

OPTIMIZING PHARMACEUTICAL RETAIL STORE PERFORMANCE: ANALYZING THE IMPACT OF DIGITAL USAGE, 3PL PERFORMANCE AND CUSTOMER ORIENTATION

DIVAKAR GM*

Department of MBA and Research Centre, RNS Institute of Technology, Visvesvaraya Technological University, Bangalore. *Corresponding Author Email: divakargm1976@gmail.com

BHOJANNA U

Department of MBA and Research Centre, RNS Institute of Technology, Visvesvaraya Technological University, Bangalore. Email: bhojanna4u@gmail.com

Dr. ANITHA G. H

Department of MBA, Global Academy of Technology, Visvesvaraya Technological University, Bangalore. Email: anithagh@gat.ac.in

Abstract

In the dynamic landscape of the pharmaceutical retail industry, staying competitive is important for survival and growth. Digital technologies have significantly altered consumer behavior, making incorporating technology a fundamental aspect of retail operations. In this context, the role of third-party logistics (3PL) providers becomes paramount in ensuring a seamless and efficient supply chain. This study investigated the impact of a store's digital usage on its business performance and how the 3PL's performance and the customer orientation of the store can change the effect. Additionally, a store inventory model was employed as a control variable to account for inventory management practices' potential influence on the outcomes. Using a quantitative approach, a structured survey was conducted to gather data on 568 respondents from various pharmaceutical retail stores, capturing crucial insights into their operational dynamics. The data analysis employed correlation, regression, and mediation analysis to assess the impact of digital usage on business performance within the dynamics of 3PL's performance and customer orientation. The results highlighted that digital integration positively influences overall business performance, indicating that adopting digital solutions enhances customer experiences and operational efficiencies. Further, customer orientation and 3PL's performance were found to mediate the association between digital usage and store performance. Retail stores with a customer-centric focus demonstrated greater digital adoption, emphasizing the importance of aligning digital strategies with customer preferences and demands. Moreover, the store inventory management style did not modify the overall effect. The implications of this research extended to pharmaceutical retail industry stakeholders, 3PL providers, and policymakers. The findings provided valuable insights into leveraging digital technologies for competitive advantage. The study also comprehensively explained customer orientation and 3PL performance towards the business performance. The findings contributed to the growing knowledge of supply chain management, digital transformation, and business performance in the pharmaceutical retail sector. By bridging gaps in the existing literature, the study enabled stakeholders to make informed decisions in navigating the dynamic landscape of the pharmaceutical retail industry effectively.

Keywords: Pharmaceutical Retail Stores, 3PL Performance, Digital Usage, Business Performance, Inventory Management, Customer Orientation.

1. INTRODUCTION

In the rapidly evolving landscape of the pharmaceutical retail industry, achieving and maintaining a competitive edge is paramount for survival and growth. As consumers increasingly embrace digital technologies for shopping, pharmaceutical retail stores must adapt their strategies to meet changing demands. Integrating technology, such as digital platforms and online services, has become a critical aspect of retail operations, allowing businesses to enhance customer experiences, optimize supply chain efficiencies, and, ultimately, boost overall business performance (Kopalle et al., 2020).

The performance of third-party logistics (3PL) providers plays a pivotal role in facilitating pharmaceutical retail operations by ensuring efficient and seamless supply chain management (Özcan & Yumurtacı Hüseyinoğlu, 2023). With 3PL services encompassing activities such as transportation, warehousing, inventory management, and order fulfillment, these providers significantly impact the speed and reliability of product delivery to retail stores. In turn, such performance can directly affect the ability of pharmaceutical retailers to meet customer expectations, manage inventory effectively, and deliver products promptly (Ferrer & Santa, 2017).

Amid this backdrop, the influence of 3PL performance and the digital usage of pharmaceutical retail stores has emerged as an area of growing interest. The digital revolution has brought about transformative changes in consumer behavior, as customers now demand convenient, personalized, and interactive shopping experiences (Faulds et al., 2018). To address these demands effectively, pharmaceutical retailers have embraced digital solutions, such as online ordering, mobile applications, and virtual consultations. The extent to which 3PL performance interacts with and influences the adoption of these digital technologies within retail stores warrants in-depth investigation.

