SUPPLY CHAIN INNOVATION PRACTICES AND CUSTOMER RETENTION STRATEGIES OF PHARMACEUTICAL FIRMS IN SOUTH-EAST NIGERIA

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ABSTRACT

The study examined the effect of supply chain innovation practices on customer retention strategies of pharmaceutical firms in South East, Nigeria. Supply chain innovation practices was decomposed into information sharing, strategic supplier partnership and supply chain integration, while customer retention strategies were quality and delivery speed. The study adopted a cross sectional survey research design. The study focused on ten pharmaceutical companies located in the South-East, Nigeria. Data were collected through a structured questionnaire, designed on a 5-point Likert scale. A total of 169 copies of the questionnaire were distributed, out of which 162 copies were correctly filled out and returned. The hypotheses were tested using partial least square – structural equation modelling at a 5 percent level of significance. The findings indicated that information sharing, strategic supplier partnership and supply chain integration have significant effects on customer retention strategies. Based on the findings, it was recommended that the pharmaceutical firms should prioritize the adoption of advanced information technology systems. Investments in integrated technologies such as enterprise resource planning (ERP), real-time inventory tracking, and customer relationship management (CRM) platforms can facilitate faster information flow, greater visibility, and more agile decision-making across the supply chain.

Keywords: Supply Chain Innovation Practices, Customer Retention Strategies, Information Sharing; Strategic Supplier Partnership; Supply Chain Integration; Delivery Speed; Quality.

1. Introduction

Supply chain innovation has emerged as a critical corporate strategy for enhancing customer satisfaction and retention (Holloway, 2024), thereby conferring competitive advantage and sustaining organizational performance. In today's intensely competitive global marketplace, effective supply chain management is indispensable for firms seeking to deliver high-quality products, provide rapid response to customer needs, and develop dynamic capabilities that align with rapidly changing business environments (Salam, & Khan, 2018).

Despite its potential, supply chain management faces persistent challenges that constrain performance (Almasri, et al., 2025). These include globalization, escalating operational costs, increasing customer expectations, price pressures, disruptions from pandemics such as COVID-19, and shortened product life cycles. Traditional supply chain models are often inadequate in responding to these pressures, thereby necessitating the adoption of innovative approaches that encourage firms to reconfigure outdated supply chain structures and embrace new, adaptive models (Atieh Ali, et al., 2024). Consequently, supply chain innovation has gained prominence both as a strategic necessity in industry and as an evolving field of academic inquiry.

However, the theoretical and empirical discourse on supply chain innovation within the pharmaceutical industry, particularly in developing countries, remains underdeveloped (Meidute-Kavaliauskiene, et al., 2021; Singh, et al., 2016). Existing studies highlight its role in cost reduction, customer responsiveness, mitigating the bullwhip effect, improving supply chain and market performance, and enhancing competitive advantage and customer retention (Singh, et al., 2016; Huo, et al., 2023). Yet, the literature remains fragmented, scarce, and largely concentrated on developed economies and multinational corporations (Glushkova, et al., 2019). Notably, a limited proportion of research has been conducted in developing countries, primarily in Asia and South America (Teixeira, et al., 2020; Hemor, & Kapilya, 2025), leaving significant gaps in Africa, and particularly in Nigeria.

For pharmaceutical firms in Nigeria, these gaps are critical. Weak adoption of innovative supply chain practices has contributed to underperformance, loss of customers to global brands, and adverse macroeconomic implications, including pressure on the exchange rate and depletion of foreign reserves (Chukwu, et al., 2018; Ihionu, et al., 2023). Addressing these shortcomings is therefore imperative, both to strengthen firm-level competitiveness and to safeguard national economic stability. Against this backdrop, this study examines supply chain innovation practices and customer retention strategies of pharmaceutical firms in South East Nigeria, thereby contributing to the limited body of knowledge in the developing economy context while offering practical insights for industry stakeholders.

2. Conceptual Review

2.1 Supply Chain Innovation Practices

Supply chain innovation has been defined from multiple perspectives. Early conceptualizations (e.g., Flint et al., 2005) draw heavily from Rogers' (1995, p. 11) seminal definition of innovation as "an idea, practice, or object perceived as new by an individual or other unit of adoption." Logistics innovation, while not new globally, may provide unique services to customers in specific contexts. For example, Flint et al. (2005) emphasized innovations that enhance customer value through improved or entirely new services. Although innovation is generally associated with idea generation, it is not meaningful within a supply chain context unless it delivers tangible value to customers.

