondents disagreed with the statement. Nevertheless, early supplier involvement allows suppliers to become acquainted with and comprehend the decision-making processes that contribute to better resource allocation (Saunders *et al.*, 2015).

Further, the study established that majority of food and beverages manufacturing firms did not minimize design and production costs plus did not reduce time to market ($\bar{x} = 2.449$, $\sigma = .5137$). Given the five-point scale Likert mean of less than ($\bar{x} = 2.6$) and an average standard deviation, it is clear that a major section of the respondents disagreed with the statement. These findings did not mirror those of Suurmond, Wynstra and Dul (2020), who established that early supplier involvement accelerates development of new products, reduce design and manufacturing costs, allows for a more streamlined manufacturing process, reduced time to market and enhanced product manufacturability thus boosting competitive advantage.

On vendor managed inventory the findings showed that majority of the food and beverages manufacturing firms eliminated stock shortages plus the high distribution costs of delivering expedited orders ($\bar{x} = 3.522$, $\sigma = .5014$). Given the

five-point scale Likert mean of more than ($\bar{x} = 3.4$) and an average standard deviation, it is clear that a major section of the respondents agreed with the statement. Therefore, once vendors are unable to meet demand requests from existing inventory, the deficit should be filled through expediting, that mostly incurs per unit as well as setup costs. Moreover, overtime manufacturing, that mostly takes place at the end of the scheduled production period and accrues relatively high production costs, or premium freight shipments, which involve building products at the beginning of the period they are needed and shipping them very quickly with relatively high shipping costs, are some of the examples of expediting (Amirjabbari&Bhuiyan, 2014).

Moreover, the study established that majority of food and beverages manufacturing firms did not reduce wastage, non-value adding factors and obsolete stock ($\bar{x} = 2.406$, $\sigma = .4928$). Given the five-point scale Likert mean of less than ($\bar{x} = 2.6$) and an average standard deviation, it is clear that a major section of the respondents disagreed with the statement. However, one of the objectives of integrating suppliers is to focus on efficiency, reducing or eliminating waste, including all non-value adding factors (Prosman&Wæhrens, 2019). Buyers and suppliers can collaborate to create new and innovative products, increasing revenue and profits for both actors. Participants can take a comprehensively integrated approach to optimize the supply chain, reconfiguring their operations collaboratively to reduce or even waste and redundant effort, or buying raw materials jointly (Mafini, Dhurup&Madzimure, 2020).

Over the last few decades, vendor managed inventory (VMI) has become a competitive supply chain management technique used by retailers, suppliers, and manufacturers to minimize inventory management costs (Beheshti, Clelland&Harrington, 2020). Moreover, in vendor managed inventory, the burden of inventory management is shifted to the seller, who pushes inventory down to buyers relating to current demand. As a result, vendor-managed inventory programmes give the vendor full access and management of her client's inventory portfolio. This guarantees that the vendor or company selling to the final consumer does have the correct quality of items needed, the correct quantity of inventory, and the accurate, timely delivery (Njagi&Muli, 2020). Aside from the financial benefit to the customer, there is also the manufacturing of high-quality finished products. Reduced vendor redundancy can lower costs of products and increase production levels at remaining suppliers and lowering supply chain management costs (Rad *et al.*, 2014). Though that might increase vendor investment as well as management burdens, delegating authority and responsibility to firms closer to the action can lead to better decision making, as long as proficient information sharing is sustained all across the supply chain.

On supplier relationship management, the findings illustrated that majority of food and beverages manufacturing firms merged internal core competencies with externally available capabilities and technologies ($\bar{x} = 3.768$, $\sigma = .7764$). Given the five-point scale Likert mean of more than ($\bar{x} = 3.4$) and an average standard deviation, it is clear that a major section of the respondents agreed with the statement. Nevertheless, a company's business stakeholders are critical to gaining a competitive edge by utilizing the firm's internal resources, capacities, and competitive capabilities (Hitt, 2015).

