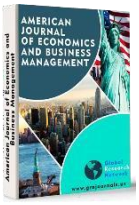

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Article

Cooperate Integration and Operational Efficiency of Quoted Food and Beverages of Quoted Food and Beverages Firms in South-South, Nigeria.

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Abstract: This study explored the relationship between corporate integration and operational efficiency among quoted food and beverage firms in South-South Nigeria. Three research hypotheses were developed to guide the investigation. Employing a correlation survey research design, the study population consisted of 377 food and beverage firms, with a sample size of 191 determined using the Krejcie and Morgan sampling technique. Primary data collection methods were utilized, and the instrument's validity was ensured through content and face validation. Reliability was confirmed using the Cronbach's alpha test, which indicated strong internal consistency across all items. Hypotheses were tested using the Spearman rank-order correlation coefficient, and partial correlation was employed to assess the influence of moderating variables. The findings revealed significant relationships between corporate integration and key operational efficiency metrics: on-time delivery, cost reduction, and product quality. Specifically, corporate integration positively influenced these aspects of operational efficiency among the firms studied. The study recommends strengthening corporate integration practices to improve operational efficiency, with a particular focus on enhancing on-time delivery. Investments in robust integration strategies will enable firms to align processes effectively, reduce inefficiencies, and maintain high-quality outputs

Keywords: Cooperate integration, operational efficiency, quoted food, beverages firms, product quality, cost reduction, time delivery.

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1. Introduction

Despite its substantial economic contributions to the state and nation, the food and drinks sector encounters several challenging issues that impede its growth and hamper the realization of its full potential (Cloete et al. 2012). The food and beverage industry in the nation has undergone significant transformation due to the rise in consumer purchasing power attributed to globalization (Bac & Erkan, 2011). The industry encounters a significant occurrence of erratic client demand and preferences, which affects the performance and profitability of organizations (Deimel, et al., 2011). Unpredictable consumer demand and preferences mostly arise from the availability of several replacements for most food items, prompting customers to transition effortlessly between goods (Cronin, 2015). Moreover, food and beverage companies have fallen short in technology and equipment, technical expertise, research and development, capital, management, physical infrastructure, and supply chain processes (Verdouw et al., 2010). The management of perishable food items

throughout the supply chain is crucial and requires specific skills in supply chain management (Chung-Kee & Chuwonganant, 2014).

A considerable number of companies have launched new products in the food and beverage sector; however, these products have been rejected by consumers due to their inability to garner customer support and generate profit, primarily attributable to operational inefficiencies within food and beverage firms (Dharni & Rodrigue, 2015). Panda (2013) said that several Nigerian food and beverage companies struggle to get market approval for various reasons. It is predicted that 50% of new goods introduced in the Nigerian food and beverage business fail during their first year, while 60-75% fail within three to five years (Oko & Eboh, 2013). The elevated failure rate may be ascribed to companies' incapacity to implement supply chain management practices that enhance operational efficiency. This is undoubtedly the primary reason why many enterprises fail to thrive despite the increasing demand for food and beverage items in South-South Nigeria.

Previous researches on supply chain practices and operational efficiency do not provide adequate knowledge for business owners and managers within South-south, Nigeria food and beverages sector on how supply chain practices affect a firm's operational efficiency. This is because most of such studies are either foreign or conducted using other operational efficiency parameters. For instance, Arawati (2011) studied supply chain management, supply chain flexibility and business performance; Adebayo (2012) examined impact of supply chain practices on supply chain management performance; Maruf (2013) investigated sustainable supply chain practices and operational performance; Charles, et al., (2014) assessed supply chain practices and its effects on performance; Njoku and Kalu (2015) investigated effective supply chain management as tool for profitability enhancement in the competitive marketing environment.

To the best of the researcher's knowledge, it appears that studies showing the nexus between supply chain practices and operational efficiency of quoted food and beverages firms in South-South, Nigeria are insufficient if existent. Thus, the researcher believed that if the above gap is filled, South-south, Nigeria food and beverages firms will naturally record improvement in their operations. Against this background, this study was designed to empirically investigate the relationship between supply chain practices and operational efficiency of quoted food and beverages firms in South-South, Nigeria.

In this study therefore, the actualization of the preceding study variable and conceptual framework implicitly and explicitly leads to the achievement of the objectives of the study; which is to investigate the extent to which supply chain practices influences operational efficiency of registered food and beverage firms in South-South, Nigeria. As depicted in figure 1.1, the research framework visualizes the interrelationships amongst the two groups of variables.

Aim and Objectives of the Study

The aim of this study was to investigate with empirical verification, the relationship between cooperate integration and operational efficiency of quoted food and beverages firms in South-South, Nigeria. The specific objectives of the study were to:

i. investigate the relationship between cooperate integration and on-time delivery of quoted food and beverages firms in South-South, Nigeria.

ii. assess the relationship between cooperate integration and cost reduction of quoted food and beverages firms in South-South, Nigeria.

iii. examine the relationship between cooperate integration and product quality of quoted food and beverages firms in South-South, Nigeria.

Research Hypotheses

The following null hypotheses were formulated and tested in this study

H01: There is no significant relationship between cooperate integration and on-time delivery of quoted food and beverages firms in South-South, Nigeria.

H02: There is no significant relationship between cooperate integration and cost reduction of quoted food and beverages firms in South-South, Nigeria.

H03: There is no significant relationship between cooperate integration and product quality of quoted food and beverages firms in South-South, Nigeria.

