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LEVERAGING DIGITAL TECHNOLOGIES TO ENHANCE BUSINESS PERFORMANCE: AN ANALYSIS OF REGISTERED SMALL-SCALE ENTERPRISES (SSES) IN THE RETAIL SECTOR OF NIGERIA

¹ Jimoh Charles Adefikayo, ² Akanji Oluwaseun Joseph, ³ Olagbemiro Joshua Olayemi & ⁴ Oluwaseun Opeyemi Fadipe

¹ Department of Business Administration, Faculty of Management and Social Sciences, Thomas Adewumi University, Oko-Irese, Kwara State, Nigeria. ORCID: <https://orcid.org/0009-0000-5579-4993>

² Department of Marketing, Faculty of Management Sciences, Ladoke Akintola University of Technology, Ogbomosho, Oyo State, Nigeria. ORCID: <https://orcid.org/0009-0007-9262-9090>

³ Department of Marketing, Faculty of Management Sciences, Ladoke Akintola University of Technology, Ogbomosho, Oyo State, Nigeria. ORCID: <https://orcid.org/0009-0003-6965-0861>

⁴ Department of Accounting, Faculty of Management Sciences, Ladoke Akintola University of Technology, Ogbomosho, Oyo State, Nigeria. Email: oluwaseun.fadipe@gmail.com
Corresponding Email: jimoh.charles@tau.edu.ng

Abstract

It is widely recognized in today's globalised and knowledge-driven business environment that technology makes an important determinant of business performance. Surprisingly, Small Scale Enterprises (SSEs) in retail sector of Nigeria remain technologically stagnant despite the fact that leveraging digital technologies can enhance business scalability and improve overall performance. The study therefore accessed the available digital tools that SSEs in retail sector can leverage on in order to enhance their business performance. Using a survey research design, total populations of 118 registered specialty stores across the three senatorial districts of Oyo State, Nigeria were purposively selected to constitute the sample size. While data were sourced primarily via questionnaire, a total of 118 copies were administered to all SSEs managers, and upon return, the data were subjected to descriptive and multiple regression analyses which were evaluated at 5% level of significance. The multiple regression results ($R^2 = 0.675$ and $p\text{-value} = 0.0001$) implies that, digital technological tools significantly affected SSEs performance. The study concluded that integrating digital technologies has a positive and significant effect on level of their customers' satisfaction, thus enhancing the overall business performance of Nigerian SSEs in retail sector. It is recommended that SSE owners and agencies for SSEs development should fund invest in technological innovation towards exploration of innovative ideas for improving the overall performance of SSEs in Nigeria.

Keywords: Digital Technology, Digital Technological Tools, Technological Innovation

Introduction

In today's globalised and knowledge-driven business environment, it is widely accepted that technology is so crucial and makes an important determinant of business sustainability, making it one of the most prevalent factors in an organization (Oyedele, et al., 2020). The emerging economies have recognized the potential of technological innovation (a mixture of technology and innovation) in fostering organizational performance and the integration of digital technologies into various economic activities enhances efficiency and creates new opportunities for business growth (Lukman, Suliamon & Babatubde, 2020). A study by Chiemeke and Imafiyor (2020) shows that the adoption of digital technologies has positively impacted productivity and customer satisfaction,

supporting firms in streamlining their operations and creating more effective customer experiences. However, in today's business world dominated by technological development and constant technological innovation, it has become important to make technology an integral part of entrepreneurship.

Noticeably, there is an increasing rate at which organizations in Nigeria, both the private and public sectors are now integrating various technologies into their businesses in order to tap its usefulness in term of tasks simplifying and increasing productivity (Bahrami, Azizi, et al., 2019). The adoption of technology and usage of digital technology tools by organizations has transformed business operations, not only in term of increased conveniences and speed of transactions, but also positively impacted their financial performance (Adeku, 2021). This implies that, modern technologies, if well embraced will better equipped organizations to engage with environmentally conscious clients, provide excellent service to workers and customers, and have more advanced and successful leadership management.

On this note, Coccia (2019) described technology usage as the extent to which technological tools are used to satisfy needs, achieve or create value for the benefit of an individual, group, or organization. This implies that technology usage encompasses the identification and exploitation of technological innovations for the creation of new enterprises and growth of existing enterprises with emphasis on translating scientific and technological advances into commercially viable products and services. Evidence from literature shows that organizations integrate digital technologies in their businesses due to an increase in technological advancement, fundamentally altering how they operate and deliver value—a process called “Digital transformation” (Ajiri, Osahon & Demaki, 2025). Since the emerging trend in the technology advancement, and increased level of technology utilization, the digital transformation has created a business-friendly environment for entrepreneurs to advance their enterprises, thus, bringing about a significant impact on business performance (Oyedele, et al., 2020).