Also, the study established that majority of food and beverages manufacturing firms do not have the advantage of low business risk ($\bar{x} = 2.232$, $\sigma = .7477$). Given the five-point scale Likert mean of less than ($\bar{x} = 2.6$) and an average standard deviation, it is clear that a major section of the respondents disagreed with the statement. However, supplier integration will provide producers with the advantage of low business risks through joint research and development or joint technology investment, reduced inventories through the sharing of sales estimates or production schedules, improved quality of products and expertise through co-designing goods, and through long-term relationships leading to more reliable supply prices (Smith & Rupp, 2013).

In today's dynamic and competitive climate, supplier relationship management is critical for manufacturing companies since it ensures the supply of reliable and frequent deliveries (Onyango, 2020). There really are numerous benefits to developing strong buyer & supplier relationships over time, including increased commitment from both organizations, more room for discount coupons, and trust between both the customers and suppliers that develops over time, which might also allow for the information sharing, forecasts, knowledge, and potential clients between the purchaser and supplier (Adesanya *et al.*, 2020). Essentially, supply chain collaborations can be created between companies to provide such a degree of stability as well as to promote long term commitment from various parties to accomplishing goals (O'Brien, 2018). Thus, recognizing prospective opportunities which would gain from a working relationship, selecting the appropriate participants, and fulfilling your demands as a partner are three important elements of supply chain partnerships. Most firms would have a mix of long and short-term relationships with their consumers and sellers (Oghaziet *et al.*, 2016). This compromise can include some of the advantages of both while decreasing the number of related risks and potential challenges.

On supplier development, the findings indicated that majority of food and beverages manufacturing firms did not map key supplier capabilities, did not identify their deficiencies and did not address them ($\bar{x} = 2.341$, $\sigma = .5602$). Given the five-point scale Likert mean of less than ($\bar{x} = 2.6$) and an average standard deviation, it is clear that a major section of the respondents disagreed with the statement. However, supplier development is a strategic initiative that is implemented as part of a firm's corporate competitive strategy. In order to maximize a firm's corporate strategic and supply chain competitiveness, this strategic approach combines internal core competencies with externally available capabilities and technologies (Rotich, Aburi& Kihara, 2014). To accomplish this, an interactive program should be launched to solve supplier issues, eliminate inefficiencies, and establish an open relationship that involves real-time feedback as well as sharing of information. Such a program typically includes progressive, systematic vendor development as well as integration, such as collaborative projects, skills development, stock alignment, incentive schemes, and compensations (Nyaberi, 2020).

Further, the study established that majority of food and beverages manufacturing firms made significant improvements in quality and on-time delivery ($\bar{x} = 4.507$, $\sigma = .5018$). Given the five-point scale Likert mean of more than (\bar{x}

= 4.2) and an average standard deviation, it is clear that a major section of the respondents strongly agreed with the statement. Add to that the fact that companies are increasingly competing on a global supply chain level while entrusting an ever-increasing share of their added value to suppliers, including suppliers that offer outsourcing services, plus companies have complexities that were unimaginable only a decade earlier (Wachiuri, Waiganjo&Oballah, 2015).

Suppliers have already evolved into a means of gaining market-leading competitive advantages or allowing competitors to exploit those advantages to the detriment of firms. Manufacturers must accelerate their integration with suppliers on a strategic level, transforming their suppliers into an extension of themselves, regarded as equally, if not more, important than their own operational capabilities of value creation (Wabombaba, 2018). Moreover, supplier integration is the driving force behind the greatest competitiveness. It assists in reducing manufacturing effort and shortening cycle times, allowing clients to introduce product to the market quickly and reduce potential risks. All of them are correlated with overall cost savings.

