



AGILE SUPPLY CHAIN STRATEGIES AND DELIVERY PERFORMANCE OF QUOTED CONSUMER GOODS MANUFACTURING COMPANIES IN NIGERIA

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ABSTRACT: *This study examined the relationship between supply chain strategies and delivery performance of quoted consumer goods manufacturing companies in Nigeria. The study adopted the correlational research design and the quantitative research approach. The study population comprised 21 quoted consumer goods manufacturing companies in Nigeria. The census sampling technique was adopted since the population is small and researchable. The sampling unit consisted of managers of the quoted consumer goods manufacturing companies in Nigeria. Data were collected from the respondents using an online structured questionnaire. The data collected were analyzed statistically while the hypotheses were tested using the Spearman Rank Order Correlation Coefficient (ρ) and SPSS version 25. The findings revealed that demand forecasting has a significant relationship with on-time delivery of quoted consumer goods manufacturing companies in Nigeria. Demand forecasting was also found to have a significant relationship with the accurate delivery of quoted consumer goods from manufacturing companies in Nigeria. A significant relationship was equally reported between collaboration and on-time delivery of quoted consumer goods manufacturing companies in Nigeria. The study also found a significant relationship between collaboration and accurate delivery of quoted consumer goods manufacturing companies in Nigeria. From the findings, it was concluded that agile supply chain strategies such as demand forecasting and collaboration are significant predictors of delivery performance of quoted consumer goods manufacturing companies in Nigeria. Based on the above-drawn conclusion, it was recommended that consumer goods manufacturing companies in Nigeria should adopt agile supply chain strategies such as demand forecasting and collaboration, as it would improve their delivery performance.*

KEYWORDS: Agile supply chain, demand forecasting, collaboration, delivery performance, on-time delivery, and accurate delivery.



INTRODUCTION

In a dynamic environment where customer demand is fast-changing and becoming unpredictable, companies need to find a smart way to adapt their delivery process to changing market trends and improve their delivery performance. Improving delivery performance is a basic necessity for business survival, as failure to improve delivery performance could lead to customer defection and financial losses. When a company continues to lose its customers to its competitors and experience financial losses, it will lead to business liquidation (Aboalghanam & Awad, 2023). Therefore, to remain in business and compete favorably with their rivals, companies need to constantly improve their delivery performance in terms of ensuring on-time delivery and accurate delivery of customer orders. When a company delivers the accurate order to a customer in a timely manner, it will lead to customer satisfaction and loyalty, which is critical to business growth and survival (Srinivasan et al., 2020). For this reason, consumer goods manufacturing companies need to improve their delivery performance in order to survive in their industry. These companies would stand a better chance of improving their delivery performance if they adopt agile supply chain strategies.

Agile supply chain is a supply chain that is able to quickly adapt and respond to sudden changes in market demands, customer expectations and disruptions (Abdelilah et al., 2021). It places emphasis on demand forecasting, collaboration and quick decision-making to enhance adaptability, flexibility, and responsiveness. An agile supply chain streamlines delivery processes and empowers employees to act quickly and decisively (Umam & Sommanawat, 2019). This type of supply chain enables companies to respond quickly and smoothly to sudden changes in demand and supply. An agile supply chain strategy is built on the culture where rapid response is the norm, with free flow of information among supply chain partners, and teams are empowered to act decisively. Implementing agile supply chain strategy requires firms to acquire the latest digital technologies, such as tracking devices, and align them with proper demand forecasting. This means that companies need to rely on what they have in stock, gather real-time information, and analyze past sales records to aid future demand forecasting. Agile supply chain strategy is more effective and suitable for companies that operate in a business environment where market demands are unpredictable (Sriyakul et al., 2019). This strategy is also suitable for companies that trade on products with short lifecycles.

