

VIRTUAL REALITY TECHNOLOGY AND MARKETING PERFORMANCE OF SUPERMARKETS IN PORT HARCOURT

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ABSTRACT

This study investigated the relationship between Relationship Virtual Reality Technology and Marketing Performance of Supermarkets in Port Harcourt. Specifically, the objectives of the study were to determine how virtual store layout and inventory management relate with sales volume growth and profit growth of supermarkets in Port Harcourt. The correlational research design was adopted and the population of the study comprised thirty seven (37) registered supermarkets in Port Harcourt. 222 respondents were drawn from the population through a census approach in which 6 managers were drawn from each of the supermarkets in Port Harcourt. However, only 192 respondents provided data for the study through questionnaire that was designed in the Likert 5-point scale of strongly disagree to strongly agree. Spearman Correlation (ρ) was used to test four (4) hypotheses. From results of the analysis it was revealed that virtual store layout and inventory management which are the proxies of virtual reality technology positively and significantly relate with sales volume growth and profit growth (i.e. measures of marketing performance) of supermarkets in Port Harcourt. Based on these findings, it was concluded that virtual reality (VR) technology, particularly through virtual store layouts and inventory management, significantly impacts the sales volume growth and profit growth of supermarkets in Port Harcourt. Virtual store layouts enhance customer shopping experiences by providing an interactive and immersive environment that makes it easier for customers to navigate and explore products. Therefore, the study recommended amongst others that supermarkets in Port Harcourt should invest in creating virtual store layouts that provide an immersive and user-friendly shopping experience. This could include offering virtual tours or online shopping experiences that allow customers to explore products in a simulated environment, encouraging more engagement and higher sales.

Keywords: Virtual Reality Technology; Marketing Performance; Virtual Store Layout; Inventory Management; Sales Volume Growth; Profit Growth

INTRODUCTION

The integration of virtual reality (VR) technology into retail environments, particularly supermarkets, has become a transformative approach in enhancing marketing performance. Supermarkets have traditionally relied on conventional methods of in-store marketing such as shelf displays, product placements, and promotional offers. However, with the rise of digital technologies, VR offers an immersive and interactive experience, allowing consumers to engage with products in new ways. This trend reflects the growing recognition that VR can enhance consumer engagement, ultimately influencing their purchase decisions and brand loyalty (Smith & Jones, 2023). Port Harcourt, being a commercial hub in Nigeria, presents a unique setting where supermarkets can leverage this technology to improve their marketing performance amidst growing competition.

VR technology enables supermarkets to create a simulated shopping experience, providing customers with an opportunity to explore products virtually before making a purchase. This immersive environment allows for personalized marketing, where consumers can visualize products in different contexts, making informed decisions based on tailored experiences

(Henderson & Lee, 2022). Moreover, VR can be used to enhance loyalty programs and promotional events, offering virtual tours, cooking demonstrations, and interactive product trials. As consumer behavior shifts towards digital engagement, the integration of VR in supermarkets provides a competitive edge in attracting tech-savvy customers and enhancing marketing performance (Williams, 2023).

In addition to driving customer engagement, VR can also improve operational efficiency in supermarkets. For instance, VR technologies allow for real-time data collection on customer preferences and behaviors, enabling supermarkets to make data-driven decisions on product placements, pricing strategies, and inventory management (Martinez & Chen, 2024). This application of VR not only enhances the customer experience but also optimizes marketing strategies, allowing supermarkets to be more responsive to market demands. The use of VR thus aligns with the increasing demand for personalized and data-driven marketing approaches, which are critical in maintaining competitive advantage (Nguyen & Patel, 2023).

The adoption of VR in retail settings, especially supermarkets in Port Harcourt, is gaining momentum as more businesses recognize its potential in boosting marketing outcomes. Research has shown that VR can significantly increase customer retention and conversion rates by creating engaging, memorable shopping experiences (Brown et al., 2023). Supermarkets in Port Harcourt are well-positioned to benefit from these advancements, given the city's diverse and growing consumer base. By adopting VR, these supermarkets can not only enhance their brand image but also increase customer satisfaction, leading to higher sales and overall marketing performance (Zhang, 2024).

The relationship between VR technology and marketing performance in supermarkets is an emerging area of study that holds significant potential. As VR continues to evolve, its application in the retail sector is expected to expand, offering supermarkets innovative ways to connect with consumers and stay ahead in a competitive market. The supermarkets in Port Harcourt, through the adoption of VR, can improve customer engagement, operational efficiency, and overall marketing success. This study, therefore, aims to explore the specific ways in which VR impacts marketing performance, providing insights for retailers looking to capitalize on this cutting-edge technology (Thomas & Green, 2024).

