

Distribution Channel Management and Sales Volume of Listed Pharmaceutical Companies in Nigeria

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Abstract: *This study explores the effect of distribution channel management on the sales volume of listed pharmaceutical companies in Nigeria. The study specifically examines the effect of distribution channel management dimensions (channel design, channel selection, channel coordination, and channel management technologies) on sales volume. The study employed ex-post facto and cross-sectional survey research designs. Using a census survey of 707 marketing staff across six publicly listed pharmaceutical firms, data were analyzed with descriptive statistics and multiple regression. Results revealed that distribution channel management accounts for 60.5% of the variation in sales volume. It showed that channel design, selection, coordination, and management technologies each had significant positive effects on sales volume, with technologies exerting the strongest influence. The study concludes that effective distribution channel management is a critical driver of sales growth in Nigeria's pharmaceutical industry and recommends that firms should strengthen their distribution structures, adopt advanced technologies, and foster collaboration among channel partners to increase sales volume.*

Keywords: *Distribution channel management, channel design, channel selection, channel coordination, channel management technologies, sales volume.*

Introduction

In today's competitive marketplace, organizations across industries share a common objective, which is to maximize sales volume. Sales volume represents the total quantity of products and services sold within a given period, and it serves as a direct indicator of market demand, customer reach, and overall business performance. Organizations that want to compete and stay ahead in the market must implement effective strategies to increase sales (Chawla *et al.* 2020). The drive to increase sales volume is at the heart of business survival and long-term success, ensuring that companies remain relevant and resilient in dynamic markets.

Distribution channels management has become a powerful source of competitive advantage. Successful distribution channel strategy selection, implementation, and management cannot only help to meet the shopping needs and habits of the target customers efficiently under the cost constraints of the seller; they must also mitigate the disadvantages caused by distribution channel conflicts, such as double marginalization (Ntale, 2016).

Distribution channel management involves mechanisms put in place by organizations to coordinate and manage channels of distribution to optimize a company's reach (Getu, 2018). The dimensions of distribution channel management identified by previous scholars include channel design, channel selection, channel coordination, and channel management technologies (Tsey *et al.*, 2022; Uchea *et al.*, 2022; Gizachew, 2019; Ntale, 2016). The study adopted these distribution channel management strategies

because of their prominence in the literature and applicability to marketing organizations.

The effective management of distribution channels has positively affected firm performance in Vietnam (Bui & Nguyen, 2021). In the Republic of Serbia, research conducted by Nada, Marija, and Aleksandra (2017) discovered that distribution channels contributed significantly to the success of retail stores. In Nigeria, Ikegwuru and Acee-Eke (2019) postulated that the sales performance of soft drink suppliers in Nigeria was significantly influenced by the distribution management strategies employed.

The pharmaceutical industry has experienced an incredible amount of change since 1960, followed by scientific advances, legislative enactments, new regulatory requirements, and profound organizational changes in the broader health care system. One of the main issues that marketing managers are faced with is making decisions about the distribution of goods. The distribution channel for a particular drug may vary depending on the drug's regulatory status, its target market, and the marketing strategy (Abiodium *et al.* 2019).

The pharmaceutical industry is highly regulated in Nigeria, and companies must navigate complex laws and regulations to promote their products. The primary distribution management goal is to maintain a steady supply of pharmaceuticals and supplies to facilities where they are needed while ensuring that resources are used in the most effective way (Abiodium *et al.* 2019). Improving the distribution channel strategies is one of the strategies pharmaceutical companies can use to distribute their products and

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services to reach the targeted consumers, thereby increasing their sales.

Statement of the Problem

Pharmaceutical firms in Nigeria typically distribute through a combination of direct sales to hospitals, pharmacies, and clinics, as well as through licensed wholesalers and distributors who service smaller retail outlets. However, challenges such as inadequate cold chain facilities, inconsistent supply chains, regional disparities in product availability, and competition from counterfeit products can hinder the effectiveness of these channels. Poor sales outcomes have become more pronounced in recent years as these firms struggle to maintain consistent product availability, meet rising customer expectations, and preserve margins in the face of escalating distribution costs (Adefulu & Adeniran, 2019).