Chesbrough (2003) underscored the role of innovative thinking in driving innovation, while related literature highlights the importance of processes and technology in enabling successful outcomes (Christiansen, 2000a, 2000b; Kahn, 2001). Prior studies have examined how innovation unfolds in organizations and markets (Rogers, 1995; Chesbrough, 2003). Firms are continually pressured to develop and test new ideas, products, and services, making supply chain innovation a necessity, particularly for service industries, to ensure effective service delivery (Chapman et al., 2003). Drucker (1985) identified innovation as a tool explicitly directed at entrepreneurship, while Afuah (1998) described it as "a process of turning opportunity into new ideas and putting these into widely used practice," which facilitates the creation of new technical skills and knowledge for developing products and customer services.

Despite its importance, the literature on supply chain innovation remains relatively underdeveloped (Vernosfaderani, 2021). Lin (2008) described supply chain innovation as a set of tools that enhance organizational processes and foster efficiency through seamless integration among suppliers, manufacturers, distributors, and customers. Beyond process efficiency, supply

chain innovation generates additional benefits such as cost and lead-time reduction, operational flexibility, and new strategic options (Stundza, 2009). Nevertheless, the literature is highly fragmented.

Several empirical studies illustrate different dimensions of innovation in logistics and supply chains. Zinn (1996) concluded that logistics innovation could be stimulated by competitive pressures and capital shortages. Flint et al. (2005), through interviews with logistics executives, identified various innovation-related activities, including setting the stage, customer clue-gathering, negotiating and clarifying, and inter-organizational learning. Flint et al. (2008) later explored supply chain innovation empirically, finding that innovation management and supply chain learning management serve as antecedents of innovation. Similarly, Hakansson and Persson (2004) argued that resource combinations foster specialization and innovation. Chapman et al. (2003) found that knowledge, technology, and relational networks are critical enablers of logistics innovation. Panayides and So (2005) further demonstrated that organizational learning mediates the relationship between relational orientation and logistics innovation.

Research has also linked innovation with performance outcomes. Gellman (1986), for example, examined railroads under deregulation and found that regulatory barriers, labor constraints, and limited channel member innovation hindered performance. Using social network theory, Autry and Griffis (2008) showed that structural capital, relational capital, and supply chain knowledge development positively influence innovation-oriented performance. Similarly, Wagner (2008) proposed a model of logistics innovation involving activities such as internal and external search and development, investment in infrastructure and capital, acquisition of knowledge, and workforce training, all of which drive innovation in logistics systems.

In this study, supply chain innovation is conceptualized across four dimensions: technology, collaboration, innovation capability, and the managerial role (top management support). Although prior studies have examined the link between supply chain innovation and supply chain performance (Panayides & Lun, 2009; Tan et al., 2015), the empirical integration of these four dimensions, technology, collaborative processes, innovation capability, and managerial support, remains underexplored in academic literature.

2.2 Customer Retention Strategies

Customer retention has been conceptualized as a marketing-oriented strategy aimed at preventing customers from switching to competitors (Ramakrishnan, 2006). Mostert et al. (2009) describe it as the ability to sustain long-term relationships with existing customers, while Asagba, Coker, and Okwudu (2019) emphasize that sustainability is the central focus of any retention strategy. Essentially, customer retention involves designing action plans that create value for customers, encourage loyalty, and ensure that they remain with the firm over time.

The importance of customer retention is underscored by the cost implications of acquiring new customers. Attracting new clients is often more resource-intensive than retaining existing ones, making customer retention a more desirable and profitable approach. Robert (2017) argues that the simplest way to grow a business is to avoid losing customers, while Honts and Hanson (2011) highlight that retention enhances profitability by lowering acquisition costs. Similarly, Sharmeela-Banu et al. (2013) note that customers who are retained tend to demonstrate stronger loyalty, particularly when firms provide incentives and deliver consistent value.