Business performance refers to how well a company achieves its objectives, often conceptualized via financial metrics (profitability, revenue growth, return on equity) and non-financial indicators (customer satisfaction, innovation, market share, operational efficiency) (Oke, 2023; Zakari & Ibrahim, 2021). In the Nigerian context, business performance has been studied across sectors including manufacturing, SMEs, telecommunications, and services, with emphasis on determinants, challenges, and strategies for improvement. Olubiyi, Ogunnaike and Adewale, (2022) observed that measuring business performance offers numerous benefits to organizations across various industries. Also, performance measurement allows organizations to improve in the area of operational efficiency. By continuous identifying inefficiencies and areas that require improvement, organizations can streamline their operations, reduce costs and enhance productivity (Amin, et al., 2016).

Statement of the Problem

Literature revealed that small-scale enterprises owners leverage digital technologies through digital transformation to achieve scalability, specifically in the area of digital technology tools, where many businesses utilizes mobile applications for tasks completion, such as communication, financial transactions and marketing (Afolabi and Ogunleye, 2018). The growing trend among entrepreneurs towards digital technologies adoption, using platforms like Jumia, JiJi, and Konga, has provided them with the opportunities of reaching wider customer base online (Olumide, Olumide and Olumide, 2017). The integration of digital technology tools is also pivotal for firms, with research indicating that digital tools such as mobile applications, e-commerce platforms, social media marketing, and digital payment platforms has transformed global business operations, enabling firms to improve efficiency, increased customer engagement, likewise drives economic growth by

enhancing productivity, reducing costs, and enabling new forms of value creation, and enhances overall business performance. (Egunjobi, 2025).

However, in Nigeria's retail sector, small-scale enterprises (SSEs) often encounter considerable hurdles when it comes to adopting and making the most of new technologies due to economic constraints, limited technical expertise, poor market access, and setback in the level of technological innovation, most especially the utilization of digital tech-tools (Jimoh, et al., 2022; Etuk, et al., 2025). Even with government efforts and the rise of affordable digital tools, the level of adoption among SSEs tends to be uneven and, at times, quite superficial (Onikoyi, Babatunde & Odeh, 2022). These limitations lead to operational hiccups, reduction in competitiveness, and a greater susceptibility to market fluctuations, especially in a world where digital transactions are becoming the norm (Ndionyenma & Abugu, (2025). Additionally, there's a lack of comprehensive research on how embracing digital tools impacts the performance of retail small-scale enterprises in Nigeria, leaving a gap in our understanding (Adeleke & Owolabi 2020; Eze, Chinedu-Eze & Bello, 2021).

Consequently, there is a pressing need to analyze the extent to which SSEs in the Nigerian retail sector leverage digital technologies to enhance business performance. To effectively achieve this, there is a need to adequately explore the views of entrepreneurs in SSEs in Nigeria's retail sector in identifying and analyzing the available digital technology tools to leverage and analyze the effect of integrating such tools on their overall business performance, with emphasis on the level of customer satisfaction.

The study seeks to address and provide answers to the following research questions:

- 1) What are the digital technological tools employed by the SSEs in retail sector of Oyo State, Nigeria?
- 2) To what extent does digital technological tools integration affect customer satisfaction of the SSEs in retail sector of Oyo State, Nigeria?

Research Objectives

The main objective of this study is to carry out an analysis of leveraging digital technologies to enhance the performance of SSEs in retail sector of Nigeria. Other specific objectives are to;

- 1) identify and analyse the digital technological tools employed by the SSEs in retail sector of Oyo State, Nigeria;
- 2) analyse the extent to which digital technological tools integration affect customer satisfaction of the SSEs in retail sector of Oyo State, Nigeria.

Research Hypothesis

H01: Digital Technological tools integration has no significant effect on Customer Satisfaction of the SSEs in retail sector of Oyo State, Nigeria.

Conceptual Review

Technological Innovation (TI)

Technological innovation is the introduction of new or improved products, processes, or practices that drive value creation within industries. It often emerges from Research and Development (R & D) activities (Fagerberg, 2018). In modern contexts, technological innovation increasingly refers to integrating digital technologies such as Artificial Intelligence (AI), Internet-of-Thing (IoT), and automation into traditional business operations, enabling new business models and enhanced efficiency (Ahmad & Van Looy, 2020).