In practice, pharmaceutical firms face complicated channel networks, high channel margins, coordination failures, inadequate information flows, and limited adoption of channel-management technologies; these problems raise cost-to-serve, increase stock-outs, lengthen lead times, and undermine service levels, all of which depress unit sales and erode margins. This study is spurred to investigate how distribution channel management strategies affect the sales volume of listed pharmaceutical companies in Nigeria.

Objectives of the Study

The broad objective of the study is to examine the effect of distribution channel management on sales volume of listed pharmaceutical companies in Nigeria. The specific objectives of the study include to:

- i. determine the effect of channel design on the sales volume of listed pharmaceutical companies in Nigeria
- ii. ascertain the effect of channel selection on the sales volume of listed pharmaceutical companies in Nigeria
- iii. evaluate the effect of channel coordination on the sales volume of listed pharmaceutical companies in Nigeria.
- iv. examine the effect of channel management technologies on the sales volume of listed pharmaceutical companies in Nigeria.

Research Hypotheses

The following hypotheses are stated in a null format to achieve the study objectives:

- H0₁: Channel design has no significant effect on the sales volume of listed pharmaceutical companies in Nigeria
- H0₂: Channel selection has no significant effect on the sales volume of listed pharmaceutical companies in Nigeria
- H0₃: Channel coordination has no significant effect on the sales volume of listed pharmaceutical companies in Nigeria
- H0₄: Channel management technologies have no significant effect on the sales of listed pharmaceutical companies in Nigeria

Literature Review

Conceptual Framework

The conceptual framework in Figure 1 illustrates the relationship between Distribution Channel Management (independent variable) and Sales Volume (dependent variable). Distribution channel management includes four dimensions (channel design, channel selection, channel coordination, and channel management technologies). The dependent variable, sales volume, reflects the quantity of products sold, and this is affected by distribution channel management strategies. The framework depicts a cause-and-effect link in which strategic and efficient channel management practices are positioned as drivers of superior sales volume in the Nigerian pharmaceutical sector. Channel design focuses on structuring the distribution network to meet market needs; channel selection ensures the most suitable intermediaries; channel coordination fosters collaboration and efficiency within the network; while channel management technologies enable tracking, monitoring, and optimization of the distribution process. These components collectively determine how effectively pharmaceutical products move from manufacturers to end-users.