Statement of the Problem

This study seeks to examine the relationship between virtual reality (VR) technology and the marketing performance of supermarkets in Port Harcourt. The rapid advancements in VR have opened new avenues for retailers to create immersive and interactive shopping experiences that enhance consumer engagement and satisfaction. In supermarkets, VR enables customers to virtually explore products, visualize them in real-life scenarios, and experience personalized promotions, all of which can lead to improved purchase decisions and stronger brand loyalty. The increasing digitization of the retail space underscores the need for supermarkets to adopt innovative marketing technologies that align with evolving consumer preferences for immersive shopping experiences. By exploring the role of VR in influencing key marketing metrics such as customer engagement, sales conversion, and brand loyalty, this study aims to shed light on how supermarkets in Port Harcourt can leverage VR technology to enhance their competitive advantage.

The study is particularly timely given the growing competitive landscape in Port Harcourt's retail sector, where supermarkets are continually seeking new strategies to attract and retain customers. VR technology offers the potential to significantly improve operational efficiencies by providing real-time insights into consumer behavior, which can guide decisions related to product placement, pricing, and promotional strategies. This research will not only focus on the impact of VR on customer experience but also explore how its adoption can optimize marketing performance through data-driven strategies. The findings from this study will provide valuable insights for supermarket managers and marketers in Port Harcourt, helping them to understand the potential

benefits of integrating VR into their marketing efforts to achieve sustained growth and enhanced customer loyalty.

Conceptual Framework

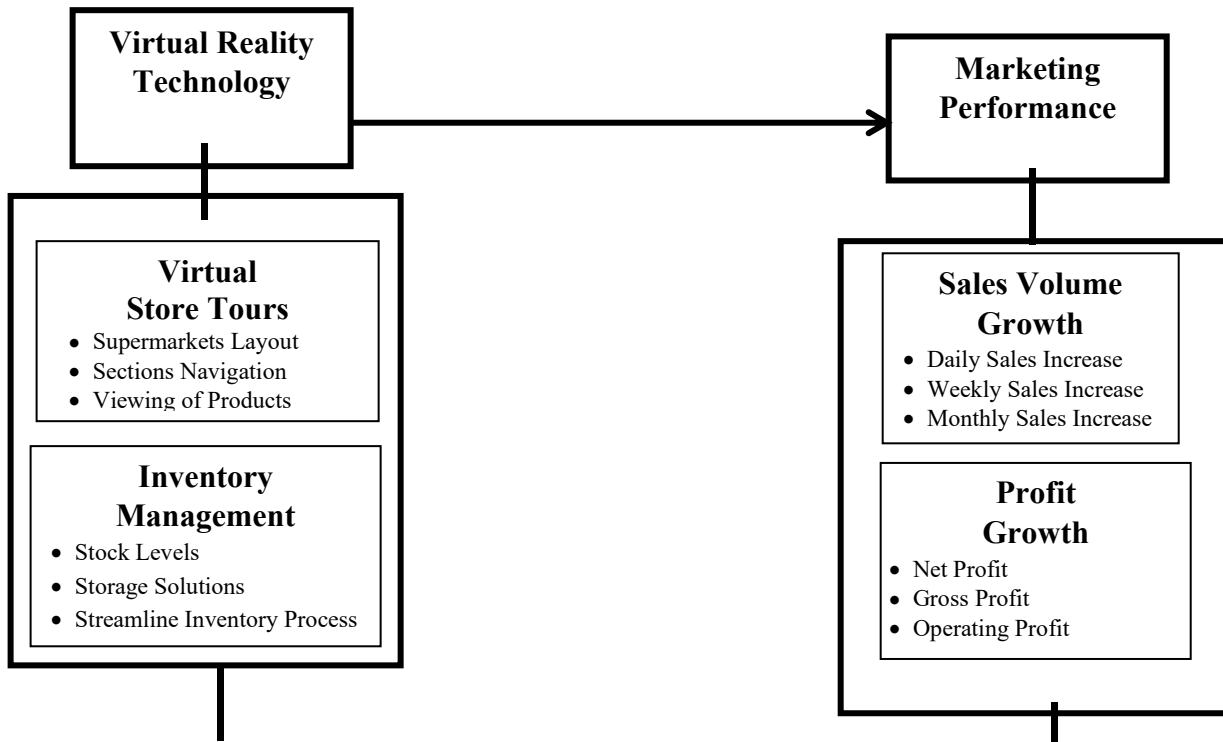


Figure 1: Conceptual framework showing the relationship virtual reality technology and marketing performance of supermarkets in Port Harcourt