Theoretical Framework

Unified Service Theory

The bound collectively assistance speculation (UST) is a machine that conceptualizes management sports the executives and unequivocally separate amongst administration and assembling responsibilities problems. UST additionally perceives the bidirectional idea of management deliver chains where clients would possibly deliver property and work or go about as creation supervisors along those lines, introduced collectively help hypothesis (UST) is applied to consolidate clients' commitments as suppliers of labor and statistics resources (Maull et al., 2012; Sampson and Froehle, 2006; Sampson and Spring, 2012). by using and large, business manner has been seen as a prepared association of sporting activities for undertaking decided business consequences (Davenport & Lagers, 1995). Its extreme effects for management first-class and market execution were perceived (Roth & Jackson, 2003). In UST, the purchaser gives some contributions to the alternate interplay to create the help (Sengupta et al., 2006; Sampson & Froehle, 2006). In UST, elusiveness is a apprehend regular for administrations. for that reason, a few coordinations sporting events, for instance, fabricating movement the board in assembling stock community are not affordable for SSCM. Concurrence, heterogeneity and transient are components of administration enterprise featured by means of UST. Concurrence alludes that customers need to be to be had to offer the aid. The heterogeneity everyday for management mirrors the manner that help normalization is tough. therefore, the expert corporations can only with giant effort assume the instance of the hobby for a selected period or express thing. Administrations are likewise transitory (Sullivan, 1982). On the off chance that an assistance isn't burned-thru whilst reachable, there may be 0 chance to stock it for sometime later (Ellram, et al., 2004). Unused limit is misplaced till the stop of time. This load of motives make the SSCM more specific and complex as a ways as the shop community the executives cycle. It requires an exchange technique and structure to execute SCM inside the assist business.

UST likewise perceives the bidirectional idea of administration supply chains wherein customers might supply belongings and work or go about as advent administrators (Sampson &Froehle, 2006; Sampson and Spring, 2012). additives super to assist regions, inclusive of consumer company duality, administration fine heterogeneity, elusiveness limit in preference to inventory, and synchronous introduction and usage (Sengupta et al.,2006; Ellram et al., 2004; help itt 2009).

Therefore, the assessment sees SSCM from a cycle capability (Zachariaet al., 2011) and ability viewpoint (Coates and McDermott, 2002). it is a higher request of belongings than the sending of actual belongings considering the fact that administration is much less unmistakable (Gorman and Thomas, 1997), putting ward, and hard to copy (Beam et al., 2004; Karia and Wong, 2012). because the fundamental middle of the certain together help speculation (UST), administration store network the board (SSCM) tactics aren't quite similar to those of an item stock community in exclusive angles. for example, the unmistakable thing of the SSCM relies upon on client company duality.

Measures of Operational Efficiency

Numerous studies have utilized various metrics to evaluate operational efficiency, including employee growth, productivity, reduced operational costs (Pantea et al., 2013; Sathye, 2001; Zhu, 2000), operating expenses, customer/client satisfaction, and lead or cycle time (Ghebregiorgis and Atewebrhan, 2016; Al-Jafari and Alchami, 2014), accounts receivable turnover (Yameen and Pervez, 2016), inventory turnover (Yameen and Pervez, 2016; Enekwe et al., 2013), and asset turnover (Yameen and Pervez, 2016; Jamali and Asadi, 2012; Fairfield and Yohn, 2001). This study utilizes on-time delivery, cost reduction, and productivity as indicators of operational efficiency.

On-Time Delivery: Gronroos (2001) elucidated that on-time delivery equates to lead time and is a critical component of inventory management, since it significantly contributes to customer service and satisfaction. Every consumer approaches an organization with prior experiences and a general sensitivity to the service received; customers often engage in regular interactions with the current corporation. Consequently, Lead Time emerged as a crucial component of exemplary inventory management, emphasizing the flexible nature of service processes deemed successful and critical. A well-defined and well recognized timeline is an essential asset for any business due to its impact on customer responsiveness and the operational dynamics of enterprises to varying extents. Should a supply chain business possess a very efficient inventory management system that is well-regarded by its customers, tiny mistakes may be overlooked; but, if such errors become recurrent, this situation might jeopardize the organization's reputation. If not addressed, the impact of the faults would be magnified in the consumers' perception. Parasaraman et al. (2005) advocated for lead time as a mechanism that eliminates customers' perceptions of quality. Lead time is essential for guaranteeing that the company fulfills its commitments to provide efficient and effective services, so ensuring that quality service contributes to the achievement of organizational objectives.

Navon and Berkovich (2006) say that the primary purpose of organizations is to formulate action plans that improve the timely supply and delivery of materials and work-in-progress essential for the production or service processes of companies. Stevenson (2007) asserts that inventory management involves the efficient movement of material components in and out of production activities, as well as effective transportation, which is crucial for a firm's competitiveness in delivering exceptional products at the appropriate location and time. The aims are to engage with organizations to identify low-cost solutions that provide the flexibility necessary for the execution of an efficient inventory management process with the anticipated degree of fulfillment. Bowersox and Closs (2002) assert that optimizing supply flow with reduced lead time will foster collaboration and enhance partnerships, while minimizing duplicated efforts; this results in lower material costs and superior quality control, which are critical advantages of inventory management.

Indicators of On-Time-Delivery:

Learning Orientation: Learning orientation in operational efficiency denotes an organization's dedication to acquiring, disseminating, and using information to improve its operational processes. These companies prioritize inquiry, open-mindedness, and risk-taking as essential elements in the learning process (Sinkula et al., 1997). Learning orientation is essential for operational efficiency as it drives ongoing improvement. The quest for knowledge yields insights for enhancing current processes, while the distribution of knowledge guarantees that all organizational tiers may participate in and benefit from these enhancements. The application of knowledge subsequently converts these insights into action, leading to enhanced operational efficiency (Jerez-Gomez, Cespedes-Lorente, & Valle-Cabrera, 2005). Learning orientation is an effective approach for improving operational efficiency. By cultivating a learning culture and establishing knowledge management systems, firms may consistently enhance their operations, use emerging technology, and formulate best practices. Effectively addressing the problems and trade-offs inherent in learning orientation requires meticulous preparation and implementation.

Relationship Integration: Relationship integration concerning operational efficiency is the extent to which firms collaborate closely with their internal and external partners to enhance and improve their operations. This include connections with suppliers, customers, workers, and other stakeholders essential to the organization's operations (Stank, et al., 2001). Internal relationship integration denotes the cooperation and coordination of many areas inside the firm, including marketing, manufacturing, logistics, and finance. Efficient internal integration facilitates a smooth exchange of information, resources, and activities among various departments, therefore substantially improving operational efficiency. It allows the

business to synchronize its operational processes, minimize redundancies, and guarantee that all components are striving towards shared objectives (Stevens, 1989).

