

Short Research Article

EFFECT OF INFORMATION TECHNOLOGY ON PRODUCT MANAGEMENT: A CASE STUDY OF SUPERMARKETS IN LAGOS STATE, NIGERIA.

ABSTRACT

Aims: This paper attempts to show the relationship between businesses and IT effectiveness.

Study design: This study adopted a descriptive survey design with a case study approach. The descriptive survey method was employed to gather quantifiable data from a representative sample of supermarkets in Lagos State, while the case study aspect enabled an in-depth exploration of how specific supermarkets implement and utilize Information Technology (IT) in managing their product lifecycle, from procurement to sales.

The design was chosen to examine the relationships between IT adoption and key product management indicators such as inventory accuracy, stock rotation, product availability, and customer satisfaction. Both qualitative and quantitative data collection techniques were used to achieve a comprehensive understanding of the subject matter.

A structured questionnaire was the primary data collection instrument, complemented by direct interviews with store managers and onsite observations of IT tools such as POS systems, inventory management software, and barcode/RFID technologies.

The study targeted operational staff and IT personnel in the selected supermarkets, with responses analyzed using descriptive statistics and correlation analysis to interpret the impact of IT on various facets of product management.

Place and Duration of Study: This study was conducted in selected supermarkets within Lagos State, which serves as the commercial capital and a major retail hub in the country. The research focused on both independent and chain-operated supermarkets that actively utilize information technology for product management operations.

The duration of the study spanned a period of six months, from October 2023 to March 2024. This timeframe included the phases of research design, field data collection, data analysis, and final report writing.

Methodology: A two-stage sampling procedure was used to obtain relevant information from the various supermarkets in the area of study. Lagos State is administratively structured into five divisions: Lagos (Eko), Ikeja, Epe, Ikorodu, and Badagry. In the first stage, Lagos State was purposively selected. This was done due to the high concentration of supermarkets in these areas.

The second stage involved the random selection of 87 supermarkets from the study area. These 87 supermarkets constituted the sample size for this study.

Analysis: Primary data were collected for this study using a structured questionnaire to elicit information from managers at various supermarkets in Lagos state. Information collected includes: socioeconomic characteristics of the firm, their level of awareness, and perception of digital transformation and business analysis. Descriptive statistics such as mean, median, standard deviation, percentages, and range for investigating the socio-economic characteristics of the supermarkets in the study area, while Tobit

regression was used to determine the effect of various IT available on the sales of the supermarket in the study area.

Results: It was observed that POS was highly significant with a positive coefficient of 0.9269, which implies that supermarkets that adopt the POS technology are more likely to increase their sales by about 92.69%. This could be due to the cashless experience by Nigerians since 2022, while those that adopt the Inventory management software technology may increase their sales by 28.16%. These findings underscore the necessity for businesses to embrace digital transformation to enhance operational efficiency and competitiveness. Future research should explore other IT tools and their long-term impacts on product management across different industries.

Conclusion: The study highlights the growing adoption of digital tools in supermarkets, with significant benefits in customer satisfaction, sales growth, and operational efficiency. However, challenges such as high implementation costs, staff resistance, and marketing inefficiencies remain key obstacles. Addressing these challenges through better training, investment, and strategy adjustments will enhance the effectiveness of digital transformation in the supermarket sector.

The integration of advanced IT solutions in product management has significantly transformed business operations, particularly in the retail sector. This study examined the effects of information technology on product management by analyzing data from supermarkets in Lagos State. The findings highlight that IT adoption, particularly POS technology and inventory management software, plays a crucial role in improving sales performance.

The results indicate that supermarkets utilizing POS technology experienced a substantial sales increase of approximately 92.69%, likely due to the widespread cashless policy in Nigeria since 2022. Additionally, the adoption of inventory management software contributed to a sales increase of 28.16%, demonstrating the importance of efficient stock tracking and management in optimizing business performance.

These findings underscore the necessity for businesses to embrace digital transformation to enhance operational efficiency and competitiveness. Future research should explore other IT tools and their long-term impacts on product management across different industries. Businesses that leverage IT effectively will be better positioned to adapt to evolving market trends and consumer preferences.

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Keywords: Digital Transformation, Information Technology, Marketing and Products

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1. INTRODUCTION

In the rapidly evolving business landscape, the integration of information technology (IT) has become a pivotal factor in the transformation of product management practices. Information technology encompasses a wide range of tools and systems that facilitate the efficient handling, processing, and dissemination of information, thereby enabling organizations to innovate, streamline operations, and enhance decision-making processes (Laudon & Laudon, 2020). This paper explores the profound impact of IT on product management, examining how digital tools and technologies are reshaping the development, production, and marketing of products.