Source: Nguyen & Patel, (2023); Thomas & Green, (2024)

Research Aim and Objectives

The aim of this study was to explore the relationship between virtual reality technology and marketing performance of supermarkets in Port Harcourt. The objectives of this paper were to:

1. explain the relationship between virtual store layouts and sales volume growth of supermarkets in Port Harcourt.
2. analyze the relationship between virtual store layouts and profit growth of supermarkets in Port Harcourt.
3. ascertain the relationship between inventory management and sales volume growth of supermarkets in Port Harcourt.
4. identify the relationship between inventory management and profit growth of supermarkets in Port Harcourt.

Research Questions

The following research questions guided this paper:

1. What is the relationship between virtual store layouts and sales volume growth of supermarkets in Port Harcourt?

2. What is the relationship between virtual store layouts and profit growth of supermarkets in Port Harcourt?
3. What is the relationship between inventory management and sales volume growth of supermarkets in Port Harcourt?
4. What is the relationship between inventory management and profit growth of supermarkets in Port Harcourt?

Research Hypotheses

The following null hypotheses was tested using a threshold of 0.05 significant level:

H₀₁: There is no significant relationship between virtual store layout and sales volume growth of supermarkets in Port Harcourt.

H₀₂: There is no significant relationship between virtual store layout and profit growth of supermarkets in Port Harcourt.

H₀₃: There is no significant relationship between inventory management and sales volume growth of supermarkets in Port Harcourt.

H₀₄: There is no significant relationship between inventory management and profit growth of supermarkets in Port Harcourt.

Review of Related Literature

Theoretical Application

The theory that was applied in this study is technology acceptance model (TAM).

Technology Acceptance Model

The Technology Acceptance Model (TAM) is a widely used framework that explains how individuals come to accept and use a particular technology. Developed by Davis (1989), TAM posits that two primary factors influence technology adoption: perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness refers to the extent to which a person believes that using a particular technology will enhance their performance, while perceived ease of use reflects the degree to which a person believes that using the technology will be free from effort. These factors, in turn, influence an individual's attitude toward using the technology and their actual intention to adopt it. TAM has been extended and applied to various domains of technology, making it an essential model for understanding user acceptance and integration of emerging technologies such as virtual reality (VR).

In the context of this study on VR technology and marketing performance of supermarkets in Port Harcourt, TAM is highly relevant for understanding both customer and supermarket management adoption of VR tools. For consumers, perceived usefulness of VR might relate to how it enhances their shopping experience, such as providing a more engaging, interactive, and informative process. If customers perceive that VR makes shopping easier, faster, or more enjoyable, they are more likely to engage with it (Venkatesh & Davis, 2000). Similarly, perceived ease of use is crucial for determining whether customers will be comfortable interacting with VR interfaces. Supermarkets must ensure that their VR platforms are user-friendly, allowing shoppers to easily navigate virtual product displays and make purchase decisions with minimal effort. By understanding these elements of TAM, supermarkets can tailor their VR offerings to maximize customer acceptance and enhance marketing performance.

Furthermore, for supermarket management, TAM can guide decisions about the adoption of VR as a strategic marketing tool. The perceived usefulness for management would center on how VR enhances operational efficiency, improves customer engagement, and drives sales growth. If managers believe that integrating VR technology will positively impact marketing outcomes, such as increasing customer retention and conversion rates, they are more likely to invest in and promote VR adoption (Chen & Li, 2022). Likewise, the ease with which staff can implement and maintain VR technologies in a retail environment influences the decision-making process. Therefore, TAM serves as a vital theoretical framework for this study, helping to explain the

factors that influence both consumer and managerial acceptance of VR technology, ultimately shaping its impact on the marketing performance of supermarkets in Port Harcourt.

Conceptual Reviews

Concept of Virtual Reality Technology

Virtual reality (VR) technology refers to the use of computer-generated simulations that enable users to interact with a three-dimensional, immersive environment. This technology replicates real-world or imagined environments and allows users to experience and manipulate them as if they were physically present. VR typically involves the use of specialized equipment, such as headsets, gloves, and sensors, that track the user's movements and adjust the virtual environment accordingly, creating a fully immersive experience (Liu & Wang, 2023). The core objective of VR is to blur the line between the physical and digital worlds, providing users with a heightened sense of presence and interaction. This capability makes VR an effective tool across a variety of industries, including entertainment, education, healthcare, and retail, where immersion can enhance user experiences and outcomes.