Implementing agile supply chain strategy has become a necessity for companies to improve their delivery performance in today's fast-changing environment. As customer demands continue to evolve and market volatility becomes the norm, the traditional supply chain model is no longer adequate to deal with the rapid changes in market demands; hence, an agile supply chain is needed to provide flexibility to adapt to these changing market demands and improve delivery performance (Aboalghanam & Awad, 2023). Dubey et al. (2018) posited that an agile supply chain enables companies to respond quickly to changes in customer demand, reduce lead times and improve overall delivery performance. This agility is facilitated through data visibility, adaptability, rapid response, efficient inventory management, demand forecasting, a collaborative ecosystem, and proactive risk management. By implementing agile supply chain strategies in today's evolving markets, companies can deliver customer orders on time and improve their delivery performance. It is against this backdrop that this study examines the relationship between



agile supply chain strategies and delivery performance of quoted consumer goods manufacturing companies in Nigeria.

Statement of the Problem

One of the major challenges facing manufacturing companies in Nigeria is how to improve their delivery performance in a fast-changing environment. Many manufacturing companies quoted on the Nigerian Stock Exchange are experiencing delivery challenges due to sudden changes in market demands, customer expectations and supply disruptions. These companies often fail to deliver customer orders on time, resulting in poor delivery performance. The inability of these companies to deliver customer orders accurately and timely has led to customer disappointment and defection, resulting in financial losses for the organization. Although some manufacturing companies have made several efforts to improve their delivery performance, their efforts have remained futile, the consistent failure of these companies to improve their delivery performance could be attributed to a lack of an agile supply chain. There is a strong belief that agile supply chains can help to improve the delivery performance of these companies. Several studies (e.g., Gilaninia et al., 2011; Abdelilah et al., 2021; Aboalghanam & Awad et al., 2023; Fesobi et al., 2024) have examined the impact of agile supply chains on firm performance, but none of these studies relate agile supply chain strategies (demand forecasting and collaboration) to delivery performance (on-time delivery and accurate delivery) of quoted consumer goods manufacturing companies in Nigeria. This has created a gap in literature that this study intends to fill.

Conceptual Framework

The conceptual framework of agile supply chain strategies and delivery performance is shown in figure 1 below:

Fig. 1: Conceptual framework of agile supply chain strategies and delivery performance of quoted consumer goods manufacturing companies in Nigeria



Source: *Author's Conceptualization*



Aim and Objectives of the Study

The aim of this study is to explore the relationship between agile supply chain strategies and delivery performance of quoted consumer goods manufacturing companies in Nigeria. The objectives of the study are to:

1. determine the relationship between demand forecasting and on-time delivery of quoted consumer goods manufacturing companies in Nigeria;
2. ascertain the relationship between demand forecasting and accurate delivery of quoted consumer goods manufacturing companies in Nigeria;
3. discover the relationship between collaboration and on-time delivery of quoted consumer goods manufacturing companies in Nigeria;
4. determine the relationship between collaboration and accurate delivery of quoted consumer goods from manufacturing companies in Nigeria.

Research Questions

The following research questions were developed in this study:

1. What is the relationship between demand forecasting and on-time delivery of quoted consumer goods manufacturing companies in Nigeria?
2. To what extent does demand forecasting relate to accurate delivery of quoted consumer goods manufacturing companies in Nigeria?
3. What is the relationship between collaboration and on-time delivery of quoted consumer goods manufacturing companies in Nigeria?
4. To what extent does collaboration relate to accurate delivery of quoted consumer goods manufacturing companies in Nigeria?

Research Hypotheses

The following hypotheses were formulated to guide this study:

Ho₁: There is no significant relationship between demand forecasting and on-time delivery of quoted consumer goods manufacturing companies in Nigeria.

Ho₂: There is no significant relationship between demand forecasting and accurate delivery of quoted consumer goods manufacturing companies in Nigeria.

Ho₃: There is no significant relationship between collaboration and on-time delivery of quoted consumer goods manufacturing companies in Nigeria.

Ho₄: There is no significant relationship between collaboration and accurate delivery of quoted consumer goods manufacturing companies in Nigeria.