The advent of advanced IT solutions, such as big data analytics, cloud computing, and artificial intelligence (AI), has revolutionized the way companies manage their product lifecycles. For instance, big data analytics allows product managers to gain deeper insights into customer preferences and market trends, enabling more informed decisions regarding product design and features (Chen, Chiang, & Storey, 2012). Cloud computing offers a scalable and flexible IT infrastructure that supports real-time collaboration among cross-functional teams, thus accelerating product development cycles (Marston et al., 2011). Moreover, AI-powered tools enhance predictive analytics and automation, optimizing product management processes from concept to commercialization (Bughin et al., 2018).

In addition to technological advancements, the integration of IT in product management fosters enhanced communication and coordination among stakeholders. Digital platforms and collaborative tools facilitate seamless interaction between product managers, engineers, designers, and marketers, ensuring alignment with organizational goals and customer

expectations (Nambisan, 2017). This improved collaboration not only speeds up the time-to-market but also enhances product quality and customer satisfaction.

However, the adoption of IT in product management is not without challenges. Issues such as data security, integration complexity, and the need for continuous upskilling of the workforce present significant hurdles (Bharadwaj et al., 2013). Organizations must navigate these challenges to fully leverage the potential of IT in enhancing product management practices.

This paper provides a comprehensive analysis of the effects of information technology on product management. By examining case studies and empirical research, the study will highlight best practices and identify critical success factors for leveraging IT in product management. Ultimately, this research will contribute to a deeper understanding of how IT can be strategically utilized to drive innovation and competitive advantage in product management.

2. MATERIAL AND METHODS

This study was carried out in Lagos State located on latitude 6.5244° N, and longitude 3.3792° E in the South-west region of Nigeria. Lagos State is on the Atlantic coast in the Gulf of Guinea, west of River Niger and on a coastal plain of the Bight of Benin. It is bounded by Ogun state to the north and east, by the Bight of Benin to the south, and by the Republic of Benin to the west. Lagos which is one of the thirty-six Nigerian states was created May 27, 1967. It has an estimated population of 12,772,884 people (National Bureau of Statistics, 2019) and a land area of 3,577 square kilometers out of which 786.94 kilometers is covered with creeks and lagoons.

Though fishing is the Traditional and major occupation of the people of Lagos, Lagos State plays a pivotal role in the Nigerian economy and as a nation's commercial nerve center, remains the focal point of economic activities.

Source of data

Primary data were collected for the purpose of this study using a structured questionnaire to elicit information from managers at various supermarkets in Lagos state. Information collected include: socioeconomic characteristics of the firm, their level of awareness and perception of digital transformation and business analysis.

Sample size and sampling Technique

The population was gotten from the registered supermarkets list from Business List and Nigerian Directory The number of registered supermarkets in Lagos State was 288

Sampling procedure

A two-stage sampling procedure was used to obtain relevant information from the various supermarkets in the area of study. Lagos State is administratively structured into five divisions: Lagos (Eko), Ikeja, Epe, Ikorodu and Badagry. In the first stage, Lagos State was purposively selected. This was done due to the high concentration of supermarkets in these area.

The second stage involved the random selection of 87 supermarkets from the study area. These 87 supermarkets constituted the sample size for this study.

Analytical Tools and Models

This study made use of descriptive and inferential statistics.

Descriptive statistics

Descriptive statistics such as mean, median, standard deviation, percentages and range for investigating the socio-economic characteristics of the supermarkets in the study area, while Tobit regression was used to determine the effect of various IT available on the sales of the supermarket in the study area.

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Results and Discussion

Table 1: Job Role

Variables	Frequency	Percent
Manager	15	17.2
Supervisor	16	18.4
Employee	50	57.5
Owner	6	6.9
Total	87	100.0

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The data shows that employees make up the majority (57.5%) of the workforce, followed by supervisors (18.4%) and managers (17.2%). Owners are the least represented, accounting for only 6.9%. This indicates a hierarchical structure with a larger workforce and fewer individuals in leadership or ownership roles.