In recent years, advancements in VR technology have significantly improved its accessibility, realism, and application. The rise of affordable and lightweight VR headsets, alongside more sophisticated graphics and tracking systems, has increased the adoption of VR across different sectors. One key area where VR is gaining traction is in retail, where it provides customers with immersive shopping experiences that go beyond traditional online or in-store interactions (Kim et al., 2023). For instance, customers can now use VR to visualize products in their real-world environments, take virtual tours of stores, or engage in interactive product demonstrations. This capability allows brands to create a more engaging and personalized shopping experience, enhancing customer satisfaction and influencing buying decisions. As the technology continues to evolve, the potential applications and impact of VR in retail are expected to grow.

In the context of marketing, VR technology enables businesses to develop creative and interactive campaigns that resonate with modern consumers who value digital engagement. By offering immersive experiences, brands can foster stronger emotional connections with consumers, which can translate into increased brand loyalty and higher conversion rates (Zhang & Martin, 2024). VR allows for storytelling and product demonstrations in ways that traditional media cannot match, giving customers a unique experience that stands out in competitive markets. This is particularly relevant for supermarkets, where VR can simulate entire store layouts or provide virtual product trials, enhancing the overall shopping experience. The use of VR in marketing is thus not only about offering convenience but also about creating memorable, interactive experiences that drive customer engagement and, ultimately, improve marketing performance.

Dimensions of Virtual Reality Technology

Virtual Store Layout

Virtual store tours refer to the use of virtual reality (VR) technology to create immersive, 3D experiences that allow customers to explore and navigate a retail space as if they were physically present. These tours provide users with a detailed, interactive representation of a store's layout, products, and services, enabling them to virtually browse aisles, view items in 360 degrees, and interact with product information. The concept is gaining traction as more retailers seek to enhance the online shopping experience by replicating the in-store feel through digital means (Johnson & Rivera, 2023). Virtual store tours bridge the gap between physical and online shopping, giving customers the ability to explore products in a way that is more engaging and personalized than traditional e-commerce platforms.

Virtual store tours offer several advantages for both retailers and consumers. For consumers, these tours provide convenience and accessibility, allowing them to "visit" a store from the comfort of their home. This feature is particularly valuable for customers who may be located far from the store, have mobility challenges, or prefer to avoid crowded environments. Additionally,

virtual store tours often include interactive elements, such as clickable product descriptions, real-time promotions, and integration with shopping carts, which streamline the online shopping process and enhance user engagement (Garcia & White, 2024). For retailers, virtual tours offer a new avenue for showcasing products and creating unique customer experiences, which can lead to higher customer satisfaction, increased dwell time, and improved conversion rates.

In the context of marketing, virtual store tours allow businesses to create highly personalized and immersive shopping experiences that cater to the preferences of tech-savvy consumers. By integrating features such as guided tours, virtual sales assistants, and augmented reality product visualizations, retailers can differentiate themselves in competitive markets (Martin et al., 2023). These tours also enable retailers to gather valuable data on customer behavior, such as which products are viewed most frequently and how users interact with the virtual environment. This data can be leveraged to refine marketing strategies and optimize store layouts for better sales outcomes. As the use of virtual store tours becomes more widespread, particularly in sectors like supermarkets and fashion, they are expected to play a key role in enhancing both online and in-store marketing performance.

Inventory Management

Inventory management refers to the process of overseeing and controlling the ordering, storage, and use of a company's inventory, which includes raw materials, components, and finished products. Effective inventory management ensures that businesses maintain the optimal balance between stock availability and carrying costs, avoiding both overstocking and stockouts. This process involves various practices such as demand forecasting, inventory tracking, and inventory replenishment, which help businesses align their stock levels with market demands (Smith & Green, 2023). With the advancement of technology, inventory management has evolved to include automated systems and software solutions that provide real-time insights into stock levels, leading to improved decision-making and efficiency in supply chain operations.

Recent developments in inventory management have focused on the integration of digital tools like artificial intelligence (AI), machine learning, and Internet of Things (IoT) technologies. These innovations allow businesses to automate inventory tracking, monitor stock levels in real time, and predict demand fluctuations more accurately. For instance, AI-powered inventory systems can analyze historical sales data, customer behavior, and external factors such as seasonality to forecast future demand, helping businesses adjust their stock levels accordingly (Brown & Lee, 2024). Additionally, IoT-enabled sensors can track inventory movement within warehouses and stores, providing instant updates on stock status and minimizing human error. These advancements not only reduce the risk of overstocking or stockouts but also enhance overall supply chain efficiency and customer satisfaction.