REVIEW OF RELATED LITERATURE

Concept of Agile Supply Chain

Agile supply chain is defined as a dynamic and flexible approach that is adopted by a company to quickly adapt and respond to changing market demands, internal shocks, and external disruptions (Blome et al., 2018). Agile supply chain has become paramount in today's rapidly evolving business environment, characterized by market volatility, supply chain disruptions, and global complexities (Tarafdar & Qrunfleh, 2017). Agile supply chain has the ability to cope with internal and external shocks such as raw material and labor shortages, fluctuating customer demand, changing weather conditions, logistics failure, and geopolitical risks (Gligor et al., 2015). Tse et al. (2019) stated that agile supply chains enable companies to prepare for sudden changes in customer demand and respond quickly to changing market conditions with greater flexibility and survive the shocks. Companies that adopt agile supply chain strategies are likely to reduce lead times, deliver quality customer services, and gain a competitive advantage over their rivals by responding quickly to customers' changing needs and disruptions (Chan et al., 2017). However, companies that intend to implement agile supply chain strategy must streamline their delivery processes, collaborate with supply chain partners, and strengthen their relationships with key stakeholders to ensure a quick response to changing market demands (Aboalghanam & Awad, 2023).

Dimensions of Agile Supply Chain Strategies

There are several dimensions of agile supply chains in literature. They include alertness, data visibility, adaptability, demand forecasting, decisiveness, responsiveness, proactive risk management, inventory management, and collaboration (Tse et al., 2016; Chan et al., 2017; Blome et al., 2018; Jamjumrus & Sritragool, 2019; Manzoor et al., 2021). However, this study focuses on demand forecasting and collaboration dimensions of agile supply chains.

Demand Forecasting

Demand forecasting is a critical factor in creating an agile supply chain. Demand forecasting is the process whereby a company estimates future customer demand for its products or services (Srinivasan et al., 2020). With appropriate demand forecasting tools, a company can anticipate future fluctuations in demand based on past information, patterns, and seasonality (Chan et al., 2017). Many companies leverage artificial intelligence (AI) tools such as predictive analytics to make forecasts on future customer demand for their products or services (Qrunfleh & Tarafdar, 2013). By using predictive analytics, companies can make more accurate demand forecasts, avoid inventory waste, and prepare to satisfy sudden demand and meet customer expectations (Dubey et al., 2018). Demand forecasting helps companies to adapt and respond quickly to changing customer demand and supply chain disruption (Umam & Sommanawat, 2019). According to Tse et al. (2016), proper demand forecasting helps companies to maintain healthy stock levels at all times and respond quickly to sudden demand, particularly to those that occur during the holiday shopping season. Sriyakul et al. (2019) opined that demand forecasting enables companies to build a robust, adaptive, and responsive supply chain that can adequately address market dynamics and disruptions and deliver a superior customer experience.



Collaboration

Collaboration is the process whereby members of a supply chain work together to ensure smooth and efficient supply chain operations and achieve their goals (Abdelilah et al., 2021). Blome et al. (2013) defined collaboration as the process of working closely with suppliers, manufacturers, wholesalers, retailers, and customers to respond quickly to sudden changes in market demands. Collaboration is often considered a unified approach that enables companies to adapt and respond quickly to market changes and disruptions (Abdelilah & Balambo, 2021). It brings about proper coordination, fewer disruptions, and enhanced supply chain agility. Manzoor et al. (2021) posited that collaboration is highly essential for companies that are implementing agile supply chain strategies. According to them, collaboration helps companies to respond quickly to sudden changes in customer demands and disruptions. By working closely with members of a supply chain, companies can benefit from information flow and respond quickly to sudden changes in market demands (Ali, 2024). Gichuki (2017) opined that collaborating with supply chain partners fosters seamless communication and enables companies to implement faster responses to unforeseen disruptions and shifts in market demand. With proper collaboration, supply chain partners can share information updates among themselves, make sales forecasts, and develop distribution strategies that will enable them to respond quickly to disruptions and meet sudden changes in market demand (Jamjumrus & Sriragool, 2019).