Several scholars have offered definitions of customer retention. Peppers and Rogers (2011) describe it as a firm's actions to preserve customer relationships and sustain profitability. Buttle (2009) views it as the maintenance of long-term trading relationships, while Kumar and Shah (2004) define it as an organization's ability to retain customers over a given period. From another perspective, Ahmad and Buttle (2001) note that retention occurs when customers remain with a company rather than switching to competitors. Together, these definitions underscore that customer retention is not merely about maintaining transactions but about fostering enduring and profitable relationships.

Historically, marketing theory placed more emphasis on customer acquisition than retention. The traditional "4Ps" framework—Price, Product, Promotion, and Place (Jerome, 1964)—was largely acquisition-focused. However, as early as the 1990s, scholars began shifting attention toward the profitability of retention strategies (Christopher, Payne & Ballantyne, 1991; Berry & Parasuraman, 1992). Subsequent studies reinforced that retention generates more value for businesses than acquisition (Peck et al., 1999; Rahman & Masoom, 2012), a view that continues to dominate contemporary discourse.

Customer retention is now widely recognized as critical to business success. It ensures customer engagement and satisfaction, which in turn drive repeat purchases, positive word-of-mouth, and long-term profitability (Kumar & Shah, 2004; Bolton et al., 2018). Beyond financial gains, retention contributes to sustainable competitive advantage by reducing marketing costs and strengthening customer relationships.

Various factors influence customer retention, including customer satisfaction, service quality, trust, and perceived value (Zeithaml, 2000; Liao, 2012). Relationship marketing has also been identified as a cornerstone of effective retention strategies. Morgan and Hunt's (1994) commitment-trust theory emphasizes that building strong, trust-based relationships enhances customer loyalty and increases the likelihood of continued patronage.

In sum, customer retention strategies extend beyond transactional interactions to encompass trust, satisfaction, perceived value, and long-term relational commitment. Firms that prioritize retention are better positioned to achieve sustainable growth and competitive advantage in today's dynamic business environment.

2.3 Hypotheses Development

Customer retention in business markets is strongly conditioned by delivery speed and delivery quality, two service outcomes that shape satisfaction, perceived value, and loyalty intentions (Anderson & Sullivan, 1993; Zeithaml, 2000; Mentzer, Flint & Hult, 2001). Building on the resource-based view (RBV), the relational view, and dynamic capabilities, this study argue that information sharing, strategic supplier partnership, and supply chain integration are complementary, hard-to-imitate capabilities that improve these outcomes and, in turn, strengthen retention.

2.3.1 Information sharing and customer retention strategies

From an RBV/relational view lens, high-quality, timely, and transparent information flows reduce demand uncertainty and process variability, enabling faster order cycle times and more reliable fulfillment. Classic work shows that information sharing mitigates the bullwhip effect and improves service levels (Lee, Padmanabhan & Whang, 1997). Empirical studies further link

information sharing and information quality to responsiveness, process reliability, and performance (Zaid, et al., 2025; Lusiantoro, et al., 2023 Najjar, et al., 2019). Faster, more reliable delivery elevates satisfaction and loyalty, key pillars of retention strategies (Aljohani, 2024; Ngo, et al., 2025). Hence, it was proposed that:

H1. Information sharing positively influences customer retention strategies (delivery speed and quality).

2.3.2 Strategic supplier partnership and customer retention strategies

The relational view posits that collaboration-specific assets, joint problem solving, and knowledge sharing with suppliers create interorganizational rents that improve operational outcomes (Dyer & Singh, 1998). Strategic purchasing/partnerships have been shown to enhance quality, reliability, and overall performance (Dankwah, et al., 2023; Komakech, et al., 2024). In logistics contexts, closer collaboration shortens cycle times and raises delivery dependability (Zhang, et al., 2025), which are central to retention because customers reward reliable, swift service with repeat patronage and positive word-of-mouth (Ranaweera, & Prabhu, 2003; Ngo, et al., 2025). Thus, the study proposed that:

H2. Strategic supplier partnership positively affects customer retention strategies (delivery speed and quality).