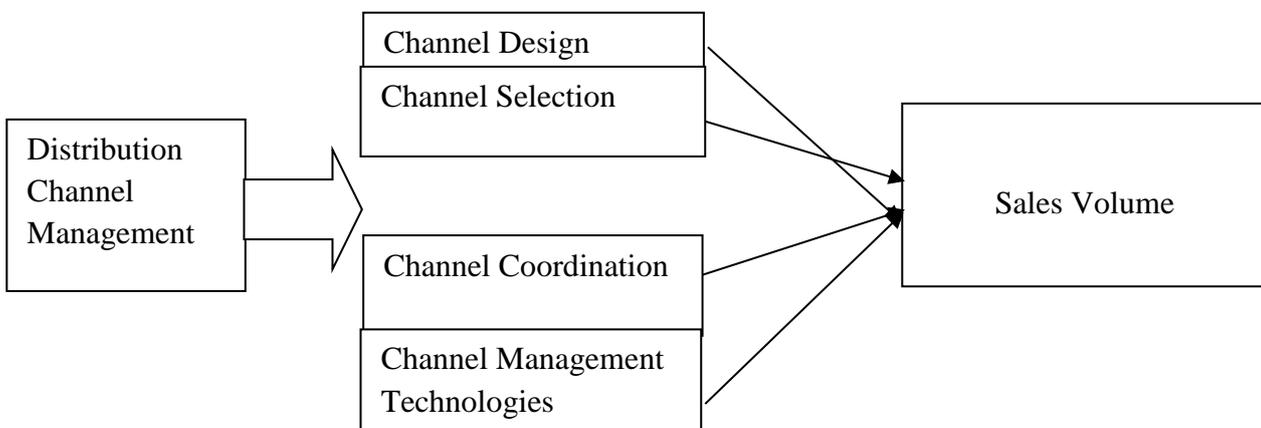


Figure 1: Conceptual Model of the Study

Source: Researchers' Conceptual Design (2025)

Channel design involves developing a customized channel structure or modifying an existing one to ensure the success of a company (Ntale, 2016). Channel selection entails choosing the right medium in transporting goods and services from the place of manufacturing to consumption (Ben *et al.*, 2022). Channel coordination seeks to enhance supply chain efficiency by harmonizing the plans and goals of specific businesses (Gizachew, 2019). Channel coordination aims at improving supply chain performance by aligning the plans and the objectives of firms (Ntale, 2016). Channel management technologies are an approach that enables companies to distribute goods and services effectively to consumers through different distribution channels (Gizachew, 2019).

Theoretical Framework

The theoretical framework for this study is based on the theory of distribution channels developed by Bucklin (1966) in a study of business networks by focusing on distribution channel functions. The theory states that there are economies of scale and interactions among activities, such as the tradeoff between inventory and transportation, that influence the costs of distribution channels. Connecting the different levels of a channel network requires different levels of transactions, intermediate stocks, and transportation. The theory explains that each business in the channel needs to price enough to cover costs and make a profit.

However, it must be acknowledged that, as Bucklin's critics note, the theory underplays the possibility that certain channel arrangements, while theoretically efficient, may generate hidden costs in order processing, after-sales services, and inventory management, factors that the current study also considers in assessing overall distribution channel management effectiveness.

In relation to the current study, the theory provides a logical foundation for explaining how variations in distribution strategies influence outcomes such as market reach, sales volume, and customer satisfaction. The theory's central assumption that every intermediary in the distribution chain must price their offerings to cover costs and ensure profitability directly relates to the study's variables by illustrating how decisions on channel design, intermediary involvement, and value-added activities affect cost structures and, by extension, retail pricing and competitive positioning.

Empirical Studies

Almeida, Costa, and Nunes (2025) investigated the relationship between distribution channel coordination and sales volume within Portugal's packaged food export sector. Employing mixed-methods explanatory sequential design, the quantitative phase involved administering surveys to 175 export-oriented packaged food producers. Using hierarchical regression analysis and thematic analysis, the study found that firms demonstrating stronger coordination among channel members recorded significantly higher export volumes. The study did not address the financial implications of maintaining intensive coordination, which may influence its practicality in environments with limited resources.

Miller, Thompson, and Grant (2025) explored the influence of distribution channel monitoring on customer satisfaction in Canada's specialty coffee export sector. The research utilised a longitudinal panel design tracking 90 specialty coffee exporters

over four years. Hierarchical linear modelling was used to examine the impact of monitoring intensity on satisfaction outcomes over time. Findings revealed that exporters with more frequent and transparent monitoring achieved higher satisfaction levels, particularly among premium market buyers. The study did not investigate whether the cost of implementing such intensive monitoring was offset by increased revenues, a consideration essential for strategic decision-making.

Johnson, Patel, and Green (2025) examined the effect of distribution channel management on market share in the United Kingdom's renewable energy equipment supply chain. The study employed a longitudinal design over five years, tracking 70 renewable energy equipment suppliers. Data were sourced from annual sales reports, distributor performance reviews, and industry association statistics. Hierarchical linear modelling revealed that unresolved conflicts, particularly over service ownership, led to gradual but consistent market share declines.

