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Supply Chain Flexibility and Performance of Food and Beverages Manufacturing Firms in Kenya

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Abstract

In the current dynamic business environment, any organization can survive if it performs exceptionally well. This study's main goal was to assess the effect of supply chain flexibility and performance of food and beverages manufacturing firms in Kenya. The cross-sectional survey was used in the study. Senior procurement managers from 246 Kenyan companies that produce food and beverages were the target audience. Krejcie and Morgan (1970) were used to estimate a sample size of 150 respondents. Simple random sampling was used to choose the sample. Pilot research of 15 firms, representing 10% of the sample size, was carried out, and 13 questionnaires were returned. Semi-structured and self-administered questionnaires were employed by the researcher. 135 questionnaires were given to responders and 119 were returned. Descriptive statistics, including mean, standard deviation, skewness, and kurtosis, were used to analyze the data. Correlation, regression, and hypothesis testing were also used in inferential statistics. SPSS version 28 was used for processing the acquired data. Tables were used to display the data. According to the dependability results, every variable satisfies the requirement for a Cronbach's alpha value of greater than 0.7. Criteria, content, and construct validity were also examined. The findings showed a favorable, substantial linear significance between SCF and performance of food and beverages companies in Kenyan (β: 0.590, t: 7.910, $p \leq 0.00$) In addition, the results indicated that when one unit in supply chain flexibility grows there is a rise in a unit of the performance. The study concluded that supply chain flexibility significantly improves the performance of food industry. The research recommends that supply chain flexibility be strategically implemented.

Keywords: *Supply chain flexibility, performance, supplier flexibility, customer flexibility, delivery flexibility & product flexibility*

1.0 Introduction

Businesses are now compelled to concentrate on advancing greater supply chain flexibility due to the growing level of environmental uncertainty. Furthermore, the issue has evolved recently as a result of several market uncertainties brought on by events like the COVID-19 epidemic and regional conflicts (El Baz & Ruel, 2020). Due to unpredictable circumstances in contemporary global environment businesses need to prioritize flexibility to enhance performance (Enrique et al., 2022). According to Perez Perez et al. (2016), this flexibility is defined as a company's capacity to adapt to changing circumstances by swiftly adopting

necessary processes and using the fewest resources possible. A company's success is enhanced by supply chain flexibility when it allows it to adapt and respond to unforeseen differences in needs and customer requirements.

The concept of supply chain flexibility is broadened by Farok and Wahab (2016), who identify six characteristics of it: supply, organizational, logistics, market, supply, and information systems flexibility. According to Manders et al. (2016), supply chain flexibility refers to the ability of all supply chain actors to adjust or react to environmental unpredictability and satisfy an increasing range of customer needs while sustaining unwarranted expenses, delays, organizational disruptions, or performance losses. In addition, he considered SCF as follows: the flexibility of resources, or the availability of goods and services and the capacity to buy them in proportion to shifting demands; The operating system's flexibility, or its capacity to have characteristics, compositions, and dimensions across the product range to satisfy various client requirements; distribution flexibility, which includes efficient management of distributors, warehouses, and loading capacity.

A number of academics have assessed supply chain flexibility from various angles. SCF is becoming a more significant source of profitability and strategic competency for a company as a virtue of increasing consumers' expectations for individualism and customization (Yu, Cadeaux, & Luo 2015). Consequently, due to the current COVID-19 pandemic, worldwide social communities are under unprecedented stress and disturbance (Sharma, Adhikary, and Borah 2020). Thus, it is more important than ever for organizations to create adaptable production and operation systems that turn challenges associated with COVID-19 into opportunities. With the reconfiguration of resources, SCF enables businesses to speedy adapt to changes in the production mix and initiate current production capacities (Huo, Gu, and Wang 2018). There is a considerable significant influence between SCF and performance attributes agility to face the dynamic market circumstances and their response to rivals by being able to quickly adjust production numbers, create many items at once, or quickly switch between products (Saghiri & Barnes, 2016).