2.3.3 Supply chain integration and customer retention strategies (delivery speed and quality)

Dynamic capabilities emphasize coordinated, cross-boundary reconfiguration to match environmental change (Teece, et al., 1997). Empirical evidence consistently links internal/external integration to superior delivery performance and quality outcomes (Anwar, et al., 2025; Aiki, et al., 2025). Integrated planning, synchronized material and information flows, and shared performance metrics compress lead times and stabilize service quality, conditions that encourages customer loyalty and retention (Kaipia, 2009; Raitviir, & Lill, 2024). Hence, it was proposed that:

H3. Supply chain integration positively influences customer retention strategies (delivery speed and quality).

3. Methodology

Research Design

This study adopted a cross-sectional survey research design. The choice of this design was informed by its suitability for collecting quantitative data from a relatively large population within a defined period. Cross-sectional surveys are particularly useful for examining relationships among variables as they exist at a single point in time, without manipulating the study environment (Bryman & Bell, 2015). In addition, the design is cost-effective, time-efficient, and provides a reliable basis for generalizing findings to the target population when the sample size is adequate (Creswell & Creswell, 2018). Given that the study sought to investigate the influence of supply chain management practices on customer retention outcomes within pharmaceutical firms, the cross-sectional survey provided the most practical and methodologically sound approach.

Participants

The population of the study consisted of 189 staff members drawn from ten pharmaceutical companies located in South-East Nigeria. A total of 189 questionnaires were administered, of which 162 were completed and returned, representing a response rate of 85.7%. This response rate is considered robust for survey research and satisfies recommended thresholds in social science research (Fincham, 2008; Kelley, et al., 2003).

Measurement of Variables

The independent variable, supply chain management practices, was operationalized using three dimensions: strategic supplier partnership, information sharing, and supply chain integration. Measurement items for these dimensions were adapted from validated scales developed by Mutuerandu (2014), De Vries and Huijsman (2011), Karimi and Rafiee (2014), Nyangweso (2013), and Makuba (2018). The dependent variable, customer retention strategies, was measured with two dimensions: delivery speed and delivery quality. The measurement items were adapted from Singhry (2015). All items across the variables were assessed using a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

4. Results and Discussion

Table 1 shows the demographic details of the respondents. A total of 162 valid responses were analyzed. First, the outcomes show that, out of the total 162 respondents, 92 (57%) were male, while 70 (43%) were female. This suggests a relatively balanced gender representation, although males are moderately more represented in the population under study.

Table 1: Demographic Characteristics of the Respondents

Variable	Category	Frequency	Percent (%)
Gender	Male	92	57
	Female	70	43
	Total	**162**	**100.0**
Educational Qualification	OND/NCE	23	14
	HND/B.Sc	52	32
	MBA/M.Sc	66	41
	PhD	21	13
	Total	**162**	**100.0**
Age	20–29 years	23	14
	30–39 years	34	21
	40–49 years	50	31
	50 years and above	55	34
	Total	**162**	**100.0**
Working Experience	Below 1 year	13	8
	1–5 years	24	15
	6–10 years	50	31
	Above 10 years	75	46
	Total	**162**	**100.0**

Source: Survey Data Output, 2025.

In terms of academic qualification, the majority of respondents were well educated, with 66 (41%) holding an MBA/M.Sc. degree, and 52 (32%) having an HND/B.Sc. qualification. A smaller proportion, 21 respondents (13%), possessed a PhD, while 23 respondents (14%) held an OND/NCE. This distribution indicates a highly educated workforce, with over 86% of respondents having attained at least a bachelor's degree or its equivalent. Such educational attainment suggests that the participants are likely to be knowledgeable and experienced in their professional roles. The age distribution of respondents was skewed towards older age groups. The largest age category was "50 years and above," comprising 55 respondents (34%). This was followed by the "40–49 years" group with 50 respondents (31%), and the "30–39 years" group with 34 respondents (21%). The youngest group, "20–29 years," had the fewest respondents, totaling 23 (14%). These results suggest that the sample largely consists of mature and potentially more experienced individuals, which could influence the depth and reliability of their responses. Consistent with the age distribution, the majority of the respondents, 75 (46%), reported having more than 10 years of work experience. A substantial number, 50 respondents (31%), had between 6 and 10 years of experience, while 24 (15%) had worked for 1 to 5 years. Only 13 respondents (8%) had less than one year of experience. These findings further confirm that the majority of the respondents are seasoned professionals, which enhances the credibility of their input in the context of the study.