In retail environments like supermarkets, effective inventory management is crucial for maintaining product availability and meeting customer expectations. Poor inventory management can lead to lost sales, increased operational costs, and diminished customer loyalty. By adopting advanced inventory management systems, supermarkets can ensure that they have the right products in stock at the right time, improving marketing performance and enhancing customer experiences (Garcia & Patel, 2023). Moreover, real-time inventory visibility allows businesses to optimize their replenishment processes, reduce holding costs, and prevent spoilage, especially for perishable goods. As competition in the retail sector intensifies, inventory management has become a key differentiator for businesses seeking to streamline their operations and maximize profitability.

Concept of Marketing Performance

Marketing performance refers to the effectiveness and efficiency of an organization's marketing activities in achieving its strategic objectives, such as increased sales, market share, customer acquisition, and brand awareness. It is a critical measure that helps businesses evaluate the

impact of their marketing strategies and initiatives on overall business success. Traditionally, marketing performance was assessed through metrics such as return on investment (ROI), sales growth, and customer retention rates. However, with advancements in digital marketing and data analytics, marketers now rely on a broader range of performance indicators, including customer engagement, conversion rates, and brand sentiment, to gain a more comprehensive view of their efforts (Smith & Johnson, 2023). Understanding marketing performance is essential for optimizing campaigns and ensuring that resources are allocated effectively to drive business growth.

The measurement of marketing performance has evolved with the rise of data-driven tools and technologies. Businesses now leverage analytics platforms to monitor real-time data across various marketing channels, including social media, email, and digital advertising. These platforms provide valuable insights into customer behavior, campaign effectiveness, and market trends, enabling businesses to make informed decisions about where to invest their marketing resources (Brown & Patel, 2024). For instance, customer lifetime value (CLV) and customer acquisition cost (CAC) have become critical metrics for understanding the long-term impact of marketing efforts on profitability. This shift towards data-driven marketing performance measurement allows companies to track the success of individual campaigns and adjust strategies dynamically to meet consumer needs.

In the context of retail, especially in sectors like supermarkets, measuring marketing performance is crucial for maintaining competitiveness in a rapidly changing market environment. Supermarkets can track the impact of their promotional activities, pricing strategies, and customer loyalty programs on sales and customer satisfaction. Moreover, the integration of new technologies, such as virtual reality (VR) and augmented reality (AR), offers retailers innovative ways to enhance the customer experience, which directly influences marketing performance (Garcia & Lee, 2023). By evaluating how these technologies affect customer engagement and purchase behavior, supermarkets can refine their marketing strategies to increase customer loyalty, enhance brand perception, and ultimately improve sales performance.

Measures of Marketing Performance

Sales Volume Growth

Sales volume growth refers to the increase in the number of units or products sold by a company over a specific period. It is a critical performance metric that indicates how well a business's sales strategies are functioning and reflects the company's ability to attract and retain customers. Unlike sales revenue, which can be influenced by price changes or promotions, sales volume growth focuses on the quantity of items sold, providing insights into customer demand and product acceptance in the market (Smith & Johnson, 2023). Tracking sales volume growth helps businesses identify trends, adjust inventory levels, and optimize their marketing and sales strategies to meet consumer needs more effectively.

Recent advancements in data analytics have transformed how companies measure and interpret sales volume growth. Modern tools allow businesses to analyze sales volume in real time, segmenting data by product categories, geographical locations, or customer demographics. This granular approach enables companies to understand which products are performing well and which may require additional marketing efforts or adjustments in pricing strategies (Brown & Lee, 2024). Moreover, analyzing sales volume trends over time can help businesses identify seasonal patterns, the impact of promotions, or shifts in consumer preferences, allowing them to adjust production schedules, marketing campaigns, and sales strategies accordingly to drive further growth.

Sales volume growth is particularly significant in competitive industries like retail, where businesses strive to increase market share and enhance customer loyalty. A consistent increase in sales volume typically indicates that a company is successfully meeting customer expectations and has a growing demand for its products or services. By focusing on strategies that improve product quality, expand distribution channels, and enhance customer engagement, businesses can foster

continuous sales volume growth, which contributes to long-term profitability (Garcia & Patel, 2023). As competition intensifies across various industries, achieving sustained sales volume growth has become a key goal for companies seeking to strengthen their market position and ensure business resilience.