Measurement Integration: Measurement integration in operational efficiency denotes a comprehensive approach to performance assessment that transcends the confines of specific operations or divisions. This technique seeks to synchronize and amalgamate diverse metrics to provide a holistic perspective of the organization's operational performance (Neely, et al., 2002). Historically, several businesses have depended on function-specific metrics to assess operational success. For instance, a manufacturing department may prioritize metrics such as output volume or defect rate, while a logistics department may emphasize delivery time or order correctness. Nonetheless, these discrete indicators may not comprehensively represent the organization's total operating efficiency. This may result in sub-optimization, when enhancements in one domain occur at the detriment of others (Bourne, et al., 2002).

Cost Reduction: Organizations pursue operational efficiency and quality to decrease procurement expenses. The objective of operations management is to provide the requisite quality of commodities to a company at the lowest feasible cost. Eadie et al. (2007) assert that the effective implementation of operational efficiency significantly decreases procurement costs by streamlining the procurement process and minimizing waste. According to Gebauer, Beam, and Segev (1988), who examined procurement processes in the United States, procurement costs escalate due to expenditures on paperwork preparation, tender document preparation, tender advertising, distribution of tender documents, and storage of extensive volumes of paperwork and supplier records. Operational efficiency decreases expenses since the expenditures associated with assessing tender papers are considerably lowered (Hawking et al., 2004).

Indicators of Cost Reduction

Vertical Partnership: Vertical partnerships in the field of operational efficiency encompass collaborations between organizations that are in a sequential, supplier-customer relationship within a supply chain. Such partnerships can include relationships between suppliers and manufacturers, manufacturers and distributors, or distributors and retailers, among others (Simatupang & Sridharan, 2002). The logic behind vertical partnerships is that by coordinating and integrating their operations, organizations can improve the flow of goods, information, and funds throughout the supply chain, thereby enhancing overall operational efficiency. For example, through close supplier-manufacturer integration, organizations can streamline their procurement and production processes, reduce lead times, and minimize inventory costs (Lee, et al., 1997).

One key strategy in vertical partnerships is the adoption of Vendor Managed Inventory (VMI), where the supplier manages the inventory levels of the customer based on agreed-upon service levels. This arrangement allows the supplier to better forecast demand and manage production, while the customer can reduce inventory holding costs and improve service levels (Achabal, et al., 2000). In the digital age, vertical partnerships are increasingly enabled by advancements in information technology. Technologies such as Enterprise Resource Planning (ERP) systems, Electronic Data Interchange (EDI), and blockchain can significantly enhance information sharing and transparency among partners, enabling more effective coordination and decision-making (Barrett, 2007).

Horizontal Partnership: Horizontal partnerships in the field of operational efficiency refer to collaborations between organizations that operate at the same level within a supply chain. These partnerships often involve organizations that are typically competitors, but who choose to cooperate in certain areas to achieve common objectives, such as reducing costs, sharing resources, improving service levels, or innovating new products or processes (Bengtsson & Kock, 2000). The rationale behind horizontal partnerships is that by pooling resources and capabilities, organizations can achieve economies of scale and scope, spread risks, and leverage complementary strengths. For example, two manufacturers may collaborate to share production

facilities, which can lead to cost savings and increased capacity utilization. Or, two retailers may collaborate to conduct joint promotions or share transportation resources, which can enhance marketing effectiveness and reduce logistics costs (Cruijssen, et al., 2007).

Horizontal partnerships can also enable organizations to share knowledge and best practices, which can improve operational efficiency. For instance, organizations can collaborate in areas such as process improvement, quality management, or technology adoption, where learning from others can lead to significant efficiency gains (Dyer & Nobeoka, 2000). However, horizontal partnerships also involve complex dynamics and potential risks. They require a careful balance between cooperation and competition, often referred to as "co-opetition" (Brandenburger & Nalebuff, 1996). Organizations need to collaborate in certain areas while competing in others, which can lead to tensions and conflicts.

Product Quality

Quality is a determinant that makes a thing valuable. Shin et al. (2009) defines quality as a combination of attributes and traits that influences the degree to which a product satisfies customer demands. Araz and Ozkarahan (2007) assert that quality encompasses the whole of a product or service's attributes and traits, particularly in fulfilling certain implicit or explicit requirements. According to Panayides and Venus (2009), quality signifies adherence to certain established criteria or expectations rather than mere goodness. Panayides and Venus (2009) emphasized that the idea of quality is meaningful only when aligned with client desires; a product is deemed qualitative just when it meets customer specifications.

Product quality is seen as an endeavor to fulfill or surpass consumer expectations by means of value creation. Araz and Ozkarahan (2007) assert that a product with attributes that align with customer preferences might emerge as a market leader within its category. To enhance product quality, several firms use approach-based preventative strategies. It is essential that the provider ensures the quality level of their products (Panayides and Venus, 2009). Consequently, product quality is a crucial determinant of supply chain success. Delivering high-quality goods and services in the 21st century is essential not just for customer satisfaction but also for securing a competitive position in the marketplace. The delivery of quality products and their availability are essential for enhancing supply chain performance. .

Product quality plays a significant role in operational efficiency and is intrinsically linked to organizational success. High-quality products enhance customer satisfaction, encourage repeat business, reduce rework and warranty costs, and reinforce a company's reputation (Garvin, 1984). Product quality is multifaceted and often evaluated based on various dimensions including performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality (Garvin, 1987). To ensure operational efficiency, it is essential that organizations maintain a high level of product quality across all these dimensions.

Performance, one of the primary dimensions of quality, refers to a product’s primary operating characteristics. For example, for a car, performance may be assessed based on acceleration, handling, fuel economy, and comfort. Higher operational efficiency can lead to improved performance characteristics. Features are the additional aspects that supplement a product’s basic functionality. Additional or improved features can enhance product quality, and by optimizing processes, organizations can include these features without significantly increasing costs.

Reliability reflects a product's consistency of performance over time and its likelihood of failure. Efficient operations that effectively control and manage production processes can lead to higher reliability. Conformance is the degree to which a product's design and operating characteristics meet established standards. This can be greatly enhanced by operational efficiency, which ensures processes are repeatable and standards are consistently met.