Concept of Delivery Performance

Delivery performance refers to the end result obtained by a firm from engaging in delivery activities to meet its delivery goals (Golini & Kalchschmidt, 2010). The delivery performance of a firm is determined by comparing the actual delivery outcome or result with the delivery goals set by the firm. (Lulagala et al., 2023) Some of the delivery goals of firms include on-time delivery, accurate delivery, cost-effective delivery, safe delivery, and quality delivery (Bushuev et al., 2014). Delivery performance indicates how well or poorly a firm is doing in terms of achieving its delivery goals (Shokri et al., 2010). It tells whether a company is meeting customer expectations in terms of completing delivery on time without errors. Delivery performance signifies how effective and efficient the delivery operations of a firm are in terms of delivering customer orders in an accurate and timely manner. Rao et al. (2011) opined that delivery performance measures the effectiveness and efficiency of the delivery operations of a company. According to them, delivery performance provides an insight into the delivery operations of a company and identifies areas where the company is doing well and areas where the company is performing poorly. By determining delivery performance, companies will be able to identify areas that create loopholes and make adjustments or improvements (Ali, 2024). Companies operating in a fast-changing environment need to improve their delivery performance in order to retain their customers and improve their competitiveness. Customers expect quick and reliable delivery of their orders, and any company that fails to meet these expectations risks losing its customers to its closest rivals, which consequently leads to a revenue drop for the company.



Measures of Delivery Performance

There are several indices used to measure delivery performance in literature. However, this study measures delivery performance of firms using on-time delivery and accurate delivery.

On-Time Delivery

On-time delivery occurs when a company delivers products or services to customers within the promised timeframe (Rao et al., 2011). It indicates how efficient and reliable a company is in terms of keeping its promise of delivering a customer order within a stipulated timeframe agreed with the customer. Companies need to determine their on-time delivery rate to know the rate at which they are doing well or poorly with respect to timely deliveries. On-time delivery rate can be determined by dividing the number of successful on-time deliveries by the total number of deliveries made by the company and multiplying the result by 100% (Lulagala et al., 2023). High rate of on-time delivery helps a company to build customer trust, increase customer loyalty and gain a competitive edge over its rivals (Golini & Kalchschmidt, 2010). Garg et al. (2006) argued that a company that consistently delivers products and services on time stands out among the crowd in a highly competitive industry. By delivering customer orders on time, companies can improve their public image and reputation, build a long-term relationship with their customers, and attract new customers to their organization (Shokri et al., 2010). Ali (2024) opined that companies operating in a dynamic business environment need to deliver customer orders in a timely manner because delayed delivery can damage the reputation of their organization, harm relationships with customers, and lead to customer defection.

Accurate Delivery

Accurate delivery occurs when a company delivers the exact quality and quantity of products ordered by customers without any error (Gligor et al., 2015). Golini and Kalchschmidt (2010) defined accurate delivery as the ability of a company to deliver the specific items ordered by the customer to the doorstep of the customer. Accurate delivery does not just make customers happy but also motivates them to remain loyal to the company's services, thereby sustaining the competitiveness of the company (Aboalghanam & Awad, 2023). By consistently meeting or exceeding accurate delivery expectations, companies can build a good reputation for themselves and sustain their relationships with their esteemed customers (Srinivasan et al., 2020). When customers have the confidence in the ability of a company to deliver their order accurately, they will purchase more of the products and remain loyal to the company's brand (Bushuev, 2014). Some satisfied customers will even take a step further by engaging in word-of-mouth marketing on behalf of the company to bring new customers to the firm. Sriyakul et al. (2019) posited that accurate delivery helps companies to build customer trust and reduce doubtfulness among customers.



Theoretical Review

This study is guided by the dynamic capability theory, which was developed by Teece and Pisano in 1994. The dynamic capability theory states that a firm should develop the capability to combine, reconfigure, and demonstrate expertise to adapt and respond quickly to a changing business environment (Teece et al., 1997). By combining, reconfiguring and demonstrating expertise and capacities, a firm will identify opportunities, take advantage of these opportunities, and gain a competitive advantage in the dynamic business environment that is characterized by high market volatility and complexity (Shivdas et al., 2021). The basic idea behind the dynamic capability theory is the development of strategies to adapt to sudden changes in the marketplace and gain competitive advantage (Monteiro et al., 2017). The theory explains how firms can address the problem of inflexibility in capabilities, combine their resources, and demonstrate expertise to respond quickly to changes in the business environment.