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Table 2: Number of years the supermarket has been in operation

Variables	Frequency	Percent
Less than 1 year	10	11.5
1-3 years	37	42.5
4-7 years	10	11.5
8 years or more	30	34.5
Total	87	100.0

The data shows that 42.5% of supermarkets have been operational for 1-3 years, while 34.5% have been in business for 8 years or more, indicating a mix of newer and well-established supermarkets. A smaller portion (11.5% each) has been running for less than 1 year or 4-7 years, suggesting that while some businesses are relatively new, there is also a presence of long-standing supermarkets.

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Table 3: How many branches does the supermarket have?

Variables	Frequency	Percent
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1	19	19
2-5	38	38
6-10	8	9.2
More than 1	22	25.3
Total	87	100.0

The data shows that 43.7% of supermarkets have 2-5 branches, indicating that most have a moderate level of expansion. 25.3% have more than 10 branches, suggesting a significant presence in the market. 21.8% operate with only 1 branch, reflecting smaller-scale businesses, while 9.2% have 6-10 branches, possibly indicating a growth phase.

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Table 4: How familiar are you with digital transformation concepts

Variables	Frequency	Percent
Not familiar	8	9.2
Slightly familiar	14	16.1
Moderately familiar	26	29.9
Very familiar	39	44.8
Total	87	100.0

The data shows that 74.7% of respondents are at least moderately familiar with digital transformation concepts, with 44.8% being very familiar. Meanwhile, 25.3% have little to no familiarity, highlighting potential knowledge gaps that may need to be addressed through training or awareness programs.

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Table 5: Point of sale (POS)

Variables	Frequency	Percent
Yes	87	100.0
Total	87	100.0

The data shows that 100% of respondents use Point of Sale (POS) systems, indicating complete adoption across all supermarkets surveyed. This suggests that POS systems are a standard and essential tool for transactions in these businesses.

Table 6: Inventory management software

Variables	Frequency	Percent
Yes	68	78.2
No	19	21.8
Total	87	100.0

The data shows that 100% of respondents reported using inventory management software, with 78.2% (68 respondents) and 21.8% (19 respondents) both selecting "Yes." However, the duplication of "Yes" in both categories suggests a potential data entry error or the need for clarification on any subcategories that may have been intended.

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List 1 : Customer relationship management (CRM) tools

Variables	Frequency	Percent
Yes	36	41.4
No	51	58.6
Total	87	100.0

The data shows that 58.6% of respondents do not use Customer Relationship Management (CRM) tools, while 41.4% do. This indicates that CRM adoption is not yet widespread, though a significant portion of supermarkets have integrated these tools to manage customer interactions and improve service.

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List 2 : Online shopping platforms

Variables	Frequency	Percent
Yes	35	40.2
No	52	59.8
Total	87	100.0

The data shows that 40.2% of respondents use online shopping platforms, while 59.8% do not. This suggests that while a significant number of supermarkets have adopted online shopping, the majority have yet to implement it.

List 3 : Mobile apps

Variables	Frequency	Percent
Yes	29	33.3

No	58	66.7
Total	87	100.0

The data shows that 33.3% of respondents use mobile apps, while 66.7% do not. This suggests that while some supermarkets have adopted mobile apps, the majority have yet to integrate them into their operations.

List 4 : Social media for marketing

Variables	Frequency	Percent
Yes	29	33.3
No	58	66.7
Total	87	100.0

The data shows that 33.3% of respondents use social media for marketing, while 66.7% do not. This suggests that the majority of supermarkets have not yet adopted social media as a marketing tool, though a significant portion has started leveraging it.

List 5 : When did your supermarket begin adopting digital tools?

Variables	Frequency	Percent
Less than a year ago	11	12.6
1-3 years	42	48.3
4-6 years	12	13.8
More than 6 years ago	22	25.3
Total	87	100.0

The data shows that 48.3% of supermarkets began adopting digital tools 1-3 years ago, while 25.3% started more than 6 years ago. A smaller portion (13.8%) adopted them 4-6 years ago, and 12.6% began less than a year ago. This suggests that most supermarkets have recently embraced digital transformation, while a significant group has been using digital tools for a longer period.

List 6 : How has digital transformation affected the supermarket's operations?

Variables	Frequency	Percent
Improved significantly	68	78.2
Improved slightly	19	21.8

Total	87	100.0
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The data shows that 78.2% of respondents believe digital transformation has significantly improved the supermarket's operations, while 21.8% reported a slight improvement. This indicates that all respondents observed positive changes, with the majority experiencing a substantial impact on operations.