Indicators of Product Quality

Defect rate: Defect rate, also known as failure rate or non-conformity rate, is a critical measure of operational efficiency and product quality. It refers to the percentage of products or services produced that do not conform to the desired specifications or expectations (Crosby, 1979). The significance of this measure is underscored by its direct relation to waste, rework, customer dissatisfaction, and ultimately, to the financial performance of the organization. High defect rates are often indicative of inefficiencies in the production process, lack of control over production inputs, or lack of adequate training for production personnel (Chase, et al., 2006). Therefore, a central focus of operational efficiency is to minimize the defect rate, which is achieved by enhancing the effectiveness and efficiency of production processes.

Various methodologies have been developed to reduce defect rates, and by extension, enhance operational efficiency. Lean manufacturing aims to eliminate waste in all forms, including the waste associated with defects. It does this by creating a flow in the production process, enabling continuous improvement, and inculcating a culture of perfection (Womack, et al., 1990). Similarly, Six Sigma is a data-driven methodology that focuses on reducing variability and defects in the production process. The goal of Six Sigma is to reduce the defect rate to a mere 3.4 defects per million opportunities, which is achieved by identifying and eliminating the causes of defects (Harry & Schroeder, 2000).

Customer complaint: Customer complaints are a critical feedback mechanism for businesses and are intrinsically linked to operational efficiency. High volumes of customer complaints often signal inefficiencies in various areas of operations, including product quality, service delivery, and customer service (Anderson, Fornell, & Lehmann, 1994). Analyzing customer complaints can help organizations identify shortcomings in their operations that lead to customer dissatisfaction. These complaints may point to specific issues such as defects in the product, delays in service delivery, or inadequate customer service. By addressing these issues, organizations can enhance their operational efficiency and improve customer satisfaction (Tax, et al., 1998).

One important aspect of managing customer complaints is the complaint resolution process. Efficient and effective complaint handling can turn dissatisfied customers into loyal ones. Swift, fair, and satisfactory resolution of complaints signals to customers that the organization values their feedback and is committed to providing high-quality products and services. It also allows companies to retain customers, which is often more cost-effective than acquiring new ones (Davidow, 2003). However, managing customer complaints efficiently requires an effective system to capture, track, and analyze complaint data. Organizations need to implement processes to collect complaints from various channels, categorize them, and analyze them for patterns and trends. Such analysis can identify recurring issues that need to be addressed at the operational level (Stauss & Seidel, 2005).

Quality management methodologies like Six Sigma regard customer complaints as opportunities for improvement. The DMAIC (Define, Measure, Analyze, Improve, Control) process used in Six Sigma is particularly relevant. It starts by defining the problem (the customer complaint), measuring aspects related to the complaint, analyzing the data to identify root causes, improving the process to eliminate the root causes, and finally, controlling the process to ensure the problem does not recur (Pyzdek & Keller, 2018). While the goal should always be to reduce the number of complaints, it's crucial to acknowledge that complaints will always exist. However, if handled properly, complaints can serve as a valuable source of information for continuous improvement. They offer real-time feedback and can drive organizational learning and innovation, leading to improved operational efficiency and customer satisfaction. Ccustomer complaints, while generally seen in a negative light, can be a rich source of information to enhance operational efficiency. By properly capturing, analyzing, and acting on customer complaints, organizations can identify and rectify inefficiencies in their operations, improving their products, services, and overall customer satisfaction.

Product return and Warrant Claims: Product returns and warranty claims can significantly impact operational efficiency and are often indicators of product quality and customer satisfaction levels. Addressing these issues effectively is critical to maintaining a smooth supply chain and delivering customer value. Product returns often result from factors such as product defects, miscommunication of product information, poor customer service, or simply customer dissatisfaction. Returns can disrupt operations, create additional costs in handling and refurbishing, increase inventory levels, and result in lost sales (Daugherty, et al., 2001). Moreover, frequent product returns can damage a company's reputation and customer relationships.

Similarly, warranty claims, which are assurances made by the manufacturer about the product's performance and quality, can pose challenges when the product fails to live up to these assurances. Like returns, warranty claims can also indicate product quality issues, negatively affect customer satisfaction, and lead to additional costs (Murthy, et al, 2008). These challenges underline the need for organizations to focus on improving operational efficiency to minimize product returns and warranty claims. This begins with a strong emphasis on product quality to ensure that products meet or exceed customer expectations. Quality management practices like Six Sigma and Lean can significantly reduce defects and errors, leading to a decrease in product returns and warranty claims (Pyzdek & Keller, 2018)

Materials and Methods

This research used a descriptive survey design. This methodology facilitates the use of questionnaires and interviews as tools for data collection. Trochim (2006) asserts that survey research facilitates data acquisition via questionnaires and interviews, which aids in assessing an individual's knowledge, preferences, and opinions. The study population comprises enterprises within the food and beverage industry operating in South-South Nigeria. It is predicted that there are 377 food and beverage enterprises in South-South Nigeria (Small and Medium Enterprises Development Agency of Nigeria, SMEDAN, 2018). The research population consists of Operations Managers, Procurement Managers, Logistics/Distribution Managers, and Marketing Managers from 377 food and beverage companies in South-South Nigeria. A sample is a limited selection of components or people extracted using a specific method from a designated population, while sampling methodology pertains to the statistical and research methods used to determine the sample size (Onyeizugbe, 2013). A sample size of 191 was obtained via the Krejcie and Morgan sampling method from 1970. The research tool used in this study was a questionnaire. It was organized into three distinct portions as shown below: Section A concentrated on the demographic characteristics of the respondents and their respective companies. Section B focused on the predictor variable (supply chain practices), including its characteristics of strategic orientation, cooperative integration, and cooperative collaboration. Section C is based on the criteria variable of operational efficiency. The metrics of operational efficiency include punctual delivery, cost minimization, and product quality. The data for this research was obtained from primary and secondary sources. The primary data source was acquired via self-administered questionnaires directed at the target respondents who comprise the study's sample components. The secondary data source was obtained from journal articles, newspapers, textbooks, theses, dissertations, and firm fact books pertinent to this research.

This research included both descriptive and inferential statistics for data analysis. In this context, univariate descriptive statistics include the mean, standard deviation, histogram, percentages, and frequency distribution Tables were used to evaluate the data. Bivariate inferential statistics, specifically Pearson's Product Moment Correlation, were used to assess the association between the hypothesized variables using the Statistical Package for the Social Sciences (SPSS) version 23.0.