3PL Performance in Retail

Third-party logistics (3PL) providers play a crucial role in the supply chain management of pharmaceutical retail stores. Studies have highlighted the importance of efficient and reliable 3PL services in ensuring timely and cost-effective delivery of pharmaceutical products to retail outlets (Mariwala, 2023). Research by Hunaid et al. (2022) emphasized the impact of 3PL performance on enhancing supply chain visibility and reducing lead times, ultimately contributing to increased customer satisfaction and loyalty. These findings underscore the significance of a robust 3PL partnership in streamlining operations and driving positive business outcomes.

Digital Usage in Retail

The rising adoption of digital technologies has revolutionized the retail landscape, and pharmaceutical stores are no exception (Mangalaraj et al., 2023). Digital usage encompasses various elements, such as online ordering platforms, mobile applications, and virtual consultations, which cater to the evolving needs of tech-savvy consumers (Ahmed & Sur, 2023). Studies by McKee et al. (2023) reported a notable surge in e-commerce sales for products, signaling a growing preference for digital shopping

experiences. Furthermore, research by Tichelen (2019) highlighted that stores offering seamless integration of digital services witnessed increased footfall and repeat purchases, demonstrating the potential of digital usage to boost revenue and customer engagement.

Impact of Digital Usage on Business Performance

Integrating digital technologies in pharmaceutical retail stores has implications beyond customer convenience. Scholars have explored the impact of digital usage on various business performance metrics (Nasiri et al., 2020; Wang et al., 2022). A study by Rai et al. (2006) revealed that stores with advanced digital platforms experienced higher order accuracy and inventory turnover, improving cost efficiency. Additionally, Vijayakumar (2023) found a positive correlation between digital usage and customer brand loyalty, contributing to increased market share and profitability. These findings highlight the transformative effects of digital adoption on the overall business performance of pharmaceutical retail stores.

Inventory Management in Pharmaceutical Retail

Effective inventory management is crucial for pharmaceutical retail stores to ensure product availability while minimizing holding costs and stock outs (Debbarma & Rani, 2020; Sadeghi et al., 2023). Some studies have considered inventory management practices as a mediating or moderating variable when investigating the impact of other factors on business performance (Hyder, 2023). For instance, research by Johnson and Ruankaew (2017) studied the role of inventory turnover ratio in the relationship between 3PL performance and financial performance in the retail industry. Such control variables help isolate the specific effects of 3PL performance and digital usage on business outcomes, offering a more comprehensive understanding of their contributions.

Store Customer Orientation in Pharmaceutical Retail

Customer orientation, the degree to which a store focuses on understanding and meeting customer needs, has emerged as a significant factor in the relationship between various factors and business performance (Domi et al., 2020). Prior research by Chu et al. (2016) found that customer orientation influences the operational performance of 3PL providers. Similarly, a study by Ghlichlee and Bayat (2021) suggested that customer behaviour plays an important role in business performance. In pharmaceutical retail stores, customer orientation may play a vital role in shaping the impact of 3PL performance and digital usage on overall business performance.

This literature review provided valuable insights into the key factors influencing the business performance of pharmaceutical retail stores. The findings indicated the critical role of 3PL performance in facilitating efficient supply chain management and product delivery. Additionally, the increasing significance of digital usage in enhancing customer experiences and driving revenue growth could not be ignored. Inventory management practices were an essential control variable in understanding the specific effects of 3PL performance and digital adoption on business outcomes. Furthermore, store customer

orientation emerged as a crucial mediator, influencing the relationship between various factors and business performance. The relationships are presented as a conceptual model in Figure 1.

Objectives

- 1) To examine the impact of a store's digital usage on its business performance in pharmaceutical retail stores.
- 2) To examine the mediating impacts of 3 PL performance and customer orientation on the relationship between stores digital usage and business performance in pharmaceutical retail stores.

Hypotheses

- H1: Stores digital usage has a significant impact on business performance in pharmaceutical retail stores.
- H1: The relationship between stores digital usage and business performance is mediated by 3 PL performance.
- H1: The customer orientation mediates the relationship between stores digital usage and business performance in pharmaceutical retail stores.