Gupta (2025) examined the effect of distribution channel management on sales performance for mid-size healthcare distributors in Southeast Asia. The study used a comparative panel design covering 96 distributors across countries, sampled through purposive sampling to include firms that implemented digital platforms between 2019 and 2023. The study used a panel regression for data analysis and found a significantly positive effect of distribution channel management on sales performance.

Chen, Mahajan, and Zhao (2025) explored how distribution channel selection affected profitability among original equipment manufacturers (OEMs) in India's electronics industry. The research adopted a descriptive-correlational design, with a population of 450 registered OEM firms in India. Using simple random sampling, 150 firms were selected. Data collection was done using a structured questionnaire, and statistical analysis was carried out using both ANOVA and regression analysis. The study revealed that distribution channel selection affected profitability among original equipment manufacturers (OEMs) in India's electronics industry. The study focused exclusively on profitability margins, without exploring sales growth or incorporating other channel management dimensions such as coordination and monitoring, which are critical to a holistic understanding.

Mohammed and Igomu (2025) examined the effect of distribution channel management strategies (intensive, selective, exclusive) on the performance of agribusinesses in Nasarawa State, Nigeria. The study used a descriptive survey design, and the population included 329 managers. A convenience sampling was adopted, and data were retrieved from the participants using a structured questionnaire. Data were analyzed using PLS-SEM, and the findings indicated that distribution channel management strategies positively affect the performance of agribusinesses. The limitation of this study is that the agribusiness sector context differs from that of the listed pharmaceutical firms.

Martinez (2024) investigated the effect of distribution channel selection on the profitability of the fast-moving consumer goods (FMCG) manufacturing sector in Spain. A quantitative cross-sectional survey design was adopted, targeting all medium-sized FMCG producers in the Valencia and Catalonia regions. From a population of 320 firms, a stratified random sampling approach was used to select 120 respondents, and the data obtained through a structured questionnaire were analysed using regression analysis.

The study reported that distribution channel selection has a significant effect on profitability. The study addressed only the channel selection dimension, omitting other essential aspects of distribution channel management, such as coordination, monitoring, or technological integration.

Mendez and Laurent (2024) examined the influence of distribution channel coordination on sales volume among mid-tier apparel exporters in France. The study adopted a quantitative descriptive-correlational design and targeted 280 registered apparel exporters in Paris and Lyon. Using stratified random sampling, 112 firms were selected to ensure representation based on export market size. Data were gathered using a structured questionnaire supplemented with export sales data from government trade records. Multiple regression analysis was applied to determine the predictive strength of coordination on sales volume. The result indicated that distribution channel coordination has a significant effect on sales volume.

Ikegwuru and Acee-Eke (2019) examined the impact of distribution management strategies on the sales performance of Nigerian soft drinks distributors using a survey design and questionnaire as the instrument of data collection. A sample of 110 marketing staff from Nigerian soft drink distribution firms was used for the study. The study employed a survey research design and utilized a questionnaire. Using a simple regression model, the results indicated that channel design and channel administration have a positive impact on sales performance.

Methodology

This study adopted a combination of ex post facto and cross-sectional survey research designs to assess the relationship between distribution channel management and sales volume of listed pharmaceutical companies in Nigeria. The population of the study consisted of 707 marketing staff (marketers and distributors) drawn from six publicly listed pharmaceutical companies in Nigeria as follows: Fidson Healthcare Plc, Neimeth International Pharmaceuticals Plc, Morison Industries Plc, Pharma-Deko Plc, PZ Cussons Nigeria Plc, and May & Baker Nigeria Plc. The study used a census sampling technique, and the entire population of 707 was considered as the sample size. The study collected primary data through questionnaire administration, and secondary data from

annual financial statements of six pharmaceutical firms listed on the Nigerian Exchange Group as of December 31st, 2023. Face, content, and construct validity of the instrument were used in the study. A Cronbach’s alpha was used to ensure the consistency of the measurement items, and results showed that all the variables exceeded the 0.70 recommended threshold. The data were collected, collated, sorted, and processed before carrying out the analysis. The research used both descriptive and inferential statistics. Frequency tables, means, and standard deviation were used to answer the research questions, while multiple regression was used for data analysis, and formulated hypotheses were tested at a 0.05 degree of significance.