Data Presentation and Analysis

This part presents the data gathered from the questionnaire in tabular form and provides an interpretation. A total of one hundred ninety-one (191) questionnaires were sent to the respondents (managers) of food and beverage companies in South-South, Nigeria.

Table 4.1: Questionnaire Distribution and Retrieval

Questionnaire Distribution	Questionnaire Retrieval	Useful Questionnaire	Not Useful
191	185	180	5

Source: Field Survey, 2023.

Table 4.1 delineates the sequence of questionnaire distribution to respondents within the food and beverage sector in South-South, Nigeria, along with the corresponding collection rate. According to the table, of the 191 questionnaires sent to managers of food and beverage enterprises in South-South, Nigeria, 185 were returned, 180 were deemed helpful, and 5 were not useful.

Hypothesis

H_{01}: There is no significant relationship between cooperate integration and on-time delivery of quoted food and beverages firms in South-South, Nigeria

Table 2: Correlation analysis between cooperate integration and on-time delivery

			cooperate integration	on-time delivery
Pearson (r)	cooperate integration	Correlation Coefficient	1.000	.669**
		Sig. (2 tailed)	.	.001
		N	79	79
	on-time delivery	Correlation Coefficient	.669**	1.000
		Sig. (2 tailed)	.001	.
		N	79	79

**Correlation is significant at 0.01 levels (2 tailed)

*Correlation is significant at 0.05 levels (2 tailed)

Source: Survey Data, 2023.

			cooperate integration	cost reduction
Pearson (r)	cooperate integration	Correlation Coefficient	1.000	.752**
		Sig. (2 tailed)	.	.001
		N	79	79
	cost reduction	Correlation Coefficient	.752**	1.000
		Sig. (2 tailed)	.001	.
		N	79	79

Table 2 displays the results of the correlation study conducted between corporate integration and the timely delivery of listed food and beverage companies in South-

South, Nigeria. The findings demonstrate a robust positive association between cooperative integration and the timely delivery of food and beverage companies in South-South Nigeria (r = .669**), with the symbol ** denoting significance at the 0.01 level. Consequently, the null hypothesis (Ho4) is rejected, and the alternative hypothesis is accepted. This indicates a robust and substantial positive correlation between corporate integration and the timely delivery of listed food and beverage companies in South-South, Nigeria.

Ho_2: There is no significant relationship between cooperate integration and cost reduction of quoted food and beverages firms in South-South, Nigeria.

Table 3: Correlation analysis between cooperate integration and cost reduction

**Correlation is significant at 0.01 levels (2 tailed)

*Correlation is significant at 0.05 levels (2 tailed)

Source: Survey Data, 2023.

Table 3 presents the results of the correlation study conducted between corporate integration and cost reduction among publicly listed food and beverage companies in South-South Nigeria. The findings demonstrate a robust positive connection between corporate integration and cost reduction among listed food and beverage enterprises in South-South, Nigeria (r = .752**), with significance at the 0.01 level, as shown by the symbol **. Consequently, we reject the null hypothesis (Ho5) and adopt the alternative hypothesis, which posits a substantial, positive, and significant association between corporate integration and cost reduction in food and beverage enterprises in South-South Nigeria.

Ho_3: There is no significant relationship between cooperate integration and product quality of quoted food and beverages firms in South-South, Nigeria.

Table 4: Correlation analysis between cooperate integration and product quality

			cooperate integration	product quality
Pearson (r)	cooperate integration	Correlation Coefficient	1.000	.785**
		Sig. (2 tailed)	.	.001
		N	79	79
	product quality	Correlation Coefficient	.785**	1.000
		Sig. (2 tailed)	.001	.
		N	79	79

**Correlation is significant at 0.01 levels (2 tailed)

*Correlation is significant at 0.05 levels (2 tailed)

Source: Survey Data, 2023.

Table 4 displays the results of the correlation study conducted between corporate integration and product quality of listed food and beverage companies in South-South Nigeria. The findings demonstrate that cooperative integration has a robust positive association with the product quality of quoted food and beverage companies in South-South, Nigeria (r = .785**) and this correlation is significant at the 0.01 level, as shown by the symbol **. As a result, the null hypothesis (Ho6) is dismissed and the alternative hypothesis is affirmed. This indicates a robust, positive, and substantial correlation between corporate integration and product quality among publicly listed food and beverage companies in South-South Nigeria.

2. Results

i. There is a significant relationship between cooperate integration and on-time delivery of quoted food and beverages firms in South-South, Nigeria.
ii. There is a significant relationship between cooperate integration and cost reduction of quoted food and beverages firms in South-South, Nigeria.
iii. There is a significant relationship between cooperate integration and product quality of quoted food and beverages firms in South-South, Nigeria.

3. Discussions of Findings

The investigation indicated a robust, positive, and substantial correlation between corporate integration and operational efficiency of publicly listed food and beverage companies in South-South, Nigeria. This conclusion was derived from the results of the bivariate analysis conducted between the two variables in the fourth, fifth, and sixth hypotheses. The findings demonstrate a substantial positive correlation between cooperative integration and on-time delivery (.669**). The results demonstrate that cooperative integration is strongly and positively connected with cost reduction (.752**), with this correlation being significant at the 0.01 level, as shown by the symbol **. The results reveal that cooperative integration has a substantial and significant connection with product quality (.785**), with the symbol ** denoting significance at the 0.01 level. This conclusion is corroborated by Kuei et al. (2001), who performed an empirical research on the correlation between supply chain quality management methods and the organizational performance of firms in Kenya. The research used partnership, coordination, integration, cooperation, and strategic focus as characteristics of supply chain quality management, whereas cost reduction, information sharing, and information quality constituted measurements of organizational success. The research used a descriptive survey design methodology. The questionnaire was used for data gathering and regression analysis to assess the significance level among the variables. The research identified a robust positive correlation between supply chain quality management and the organizational performance of enterprises.