Technological innovation may range from incremental changes to radical breakthroughs that disrupt existing markets. This dual framework emphasizes both gradual improvements and paradigm-shifting advances (Schumpeter, 1934). However, In Nigeria, technological innovation has been

shown to impact environmental quality, institutional governance, and economic growth, reflecting the interaction of technological advancement with social, economic, and environmental implications (Eretan, Atoyebi, & Sodi, 2024). This implies that, technological innovation have transformative effect on both technology and society. This approach is crucial as it allows organizations to sustain competitive advantage in dynamic environments (Ahmad & Van Looy, 2020). Theories such as "innovation diffusion" further emphasize the process by which new technologies spread and highlighting stakeholder influence on technology uptake.

These various definitions underscore technological innovation as a dynamic and multi-dimensional concept, adapting to emerging challenges and opportunities across industries. It further emphasized the significance of technological innovation in fostering economic growth and addressing societal needs.

Digital Technology (DT)

Digital technology broadly refers to technologies that generate, store, process, and communicate information in digital form. It includes hardware (e.g. computers, mobile devices), software, mobile apps, cloud computing, Internet-of-Things (IoT), digital payments, digital communications and AI-driven systems (Oduntan & Isere, 2022). These technologies underpin the "digital economy" and enable new forms of organization, communication, and value creation across education, health, commerce and governance.

Digital technologies are systems with distinctive economic and technical properties, including scalability, network effects, and data-driven operations that fundamentally change how goods and services are produced and consumed (Benlian et al., 2024; Furr, Garlandt & Shipilov, 2022). The literature often emphasizes both functional aspects (computing, networking, and automation) and social-economic impacts (access, inclusion, skills). Another view emphasizes that digital technologies are being adopted primarily for the business value they create efficiency, customer experience, transparency, rather than solely for novelty (Olaghere, Inegbedion, & Osiobe, 2023).

Business Performance and Indices

Performance is the successful execution or accomplishment of something. It's not just about possessing knowledge it's about applying it. Productivity, a key criterion for measuring success, can be viewed as a fairly broad concept that assesses the ability to successfully achieve entrepreneurial goals. However, performance appears to be operationalized, conceptualized, and measured along multiple dimensions, making inter-comparisons difficult. There are many researchers who have worked on the business performance measurement across industries. To begin, Ogunyomi (2015) used the financial performance and non-financial performance dimensions to measure small and medium-sized business performance, while Lonial and Carter (2015), however, used market performance, quality performance, and financial performance in measuring business performance of SMEs. A bit different from the earlier dimensions, Zaglia (2015) use financial performance and marketing performance as yardstick for business performance measurement. Last but not least, Mozaheb, Tahriri, and Hekmatpanah (2015) applied balanced scorecard views, namely financial, customer, and internal process, learning, and growth views. Obunike and Udu (2019) also posit that dimensions to performance can base on sales growth. Growth can be attributed to increases in factors of production and improvements in efficient allocation between economic activity, knowledge, and the rate of innovation. The above-mentioned dimensions are used by scholars to measure the business performance of SSEs.

On the contrary, business performance can be measured using either qualitative (subjective) or quantitative (objective) criteria. Many studies have shown a preference for subjective measures when assessing business performance due to the difficulty in obtaining objective financial data.

Managers often refuse to provide researchers with accurate, objective performance data. Even if objective data is available, it often does not fully reflect the company's actual performance because managers can manipulate the data to avoid personal or corporate taxes.

Small-Scale Enterprises (SSEs)

Small-scale enterprises have a narrow context within which its operation is carried out. According to the existing literatures, although definitions vary by economy and country, the basic concept is the same. Based on this, Asah and Linett (2021) characterized SSEs by their ability to respond quickly to changing market conditions and challenges. In Nigeria, parameters like the number of employees, total investment (excluding land), and working capital are used to categorize businesses into micro, small-scale, and medium-scale enterprises. For instance, the Central Bank of Nigeria (as referenced in Ukwueze, Asogwa & Odo, 2018) defines a small-scale enterprise as one that employs between 11 and 100 people and has an investment or total cost of up to N50 million (not counting land). Most small scale enterprises in Nigeria are family-owned. They are characterized with low capital base, located in urban and pri-urban areas, and are mostly in the informal sector. The informal sector in Nigeria refers to economic activities in all sectors of the economy conducted outside the scope of government regulation.