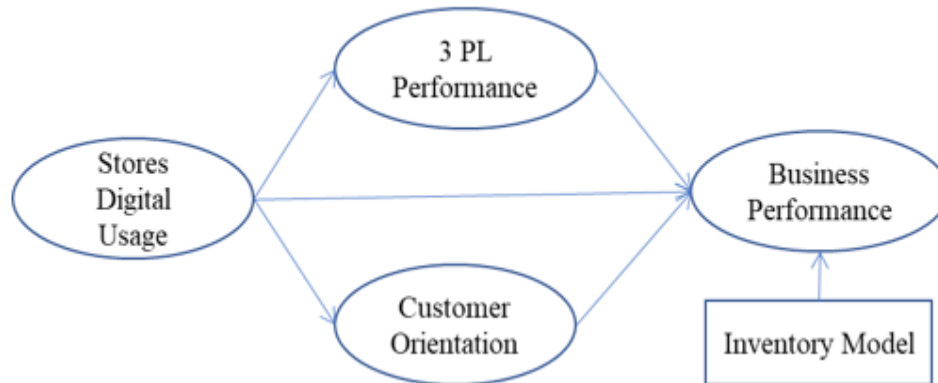


Figure 1: Conceptual Model

2. METHODOLOGY

The research adopts a cross-sectional design, allowing data collection from multiple sources simultaneously. The study gathers information from pharmaceutical retail stores to examine the relationships between 3PL performance, digital usage, inventory management, and business performance. The study examined a path model to find potential paths of relationships among the variables of the study.

A structured questionnaire was developed to collect quantitative data from pharmaceutical retail stores. The survey was distributed to store managers and relevant personnel involved in supply chain management and digital operations. The questionnaire

included sections related to 1) 3PL Performance measured using 20 items of 5 points Likert scale (Cirtita & Glaser-Segura, 2012; Yeung, 2006), 2) Customer orientation using three items of a 5-point Likert scale (Smith & Jambulingam, 2018), 3) Store's Digital using 52 items of Yes/No questions (Bollweg, 2018), 4) Business performance using 17 items of 3 -point High-Low scale (Dubelaar et al., 2002; Luiz dos Santos & Vieira Marinho, 2018), and 5) Inventory management practices using three options.

The study targeted pharmaceutical retail stores operating within Karnataka, India. A purposive sampling technique was employed to ensure the representation of stores of various sizes and having a 3PL supply chain. A response of 568 stores was received during three months of data collection. The sample size was considered adequate based on statistical power calculations to achieve sufficient precision in the analysis.

The quantitative data collected through the survey was analyzed using appropriate statistical techniques. Descriptive statistics, such as mean, median, and standard deviation, summarize the participants' survey responses and demographic information. To assess the relationships between variables, inferential statistical methods were employed. Correlation analysis determines the relationship strength and direction between 3PL performance, digital usage, inventory management, and business performance. Multiple regression analysis investigates the direct impact of 3PL performance and digital usage on business performance while controlling for the influence of the store inventory model. To ensure ethical conduct, the research adhered to informed consent, confidentiality, and data protection principles.

3. DATA ANALYSIS AND RESULTS

The inventory model of the store consists of three different strategies for managing inventory (Table 1). Order, when a customer needs strategy, involves placing orders for inventory only when a specific customer demand or requirement exists. In other words, the store restocks its inventory in response to customer purchases or requests. This approach can help minimize overstocking and reduce the risk of holding excessive inventory that might not be immediately sold. Out of 568 respondents, 136 reported having this strategy.

Table 1: Inventory model of the store

The strategies for managing inventory	N
Order when a customer need	136
Get a regular supply of daily	70
Order in Small quantities frequently	362
Total	568

Get regular supply daily strategy involves receiving a regular and consistent supply of inventory daily. This approach is suitable for perishable goods or products with high demand fluctuations. By receiving daily supplies, the store ensures a continuous flow of goods, reducing the risk of stockouts and ensuring products are readily available for customers. Among 568 respondents, 70 reported to have this strategy. Order in Small

Quantities Frequently involves placing frequent orders for smaller inventory quantities. Rather than ordering large batches, the store opts for smaller, more frequent restocking to maintain a balance between holding costs and the risk of stockouts. This approach allows for greater flexibility in inventory management and reduces the financial burden of carrying excess inventory. 362 among 568 respondents reported following this strategy.

The constructs measured are Store Customer Orientation (STR_CO), Store Digital Usage (STR_DU), Store Performance (STR_PER), and Third-Party Logistics Performance (TPL_PER). The results are presented in Table 2.

Table 2: Construct reliability and validity.