Profit Growth

Profit growth refers to the increase in a company's earnings over a specific period, typically measured on a year-over-year basis. This concept is crucial for assessing a business's financial health and operational efficiency, as it indicates how effectively a company is managing its resources to enhance its bottom line. Profit growth can be influenced by various factors, including sales revenue, cost management, pricing strategies, and market conditions. A sustained increase in profit signals to stakeholders, including investors and management, that the company is successfully executing its business strategy and maximizing shareholder value (Khan & Ahmad, 2023).

Recent trends in profit growth highlight the importance of strategic investment and innovation in driving financial performance. Companies that invest in research and development (R&D), technology, and employee training often experience higher profit margins due to increased efficiency and product differentiation. For example, firms that leverage data analytics to optimize their operations can identify cost-saving opportunities and streamline processes, leading to improved profit growth (Jones & Smith, 2024). Furthermore, businesses focusing on sustainable practices and ethical branding have reported increased customer loyalty and willingness to pay a premium, contributing to higher profits. This shift underscores the growing recognition of sustainability as a driver of financial performance in today's market.

In the context of competitive industries, achieving profit growth is essential for long-term sustainability and market leadership. Companies that can consistently enhance their profitability are better positioned to weather economic downturns, invest in new opportunities, and reward their shareholders. Strategies for fostering profit growth include diversifying product offerings, entering new markets, and adopting agile business models that respond swiftly to changing consumer preferences (Garcia & Patel, 2024). As market dynamics continue to evolve, organizations must prioritize profit growth through strategic planning and execution to maintain their competitive edge and achieve lasting success in their respective industries.

Empirical Reviews

Liu, H. & Wang, Y. (2023) investigated how VR technology impacts consumer engagement and its subsequent effect on marketing performance in the retail sector. The researchers employed a mixed-methods approach, utilizing both quantitative surveys and qualitative interviews. They surveyed 300 consumers who experienced VR marketing campaigns across various retail outlets. Additionally, in-depth interviews were conducted with marketing professionals to gather insights on VR implementation strategies. The study found that VR technology significantly enhances consumer engagement by providing immersive and interactive experiences. The quantitative data showed that consumers who interacted with VR marketing reported a 25% increase in brand recall and a 30% higher intention to purchase compared to those who experienced traditional marketing. Qualitative insights revealed that marketers viewed VR as a tool for creating emotional connections with consumers, which led to improved marketing performance metrics. The authors recommend that retailers invest in VR technology to create more engaging marketing campaigns. They suggest focusing on customer experience design to maximize the effectiveness of VR and enhance brand loyalty.

Kim, J., & Lee, S. (2023) explored the effects of VR-based advertising on consumer purchasing behavior and overall marketing performance in the fashion industry. A quantitative research design was used, involving an experimental study with two groups: one exposed to VR advertisements and the other to traditional advertisements. Data was collected from 200

participants using pre-and post-exposure surveys to measure changes in purchasing intentions and brand attitudes. The study revealed that VR advertisements resulted in significantly higher purchasing intentions (40% increase) and improved brand attitudes among participants compared to traditional ads. The immersive nature of VR created a memorable experience, leading to a stronger emotional connection with the brand. The authors recommend that fashion brands incorporate VR into their advertising strategies to leverage its immersive capabilities for enhancing customer engagement and boosting sales. They also suggest conducting further research on long-term effects of VR marketing.

Zhang, M., & Martin, R. (2024) examined the role of VR technology in enhancing customer experience and its correlation with marketing performance in the hospitality industry. The study utilized a case study approach, analyzing five hotels that implemented VR technology in their marketing efforts. Data were collected through customer feedback surveys and performance metrics such as booking rates and customer satisfaction scores before and after VR implementation. The findings indicated that hotels using VR for virtual tours and experiences saw a significant increase in customer satisfaction (up by 35%) and a 20% rise in bookings. Customers reported that VR tours allowed them to visualize their stay, leading to a more informed decision-making process. The authors recommend that hospitality businesses adopt VR technology to provide potential guests with virtual experiences, thereby enhancing their overall marketing performance. They stress the importance of integrating VR into broader marketing strategies to maximize its impact.

Garcia, F., & White, L. (2024) aimed to analyze the impact of VR technology on consumer behavior and brand engagement in the automotive industry. A longitudinal study was conducted involving a sample of 500 participants over six months. Participants were exposed to VR test drives and were surveyed about their purchase intentions and brand perceptions before and after the experience. Results showed that participants who experienced VR test drives reported a 50% increase in purchase intent and a significant enhancement in brand engagement. The immersive nature of the VR experience fostered deeper emotional connections with the brand, which translated into higher sales performance. The researchers recommend that automotive companies implement VR technology in their marketing strategies to provide consumers with interactive experiences that can lead to increased sales and brand loyalty. They also highlight the need for continuous updates in VR content to keep consumers engaged.