1.1 Problem Statement

Food and beverage firms are now compelled to incorporate flexibility capabilities into their operations for them to endure and flourish during stormy and turbulent times due to natural catastrophes and unforeseen disruptive events. In addition, due to development of globalization, companies are increasingly participating in global supply chains to take advantage of globally distributed resources and boost their degree of flexibility to enhance performance. Kenya manufacturers are facing fierce competition from international and domestic companies (Muiruri; Ngugi; Kihara, 2021), and the food processing industry can be one of the key drivers of economic growth. Growth in the food processing sector can directly and significantly impact the economy of Kenya. For instance, logistics is gaining more and more attention as an area where quality and productivity can be improved to improve customer satisfaction and reduce costs (wambua, mukulu & waiganjo, 2017).

Kenya's manufacturing sector has been contributing less and less to the country's GDP, as seen by the meager 5.4% in 2020, 4.3% in 2019, and 7.5% in 2021 (AEU, 2022). Furthermore, the main goal of earlier research on SCMP conducted in Kenya was to elucidate how it affected performance. Due to ineffective internal and external supply chains, Kenyan food and beverage companies are susceptible to SC disruptions and problems (Mideva & Moronge, 2019). According to Maina, Njihia, and Eric (2020), the fragmented structure of the food and beverage manufacturing subsector poses a notable performance problem. To continuously become more

responsive and agile, businesses must encourage their suppliers to collaborate and restructure their supply chain processes (Benzidia and Makaoui 2020). Nyamete, Gudda, and Keitany (2023) stated that supply chain flexibility impacts performance but only concentrates on product flexibility, delivery flexibility, and re-engineering flexibility. This research aims to bridge the gaps in SCM literature by assessing the influence of supply chain flexibility and performance of food industry in Kenya. Consequently, this research can accord the food industry extensive discernment of improving performance by adopting flexibility in supply chain processes.

2.0 Literature Review

2.1 Supply Chain Flexibility

According to Omoruyi and Dhurup (2016), firms now need to be adaptable and strategically integrate their business operations across various important business units within the supply chain network due to the challenges presented by the current, dynamic business environment. Additionally, they clarified that supply chain flexibility enhances an organization's success. Likewise, Benzidia and Makaoui (2020) discovered a favorable correlation between organizational success and supply chain flexibility. In the ever-changing business landscape of today, every organization aspires to achieve and sustain superior performance. Although there is a wealth of literature on supply chains, little of it has been studied in the manufacturing sector, even though supply chain flexibility has a big impact on a company's performance (Darmawan et al., 2023). Additionally, Jafari et al. (2023) pointed out that it is important to look into the relationship between business performance and supply chain flexibility. Flexibility in the supply chain allows the company to keep track of rivals' movements in the ever-changing business environment. According to several academicians, flexibility is the key feature that the company needs to achieve proficiency, competency, and sustainability (Chaudhuri et al., 2018; Delic & Eyers, 2020; Rojo et al., 2018).

Kyeremeh (2019) affirmed the impact of supply chain flexibility and performance on Ghana's bottling water sector. The study focused on product flexibility, which includes appropriate product design, packaging, portability, and differentiations to satisfy customer expectations for quantity, sizes, and cost to suit everyone. Delivery flexibility was defined by the use of the most suitable mode of transportation to guarantee the timely and satisfactory fulfillment of orders placed by consumers. The results demonstrated that supply chain flexibility improved performance by enabling businesses to be more responsive, gain a larger market share, deliver goods on time, satisfy customers, cut costs, gain a competitive edge, and expand sales. According to the study, by Pereira, Sellitto, and Borchard (2018) There is a correlation between SCF and performance with reference to both financial performance (growth in market share and net earnings) and non-financial performance (minimal cycle time and customer contentment).