Model Specification

Sales volume is regarded as a function of distribution channel management. The regression model is presented as follows:

$$SVO = f(CHD, CHS, CHC, CMT)$$

$$SVO = \beta_0 + \beta_1(CHD) + \beta_2(CHS) + \beta_3(CHC) + \beta_4(CMT) + e$$

where;

SVO = Sales Volume

CHD = Channel Design

CHS= Channel Selection

CHC = Channel Coordination

CMT = Channel Management Technologies

β_0 =constant of the model.

β_{1-4} = coefficients of the model.

e = disturbance terms or error term.

Results and Findings

The study collected data from the field based on the research variables and interpreted using descriptive and inferential statistics based on the questionnaire response rate.

Table 1: Skewness and Kurtosis Result

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
CHD	679	-1.180	.094	.493	.187
CHS	679	-1.868	.094	.225	.187
CHC	679	-1.736	.094	.575	.187
CMT	679	-1.040	.094	.844	.187
Valid N (listwise)	679				

Source: Analysis Result, 2025.

Table 1 presents the skewness and kurtosis statistics for the four variables of distribution channel management: channel design (CHD), channel selection (CHS), channel coordination (CHC), and channel management technologies (CMT). The skewness values range from -1.868 to -1.040, and the kurtosis values from 0.225 to

0.844. The data distribution is assumed to be sufficiently normal for conducting parametric analyses. This is critical because parametric tests such as regression and correlation require normality for valid inference. The confirmation of normality justifies the use of parametric statistical techniques in this study.

Table 2: Test for Multicollinearity

Model	Collinearity Statistics	
	Tolerance	VIF
CHD	.803	1.246
CHS	.745	1.342
CHC	.839	1.192
CMT	.806	1.241

Source: Analysis Result, 2025.

Table 2 reports on the Variance Inflation Factor (VIF) and tolerance values for independent variables. The VIF values range from 1.192 to 1.342, while tolerance values range from 0.745 to 0.839. These statistics are well within accepted limits (VIF < 5 and

tolerance > 0.2). The low VIF and high tolerance values lead to adopting the results as reliable, ensuring that the individual effects of channel design, selection, coordination, and technologies on sales volume can be distinctly analyzed.

Table 3: Regression Result and Test of Hypotheses

Obs	679		
R ²	0.605		
R ² adjusted	0.600		
F Statistics	43.474		
Sig	0.000		
Variable	Coefficient	t-value	Sig
CHD	0.154	1.522	0.029
CHS	0.171	4.631	0.000
CHC	0.165	1.733	0.024
CMT	0.395	8.978	0.000
Cons	1.640	8.531	0.000

Source: Analysis Result, 2025.

Table 3 presents the results of the effect of distribution channel management on the sales volume of listed pharmaceutical companies in Nigeria. It reveals that R², which is the coefficient of determination, is 0.605 and implies that distribution channel management accounts for 60.5% of variations in the sales volume of listed pharmaceutical companies in Nigeria, while 39.5% of the variation in sales volume is accounted for by factors outside this study. This means that distribution channel management accounts for most of the variations in the sales volume of listed pharmaceutical companies in Nigeria. A significance value of 0.000 shows that the regression model used in the study is a fit since it is less than 0.05.