Statements	Mean	Std. Deviation
Our firm's suppliers know and understand about our manufacturing needs.	2.348	.6904
Our firm's enhanced resource deployment, reduced supply instability, as well as boosted consumer value.	1.899	.4725
Our firm minimized design and production costs plus reduced time to market.	2.449	.5137
Our firm eliminated stock shortages plus the high distribution costs of delivering expedited orders.	3.522	.5014
Our firm reduced wastage, non-value adding factors and obsolete stock.	2.406	.4928
Our firm merged internal core competencies with externally available capabilities and technologies.	3.768	.7764
Our firm has the advantage of low business risks.	2.232	.7477
Our firm mapped key supplier capabilities identified their deficiencies and addressed them.	2.341	.5602
Our firm made significant improvements in quality and on-time delivery.	4.507	.5018

Table 2: Supplier Integration Descriptive Statistics

4.3. Correlation Analysis for Supplier Integration

For this investigation, Pearson Product Moment Correlation was used to determine the strength and direction of the linear relationship between the independent (supplier integration) and dependent variable (competitive advantage), and the results are summarized in table 3. The study established that there was a positive linear relationship between supplier integration and competitive advantage of food and beverages manufacturing firms in Kenya as shown by the correlation coefficient of .698 at .01 level of significance. This implied that there is a strong relationship between supplier integration and competitive advantage of food and beverages manufacturing firms in Kenya. The findings are also consistent with those of Sukatiet *al.* (2012), who established a positive relationship between integration with supplier and competitive advantage.

Variable		CA	SI
CA	Pearson Correlation	1	
	Sig. (2-tailed)		
SI	Pearson Correlation	.698**	1
	Sig. (2-tailed)	.000	

Table 3: Pearson Product-Moment Correlations between Supplier Integration (SI) & Competitive Advantage (CA)

** Correlation Is Significant at the 0.01 Level (2-Tailed)

4.4. Regression Analysis for Supplier Integration

Regression analysis for supplier integration was carried out. The findings of model 1 demonstrated that supplier integration and competitive advantage have a positive relationship ($R = .698$, $R^2 = .487$) and $F(1,137) = 77.050$, $p = .000$. The R^2 measures how well the independent factors can explain fluctuations in the dependent variable. Supplier integration can account for 48.7 percent of the variability in the competitive advantage of food and beverage manufacturing firms, according to an R^2 of .487.

ChangeStatistics									
Model	R	R ²	Adjusted R Square	Std. Error of the Estimate	R ² Change	F Change	Df1	Df2	Sig. F Change
1	.698 ^a	.487	.484	.384	.349	77.050	1 ^a	137	.000

Table 4: Model Summary for Supplier Integration (SI)

a. Predictor (Constant), SI

4.5. ANOVA

The results in table 5 showed here that F-ratio was 77.050; with a P value of .000 is < .05. This indicates that the regression model used in the investigation has a high degree of goodness of fit.

Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	26.592	1	26.592	77.050
	Residual	49.700	137	.435	.000 ^a
	Total	76.652	138		

a. Predictor: (Constant), SI

b. Dependent Variable: CA

Table 5: ANOVA for Supplier Integration (SI)

Table 6 shows the significance of test results for supplier integration and competitive advantage. The results of model 1 showed a positive and significant relationship between supplier integration and competitive advantage ($b_1 = .689$, $p = .007$, $\beta = .698$). Model 1's regression equation is shown in Equation 1. Competitive advantage is predicted to improve by .689 for every unit increase in supplier integration.

OLS Model: Competitive Advantage = $1.903 + 0.689$ Supplier Integration Equation 1

This implied that as supplier integration improves, food and beverage manufacturing companies will gain a competitive advantage. At the 95 percent significance level, the null hypothesis that supplier integration has no significant effect on competitive advantage of food and beverage manufacturing firms in Kenya was rejected.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.903	.329		7.990	.000
	SI	.689	.066	.698	10.360	.007

Table 6: Significance of Test Results for Supplier Integration (SI)

a. Dependent Variable: CA

5. Conclusion

The study concluded that there is a positive significant relationship between supplier integration and competitive advantage of food and beverages manufacturing firms in Kenya. Additionally, the competitive advantage is anticipated to grow for every unit increase in supplier integration. This indicated that when there is improved supplier integration, food and beverage production companies gain a competitive advantage. Further, the study concluded that food and beverages manufacturing firms have integrated externally with suppliers through early supplier involvement, vendor managed inventory, supplier relationship management and supplier development to improve their competitiveness. Moreover, the study concluded that food and beverages manufacturers in Kenya had already adopted supplier integration for achieving improved organizational performance and enhanced competitiveness.

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