Liao (2020) conducted supply chain flexibility in manufacturing companies in the United States using an integrative approach. The study focuses on volume flexibility, which includes varying production volumes and variations in production volumes; delivery flexibility, which includes handling special orders from customers, accommodating a variety of deliveries as requested by customers, and handling frequent delivery orders; logistics flexibility, which includes using multiple distribution channels and reorganizing physical distribution to adapt to market changes. An online poll with 201 manufacturing firms was used in the study. The study showed that SCF positively influences performance. Kumar and Khanuja (2021) researched on relationship between supply chain integration and supply chain performance in India is

mediated by supply chain flexibility. The study concentrated on the flexibility of suppliers with regard to their capacity to react promptly to modifications in order quantity as well as changes in requirements, range, and time. In terms of logistics flexibility, there was an ample and diverse fleet to satisfy client demands, offering a range of transportation options to guarantee prompt delivery. A cross-sectional survey research approach including 187 firms was employed in the study. The results showed that SCF has a big impact on supply chain efficiency. The ability of a supplier to adjust order quantities, and order delivery times, decrease product development cycle times, adapt to shifting market demands, and accelerate product delivery times on performance were all taken into consideration while evaluating their flexibility.

2.2 Performance

It is challenging for managers and researchers to use performance management techniques in the modern business environment when companies need to account for both financial and non-financial assets. According to Gomes and Romao (2017), the Balanced Scorecard (BSC) gives management access to a quick and thorough view of the company, including performance metrics from many angles. Businesses employ BSC in an ongoing effort to perform better in the highly turbulent global market (Moynihan, 2021). According to Wawawi and Hoque (2019), BSC is a comprehensive performance management strategy that links financial and non-financial parameters and can further be customized to fit various contexts. By binding firms' goals, mission core values, objectives, vision, and tasks meant for continuous revision together, BSC examines performance in two ways that is financial and non-financial (Camilleri, 2021).

Berut, Namusonge, and Makokha (2020) scrutinized supply chain collaboration of dairy industry and found that market share, client satisfaction, profitability, and competitive advantage affect performance. Nyang'au *et al.* (2017) suggested different dimensions that affect performance as quality, cost, delivery, and Customer service. Another study done by Nyaga and Achuora (2020) examined sustainable procurement practices and performance of procurement through cost reduction, clean environment, and Increased quality, cost reduction, clean environment, and increased quality. Mideva and Moronge (2019) measured performance on profitability, market share, and customer satisfaction.

2.2.1 Financial Perspective of the Performance

One comprehensive component of BSC that still affects corporate success is the financial perspective. As per Pham et al. (2020), financial resources play a crucial role in accomplishing the firm's objectives, both short- and long-term. Therefore, it is vital to concentrate on the ability of a specified plan to necessitate the availability of financial resources. Using the essential tools to manage the company's financial processes is essential to improving performance. A balanced scorecard ensures that a company's financial resources are used as intended and effectively captures accountability (Praptomo, 2017).

2.2.2 Internal Business Process of the Performance

A company's internal business processes play a critical role in optimizing its efficacy and efficiency as well as its capacity for long-term success (Plouffe, Bolander, Cote, & Hochstein, 2016). Putra and Welda (2019) assert that internal business procedures play a crucial role in maintaining a company's continuity and driving continuous improvement, both of which have a substantial impact on the performance of the company. A thorough focus on internal business processes guarantees an efficient organizational structure inside the companies, which in turn drives performance (Addis et al., 2020). Managers need to keep an eye on the main internal

business processes and procedures to make sure that customer-based measures are implemented to meet customer needs and improve the performance of the company. To encourage digitalization and commercial networking, internal corporate processes should embrace design productivity, production excellence, the launch of new products, and technical capabilities. This will lead to excellent performances by Fadel, Necib, Rouaski, Challal, and Bouaicha (2021). According to Tjahjadi and Soewarno (2019), the internal business process outlines how a company's internal rules, employees' skills, and flexibility in operations and structures all contribute to the company's increased effectiveness and efficiency, which improves performance.