Measurement Model

The partial least square – structural equation model (PLS-SEM) analysis data in two sections – the measurement model and the structural model. Measurement model assesses the validity and reliability of the research instrument via factor loadings, convergent validity (indicator reliability, the Average Variance Extracted), discriminant validities (Fornell and Larcker Criterion), as well as Cronbach alpha and composite reliability.

Table 2 shows factor loadings of all the items. The factor loadings of infrastructure allocation, medical supplies, and research and development were all above 0.70 acceptable loadings (Hulland, 1999; Akpan, et al., 2022). Similarly, the indicators for patients' waiting time, and managerial competencies also had factor loadings above the recommended threshold. As a result, all these indicators were retained for further analysis, as suggested by Hulland (1999).

Table 2: Measurement Model Evaluation

Latent Variables	Indicators	Convergent Validity			Internal Consistency/Reliability	
		Loadings	Indicator Reliability	AVE	Composite Reliability (Pc)	Cronbach Alpha (CA)
		>0.70	>0.50	>0.50	>0.70	0.70-0.90
Information Sharing	IS_1	0.722	0.521	0.610	0.886	0.881
	IS_2	0.816	0.666			
	IS_3	0.735	0.540			
	IS_4	0.806	0.650			
	IS_5	0.819	0.671			
Supply chain integration	SCI_1	0.796	0.634	0.672	0.912	0.910
	SCI_2	0.788	0.621			
	SCI_3	0.837	0.701			
	SCI_4	0.798	0.637			
	SCI_5	0.882	0.778			
	SSP_1	0.814	0.663			

Strategic supplier partnership	SSP_2	0.779	0.607	0.709	0.924	0.919
	SSP_3	0.911	0.830			
	SSP_4	0.798	0.637			
	SSP_5	0.899	0.808			
Delivery speed	DS_1	0.815	0.664	0.719	0.927	0.922
	DS_2	0.889	0.790			
	DS_3	0.871	0.759			
	DS_4	0.798	0.637			
	DS_5	0.864	0.746			
Quality	QT_1	0.826	0.682	0.696	0.919	0.915
	QT_2	0.822	0.676			
	QT_3	0.889	0.790			
	QT_4	0.844	0.712			
	QT_5	0.788	0.621			
Note: IS = Information Sharing, SCI = Supply chain integration, SSP = Strategic supplier partnership, DS = Delivery Speed, QT = Quality						

Source: Survey Data, 2025.

Table 2 presents the results of the measurement model assessment, focusing on convergent validity and internal consistency reliability of the constructs. According to Hair et al. (2019), convergent validity is established when (i) indicator loadings exceed 0.70, (ii) indicator reliability exceeds 0.50, (iii) the average variance extracted (AVE) is greater than 0.50, and (iv) internal consistency reliability measures such as composite reliability (CR) and Cronbach's alpha (CA) fall between 0.70 and 0.90. The results show that most indicator loadings range between 0.722 and 0.911, all exceeding the recommended threshold of 0.70, with only a few slightly below but still acceptable (e.g., IS1 = 0.722, SCI2 = 0.788, QT5 = 0.788). Indicator reliabilities also surpass 0.50 across all constructs, confirming individual indicator reliability. The AVE values are above 0.50 for all constructs (Information Sharing = 0.610, Supply Chain Integration = 0.672, Strategic Supplier Partnership = 0.709, Delivery Speed = 0.719, Quality = 0.696). This confirms convergent validity, as each construct explains more than 50% of the variance in its indicators. Internal consistency reliability is also well established. Composite reliability (ranging from 0.886 to 0.927) and Cronbach's alpha (ranging from 0.881 to 0.922) exceed the 0.70 threshold, while remaining below 0.95, which indicates high reliability without redundancy (Henseler et al., 2015; Akpan, et al., 2023). Thus, the measurement model demonstrates strong convergent validity and internal consistency reliability.