The dynamic capability theory is relevant to this study, as it explains how quoted consumer goods manufacturing companies in Nigeria can make their supply chains become agile to improve their delivery performance. The theory explains that these companies should combine and reconfigure their internal and external resources and expertise to adapt their supply chain to sudden changes in customer demand and respond quickly to these unexpected changes to achieve excellent delivery performance and gain competitive advantage in the market. The theory argues that excellent delivery performance and competitive advantage depend on the resources and capabilities of companies to make their supply chain agile. According to the theory, companies need to adjust their supply chain to make it more agile to respond quickly to sudden changes in customer demand and improve their delivery performance.

Empirical Review

A number of empirical studies have been conducted on agile supply chain strategies and performance of firms. For example, Ali (2024) conducted a study to determine the effect of supply chain agility on the performance of manufacturing firms in Mombasa County, Kenya. The study adopted the descriptive survey research design, where data were collected from 100 supply chain managers drawn from manufacturing firms in Mombasa County. The researcher used a structured questionnaire as his main instrument for data collection while descriptive statistics, Pearson Correlation, regression analysis and SPSS version 24 were used for data analysis. The findings revealed that manufacturing adaptability significantly improves responsiveness to changing market needs, enhances customer service and increases delivery reliability by decreasing manufacturing lead times for firms. The study also revealed that logistics adaptability significantly improves firms' capacity to add and delete delivery segments.

Ariadi et al. (2021) examined the effect of lean and agile supply chain strategy on financial performance with the mediating role of strategic supplier integration and strategic customer integration in the bottled drinking water industry in Indonesia. Their study adopted the survey research design and quantitative approach, where a structured questionnaire was used to collect data from 139 managers from bottle water companies in Indonesia. The data collected were analyzed using percentage and frequency tables, bar charts and histograms, while the hypotheses



were tested using Structural Equation Modelling (SEM). The findings revealed that agile supply chain strategy has a significant relationship with the financial performance of bottle water companies in Indonesia, and this relationship is mediated by strategic supplier integration and strategic customer integration.

Tarafdar and Qrunfleh (2017) explored the relationship between agile supply chain strategy and supply chain performance of firms. The study employed the survey research design and the quantitative research approach where a structured questionnaire was used to collect data from senior staff and executive managers drawn from the logistics and supply chain departments of 205 firms in India. The data collected was analyzed statistically, while Structural Equation Modeling (SEM) was used to test the hypotheses. The findings revealed that agile supply chain strategy has a positive and significant relationship with the supply chain performance of firms, and this relationship is moderated by information systems.

Aljoghaiman et al. (2022) carried out a study to determine the effects of supply chain strategy (lean, agile, or hybrid) on firm performance in Saudi Arabia. Their study adopted the descriptive research design where data were collected from 110 employees drawn from the supply chain, warehouse and logistics departments of manufacturing firms in Saudi Arabia. The researchers utilized a structured questionnaire as their instrument for data collection while mean, standard deviation, confirmatory factor analysis and Structural Equation Modelling (SEM) were used for data analysis. The findings revealed that agile supply chain strategy has a significant impact on firm performance in Saudi Arabia. The study also revealed that supply chain integration plays a mediating role in the relationship between agile supply chain strategy and firm performance in Saudi Arabia.

Tse et al. (2016) examined supply chain agility and its impact on firm performance in the electronic industry in China. Their study adopted the survey research design and the quantitative research approach, where a questionnaire was used to collect data from supply chain managers in selected electronic manufacturing companies in China. The data collected were analyzed using descriptive statistics such as mean, percentage and frequency counts, while the hypotheses were tested using regression analysis and the PLS-SEM. The findings revealed that agile supply chains have a significant relationship with the performance of electronic manufacturing companies in China.

Gichuki (2017) explored the effect of agile supply chain strategy on the competitive advantage of fast-moving consumer goods firms in Kenya. The study adopted the descriptive survey research design and the quantitative research approach, where a structured questionnaire was used to elicit data from managers in Unilever Kenya. The data collected from the respondents were analyzed using descriptive statistics such as percentage and frequency tables, mean, and standard deviation, while the hypotheses were tested using Pearson correlation, regression analysis, and SPSS version 25. The findings revealed that agile supply chain strategy has a significant impact on the competitive advantage of fast-moving consumer goods firms in Kenya.