2.2.3 Organizational Learning and Growth of Performance

One of the most important aspects of adopting the proper organizational structures in a company that improves information exchange among the stakeholders, according to Tortorella, Vergara, Garza-Reyes, and Sawhney (2020), is organizational learning and growth. Metrics for a company's capacity to maintain improved performance over time by providing unique, improved customer service via innovation and all-encompassing learning (Soleyman, Sadegheh, and Nahideh (2017). According to Quesado, Aibar, and Rodrigues (2018), learning is a component of improving the firm's skills and competencies for improved performance. Businesses use learning procedures to help staff become more knowledgeable and skilled, which boosts output. Smith, Prabhu, and Bhargava (2017) claim that BSC is about having the appropriate inputs for improved company strategy implementation. The information and skills that employees possess are the primary inputs, and they can be acquired through ongoing education. According to Anggraeni (2020), a company can use appropriate and shared learning and knowledge processes to guarantee a cohesive operational structure and framework using organizational learning and growth. Therefore, they are crucial for simplifying the process of solving problems in contemporary firms and boosting workers' ability to complete jobs more successfully.

2.2.4 Customer Perspective of Performance

The BSC's customer viewpoint contributes significantly to goals and metrics that enhance customer happiness, which encourages recurring business and a rise in the number of new customers acquired, ultimately leading to improved performance (Nair et al., 2022). Consumer value is essential and significantly affects the performance value of the business (Leksono, Suparno & Vanany, 2019). The main outcome measures that justify services, data quality, and infrastructure are customer satisfaction, customer profitability, customer acquisition, customer retention, and market share in targeted groups (Pierce, 2022). According to Mohamed (2019), a customer's perspective should also include particular metrics of the value propositions that the company offers customers in the targeted market groups. Wahyuni et al. (2019) state that a customer's perspective prioritizes the needs of the customer to provide the finest services possible for customer happiness, acquisition, and retention. By addressing the requirements and wishes of the consumer, the company's marketing strategy is determined by the customer's perspective, which in turn drives customer loyalty and sales (Ngure, 2022).

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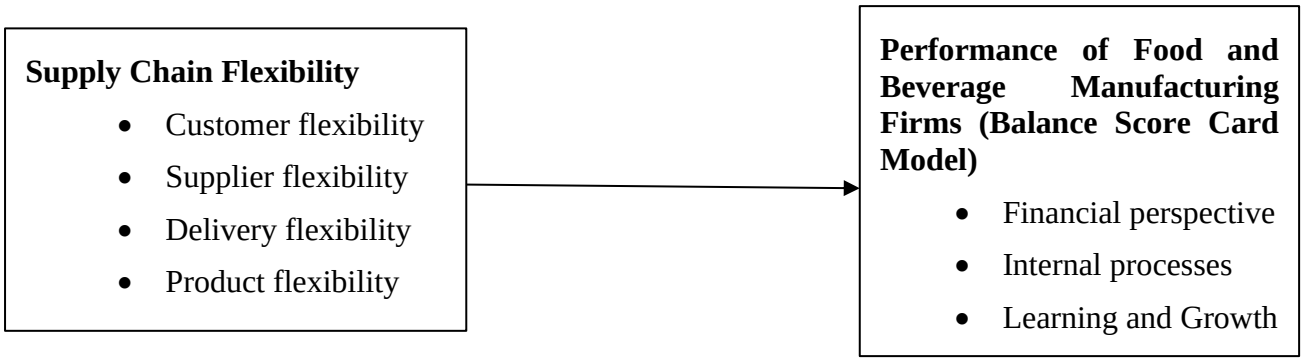
2.3 Conceptual Framework