Technological Innovation and SSEs Performance in Nigeria

- 1) Improved Operational Efficiency: Technological innovations enable Nigerian SMEs to streamline their operations, resulting in increased efficiency. A study by Shahadat et al., (2023) found that the adoption of technology significantly improves operational processes, which allows SMEs to deliver products and services more effectively.
- 2) Cost Reduction and Profit Maximization: Technological innovations help SSEs reduce operational costs and improve profit margins. A research study by Irefin et al., (2020) demonstrated that the use of technology in production and management processes leads to significant cost savings for SMEs in Nigeria.
- 3) Enhanced Product Quality and Customer Satisfaction: By utilizing modern technologies, Nigerian SSEs can improve the quality of their products and services, leading to higher customer satisfaction. A study by Oyalami, Adebisi and Adekunle, (2020) highlighted that technological advancements contribute to better quality control and innovation in product offerings.
- 4) Market Expansion and Increased Competitiveness: Digital technologies enable SSEs to reach broader markets, both locally and internationally. According to Anekwe, Owulo and Nosike, (2023), SMEs that adopt e-commerce platforms significantly enhance their market presence and competitiveness.
- 5) Collaboration and Networking: Technological tools facilitate collaboration among SSEs and with larger firms, enhancing knowledge sharing and resource utilization. A study by Eze and Chinedu (2021) highlights how technology-driven collaboration fosters innovation and competitiveness among SMEs.

Digital Technologies and Small-Scale Enterprises (SSEs) in Nigeria

Small-scale enterprises often rely on a variety of digital technological tools to streamline their activities, improve efficiency, and remain competitive (Onikoyi, Babatunde, & Odeh, 2022). The dimensions of adopted digital technological tools embraced by Nigerian SSEs in this study were Mobil apps, Point-of-sale, and Digital marketing tools. By leveraging these digital technological tools, small-scale enterprises can improve operational efficiency, enhance customer satisfaction, and achieve sustainable business performance in today's competitive business landscape.

- 1) Digital Marketing Tools: Digital marketing tools encompass various channels such as social media, email marketing, search engine optimization (SEO), content marketing, and pay-per-

- click (PPC) advertising, helping businesses reach and engage with their target audience online thereby increases brand visibility, generate leads, and drive sales.
- 2) Point-of-Sale (POS) Systems: POS systems allow businesses, especially retail and hospitality establishments to process payments, track inventory levels, generate sales reports, and analyze customer trends, thereby enhancing operational efficiency and improving customer service.
 - 3) Mobile Applications: Allow small businesses to engage with customers, manage operations, and access essential tools and information on mobile devices. Mobile apps can serve various purposes, such as online ordering, appointment scheduling, task management, expense tracking, and customer support, enhancing convenience and accessibility for both businesses and customers.

Theoretical Framework

The construct of this study was embedded in technology acceptance model, and Social Exchange Theory. Technology Acceptance Model (TAM) was adopted for this study based on the model's speculation for the adoption of a new technology which depends greatly on its perceived usefulness and perceived ease of use. While the Social Exchange Theory suggests that individuals engage in social interactions with the expectation of receiving rewards or benefits in return for their contributions, which implies that employees become engaged when they perceived that their organization values their contributions and provides rewards and support in return.

Conceptual Framework

This study visualized a model that showed both the independent and dependent variables. The independent variable which is digital technology is operationalized as the process by which entrepreneurs adopt and uses digital technological tools to utilize organizational resources in order to improve business performance or transform the existing business by providing more values to the customers. Digital technological tools were used to measure Digital Technology (DT) as supported by the work of Coccia (2019). Furthermore, the model shows the digital technological tools employed by the SSEs in order to enhance their business performance such as; Mobile Apps, Point-of-Sale (POS), and Digital Marketing Tools. SSEs performance which is the dependent variable was measured using non-financial criteria with focus on customer's satisfaction, as supported by the Tower (2012).