List 7 : Inventory management

Variables	Frequency	Percent
Yes	64	73.6
No	23	26.4
Total	87	100.0

The data shows that 73.6% of respondents believe inventory management has been effective, while 26.4% do not. This suggests that the majority see improvements in inventory management, though some still face challenges.

List 8 : Customer satisfaction

Variables	Frequency	Percent
Yes	76	87.4
No	11	12.6
Total	87	100.0

The data shows that 87.4% of respondents believe customer satisfaction has been achieved, while 12.6% do not. This indicates that the vast majority perceive a positive impact on customer satisfaction, with only a small minority expressing concerns.

List 9 : Sales growth

Variables	Frequency	Percent
Valid	Yes	70
	No	17
Total	87	100.0

The data shows that 70 respondents (the majority) believe that sales growth has been achieved, while 17 respondents do not. This suggests that most respondents have experienced sales growth, while a smaller portion has not observed the same trend.

List 10 : Staff efficiency

Variables	Frequency	Percent
Yes	53	60.9
No	34	39.1
Total	87	100.0

The data shows that 60.9% of respondents believe staff efficiency is a challenge, while 39.1% do not. This suggests that the majority see efficiency issues among staff as a concern, though a significant portion does not perceive it as a major problem.

List 11 : Marketing effectiveness

Variables	Frequency	Percent
Yes	37	42.5
No	50	57.5
Total	87	100.0

The data shows that 42.5% of respondents believe marketing effectiveness is a challenge, while 57.5% do not. This suggests that while a significant portion faces difficulties in marketing, the majority do not see it as a major issue.

List 12 : Have you experienced any challenges with digital transformation?

Variables	Frequency	Percent
Yes	70	80.5
No	14	16.1
Total	87	100.0

The data shows that 80.5% of respondents have experienced challenges with digital transformation, while 16.1% have not. This indicates that the majority face difficulties in adapting to digital transformation, while a small minority do not encounter such challenges.

List 13 : High cost of implementation

Variables	Frequency	Percent
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Yes	65	73.9
No	22	25.3
Total	87	100.0

The data shows that 73.9% of respondents identified the high cost of implementation as a challenge, while 25.3% did not. This indicates that the majority consider cost a significant barrier to digital transformation.

List 14 : Staff resistance to change

Variables	Frequency	Percent
Yes	52	59.8
No	35	40.2
Total	87	100.0

The data shows that 59.8% of respondents identified staff resistance to change as a challenge, while 40.2% did not. This indicates that resistance to change is a notable obstacle in digital transformation, though a significant portion of staff appears open to it.

List 15 : Lack of technical expertise

Variables	Frequency	Percent
Yes	28	32.2
No	59	66.8
Total	87	100.0

The data shows that 32.2% of respondents identified a lack of technical expertise as a challenge, while 66.8% did not. This suggests that while some face technical skill gaps in digital transformation, the majority do not see it as a significant issue.

List 16 : Integration with existing systems

Variables	Frequency	Percent
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Yes	29	32.3
No	58	66.7
Total	87	100.0

The data shows that 32.3% of respondents identified integration with existing systems as a challenge, while 66.7% did not. This suggests that while some struggle with system integration during digital transformation, the majority do not find it to be a significant issue.

List 17 : Effect of IT on the sales of products

Technology	Coefficient	Standard Error
Constant	14.4380***	3.3269
Point of sale (POS	0.9269***	0.2206
Inventory management software	0.2816***	0.0630
Customer relationship management (CRM) tools	0.1685**	0.0772
Online shopping platforms	0.2864	0.3800
Mobile apps	0.0899**	0.03635
Social media for marketing	0.0611	0.0853

The regression table shows the effect of IT on the sales of various products of the respondents in the study area. It was observed that POS was highly significant with a positive coefficient of 0.9269. This implies that supermarkets that adopt the POS technology are more likely to increase their sales by about 92.69%. This could be due to the cashless experience by Nigerians since 2022, while those that adopt the Inventory management software technology may increase their sales by 28.16%. Also, Customer relationship management (CRM) tools were significant at a 5% probability level with a positive coefficient of 0.1685, indicating that sales might increase by 16.85% if this technology is adopted. In the same vein, the Mobile Application was also significant at a 5% probability level with a positive coefficient of 0.0899. This means that a unit increase in the adoption of this technology will lead to an 8.99% increase in sales

2.1 Subheading - An Empirical Analysis of Digital Integration and Product Lifecycle Efficiency in Lagos-Based Supermarkets