Independent Variable **Dependent Variable**

Figure 1: Conceptual Framework

3.0 Methodology

The study used a cross-sectional survey because it allowed the researcher to look at a subset's characteristics at a particular point in time, typically numerous times. It also gave information about the population's current state as it exists (Dag & Petter, 2015). Senior procurement managers from 246 Kenyan companies that produce food and beverages were the target audience. Krejcie and Morgan (1970) were used to estimate a sample size of 150 respondents. Simple random sampling was used to choose the sample. Thirteen of the fifteen organizations that participated in the pilot study, which comprised 10% of the sample size, returned the questionnaires (Hair & Brunsveld, 2019). To gather primary data, the researcher employed self-administration and semi-structured questionnaires. Out of the 135 surveys issued, only 119 were completed and returned. Descriptive statistics, including mean, standard deviation, skewness, and kurtosis, were used to analyze the data. Pearson correlation, multiple linear regression, and hypothesis testing were also used in inferential statistics. SPSS version 28 was used for processing the acquired data. Tables were used to display the data.

4.0 Results and Discussion

4.1 Reliability and Factor Analysis for Supply Chain Flexibility

Table 1 presents the results of the investigation into all the supply chain flexibility metrics. The results showed that loadings exceed .5, and Cronbach's alpha rates fulfill the recommended restriction of 0.7, showing a significant degree of dependence on data. The supply chain flexibility KMO test statistic was greater than 5 in every parameter. According to Table 1 study findings, product flexibility ($\sigma 2 = 1.453$), supplier flexibility ($\sigma 2 = 18.764$), customer flexibility ($\sigma 2 = 28.752$), and delivery flexibility ($\sigma 2 = 51.130$) were the factors that spelled out the variation in supply chain flexibility. Finally, delivery flexibility accords significantly to the highest degree of change (51.130%) in supply chain flexibility, which improves performance.

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Table 1: Reliability and factor analysis for Supply chain flexibility

Construct	Item	Cronbach's Alpha	Total to Item correlation	KMO	Loadings	Explained Variance
Customer flexibility	SCF3	0.869	0.645	0.827	0.660	28.752
	SCF4		0.668		0.604	
Supplier flexibility	SCF5	0.854	0.458	0.816	0.703	18.764
	SCF6		0.45		0.762	
Delivery flexibility	SCF1	0.889	0.684	0.85	0.765	
	SCF2		0.615		0.663	51.130
Product flexibility	SCF7	0.789	0.446	0.62	0.626	1.453
	SCF8		0.564		0.632	

4.1.1 Descriptive Findings for Supply Chain Flexibility

As presented in Table 2, it was observed that-, 42.8% of respondents agreed that customers respond to changes related to customers' orders with a mean of 3.3445 and a standard deviation of 1.265. 42.9% of participants concur that firms collaborate with major customers to provide various products with a mean of 3.2605 and a standard deviation of 1.1822. With the statement whether vendors could supply diverse materials 52.9% of respondents contradicted giving a mean of 2.8571 and a standard deviation of 1.2708. 58% of respondents differ with the statement that vendors can shorten cycle time giving a mean of 2.8319 and a standard deviation of 1.3424. 57.1% of respondents comply that companies adequately and promptly meet consumers' orders providing a mean of 3.6471 and a standard deviation of 0.8693. firms are capable of delivering various products as stated by consumers, 74% agreed giving a mean of 4.1261 and a standard deviation of 0.8592. Further, slightly lower than average 38.6% admitted that companies are included in new product design with a mean of 3.2773 and a standard deviation of 1.0162. Finally, companies implement product postponement, 47.9% of respondents were neutral with a mean of 2.9832 and a standard deviation of 0.9112. The findings are in line with Huo, According to Minhao Gu and Wang (2018), performance is positively impacted by both supplier and consumer flexibility. In a similar vein, Houssam and Mohamed (2019) found that performance is greatly impacted by product and delivery flexibility. In a similar vein, Houssam and Mohamed (2019) found that performance is greatly impacted by product and delivery flexibility. Furthermore, Saghiri and Barnes (2016) reported that there was a substantial positive association between SCF and performance. Attribute their agility in the face of changing market conditions and their response to rivals by being able to quickly adjust production numbers, create many items at once or quickly switch between products.