	Cronbach's alpha	CR (rho_a)	CR (rho_c)	AVE
STR_CO	0.902	0.902	0.905	0.984
STR_DU	0.915	0.915	0.916	0.557
STR_PER	0.908	0.908	0.908	0.968
TPL_PER	0.911	0.917	0.917	0.547
STR_CO = Store Customer Orientation, STR_DU = Store Digital Usage, STR_PER = Store Performance, and TPL_PER = Third Party Logistics Performance				

Cronbach's alpha measures internal consistency, indicating how closely related the items within each construct are. It assesses the extent to which the items measure the same underlying construct. The Cronbach's alpha values for all constructs are relatively high, with STR_DU having the highest value of 0.915 and the others ranging from 0.902 to 0.911. Generally, a Cronbach's alpha value above 0.7 is considered acceptable, and all constructs in this study exceed this threshold, indicating good internal consistency. Composite Reliability, also known as rho_a or rho_c, is another measure of internal consistency. The AVE values for all constructs are well above the recommended threshold of 0.5, ranging from 0.547 to 0.984. This indicates that the construct's measurement items account for substantial variance in their respective constructs, demonstrating good convergent validity. This suggests that the constructs adequately capture the variance due to their measurement items and are distinct from measurement error.

The direct effects analysis examines the relationships between different variables in the model. The results regarding regression coefficients (B), standard deviations (STDEV), t-statistics, and p-values are presented (Table 3). The direct effect of Inventory (INV) on Store Performance (STR_PER) is very small (B = 0.002) and statistically non-significant (p = 0.983). This indicates that the inventory quantity does not directly impact overall store performance. Inventory levels alone do not significantly influence how well the store performs.

The direct effect of Store Customer Orientation (STR_CO) on Store Performance (STR_PER) is substantial (B = 0.195) and highly significant (p < 0.001). This result suggests that a customer-oriented approach positively influences the store's performance. Stores prioritizing meeting customer needs and preferences will likely have better performance outcomes.

Table 3: Direct effects

	B	STDEV	T statistics	P values
INV -> STR_PER	0.002	0.087	0.021	0.983
STR_CO -> STR_PER	0.195	0.054	3.619	0.000
STR_DU -> STR_CO	1.688	0.049	34.695	0.000
STR_DU -> STR_PER	1.170	0.064	18.306	0.000
STR_DU -> TPL_PER	1.459	0.046	31.565	0.000
TPL_PER -> STR_PER	0.125	0.055	2.258	0.024
INV x STR_DU -> STR_PER	0.016	0.068	0.234	0.815

The direct effect of Store Digital Usage (STR_DU) on Store Customer Orientation (STR_CO) is notably large ($B = 1.688$) and highly significant ($p < 0.001$). This implies that utilizing digital solutions and technologies significantly fosters a customer-oriented approach to the store's operations. The direct effect of Store Digital Usage (STR_DU) on Store Performance (STR_PER) is substantial ($B = 1.170$) and highly significant ($p < 0.001$). This suggests that using digital technologies significantly positively impacts overall store performance.

The direct effect of Store Digital Usage (STR_DU) on Third Party Logistics Performance (TPL_PER) is substantial ($B = 1.459$) and highly significant ($p < 0.001$). This indicates that digital integration in logistics operations significantly improves third-party logistics performance. Therefore, the H1 which stated that stores digital usage has a significant impact on business performance in pharmaceutical retail stores was supported by the findings. The direct effect of Third-Party Logistics Performance (TPL_PER) on Store Performance (STR_PER) is positive ($B = 0.125$) and statistically significant ($p = 0.024$). Efficient third-party logistics contribute to improved store performance, although the effect is smaller than other direct effects.

The interaction effect between Inventory (INV) and Store Digital Usage (STR_DU) on Store Performance (STR_PER) is very small ($B = 0.016$) and not statistically significant ($p = 0.815$). This suggests that the combined effect of inventory levels and digital usage does not significantly influence store performance.

Table 4 presents the total indirect effect. The effect of Store Digital Usage (STR_DU) on Store Performance (STR_PER) is significant ($B = 0.512$, $p < 0.001$). This suggests that digital usage influences store success through intermediate factors. This indicates that there are indirect pathways through which digital usage affects store performance beyond its direct effect.