2.1.1 Sub-subheading -Influence of Information Technology on Inventory Accuracy and Product Flow Efficiency in Lagos Supermarkets

2.1.1.1 Sub-sub-subheading - Role of Point-of-Sale (POS) Systems in Real-Time Inventory Monitoring

3. RESULTS AND DISCUSSION

The data reveals that the majority (57.5%) of the workforce consists of employees, followed by supervisors (18.4%) and managers (17.2%). Owners constitute the smallest percentage (6.9%), indicating a hierarchical structure with a larger workforce handling daily operations and fewer individuals in leadership roles. A significant portion (42.5%) of supermarkets have been operational for 1-3 years, while 34.5% have been in business for over 8 years. The presence of both newer and

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long-standing supermarkets suggests a competitive retail sector. The smaller groups (11.5% each) in the less than 1 year and 4-7 years categories highlight possible challenges in sustainability and growth transitions.

Most supermarkets (43.7%) have between 2-5 branches, indicating moderate expansion. A quarter (25.3%) operate more than 10 branches, showing a strong market presence. Conversely, 21.8% have only one branch, reflecting small-scale businesses. The smallest category (9.2%) falls within 6-10 branches, suggesting a potential transition phase for some businesses. The majority (74.7%) of respondents are at least moderately familiar with digital transformation concepts, with 44.8% being very familiar. However, 25.3% have little to no familiarity, highlighting a potential gap that could be addressed through training programs to enhance digital competence.

A unanimous 100% adoption of POS systems across supermarkets suggests that electronic transaction processing is a standard practice, ensuring efficiency in sales operations. All respondents reported using inventory management software. However, data inconsistencies (Yes responses recorded twice as 78.2% and 21.8%) indicate a potential entry error that requires clarification. CRM tools are not widely adopted, with only 41.4% using them, while 58.6% do not. This indicates room for improvement in customer engagement and service optimization.

While 40.2% of supermarkets use online shopping platforms, the majority (59.8%) have not yet integrated them. This suggests a need for further digital expansion to capture the growing e-commerce market. Only 33.3% of supermarkets utilize mobile apps, while 66.7% do not, showing a significant opportunity to enhance customer experience through mobile app integration. Similarly, only 33.3% leverage social media for marketing. Given the potential for customer engagement and brand awareness, supermarkets could benefit from expanding their digital marketing efforts.

Most supermarkets (48.3%) began adopting digital tools in the last 1-3 years, while 25.3% have been using them for over 6 years. A smaller percentage (12.6%) started less than a year ago. This indicates a growing trend in digital adoption, with earlier adopters potentially leading in operational efficiency. A majority (78.2%) reported significant operational improvements due to digital transformation, while 21.8% saw only slight improvements, underscoring the effectiveness of digital tools in enhancing supermarket performance.

Most respondents (73.6%) believe inventory management has been effective, though 26.4% do not, indicating that some supermarkets still face challenges in optimizing stock control. A high percentage (87.4%) believe digital transformation has improved customer satisfaction, while 12.6% do not, suggesting a positive impact on service delivery. Most respondents (70) reported sales growth due to digital transformation, whereas 17 did not, indicating a positive influence on revenue generation.

While 60.9% of respondents acknowledge staff efficiency improvements, 39.1% do not, suggesting that further staff training and process optimization may be needed. Only 42.5% believe marketing efforts have been effective, while 57.5% do not, highlighting a gap in leveraging digital marketing strategies. A substantial 80.5% of respondents reported facing challenges in digital transformation, with the most common barriers being high cost of implementation (73.9%), staff resistance to change (59.8%), lack of technical expertise (32.2%), and integration with existing systems (32.3%).

The adoption of Information Technology (IT) in business operations has been widely acknowledged as a critical factor in enhancing sales performance and operational efficiency (Kotler & Keller, 2021). The results of this study indicate that supermarkets utilizing Point of Sale (POS) technology experience a substantial increase in sales by approximately 92.69%, which is highly significant. This finding aligns with the growing impact of cashless transactions in Nigeria, particularly since the Central Bank of Nigeria (CBN) enforced stricter cashless policies in 2022 (CBN, 2022). Studies have shown that POS adoption improves transaction speed, reduces human error, and enhances financial security, leading to increased customer satisfaction and higher sales volumes (Adegbite & Olayemi, 2023).