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Table 2: Descriptive statistics on Supply Chain Flexibility

Supply Chain Flexibility statements	SD	D	N	A	SA	Mean	Std Dev
Your key customers respond to changes related to customers' order	9.2 %	15.1 %	32.8 %	17.6 %	25.2 %	3.3445	1.2652
The firm cooperates with major customers to provide a product variety	9.2 %	15.1 %	32.8 %	26.1 %	16.8 %	3.2605	1.1822
Suppliers provide a wide variety of materials	8.4 %	44.5 %	18.5 %	10.1 %	18.5 %	2.8571	1.2708
Suppliers were able to shorten lead time	8.4 %	49.6 %	16.8 %	0.8%	24.4 %	2.8319	1.3424
Firm prompt and adequate attend to customers' orders	0.0 %	9.2%	33.6 %	40.3 %	16.8 %	3.6471	.8693
Firm can accommodate a variety delivery as specified by customers	0.0 %	2.5%	23.5 %	32.8 %	41.2 %	4.1261	.8592
The firm is involved in new product design	0.0 %	26.1 %	35.3 %	23.5 %	15.1 %	3.2773	1.0162
The firm practices product postponement	0.0 %	31.9 %	47.9 %	10.1 %	10.1 %	2.9832	.9112

4.2 Reliability and Factor Analysis for Performance

On each metric that makes up performance, factor analysis and reliability were conducted by the research. The results of the inquiry are displayed in Table 3. Factor loadings exceeded.5 and Cronbach's alpha values exceeded.7 in every performance statement. KMO test statistics exceeded 5 in every performance construct. The constructs that accounted for the variance in performance as a dependent variable were the financial perspective ($\sigma 2 = 55.675$), internal processes perspective ($\sigma 2 = 5.682$), learning and growth perspective ($\sigma 2 = 15.607$), and customer perspective ($\sigma 2 = 23.036$), as indicated by the research findings in table 4.3. Consequently, the financial viewpoint played a noteworthy role, exhibiting the highest degree of fluctuation (55.675%) concerning the food and beverage performance of food and beverages manufacturing firms in Kenya.

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Table 3: Reliability and Factor Analysis for Performance

Construct	Item	Cronbach's Alpha	Total to- Item correlation	KMO	Loadings	Explained Variance
Financial Perspective	Financial_per1	0.819	0.645	0.828	0.754	35.263
	Financial_per2		0.725		0.781	20.412
Internal process Perspective	Internal_process1	0.821	0.617	0.775	0.655	3.170
	Internal_process2		0.531		0.600	2.512
Learning and Growth Perspective	Learning_growth1	0.810	0.528	0.723	0.616	7.984
	Learning_growth2		0.564		0.589	7.623
Customer Perspective	Customer 1	0.853	0.689	0.772	0.726	14.790
	Customer 2		0.612		0.743	8.246

4.2.1 Descriptive Findings for Performance

The findings in Table 4 indicate that the respondents agreed that 74% of firms had improved profits and sales with a mean of 4.1261 and a standard deviation of 0.8592. with regards to whether our firm warrants that all supply chain costs are reduced 83.2% of the participants agreed giving a mean of 4.3193 and a standard deviation of 0.8123. 61.3% of the participants concurred that firms had adopted lean practices providing a mean of 3.6387 and a standard deviation of 1.1255. 98.3% of the respondents admitted that company employees are conversant with policies and are not inclined by corporate strategy giving a mean of 4.6387 and a standard deviation of 0.5164. 72.9% agreed that firms integrate knowledge to improve learning providing a mean of 3.6896 and a standard deviation of 0.78743. Similarly, 73.0% of the participants agreed that companies practice endless training and development to multiply employees' skills to improve research giving a mean of 4.1421 and a standard deviation of 0.84567.84.0% of the respondents agreed that firms keep track of the quality of the services rendered to the clients to enhance satisfaction providing a mean of 3.9664 and a standard deviation of 0.59564. Lastly, 94.9% admitted that firms concurrently had incentives to loyal consumers giving a mean of 3.2521 and a standard deviation of 0.89292. The study tandem with (Gomes & Romao, 2017) affirmed that a balanced scorecard permits the management of a rapid and comprehensive aspect of the business that includes performance measures from distinct perspectives. Similarly, firms continuously strive to attain better performance in the extremely volatile global market by applying balanced scorecards (Moynihan, 2021). Finally, BSC is a comprehensive performance management approach that links both financial and non-