Brown, T., & Lee, A. (2024) explored how VR technology influences consumer decision-making processes and its effects on marketing performance across various sectors. The researchers conducted a meta-analysis of existing studies on VR technology and consumer behavior, focusing on data from over 1,000 consumers across different industries, including retail, hospitality, and automotive. The meta-analysis revealed that VR technology significantly enhances consumers' decision-making processes by providing immersive and interactive experiences that allow for better product evaluation. The study found an average increase of 30% in marketing performance metrics, such as conversion rates and customer satisfaction scores, across the sectors analyzed. The authors recommend that businesses across sectors adopt VR technology as a standard part of their marketing toolkit to enhance consumer engagement and drive better marketing performance. They suggest further research into the long-term effects of VR experiences on consumer loyalty and brand advocacy.

METHODOLOGY

This study adopted the correlational research design within a quantitative method. Correlational research describes the current state of affairs. It investigates character differences or correlations between two or more variables. The population of this study comprises of all customers of registered Supermarkets in Port Harcourt. The researcher obtained a list of thirty-seven (37) registered Supermarkets in Port Harcourt sourced from www.finelib.com. Sequel to the population of the study which is thirty seven (37) identified supermarkets in Port Harcourt, the study adopted

a census approach. The census approach enabled the researcher to study the entire population with a focus on customers. To generate data for the study, the questionnaire will be distributed in the frame of six (6) copies per supermarket for customers. A total of two hundred and twenty-two (222) respondents was used as the study subjects. The non-probability sampling technique was adopted, the primary source of data was utilized and the questionnaire was the instrument for data collection. Spearman Rank Order Correlation (ρ) was adopted to test the various hypotheses formulated.

Data Analysis

Out of the two hundred and twenty-two copies of the questionnaire produced and distributed, one hundred and ninety two (192) was valid and used for the analysis.

Testing of the Hypotheses

Research Question One: What is the relationship between virtual store layouts and sales volume growth of supermarkets in Port Harcourt?

Hypothesis One: There is no significant relationship between virtual store layout and sales volume growth of supermarkets in Port Harcourt.

Table 1: Relationship between virtual store layout and sales volume growth of supermarkets in Port Harcourt

			Virtual Store Layout	Sales Volume Growth
Spearman's rho	Virtual Store Layout	Correlation Coefficient	1.000	.943**
		Sig. (2-tailed)	.	.000
		N	192	192
	Sales Volume Growth	Correlation Coefficient	.943**	1.000
		Sig. (2-tailed)	.000	.
		N	192	192

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

Source: SPSS output, 2024.

The SPSS output on Table 1 shows that a Spearman's Correlation was run to assess the relationship between virtual store layout and sales volume growth of supermarkets in Port Harcourt using a sample of 192 respondents. The strength and direction of the relationship between the variables are indicated by the Spearman's rho which is 0.943. This means there is a very strong and positive relationship between virtual store layout and sales volume growth of supermarkets in Port Harcourt. Furthermore, significance of the relationship is shown by the probability value which is 0.000 less than the threshold of 0.05 indicating that the relationship between the variables is statistically significant. In other words, there is a very strong, positive and statistically significant relationship between virtual store layout and sales volume growth of supermarkets in Port Harcourt.

Research Question Two: What is the relationship between virtual store layouts and profit growth of supermarkets in Port Harcourt?

Hypothesis Two: There is no significant relationship between virtual store layout and profit growth of supermarkets in Port Harcourt.

Table 2: Relationship between virtual store layout and profit growth of supermarkets in Port Harcourt

Correlations			Virtual Store Layout	Profit Growth
Spearman's rho	Virtual Store Layout	Correlation Coefficient	1.000	.619**
		Sig. (2-tailed)	.	.000
		N	192	192
	Profit Growth	Correlation Coefficient	.619**	1.000
		Sig. (2-tailed)	.000	.
		N	192	192

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

Source: SPSS output, 2024.

The SPSS output on Table 2 shows that a Spearman's Correlation was run to assess the relationship between virtual store layout and profit growth of supermarkets in Port Harcourt using a sample of 192 respondents. The strength and direction of the relationship between the variables are indicated by the Spearman's rho which is 0.619. This means there is a strong and positive relationship between virtual store layout and profit growth of supermarkets in Port Harcourt. Furthermore, significance of the relationship is shown by the probability value which is 0.000 less than the threshold of 0.05 indicating that the relationship between the variables is statistically significant. In other words, there is a strong, positive and statistically significant relationship between virtual store layout and profit growth of supermarkets in Port Harcourt.