Table 3: Discriminant Validity

	AVE	AI	MS	RD	PW	MC
IS	**0.610**	**0.781**				
SCI	**0.672**	0.310	**0.820**			
SSP	**0.709**	0.129	0.132	**0.842**		
DS	**0.719**	0.419	0.238	0.135	**0.889**	
QT	**0.696**	0.019	0.181	0.197	0.221	**0.834**
Note: IS = Information Sharing, SCI = Supply chain integration, SSP = Strategic supplier partnership, DS = Delivery Speed, QT = Quality. The off-diagonal values are the correlations between latent variables, while the diagonal values (in bold) denote the square root of AVEs.						

Source: Survey Data, 2025.

Table 3 evaluates discriminant validity using the Fornell-Larcker criterion. According to this criterion, the square root of each construct's AVE (shown on the diagonal in bold) should be greater than the correlations with other constructs (off-diagonal values). The results indicate that each construct satisfies this criterion. For example, Information Sharing (√AVE = 0.781) is greater than its correlations with Supply Chain Integration (0.310), Strategic Supplier Partnership (0.129), Delivery Speed (0.419), and Quality (0.019). Similarly, the square root of AVE for Supply Chain Integration (0.820) is higher than its correlations with other constructs, and the same pattern is observed for Strategic Supplier Partnership (0.842), Delivery Speed (0.889), and Quality (0.834). These results provide evidence of discriminant validity, meaning that the latent variables capture distinct concepts without excessive overlap. This strengthens confidence in the measurement model, as each construct is empirically unique.

Table 4: Structural Model

Hypotheses	Path coefficient	Standard error	T. value	P. value	Decision
IS -> CRS	0.665	0.067	6.722	0.010	Supported
SSP -> CRS	0.714	0.039	8.811	0.000	Supported
SCI -> CRS	0.673	0.056	6.856	0.030	Supported
Note: IS = Information Sharing, SCI = Supply chain integration, SSP = Strategic supplier partnership, CRS = Customer retention strategies. T-Statistics greater than 1.96 at 0.05 levels of significance.					

Source: Survey Data, 2025.

The findings reveal that information sharing significantly influences customer retention strategies (β = 0.665, t = 6.722, p = .010). This suggests that when firms engage in timely and accurate exchange of information with supply chain partners, they are more likely to enhance delivery speed and quality, which improves customer retention. This result emphasizes that transparent information flows strengthen customer trust and loyalty. Similarly, strategic supplier partnership has a strong and positive effect on customer retention strategies (β = 0.714, t = 8.811, p < .001). This indicates that long-term collaborative relationships with suppliers, characterized by mutual trust, shared goals, and joint problem-solving contribute significantly to improving service quality and delivery performance. This finding highlights that supplier partnerships enhance operational responsiveness and customer satisfaction. Furthermore, supply chain integration also exerts a significant positive influence on customer retention strategies (β = 0.673, t = 6.856, p = .030). This implies that when firms coordinate and integrate processes across the supply chain, they achieve greater efficiency and flexibility, which directly benefits delivery speed and product/service quality. This finding shows that integrated supply chain processes improve customer-focused outcomes.

Discussion of Findings

This study examined the influence of three critical supply chain management practices, information sharing (IS), strategic supplier partnership (SSP), and supply chain integration (SCI) on customer retention strategies (CRS), operationalized in terms of delivery speed and quality. All hypothesized relationships (H1–H3) were statistically supported.

First, information sharing demonstrated a significant positive effect on CRS (β = 0.665, t = 6.722, p = .010), indicating that timely and accurate exchange of information enhances delivery and

quality outcomes. Empirical studies support this: Huo et al. (2021) found that IS boosts supply chain learning (internal, supplier, and customer learning), which improves flexibility performance, a core component of customer retention (Huo et al., 2021). Similarly, Liu, He, and Wang (2021) revealed that IS enhances adaptability across supply chain dimensions, leading to better operational outcomes (Liu et al., 2021). Nevertheless, IS may not always yield net benefits, especially under certain market conditions. Tai et al. (2022) used modeling to show that when retail and reference price dynamics are incorporated, IS isn't universally advantageous unless structured carefully (Tai et al., 2022). This implies that practitioners must tailor information-sharing protocols to environmental contexts to ensure effective CRS outcomes.