Stevens and Johnson (2016) asserted that supply chain integration aims to enhance the synchronization of processes and the exchange of high-quality information across the supply chain, thereby improving both supply chain and operational performance (Narasimhan et al., 2010). Boyer and Harmon (2011) assert that integration forecasts competitive advantages, enhances value, promotes efficiency development, and increases client happiness; this is seen by reduced inventory, improved service delivery, elevated quality, and shortened product creation cycles. Rosenzweig et al. (2003) elucidated that supply chain integration refers to the connections among diverse supply chain components. Supply chain integration encompasses the internal connections among units and functions within the organization that source, develop, and deliver products or services, as well as the external linkages with entities outside the organization, including direct suppliers and their suppliers, as well as direct customers and clients.

Recommendations

Based on the findings above, the following recommendations were stated:

Strengthen Corporate Integration for Improved On-Time Delivery: Firms should invest in robust corporate integration practices to enhance operational efficiency, particularly on-time delivery. By improving communication, coordination, and resource sharing across departments and supply chain partners, firms can streamline processes and reduce delays. Leveraging technology such as Enterprise Resource Planning (ERP) systems can further support integration efforts.

Leverage Integration to Achieve Cost Reduction: Companies should utilise corporate integration as a strategic tool for cost minimisation. By aligning operations

with supply chain partners and fostering collaboration, firms can identify and eliminate inefficiencies, resulting in significant cost savings. The observed correlation indicates that integration reduces redundancies and optimises resource utilisation. Adopting strategies such as joint planning and shared logistics can further enhance cost efficiency. Firms should also conduct periodic audits to evaluate cost-saving impacts and adjust strategies to sustain economic benefits.

Focus on Integration to Enhance Product Quality: Corporate integration should be prioritised to improve product quality, as reflected in the strong correlation. Firms must align their quality control processes with suppliers and partners to ensure consistency in standards across the supply chain. Investments in collaborative quality management systems and regular training for employees can support this goal. Additionally, fostering long-term partnerships with quality-focused suppliers will help maintain product excellence. By emphasising quality through integration, firms can enhance customer satisfaction and reinforce brand reputation in competitive markets.

REFERENCES

1. Achabal, D. D., McIntyre, S. H., Smith, S. A., & Kalyanam, K. (2000). A decision support system for vendor managed inventory. Journal of Retailing, 76(4), 430–454. https://doi.org/10.1016/S0022-4359(00)00035-8
2. Adebayo, I. T. (2012). Impact of supply chain practices on supply chain management performance. International Journal of Business and Social Science, 3(17), 212-222.
3. Al-Jafari, M. K., & Alchami, M. (2014). Determinants of bank profitability: Evidence from Syria. Journal of Applied Finance & Banking, 4(1), 17–45.
4. Anderson, E. W., Fornell, C., & Lehmann, D. R. (1994). Customer satisfaction, market share, and profitability: Findings from Sweden. Journal of Marketing, 58(3), 53–66. https://doi.org/10.1177/002224299405800304
5. Arawati, A. (2011). Supply chain management, supply chain flexibility and business performance. Journal of Global Strategic Management, 5(1), 134-145.
6. Araz, C., & Ozkarahan, I. (2007). Supplier evaluation and management system for strategic sourcing based on a new multicriteria sorting procedure. International Journal of Production Economics, 106(2), 585–606. https://doi.org/10.1016/j.ijpe.2006.08.008
7. Bac, D. P., & Erkan, R. (2011). Industrialization in the agri-food sector and globalization. International Journal of Food and Agricultural Economics, 1(1), 1-14. Retrieved from
8. Barrett, S. (2007). Information technology support for collaborative supply chain management. Logistics Information Management, 20(2), 136–148. https://doi.org/10.1108/09576050710739882
9. Beam, H. H., & Segev, A. (1988). Automated procurement: Experiences of three American corporations. Interfaces, 18(5), 50–59.
10. Bengtsson, M., & Kock, S. (2000). "Coopetition" in business networks—to cooperate and compete simultaneously. Industrial Marketing Management, 29(5), 411–426. https://doi.org/10.1016/S0019-8501(99)00067-X
11. Blischke, W. R., & Murthy, D. N. P. (1992). Product warranty handbook. CRC Press.
12. Bowersox, D. J., & Closs, D. J. (2002). Logistical Management: The Integrated Supply Chain Process. McGraw-Hill.
13. Brandenburger, A. M., & Nalebuff, B. J. (1996). Co-opetition. Currency Doubleday.
14. Carter, C. R., & Easton, P. L. (2011). Sustainable supply chain management: Evolution and future directions. International Journal of Physical Distribution & Logistics Management, 41(1), 46-62.
15. Charles, A., Lauras, M., & Van Wassenhove, L. N. (2014). A model to define and assess the agility of supply chains: Building on humanitarian experience. International Journal of Physical Distribution & Logistics Management, 40(8/9), 722-741.
16. Chase, R. B., Jacobs, F. R., & Aquilano, N. J. (2006). Operations management for competitive advantage (11th ed.). McGraw-Hill/Irwin.