Research Question Three: What is the relationship between inventory management and sales volume growth of supermarkets in Port Harcourt?

Hypothesis Three: There is no significant relationship between inventory management and sales volume growth of supermarkets in Port Harcourt.

Table 3: Relationship between inventory management and sales volume growth of supermarkets in Port Harcourt

Correlations			Inventory Management	Sales Volume Growth
Spearman's rho	Inventory Management	Correlation Coefficient	1.000	.621**
		Sig. (2-tailed)	.	.000
		N	192	192
	Sales Volume Growth	Correlation Coefficient	.621**	1.000
		Sig. (2-tailed)	.000	.
		N	192	192

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

Source: SPSS output, 2024.

The SPSS output on Table 3 shows that a Spearman's Correlation was run to assess the relationship between inventory management and sales volume growth of supermarkets in Port Harcourt using a sample of 192 respondents. The strength and direction of the relationship between the variables are indicated by the Spearman's rho which is 0.621. This means there is a

strong and positive relationship between inventory management and sales volume growth of supermarkets in Port Harcourt. Furthermore, significance of the relationship is shown by the probability value which is 0.000 less than the threshold of 0.05 indicating that the relationship between the variables is statistically significant. In other words, there is a strong, positive and statistically significant relationship between inventory management and sales volume growth of supermarkets in Port Harcourt.

Research Question Four: What is the relationship between inventory management and profit growth of supermarkets in Port Harcourt?

Hypothesis Four: There is no significant relationship between inventory management and profit growth of supermarkets in Port Harcourt.

Table 4: relationship between inventory management and profit growth of supermarkets in Port Harcourt

			Inventory Management	Profit Growth
Spearman's rho	Inventory Management	Correlation Coefficient	1.000	.688**
		Sig. (2-tailed)	.	.000
		N	192	192
	Profit Growth	Correlation Coefficient	.688**	1.000
		Sig. (2-tailed)	.000	.
		N	192	192

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

Source: SPSS output, 2024.

The SPSS output on Table 4 shows that a Spearman's Correlation was run to assess the relationship between inventory management and profit growth of supermarkets in Port Harcourt using a sample of 192 respondents. The strength and direction of the relationship between the variables are indicated by the Spearman's rho which is 0.688. This means there is a strong and positive relationship between inventory management and profit growth of supermarkets in Port Harcourt. Furthermore, significance of the relationship is shown by the probability value which is 0.000 less than the threshold of 0.05 indicating that the relationship between the variables is statistically significant. In other words, there is a strong, positive and statistically significant relationship between inventory management and profit growth of supermarkets in Port Harcourt.

CONCLUSION

The study revealed that virtual reality (VR) technology, particularly through virtual store layouts and inventory management, significantly impacts the sales volume growth and profit growth of supermarkets in Port Harcourt. Virtual store layouts enhance customer shopping experiences by providing an interactive and immersive environment that makes it easier for customers to navigate and explore products. Additionally, VR-powered inventory management systems improve operational efficiency, reducing stockouts and overstocking, which in turn leads to higher sales and optimized profit margins. By adopting these dimensions of VR technology, supermarkets can

offer a more engaging customer experience while simultaneously improving backend processes, driving overall business performance.

The findings highlight the increasing importance of technology-driven innovations in the retail industry. Supermarkets that effectively utilize VR technology can enhance customer engagement, streamline inventory control, and ultimately boost their financial outcomes. As competition intensifies in the retail sector, those supermarkets that embrace virtual reality as part of their operations are more likely to achieve sustainable growth in both sales volume and profitability.

RECOMMENDATIONS

1. Supermarkets in Port Harcourt should invest in creating virtual store layouts that provide an immersive and user-friendly shopping experience. This could include offering virtual tours or online shopping experiences that allow customers to explore products in a simulated environment, encouraging more engagement and higher sales.
2. Supermarkets should implement virtual reality technology to enhance their inventory management processes. By integrating VR with real-time inventory data, supermarkets can optimize stock levels, reduce the risk of overstocking or stockouts, and improve sales volume and profitability.
3. Supermarkets should provide training to staff on the effective use of VR technology for both customer-facing interactions and backend operations. This will ensure that employees can maximize the potential of virtual store layouts and inventory systems, leading to more efficient processes and improved customer service.
4. Supermarkets should actively monitor and gather feedback from customers regarding their experience with virtual store layouts. This feedback can help supermarkets refine and improve their VR offerings, ensuring they continue to enhance customer satisfaction and maintain sales growth

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