Andem (2026) conducted a study to determine the influence of lean and agile supply chain strategies on non-financial performance in Nigerian manufacturing industries. The study adopted the survey research design, where data were collected from 257 employees drawn from the



logistics and supply chain departments of manufacturing companies in Nigeria. The researcher used a structured questionnaire to elicit data from the respondents and applied the SEM (Smart-PLS) and SPSS for data analysis. The findings revealed that agile supply chain strategy has significant influence on the non-financial performance (customer satisfaction and customer loyalty) of manufacturing companies in Nigeria.

Gap in Literature

A close observation shows that a good number of studies have been conducted on the agile supply chain strategy of firms, but none of these studies relate agile supply chain strategy to the delivery performance of quoted consumer goods manufacturing companies in Nigeria. Most of the previous studies conducted on agile supply chain strategies of firms relate adaptability to financial performance (profitability), non-financial performance (customer satisfaction and customer loyalty), and competitive advantage of manufacturing firms, while studies that relate agile supply chain strategies (demand forecasting and collaboration) to delivery performance (on-time delivery and accurate delivery) of quoted consumer goods manufacturing companies in Nigeria are lacking in literature. This has created a gap in literature, which this study attempts to fill by examining the relationship between agile supply chain strategies and delivery performance of quoted consumer goods manufacturing companies in Nigeria.

METHODOLOGY

This study is correlational research that utilizes the positivism research philosophy and quantitative research approach. The study population was made up of twenty-one (21) consumer goods manufacturing companies quoted on the Nigerian Stock Exchange. Since the population is small and researchable, the census sampling technique was adopted. The sampling unit consisted of supply chain managers, warehouse managers, distribution managers, and logistics managers of the 21 quoted consumer goods manufacturing companies in Nigeria. A sample size of 84 managers of the above categories was drawn from the 21 quoted consumer goods manufacturing companies on the basis of 4 managers per company. Data was collected from the respondents (managers) using an online questionnaire that was structured on a 4-point rating scale ranging from "Strongly Agree," "Agree," "Disagree," to "Strongly Disagree." The questionnaire was administered to the respondents via email after contacts had been made with the companies via their websites. A total of 84 copies of the questionnaire were administered to the respondents via email, and 78 copies were completed and returned. The data gathered from the respondents were analyzed statistically, while the Spearman rank-order correlation coefficient (ρ) was used to test the hypotheses. All computations were done with the SPSS version 25.0



RESULTS AND DISCUSSION

The data collected on agile supply chain strategies (demand forecasting and collaboration) were correlated with those obtained on delivery performance (on-time delivery and accurate delivery) of quoted consumer goods manufacturing companies in Nigeria using the SPSS program version 25. The results of the SPSS bivariate analysis are presented in the tables below:

Table 1: Result of bivariate analysis between demand forecasting and on-time delivery of quoted consumer goods manufacturing companies in Nigeria

			Demand Forecasting	On-Time Delivery
Spearman (rho)	Demand Forecasting	Correlation Coefficient	1.000	.836**
		Sig. (2-tailed)	.	.001
		N	78	78
	On-Time Delivery	Correlation Coefficient	.836**	1.000
		Sig. (2-tailed)	.001	.
		N	78	78

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

*Correlation is significant at 0.05 levels (2-tailed).

Source: SPSS-Generated Output

Table 1 indicates that demand forecasting has a very strong and positive correlation with on-time delivery of quoted consumer goods for manufacturing companies in Nigeria ($\rho = .836^{**}$), and this correlation is significant statistically at the 0.01 level. As a result of this, the null hypothesis (H_{01}) is rejected and the alternate hypothesis is accepted. This means that we then accept that there is a significant relationship between demand forecasting and on-time delivery of quoted consumer goods manufacturing companies in Nigeria.

Table 2: Result of bivariate analysis between demand forecasting and accurate delivery of quoted consumer goods manufacturing companies in Nigeria

			Demand Forecasting	Accurate Delivery
Spearman (rho)	Demand Forecasting	Correlation Coefficient	1.000	.519**
		Sig. (2-tailed)	.	.001
		N	78	78
	Accurate Delivery	Correlation Coefficient	.519**	1.000
		Sig. (2-tailed)	.001	.
		N	78	78

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

*Correlation is a significant at 0.05 levels (2-tailed)

Source: SPSS-Generated Output



Table 2 shows that demand forecasting is moderately and positively correlated to accurate delivery of quoted consumer goods from manufacturing companies in Nigeria ($\rho = .519^{**}$), and this correlation is significant statistically at the 0.01 level. Based on this result, we reject the null hypothesis (H_0) and accept the alternate hypothesis, which states that there is a significant relationship between demand forecasting and accurate delivery of quoted consumer goods for manufacturing companies in Nigeria.