17. Chung-Kee, L., & Chuwonganant, C. (2014). The impact of supply chain disruptions on the financial performance of the firm: Insights from event study methods. International Journal of Physical Distribution & Logistics Management, 44(6), 472-494.
18. Cloete, J., Malan, N., & Prinsloo, J. J. (2012). Supply chain management problems in the food processing industry: Implications for business performance. Acta Commercii, 12(1), 1-12. Retrieved from
19. Coates, T. T., & McDermott, C. M. (2002). An exploratory analysis of new competencies: A resource-based view perspective. Journal of Operations Management, 20(5), 435–450.
20. Cronin, J. M. (2015). The impact of consumer behavior on the food and beverage industry. Journal of Foodservice Business Research, 18(5), 489-502.
21. Crosby, P. B. (1979). Quality is free: The art of making quality certain. McGraw-Hill.
22. Cruijssen, F., Cools, M., & Dullaert, W. (2007). Horizontal cooperation in logistics: Opportunities and impediments. Transportation Research Part E: Logistics and Transportation Review, 43(2), 129–142. https://doi.org/10.1016/j.tre.2005.09.007
23. Daugherty, P. J., Myers, M. B., & Richey, R. G. (2001). Information support for reverse logistics: The influence of relationship commitment. Journal of Business Logistics, 22(1), 85–107.
24. Davenport, T. H., & Lagers, J. D. (1995). Reengineering the corporation: A manifesto for business revolution. Harper Business.
25. Davidow, M. (2003). Organizational responses to customer complaints: What works and what doesn't. Journal of Service Research, 5(3), 225–250. https://doi.org/10.1177/1094670502238917
26. Deimel, M., Frentrup, M., & Theuvsen, L. (2011). Transparency in food supply chains: Empirical results from German pig and dairy production. Journal on Chain and Network Science, 11(1), 21-32.
27. Dharni, K., & Rodrigue, J.-P. (2015). The role of supply chain management in the food processing industry: A case study approach. Journal of Supply Chain Management, 51(3), 23-37.
28. Dyer, J. H., & Nobeoka, K. (2000). Creating and managing a high-performance knowledge-sharing network: The Toyota case. Strategic Management Journal, 21(3), 345-367.
29. Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. Academy of Management Review, 23(4), 660-679.
30. Eadie, R., Perera, S., & Heaney, G. (2007). Identification of e-procurement drivers and barriers for UK construction organisations and ranking of these from the perspective of quantity surveyors. ITcon, 12, 103-120.
31. Ellram, L. M., Tate, W. L., & Billington, C. (2004). Understanding and managing the services supply chain. Journal of Supply Chain Management, 40(4), 17–32.
32. Enekwe, C. I., Agu, C. I., & Eziedo, K. N. (2013). The effect of financial leverage on financial performance: Evidence of quoted pharmaceutical companies in Nigeria. IOSR Journal of Economics and Finance, 2(3), 17–25.
33. Fairfield, P. M., & Yohn, T. L. (2001). Using asset turnover and profit margin to forecast changes in profitability. Review of Accounting Studies, 6(4), 371–385.
34. Garvin, D. A. (1984). What does "product quality" really mean? Sloan Management Review, 26(1), 25–43.
35. Garvin, D. A. (1987). Competing on the eight dimensions of quality. Harvard Business Review, 65(6), 101–109.
36. Gebauer, J., Beam, C., & Segev, A. (1998). Impact of the Internet on procurement. Acquisitions Review Quarterly, 5(2), 167-184.
37. Ghebregiorgis, F., & Atewebrhan, A. (2016). Determinants of operational efficiency and profitability of commercial banks in Ethiopia. International Journal of Economics & Finance, 8(10), 35-45.
38. Gorman, M. F., & Thomas, J. (1997). The effect of service operations failures on customer satisfaction: Evidence on how failures and their source affect what matters to customers. Journal of Operations Management, 15(4), 323–337.
39. Grönroos, C. (2001). Service management and marketing: A customer relationship management approach (2nd ed.). Wiley.
40. Gulati, R., Nohria, N., & Zaheer, A. (2005). Strategic networks. Strategic Management Journal, 21(3), 203-215.
41. Harry, M., & Schroeder, R. (2000). Six Sigma: The breakthrough management strategy revolutionizing the world's top corporations. Currency.

42. Hawking, P., Stein, A., Wyld, D., & Foster, S. (2004). E-procurement: Is the ugly duckling actually a swan down under? Asia Pacific Journal of Marketing and Logistics, 16(1), 41-61.
43. Jamali, J., & Asadi, A. (2012). Management efficiency and profitability in Indian automobile industry: From theory to practice. Indian Journal of Science and Technology, 5(5), 2779–2781.
44. Jerez-Gómez, P., Céspedes-Lorente, J., & Valle-Cabrera, R. (2005). Organizational learning capability: A proposal of measurement. Journal of Business Research, 58(6), 715-725.
45. Juran, J. M., Gryna, F. M., & Bingham, R. S. (1974). Quality control handbook (3rd ed.). McGraw-Hill.
46. Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30(3), 607–610. https://doi.org/10.1177/001316447003000308
47. Kuei, C. H., Madu, C. N., & Lin, C. (2001). The relationship between supply chain quality management practices and organizational performance. International Journal of Quality & Reliability Management, 18(8), 864–872. https://doi.org/10.1108/EUM0000000006031
48. Lee, H. L., Padmanabhan, V., & Whang, S. (1997). The bullwhip effect in supply chains. MIT Sloan Management Review, 38(3), 93–102.
49. Maruf, G. A. (2013). Sustainable supply chain practices and operational performance: Evidence from a developing country. International Journal of Operations & Production Management, 33(5), 689-713.
50. Maull, R., Geraldi, J., & Johnston, R. (2012). Service supply chains: A customer perspective. Journal of Supply Chain Management, 48(4), 72-86.
51. McLachlan, M., & Landman, A. P. (2013). Nutrition-sensitive agriculture: A South African perspective. Food Security, 5(6), 857-871.
52. Murthy, D. N. P., Atrens, A., & Eccleston, J. A. (2002). Strategic maintenance management. Journal of Quality in Maintenance Engineering, 8(4), 287–305.
53. Narasimhan, R., & Nair, A. (2005). The antecedent role of quality, information sharing and supply chain proximity on strategic alliance formation and performance. International Journal of Production Economics, 96(3), 301–313. https://doi.org/10.1016/j.ijpe.2004.05.008
54. Navon, R., & Berkovich, O. (2006). An automated model for materials management and control. Construction Management and Economics, 24(6), 635-646.
55. Njoku, P. N., & Kalu, I. E. (2015). Effective supply chain management as a tool for profitability enhancement in the competitive marketing environment. International Journal of Marketing Studies, 7(5), 35-45.
56. Oko, O. E., & Eboh, F. E. (2013). New product development and failure in Nigerian food and beverage industry. European Journal of Business and Management, 5(5), 12-21.
57. Onyeizugbe, C. U. (2013). Practical guide to research methodology in management. Immaculate Publications Limited.
58. Panayides, P. M., & Venus, L. (2009). The impact of trust on innovativeness and supply chain performance. International Journal of Production Economics, 122(1), 35–46. https://doi.org/10.1016/j.ijpe.2008.12.025
59. Pantea, M., Gligor, D., & Anca, H. (2013). Economic determinants of Romanian firms' financial performance. Procedia Economics and Finance, 6, 703–712.
60. Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (2005). Marketing services: Competing through quality. Free Press
61. Pyzdek, T., & Keller, P. A. (2018). The Six Sigma handbook (5th ed.). McGraw-Hill Education.
62. Ray, G., Barney, J. B., & Muhanna, W. A. (2004). Capabilities, business processes, and competitive advantage: Choosing the dependent variable in empirical tests of the resource-based view. Strategic Management Journal, 25(1), 23-37.
63. Rogers, D. S., & Tibben-Lembke, R. S. (1999). Going backwards: Reverse logistics trends and practices. Reverse Logistics Executive Council.
64. Rogers, D. S., & Tibben-Lembke, R. S. (2001). An examination of reverse logistics practices. Journal of Business Logistics, 22(2), 129–148.