financial measures, that can be expounded and adapted to fit numerous settings (Zawawi and Hoque 2019).

Table 4: Descriptive Statistics

Performance statements	SD	D	N	A	SA	Mean	Std Dev
Our firm had improved profit on sales	0.0%	2.5%	23.5 %	32.8 %	41.2%	4.1261	.85919
Firm ensures all supply chain costs are reduced	0.0%	2.5%	14.3 %	31.9 %	51.3%	4.3193	.81233
Our firm has adopted lean practices	6.7%	7.6%	24.4 %	37.8 %	23.5%	3.6387	1.12545
Firm employees are familiar with organizational policies and are not influenced by corporate strategy	0.0%	0.0%	1.7%	32.8 %	65.5%	4.3687	0.51636
Our firm has knowledge integration mechanisms to enhance learning in the organization	7.2%	2.1%	19.8 %	59.7 %	13.2%	3.6896	.78743
Firm embraces continuous training and development to equip employees to enhance research	2.8%	2.5%	23.5 %	32.8 %	41.2%	4.1421	.84567
Firm monitors the quality of the services rendered to the customers to enhance satisfaction	0.0%	0.0%	19.3 %	64.7 %	16.0%	3.9664	0.59564
Our company had concurrently incentives for loyal customers	0.0%	0.8%	54.6 %	40.3 %	4.2%	3.2521	.89292

4.3 Correlation Analysis

Table 5 shows the results of this study and utilizes the Pearson Product Moment Correlation to ascertain the degree and direction of the linear relationship between the explanatory variable (supply chain flexibility) and the predicted variable (performance). As signified by a Pearson correlation coefficient of.590 at the 0.000 level of significance, the study revealed that supply chain flexibility had a positive, significant, linear association with the performance of food and beverage manufacturing firms in Kenya. This suggested that the performance of Kenyan companies that manufacture food and beverages and supply chain flexibility had a somewhat beneficial link. The study's conclusions concurred with those of Houssam and Mohamed's (2019) investigation, which found that supply chain flexibility strategies improved manufacturing output. Bai and Sarkis (2018) looked at SCF from the standpoint of environmentally friendly delivery and products. The results showed that GSCF greatly improves competence, adherence to laws and regulations, cost savings, on-time delivery, and customer happiness, all of these parameters indicated a significant influence on the performance of manufacturing firms. Moreover, SCF revealed a positive effect on performance by Macclever et al. (2017), who also advise businesses to embrace information and communication technology (ICT) as one of the essential infrastructures for establishing integration in supply chain activities and processes. This will help to ensure that SCF implementation of SCM strategy leads to improved supply chain performance.

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Table 5: Pearson Product-Moment Correlations between Supply Chain Flexibility (SCF) & Performance (P)

Variable		P	SCF
Performance	Pearson Correlation	1	
	Sig. (2-tailed)		
	N		
Supply Chain Flexibility	Pearson Correlation	.590**	1
	Sig. (2-tailed)	.000	

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

4.4 Regression Analysis

Regression analysis was conducted to establish the effect of supply chain flexibility on performance of food and beverage manufacturing firms in Kenya.