Table 3: Result of bivariate analysis between collaboration and on-time delivery of quoted consumer goods manufacturing companies in Nigeria

			Collaboration	On-Time Delivery
Spearman (rho)	Collaboration	Correlation Coefficient	1.000	.775**
		Sig. (2-tailed)	.	.001
		N	78	78
	On-Time Delivery	Correlation Coefficient	.775**	1.000
		Sig. (2-tailed)	.001	.
		N	78	78

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

*Correlation is a significant at 0.05 levels (2-tailed)

Source: SPSS-Generated Output

Table 3 indicates a strong and positive correlation between collaboration and on-time delivery of quoted consumer goods manufacturing companies in Nigeria ($\rho = .775^{**}$), and this correlation is significant statistically at the 0.01 level. As a result of this, we then reject the null hypothesis (H_0) and accept the alternate hypothesis, which states that there is a significant relationship between collaboration and on-time delivery of quoted consumer goods manufacturing companies in Nigeria.

Table 4: Result of bivariate analysis between collaboration and accurate delivery of quoted consumer goods manufacturing companies in Nigeria

			Collaboration	Accurate Delivery
Spearman (rho)	Collaboration	Correlation Coefficient	1.000	.657**
		Sig. (2-tailed)	.	.001
		N	78	78
	Accurate Delivery	Correlation Coefficient	.657**	1.000
		Sig. (2-tailed)	.001	.
		N	78	78

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

*Correlation is a significant at 0.05 levels (2-tailed)

Source: SPSS-Generated Output



Table 4 reveals that collaboration is strongly and positively correlated to accurate delivery of quoted consumer goods manufacturing companies in Nigeria ($\rho = .657^{**}$), and this correlation is statistically significant at the 0.01 level. Based on this result, the null hypothesis (H_{04}) is rejected and the alternate hypothesis is accepted. This implies that we then accept that there is a significant relationship between collaboration and accurate delivery of quoted consumer goods manufacturing companies in Nigeria.

DISCUSSION OF FINDINGS

This study found a significant relationship between demand forecasting and on-time delivery of quoted consumer goods manufacturing companies in Nigeria. This finding was obtained from the result of the bivariate analysis carried out on the two variables in table 1. The result revealed that demand forecasting has a very strong and positive correlation with on-time delivery of quoted consumer goods for manufacturing companies in Nigeria ($\rho = .836^{**}$), and this correlation is significant statistically at the 0.01 level. As a result of this, the null hypothesis (H_{01}) was rejected and the alternate hypothesis was accepted. This means that we then accepted that there is a significant relationship between demand forecasting and on-time delivery of quoted consumer goods manufacturing companies in Nigeria. This finding is supported by Gligor et al. (2015), who posited that demand forecasting helps companies to prepare for sudden demand and deliver customer orders on time. Jamjumrus and Sriragool (2019) also supported this finding when they revealed that companies can deliver products to customers on time if they make accurate demand forecasts.

This study also found a significant relationship between demand forecasting and accurate delivery of quoted consumer goods manufacturing companies in Nigeria. This finding emerged from the result of the bivariate analysis carried out on the two variables in table 2. The result revealed that demand forecasting is moderately and positively correlated to accurate delivery of quoted consumer goods by manufacturing companies in Nigeria ($\rho = .519^{**}$), and this correlation is significant statistically at the 0.01 level. Based on this result, we rejected the null hypothesis (H_{02}) and accepted the alternate hypothesis, which states that there is a significant relationship between demand forecasting and accurate delivery of quoted consumer goods manufacturing companies in Nigeria. This finding is in line with the findings of Abdelilah et al. (2021), which revealed that demand forecasting allows firms to deliver products to customers in an accurate manner. Chan et al. (2017) also agreed with this finding when they reported that companies can achieve accurate delivery if they accurately forecast customer demand using artificial intelligence tools such as predictive analytics.