Furthermore, strategic supplier partnership had the strongest path coefficient with customer retention strategies ($\beta = 0.714$, $t = 8.811$, $p < .001$), hence making SSP as a pivotal driver of CRS. The literature on Supplier Relationship Management (SRM) highlights how strategic partnerships with robust coordination, trust, and goal alignment lead to innovation and competitive advantage through improved delivery and quality (Wikipedia, 2025). Yet, such partnerships entail risks; firms may experience over-reliance, misaligned incentives, or conflicts stemming from close dependencies (Al-Balushi, & Durugbo, 2020). These insights underscore the need for balanced relational strategies that harness benefits while mitigating risks.

Supply chain integration also had a significant positive influence on CRS ($\beta = 0.673$, $t = 6.856$, $p = .030$). Business process integration is widely recognized as essential for improving supply chain performance, facilitating seamless information flow and coordination across functions (Lambert & Cooper, 2000; Wikipedia, 2025). This structural alignment enhances consistency in meeting delivery and quality targets, directly benefiting customer retention.

5. Conclusion, Recommendations and Contributions

5.1 Conclusion

This study set out to examine the influence of information sharing, supply chain integration and strategic supplier partnerships on customer retention strategies (quality and delivery speed). The statistical results strongly support the hypothesis that both information sharing, supply chain integration and strategic supplier partnership significantly enhance customer retention strategies. Specifically, the findings show that information sharing improves both quality and speed, while strategic supplier partnerships contribute significantly to information sharing and faster delivery, and supply chain integration enhances quality and delivery. While the findings align with much of the existing literature, they also reveal potential risks and limitations identified by other scholars, especially in contexts where implementation is poor or environmental factors constrain efficiency. Thus, the study concludes that while these supply chain practices offer significant performance benefits, their effectiveness depends on strategic alignment, organizational readiness, and contextual adaptation.

5.2 Recommendations

Based on the findings of this study, it is recommended that pharmaceutical firms seeking to improve customer retention through enhanced quality and delivery speed should prioritize the adoption of advanced information technology systems. Investments in integrated technologies such as enterprise resource planning (ERP), real-time inventory tracking, and customer relationship management (CRM) platforms can facilitate faster information flow, greater visibility, and more agile decision-making across the supply chain. However, such investments must be

complemented by capacity-building initiatives, including staff training and change management strategies, to ensure optimal utilization of the technology.

Furthermore, it is advisable for the pharmaceutical firms to actively cultivate strategic partnerships with key suppliers. This includes engaging in joint planning sessions, establishing shared performance metrics, and fostering mutual trust and transparency. Supplier collaboration should be based not only on transactional efficiency but also on long-term value creation, with a clear alignment of strategic goals. While leveraging these partnerships, firms should also remain flexible and avoid over-dependence on a limited supplier base, particularly in volatile or underdeveloped market environments where disruptions are more frequent.

Finally, managers of the pharmaceutical firms should regularly monitor supply chain performance indicators such as lead time, customer satisfaction, and delivery accuracy and use these metrics to refine their IT and supplier engagement strategies. This feedback loop will ensure continuous improvement and better alignment with evolving market demands.

5.3 Contributions to Knowledge

This study contributes to the body of knowledge in supply chain and operations management in several significant ways. First, it provides empirical evidence on the relationship between information sharing and customer retention strategies, specifically quality and delivery speed in a developing country context, an area that remains underrepresented in global literature. By validating these relationships through robust statistical analyses, the study enhances the methodological depth of existing research.

Second, the study offers a more integrated perspective by simultaneously examining the roles of both supply chain integration and supplier partnerships, showing how these variables interact to influence key performance indicators. Most previous studies have explored these factors in isolation; this research bridges that gap by demonstrating their complementary impact within a single empirical framework.

Third, the research provides contextual insights relevant to developing economies, where infrastructural limitations, resource constraints, and digital gaps can mediate the effectiveness of information sharing and supplier strategies. By highlighting both the benefits and the challenges of these practices, the study encourages a more nuanced approach to supply chain strategy formulation.

Lastly, the study adds to theory by reinforcing the tenets of the Resource-Based View (RBV) and Dynamic Capabilities Theory, which posit that competitive advantage stems from valuable, rare, inimitable, and non-substitutable (VRIN) resources such as IT systems and collaborative networks. The results demonstrate how these intangible resources can be leveraged to enhance responsiveness and delivery efficiency, thereby offering practical insights for scholars, practitioners, and policymakers alike.

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