Table 4: Total indirect effects

	B	STDEV	T statistics	P values
STR_DU -> STR_PER	0.512	0.089	5.773	0.000

The indirect pathways involve one or more mediating variables. The specific indirect effect between Store Digital Usage (STR_DU), Store Customer Orientation (STR_CO), and Store Performance (STR_PER) is highly significant ($B = 0.329$, $p < 0.001$), indicating that digital usage influences store performance through its impact on fostering a customer-

oriented approach. In other words, by utilizing digital technologies, the store enhances its customer orientation, which, in turn, positively affects overall store performance (Table 5). Therefore, H3 suggesting that the customer orientation mediates the relationship between stores digital usage and business performance in pharmaceutical retail stores was supported.

Table 5: Specific indirect effects

	B	STDEV	T statistics	P values
STR_DU -> STR_CO -> STR_PER	0.329	0.094	3.507	0.000
STR_DU -> TPL_PER -> STR_PER	0.183	0.081	2.255	0.024

The specific indirect effect between Store Digital Usage (STR_DU), Third Party Logistics Performance (TPL_PER), and Store Performance (STR_PER) is statistically significant ($B = 0.183$, $p = 0.024$), indicating that digital usage influences store performance through its impact on improving third-party logistics performance. In other words, by leveraging digital solutions, the store enhances logistics efficiency, leading to improved performance. Therefore, H2 suggesting that the relationship between stores digital usage and business performance is mediated by 3 PL performance is supported.

The analysis reveals the significance of Store Digital Usage as a key driver of store performance through indirect pathways. Digital solutions are pivotal to the store's success by promoting customer orientation and enhancing third-party logistics efficiency. These findings provide valuable insights for businesses seeking to optimize their digital strategies and logistics operations to achieve better store performance.

Table 6: Coefficient of Determination

	R-square	R-square adjusted
STR_CO	0.559	0.558
STR_PER	0.302	0.296
TPL_PER	0.417	0.416

The coefficient of determination, commonly denoted as R-square, is a measure that indicates the proportion of variance in the dependent variable (outcome) that can be explained by the independent variables (predictors) in a statistical model. The adjusted R-square is a modified version that considers the number of predictors and adjusts the value to penalize the inclusion of unnecessary variables in the model.

The R-square for Store Customer Orientation (STR_CO) is 0.559, indicating that approximately 55.9% of the variance in STR_CO can be explained by the independent variables included in the model. This means that the predictors considered in the study can account for more than half of the variability in customer orientation. The adjusted R-square, which is very close to the R-square value, suggests that the model is a good fit, and including predictors has not introduced significant overfitting.

The R-square for Store Performance (STR_PER) is 0.302, indicating that approximately 30.2% of the variance in STR_PER can be explained by the independent variables in the model. This means that the predictors considered in the study collectively account for

about 30.2% of the variability in the store performance. The R-square adjusted, which is slightly lower than the R-square, suggests that the model may not be a perfect fit but still provides valuable insights into the relationships between predictors and store performance.

The R-square for Third Party Logistics Performance (TPL_PER) is 0.417, indicating that the independent variables in the model explain approximately 41.7% of the variance in TPL_PER. This means that the predictors considered in the study explain a significant proportion of the variability in third-party logistics performance. The R-square adjusted is very close to the R-square, suggesting that the model is a good fit and does not suffer from substantial overfitting.

4. DISCUSSION

The present study investigated the relationships between inventory management practices, customer orientation, digital usage, third-party logistics performance, and store performance in a retail setting. Therefore, the study attempted to examine the impact of a store's digital usage on its business performance in pharmaceutical retail stores. Moreover, it examined the mediating impacts of 3 PL performance and customer orientation on the relationship between stores digital usage and business performance in pharmaceutical retail stores. The hypotheses of the study were tested by conducting a mediation analysis and the findings supported all the three hypotheses of the study. The findings provide valuable insights into the factors influencing store success and shed light on the effectiveness of the inventory model used by the store.