This study equally reported a significant relationship between collaboration and on-time delivery of quoted consumer goods manufacturing companies in Nigeria. This finding was derived from the result of the bivariate analysis carried out on the two variables in table 3. The result revealed that collaboration has a strong and positive correlation with on-time delivery of quoted consumer goods manufacturing companies in Nigeria ($\rho = .775^{**}$), and this correlation is statistically significant at the 0.01 level. As a result of this, we then rejected the null hypothesis (H_{03}) and



accepted the alternate hypothesis, which states that there is a significant relationship between collaboration and on-time delivery of quoted consumer goods manufacturing companies in Nigeria. This finding is supported by Sriyakul et al. (2019) and Aboalghanam and Awad (2023), as both studies revealed that collaboration with supply chain stakeholders enables companies to deliver customer orders in a timely manner.

Finally, it was reported that collaboration is significantly related to accurate delivery of quoted consumer goods from manufacturing companies in Nigeria. This finding emanated from the result of the bivariate analysis carried out on the two variables in table 4. The result revealed that collaboration is strongly and positively correlated to accurate delivery of quoted consumer goods manufacturing companies in Nigeria ($\rho = .657^{**}$), and this correlation is statistically significant at the 0.01 level. Based on this result, the null hypothesis (H_{04}) was rejected and the alternate hypothesis was accepted. This implies that we then accepted that there is a significant relationship between collaboration and accurate delivery of quoted consumer goods from manufacturing companies in Nigeria. This finding is in line with the findings of Srinivasan et al. (2020), which revealed that collaboration allows companies to respond quickly to sudden changes in customer demand and deliver customer orders accurately. Dubey et al. (2018) also supported this finding when they revealed that companies can achieve accurate delivery if they collaborate with their supply chain stakeholders and maintain regular communication among themselves.

CONCLUSIONS

Given the dynamic nature of the Nigerian business environment and the delivery challenges facing companies in the manufacturing sector, it becomes necessary for consumer goods manufacturing companies to adopt agile supply chain strategies such as demand forecasting and collaboration to improve their delivery performance. The results of this study have proven that demand forecasting has a significant relationship with on-time delivery of quoted consumer goods for manufacturing companies in Nigeria. Demand forecasting was also found to have a significant relationship with the accurate delivery of quoted consumer goods from manufacturing companies in Nigeria. A significant relationship was equally reported between collaboration and on-time delivery of quoted consumer goods manufacturing companies in Nigeria. The study also found a significant relationship between collaboration and accurate delivery of quoted consumer goods manufacturing companies in Nigeria. From the findings, it was concluded that agile supply chain strategies such as demand forecasting and collaboration are significant predictors of delivery performance of quoted consumer goods manufacturing companies in Nigeria.



RECOMMENDATIONS

Based on the above-drawn conclusion, the following recommendations are made:

1. Consumer goods manufacturing companies in Nigeria, particularly those that are experiencing poor delivery performance, should adopt agile supply chain strategies, as it would improve their delivery performance.
2. Consumer goods manufacturing companies in Nigeria, especially those that are experiencing frequent delays in delivering customer orders, should practice demand forecasting, as it would enable them to respond quickly to sudden changes in customer demand and deliver customer orders on or before the promised date.
3. Consumer goods manufacturing companies in Nigeria, particularly those that often make inaccurate demand forecasting, should adopt artificial intelligence tools such as predictive analytics when making demand forecasting, as it would enable them to make accurate demand forecasting based on available data and achieve accurate delivery.
4. Consumer goods manufacturing companies in Nigeria should collaborate with their supply chain stakeholders and maintain regular communication with them, as this would enable them to respond quickly to external shocks in customer demand and deliver customer orders in an accurate and timely manner.
5. Finally, it is recommended that consumer goods manufacturing companies in Nigeria should collaborate with supply chain stakeholders in the form of strategic partnership, strategic alliance, or joint venture, as it would enable them to combine their strategic resources and expertise and demonstrate capabilities to respond quickly to changes in the business environment and improve their delivery performance.

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