H_{01}: Supply chain flexibility has no significant effect on performance of food and beverage manufacturing firms in Kenya.

The results of Model 1 indicated that supply chain flexibility and performance had a positive relationship (R = .590, R^2 = .348) and F =62.565, p=.000. The R^2 measures how prudent the explanatory factors can recount variations in the predicted variable. Supply chain flexibility can account for 34.8% of the variability in the performance of food and beverage manufacturing firms, according to an R^2 of .348.

Table 6: Supply Chain Flexibility Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.590[a]	.348	.343	.45307

a. Predictors: (Constant), Supply Chain Flexibility (SCF)

The findings shown in Table 7; Model 1, indicated that the F-ratio was 62.565, with a P value of .000 being < .05. This revealed that the regression model under investigation has a high degree of goodness of fit.

Table 7: ANOVA for Supply Chain Flexibility (SCF)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12.843	1	12.843	62.565	.000[b]
	Residual	24.017	117	.205		
	Total	36.859	118			

a. Predictors: (Constant), Supply Chain Flexibility (SCF)
c. Dependent Variable: Performance (P)

Table 8 indicates the significance of test findings for supply chain flexibility and performance. The results of Model 1 showed a positive and significant relationship between supply chain flexibility (b1 = .746 p= .000, β = .590). Performance is anticipated to grow by .746 for every unit increase in supply chain flexibility.
OLS Model: Performance = 1.427+ .746SCF ……. Equation 1
This showed that when there is improved supply chain flexibility, food and beverage firms increase performance. At the 95 % level of significance, the null hypothesis that supply chain

flexibility had no significant effect on performance of Kenyan food and beverage manufacturing firms was rejected.

Table 8: Significance of Test Results for Supply Chain Flexibility (SCF)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.427	.353		4.045	.000
	Supply Chain Flexibility	.746	.094	.590	7.910	.000

a. Dependent Variable: Performance (P)
b. Predictor Variable: Supply Chain Flexibility (SCF)

5.0 Conclusion

The study found that the performance of Kenyan companies that produce food and drinks and supply chain flexibility are significantly correlated. Furthermore, it is revealed that performance will grow with each unit raised in supply chain flexibility. This suggests that food and beverage manufacturing companies perform better when their supply chains are more flexible. Additionally, the study concluded that companies that produce food and drinks have embraced supply chain flexibility to improve performance by practicing customers, deliveries, suppliers, and product flexibilities. Lastly, the findings indicated that supply chain flexibility was already embraced by Kenyan companies that produce food and drinks to improve performance.

6.0 Recommendation

According to the research, food and beverage manufacturing firms should adopt customer flexibility to enable them to accommodate special and rush orders. It will also help them to understand marketing knowledge enabling them to identify customer needs, innovate, and create new products. Firms are also advised to consider supplier flexibility because they can modify production schedules and enhance customer responsiveness by ensuring reliability in the supply of materials. The study also advises that food and beverages manufacturing firms should embrace multiple delivery modes, and quick responses to customers' orders by ensuring they reduce lead time. Moreover, modes of transportation should be considered to reduce costs. During distribution storage equipment is essential to ensure preservation because of perishability. To ensure product flexibility firms should adopt product variety and consider product design changes to satisfy the customers. Additionally, the food and beverages manufacturing firms should adopt postponement as the late product variation to accommodate product differentiation and standardization when required by customers.

Unique contribution to theory, practice, and policy: The study supported the established theory. However, to meet their objectives, managers in the food and beverage manufacturing sector need to establish protocols and guidelines that align with a profound understanding of supply chain flexibility. According to the report, to improve performance, the government should guarantee that Kenyan food and beverage manufacturing companies embrace supply chain flexibility more methodically. Furthermore, an empirical study is required to determine how the performance of other manufacturing sectors in the economy is impacted by supply chain flexibility. Furthermore, future researchers can use this body of knowledge to extend their research.

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