The inventory model of the store includes three different strategies: "Order When Customer Needs," "Get Regular Supply Daily," and "Order in Small Quantities Frequently." Store Customer Orientation emerged as a critical driver of store performance. The significant direct effect of Store Customer Orientation on store performance underscores the importance of prioritizing customer needs and preferences. Stores that adopt a customer-centric approach are more likely to achieve better overall performance, as they can effectively cater to their target market's demands and build strong customer loyalty. The specific indirect effects revealed that Store Customer Orientation and Third-Party Logistics Performance partially mediate the impact of store digital usage on store performance. This highlights the importance of fostering a customer-oriented approach and enhancing logistics efficiency through digital solutions to drive better store performance. The findings confirm the outcome of Smith and Jumbulingam (2018), who found that customer orientation had an influence on the retail pharmacies effectiveness. Earlier studies in other domains have also proved that customer orientation has an impact on organisational performance (Feng et al., 2019; Jeong et al., 2014)

Store Digital Usage also played a crucial role in shaping store performance. The high reliability and validity indicators for Store Digital Usage demonstrate the robustness of the measurement items. The significant direct effect of Store Digital Usage on both Store Customer Orientation and store performance highlights the impact of digital solutions on

fostering a customer-oriented approach and improving overall store success. The strong positive effect of store digital usage on Third Party Logistics Performance further emphasizes the significance of digital integration in enhancing logistics efficiency. The significant total indirect effect of store digital usage on store performance suggests that digital usage influences store performance through intermediate factors beyond its direct impact. Pantano and Vannucci (2019), claim that retail industry including pharmacy will gain from digital technologies. Digital initiatives by pharmacy retailers helped in various ways and transformed their operations (Mangalaraj et al., 2023)

The coefficient of determination (R-square) and adjusted R-square values revealed that the model explains a considerable portion of the variance in Store Customer Orientation (55.9%), Third Party Logistics Performance (41.7%), and Store Performance (30.2%). These results imply that the inventory model and the considered predictors account for significant variability in these constructs. However, it is essential to acknowledge that other unexplored factors may contribute to store success, as indicated by the remaining unexplained variance in the store performance.

The findings of this study have practical implications for store owners and managers. Adopting a customer-oriented approach and leveraging digital technologies can improve store performance. Emphasizing digital integration in logistics operations can enhance overall store success by ensuring efficient supply chain management. However, it is essential to recognize that the inventory model used by the store did not show a significant direct impact on store performance. This suggests that other inventory management practices may need to be explored to identify their potential direct effects.

The limitations of this study should be acknowledged. First, the research was conducted in a specific retail setting, and the results may not be generalized to other industries or contexts. Second, the model considered a limited number of predictors and other relevant factors that might influence store performance that were not included in the analysis. Future research should expand the scope to investigate additional variables and explore their relationships with store success.

5. CONCLUSION AND IMPLICATIONS

The present study delved into the intricate dynamics of inventory management, customer orientation, digital usage, third-party logistics performance, and store performance in a retail setting. The results offer valuable insights that can guide store owners and managers in optimizing their strategies to achieve better business outcomes. This study set out to investigate the impact of 3PL performance and digital usage on the business performance of pharmaceutical retail stores, with the store inventory model as a control variable. Through a comprehensive quantitative analysis of survey data from pharmaceutical retail stores, valuable insights were gained into the complex dynamics shaping the success of these stores in an increasingly competitive landscape. The findings reveal a significant positive correlation between 3PL performance and business performance metrics. Efficient 3PL services, encompassing timely delivery, accurate order fulfillment, and excellent customer service, contributed to higher revenue growth,

increased profitability, and enhanced market share for pharmaceutical retail stores. This underscores the critical role that well-managed 3PL partnerships play in streamlining supply chain operations and ultimately driving positive business outcomes. The study highlighted the substantial influence of digital usage on the business performance of pharmaceutical retail stores. Stores that embraced digital technologies, such as online ordering platforms, mobile applications, and virtual consultations, experienced higher customer engagement, improved brand loyalty, and increased revenue through e-commerce sales. Integrating digital solutions has become a pivotal strategy for pharmaceutical retail stores to cater to the evolving needs of tech-savvy consumers and elevate their competitiveness in the market.

The study underscores the significance of a customer-centric approach, digital integration, and efficient logistics in shaping store success. These findings can serve as a foundation for retailers to devise effective strategies, optimize their inventory models, and drive improved store performance. Future research can further advance our understanding of store success in various retail environments by considering the broader context and exploring additional factors. Retail managers and decision-makers can leverage these research findings to formulate data-driven strategies for supply chain optimization, digital integration, and customer-centric approaches. By implementing the best practices identified in this study, pharmaceutical retail stores can position themselves for sustained success in meeting the demands of modern consumers and achieving long-term growth in a dynamic and rapidly evolving marketplace. The research also contributes to the broader body of knowledge on supply chain management and digital transformation, offering valuable insights for academia, industry practitioners, and policymakers.

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