65. Rosenzweig, E. D., Roth, A. V., & Dean, J. W. (2003). The influence of an integration strategy on competitive capabilities and business performance: An exploratory study of consumer products manufacturers. Journal of Operations Management, 21(4), 437–456. https://doi.org/10.1016/S0272-6963(03)00037-8
66. Roth, A. V., & Jackson, W. E. (2003). Strategic determinants of service quality and performance: Evidence from the banking industry. Management Science, 39(9), 1178–1193.
67. Sampson, S. E., & Froehle, C. M. (2006). Foundations and implications of a proposed unified services theory. Production and Operations Management, 15(2), 329–343.
68. Sampson, S. E., & Spring, M. (2012). Customer roles in service supply chains and opportunities for innovation. Journal of Supply Chain Management, 48(4), 30–50.
69. Sathye, M. (2001). Efficiency of banks in a developing economy: The case of India. European Journal of Operational Research, 148(3), 662–671.
70. Sathye, M. (2001). X-efficiency in Australian banking: An empirical investigation. Journal of Banking & Finance, 25(3), 613-630.
71. Sengupta, K., Heiser, D. R., & Cook, L. S. (2006). Manufacturing and service supply chain performance: A comparative analysis. Journal of Supply Chain Management, 42(4), 4–15.
72. Shin, H., Collier, D. A., & Wilson, D. D. (2009). Supply management orientation and supplier/buyer performance. Journal of Operations Management, 18(3), 317–333. https://doi.org/10.1016/S0272-6963(00)00057-0
73. Simatupang, T. M., & Sridharan, R. (2002). The collaborative supply chain. International Journal of Logistics Management, 13(1), 15–30. https://doi.org/10.1108/09574090210806333
74. Simatupang, T. M., & Sridharan, R. (2002). The collaborative supply chain. The International Journal of Logistics Management, 13(1), 15-30.
75. Sinkula, J. M., Baker, W. E., & Noordewier, T. (1997). A framework for market-based organizational learning: Linking values, knowledge, and behavior. Journal of the Academy of Marketing Science, 25(4), 305-318.
76. Small and Medium Enterprises Development Agency of Nigeria (SMEDAN). (2018). National survey of micro, small and medium enterprises (MSMEs) 2017.
77. Stank, T. P., Keller, S. B., & Daugherty, P. J. (2001). Supply chain collaboration and logistical service performance. Journal of Business Logistics, 22(1), 29-48.
78. Stauss, B., & Seidel, W. (2005). Complaint management: The heart of CRM. Thomson.
79. Stevens, G. C., & Johnson, M. (2016). Integrating the supply chain… 25 years on. International Journal of Physical Distribution & Logistics Management, 46(1), 19–42. https://doi.org/10.1108/IJPDLM-07-2015-0175
80. Stock, J. R., Boyer, S. L., & Harmon, T. (2010). Research opportunities in supply chain management. Journal of the Academy of Marketing Science, 38(1), 32–41. https://doi.org/10.1007/s11747-009-0136-2
81. Sullivan, U. Y. (1982). Simultaneous production and consumption in service operations: Implications for productivity. Management Science, 28(3), 339-351.
82. Suzaki, K. (1987). The new manufacturing challenge: Techniques for continuous improvement. Free Press.
83. Tax, S. S., Brown, S. W., & Chandrashekaran, M. (1998). Customer evaluations of service complaint experiences: Implications for relationship marketing. Journal of Marketing, 62(2), 60–76. https://doi.org/10.1177/002224299806200205
84. Trochim, W. M. K., & Donnelly, J. P. (2006). The research methods knowledge base (3rd ed.). Atomic Dog Publishing.
85. Verdouw, C. N., Beulens, A. J. M., Trienekens, J. H., & Wolfert, J. (2010). Process modelling in demand-driven supply chains: A reference model for the fruit industry. Computers and Electronics in Agriculture, 73(2), 174-187.
86. Womack, J. P., Jones, D. T., & Roos, D. (1990). The machine that changed the world. Free Press..
87. Wu, S. (2011). Warranty data analysis: A review. Quality and Reliability Engineering International, 27(8), 993–1004.
88. Yameen, M., & Pervez, T. (2016). Impact of liquidity, solvency and efficiency on profitability of steel authority of India limited. International Journal of Research in Management & Business Studies, 3(3), 28-32.
89. Yang, Q., Liu, H., Gao, Y., & Li, Y. (2016). Technological innovation of firms in mobile internet era: An empirical study from China. Journal of Business Research, 69(11), 5403–5410.

90. Zacharia, Z. G., Sanders, N. R., & Nix, N. W. (2011). The emerging role of the third-party logistics provider (3PL) as an orchestrator. Journal of Business Logistics, 32(1), 40–54.
91. Zhang, M., Lettice, F., & Zhao, X. (2016). The impact of social capital on mass customisation and product innovation capabilities. International Journal of Production Research, 54(1), 1–13. https://doi.org/10.1080/00207543.2015.1015754
92. Zhu, J. (2000). Multi-factor performance measure model with an application to Fortune 500 companies. European Journal of Operational Research, 123(1), 105–124.
93. Zhu, K. (2000). Information transparency of business-to-business electronic markets: A game-theoretic analysis. Management Science, 50(5), 670–685.
94. Zikmund, W. G., & Stanton, W. J. (1971). Recycling solid wastes: A channels-of-distribution problem. Journal of Marketing, 35(3), 34–39.
95. Karia, N., & Wong, C. Y. (2012). The impact of logistics resources on the performance of Malaysian logistics service providers. Production Planning & Control, 24(7), 589–606.
96. Stevenson, W. J. (2007). Operations management (9th ed.). McGraw-Hill/Irwin.