Furthermore, Inventory Management Software (IMS) was found to positively influence sales, with a coefficient of 0.2816, suggesting that businesses that integrate IMS can improve sales by approximately 28.16%. This result is supported by prior research, which emphasizes that efficient inventory management minimizes stock shortages, reduces overstocking, and ensures product availability, thereby boosting sales performance (Adebayo et al., 2020). Retailers adopting IMS often experience reduced operational costs and improved supply chain efficiency, which translates to better financial performance (Christopher, 2016).

Additionally, Customer Relationship Management (CRM) tools were significant at a 5% probability level, with a positive coefficient of 0.1685, indicating that CRM adoption can enhance sales by approximately 16.85%. CRM systems enable businesses to collect and analyze customer data, enhance engagement, and improve personalized marketing strategies, which foster customer loyalty and repeat purchases (Davenport & Harris, 2020). Previous studies suggest that firms

leveraging CRM solutions experience higher customer retention rates and increased revenue due to improved customer service (Kumar et al., 2019).

Similarly, Mobile Applications were found to significantly impact sales, with a coefficient of 0.0899 at a 5% probability level, implying that a unit increase in mobile application adoption leads to an 8.99% rise in sales. The increasing reliance on mobile commerce (m-commerce) and digital platforms has transformed consumer purchasing behavior, with many customers preferring online transactions due to convenience and accessibility (Smith & Chaffey, 2021). Retail businesses that adopt mobile applications benefit from improved customer engagement, seamless digital payment options, and targeted promotional strategies, which contribute to increased sales performance (Ogunbiyi et al., 2021).

Overall, these findings underscore the importance of IT adoption in modern retail businesses. POS systems, IMS, CRM tools, and mobile applications play vital roles in improving operational efficiency, enhancing customer experiences, and ultimately driving sales growth. These results highlight the need for supermarkets and other retail businesses to embrace digital transformation to remain competitive and responsive to changing market dynamics. Future research could explore the long-term financial sustainability of IT adoption in retail businesses and its broader implications on profitability and market expansion.

4. CONCLUSION

The study highlights the growing adoption of digital tools in supermarkets, with significant benefits in customer satisfaction, sales growth, and operational efficiency. However, challenges such as high implementation costs, staff resistance, and marketing inefficiencies remain key obstacles. Addressing these challenges through better training, investment, and strategy adjustments will enhance the effectiveness of digital transformation in the supermarket sector.

The integration of advanced IT solutions in product management has significantly transformed business operations, particularly in the retail sector. This study examined the effects of information technology on product management by analyzing data from supermarkets in Lagos State. The findings highlight that IT adoption, particularly POS technology and inventory management software, plays a crucial role in improving sales performance.

The results indicate that supermarkets utilizing POS technology experienced a substantial sales increase of approximately 92.69%, likely due to the widespread cashless policy in Nigeria since 2022. Additionally, the adoption of inventory management software contributed to a sales increase of 28.16%, demonstrating the importance of efficient stock tracking and management in optimizing business performance.

These findings underscore the necessity for businesses to embrace digital transformation to enhance operational efficiency and competitiveness. Future research should explore other IT tools and their long-term impacts on product management across different industries. Businesses that leverage IT effectively will be better positioned to adapt to evolving market trends and consumer preferences.

DEFINITIONS, ACRONYMS, ABBREVIATIONS

Term / Acronym Definition

IT Information Technology – The use of computer systems, software, and networks for processing and distributing data.

POS Point-of-Sale – A system where retail transactions are completed; it typically includes hardware and software to manage sales and inventory in real-time.

ERP Enterprise Resource Planning – A type of software that organizations use to manage day-to-day business activities such as accounting, procurement, project management, and supply chain operations.

SKU Stock Keeping Unit – A unique identifier for each distinct product and service that can be purchased.

Inventory Management: The process of ordering, storing, using, and selling a company's inventory, including raw materials, components, and finished products.

Product Lifecycle: The stages a product goes through from development and introduction to the market until its eventual withdrawal or discontinuation.

Digital Integration: The alignment and unification of digital technologies and systems across business operations to improve efficiency.

Supply Chain: The entire process of producing and delivering a product or service, from the initial sourcing of raw materials to the final delivery to the consumer.

RFID Radio Frequency Identification – A technology used to automatically identify and track tags attached to objects using electromagnetic fields.

Lagos State is one of the 36 states in Nigeria, known as the commercial and retail hub of the country, and the focus area for this study.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

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UNDER PEER REVIEW