The coefficient of channel design is 0.154. This means that, if channel design is improved by one unit, sales volume will increase by 15.4%. For channel selection, a coefficient value of 0.171 means that if channel selection increases by one unit, sales volume will be enhanced by 17.1%. This implies that channel selection has the potential of improving the sales volume of pharmaceutical companies in Nigeria. Meanwhile, if channel coordination is improved by one unit, sales volume will be increased by 16.5%. This implies that channel coordination can lead to an improvement

in the sales volume. For channel management technologies, a unit increase will improve sales volume by 39.5%. This implies that channel management technologies tend to increase the sales volume of pharmaceutical companies in Nigeria. Based on the result, the four hypotheses formulated for this study were rejected, and the alternate hypotheses accepted. This implies that channel design, channel selection, channel coordination, and channel management technologies have a significant effect on the sales volume of listed pharmaceutical companies in Nigeria.

Discussion of Findings

The regression result of the effect of channel design on sales volume indicates a significant positive effect (0.029) on sales volume. In agreement with the result, Johnson, Patel, and Green (2025) found a significant positive effect of channel design on market share and sales growth. A study by Gupta (2025) also found a significant and positive effect of channel design on sales performance. The significance level reported in this study implies the necessity for channel design in the distribution process. This will facilitate unrestricted movement of products from the assembly line to the customers.

The test of hypothesis two revealed that channel selection has a positive (0.000) and significant (0.000) effect on sales volume of pharmaceutical companies. This finding is consistent with the findings of Chen, Mahajan, and Zhao (2025) and Martinez (2024), who affirmed that distribution channel selection positively affected profitability and sales volume. The result suggests that channel selection is critical for business sales growth.

The analysis results showed that channel coordination has a positive and significant (0.024) effect on the sales volume of pharmaceutical companies in Nigeria. This finding is supported by Miller, Thompson, and Grant (2025), who explored the influence of distribution channel monitoring on customer satisfaction and reported a positive and significant relationship between channel monitoring and customer satisfaction. A study by Almeida, Costa, and Nunes (2025) also reported that distribution channel coordination significantly influences sales volume. This finding implies that coordination is a critical tool for increasing market share and sales volume. The implication for pharmaceutical companies in Nigeria is that channel coordination increases customer base and sales volume.

The outcome of hypothesis four has shown that channel management technologies have a significant and positive (0.000) effect on the sales volume of pharmaceutical companies in Nigeria. This outcome is in line with the study conducted by Mohammed and Igomu (2025), and Ikegwuru and Acee-Eke (2019), who established that channel distribution technology used in businesses has a significant effect on efficiency, effectiveness, and customer satisfaction. The implication for pharmaceutical companies in Nigeria is that technology is a necessary condition for channel distribution to take off effectively.

Conclusion and Recommendations

This study has clearly established that effective distribution channel management plays a decisive role in enhancing the sales volume of listed pharmaceutical companies in Nigeria. The findings confirm that well-structured channel design positively drives sales volume by ensuring that products are readily available to customers in the right quantity, at the right place, and at the right time. The selection of appropriate distribution channels, coupled with the proper allocation of resources to these channels, was shown to significantly boost sales, thereby strengthening the companies' market positions. Also, channel coordination emerged as a critical factor, as it enables managers to monitor channel activities, align operations with strategic goals, and foster teamwork that translates into improved sales volume. Similarly, the adoption and utilization of channel management technologies were found to be vital to the distribution process, as these tools improve the quality of products and services delivered, expand the customer base, and ultimately lead to increased sales volume.

Based on the research findings and conclusions, this study recommends that:

- i. Pharmaceutical companies in Nigeria should develop channel structures that reflect market segmentation and demand analysis, with marketing and logistics teams collaborating to ensure product availability across all regions.
- ii. Procurement and distribution managers should apply clear selection criteria such as coverage capacity, reliability, and cost-efficiency when choosing

distribution channels. This will ensure efficient customer service delivery and strengthen market share.

- iii. Channel managers should establish regular meetings, joint planning sessions, and information-sharing platforms among channel partners to align activities with sales targets.
- iv. Pharmaceutical companies in Nigeria should deploy advanced technologies such as real-time inventory tracking and automated order processing to improve service quality and reduce delivery delays. This will enhance customer satisfaction and boost sales volume.

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