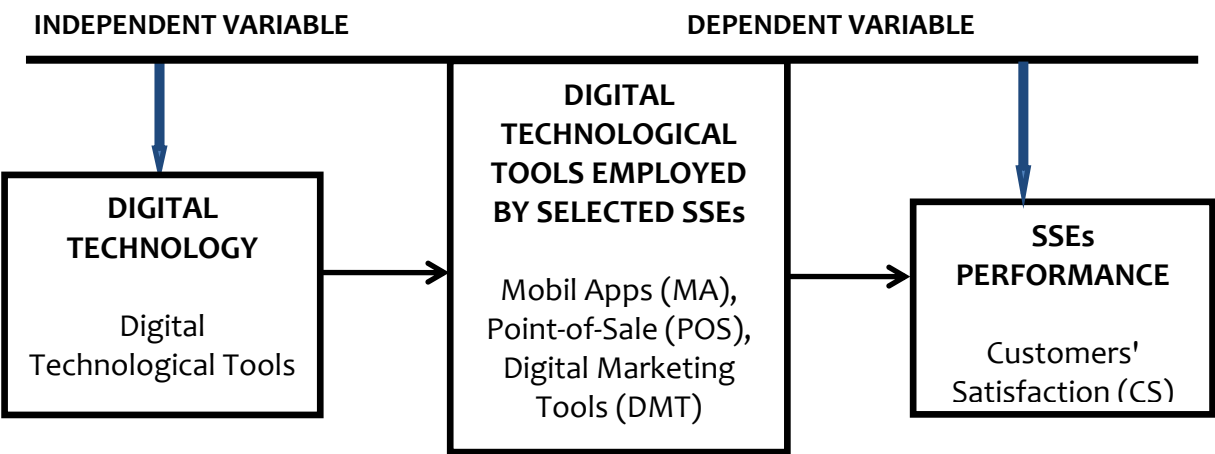


Figure 2.2: Conceptual Model Adapted for the Study

Source: Researcher Conceptual model adopted from the work of Karayiannis, (2006)

Methodology

This study employed survey research design. The entire 118 specialty stores across the three senatorial district of Oyo State and registered with Small and Medium Enterprises Agency of Nigeria (SMEDAN) as at 2024 were purposively selected and constituted the study population. Primary source of data was used via questionnaire, in which a total of 118 copies were administered to all SSEs managers, and upon return, the data were subjected to descriptive and Multiple regression analyses. Descriptive analysis was used to analyze the identified digital technological tools employed by the selected SSEs in Oyo State, such as mobile app, point-of-sales and digital marketing tools. Multiple regression analysis was also used in analyzing the effect of digital technological tools integration on SSEs performance. All the analyses were evaluated at 5% level of significance.

Results Of Data Analysis, Interpretation and Discussion

Analysis of Respondents Bio Data

Table 1. Demographic Information of Respondents

Demographic Features	Features	Frequency	Percentage
Age	Less than 25 or within	10	8.47%
	25-34years	27	22.88%
	35-44years	50	42.37%
	45years and above	31	26.27%
		118	100.00%
Gender	Male	20	16.95%
	Female	98	83.05%
		118	100.00%
Educational Background	Non-Formal Education	-	00.0%
	Primary Education	-	00.0%
	Secondary Education	9	7.63%
	Tertiary Education	109	92.37%
		118	100.00%
Marital Status	Single	27	22.88%
	Married	78	66.10%
	Divorced	11	9.32%
	Others	2	1.69%
		118	100.00%
Job Experience	Less than 3years	9	7.63%
	Between 4 to 6years	30	25.42%
	Between 7 to 9years	56	47.46%
	Above 10years	23	19.49%
		118	100.00%

Source: Field Survey, 2025

The demographic examination of the sampled managers and owners of small-scale enterprises (SSE) indicates that a majority of the respondents were female, accounting for 83.5%. The predominant age group was 35 to 44 years, representing 42.37% of the sample. Notably, 92.37% of the respondents possessed tertiary education, signifying that most were graduates from higher educational institutions. In terms of marital status, 66.10% were married, while a smaller percentage identified as single, divorced, or widowed. Regarding professional experience, nearly half of the respondents (47.46%) reported having 7 to 9 years of work experience, which suggests a significant level of

expertise in their respective businesses. Collectively, these findings indicate that the ownership and management of SSEs in Nigeria's retail sector is predominantly held by married, well-educated women in their mid-30s to mid-40s who possess considerable business experience. This observation aligns with the Global Entrepreneurship Monitor (2023) report, which emphasizes the substantial involvement of women in entrepreneurship.

Objective One: Analyze the Identified Digital Technologies Employed by the SSEs in Oyo State, Nigeria.

Table 2: Descriptive Analysis of the Identified Digital Technological Tools Employed by the SSEs in Retail Sector of Oyo State, Nigeria

Identified Technological Tools Employed	Digital Tools	SA	A	Undecided	D	SD	Rank
Mobile Application (Mobile App)		30 (25.42%)	48 (40.66%)	27 (22.88%)	8 (6.78%)	5 (4.24%)	3 rd
Digital Marketing Tools (DMT)		34 (28.81%)	52 (40.07%)	15 (12.71%)	15 (12.71%)	2 (1.69%)	2 nd
Point-of-Sales (POS)		30 (25.42%)	60 (50.85%)	10 (8.47%)	18 (15.25%)	- (0%)	1 st

Source: Author's Computation (2025).

Table 2 shows the analysis of all the identified digital technological tools employed by the SSEs in retail sector of Oyo state, Nigeria as elicited from responses given by the respondents. The result shows that (66.08%) of the selected managers/owners were opined that Mobile Application (Mobile App) has been fully utilized as one of the digital technologies that can enhance business performance. This aligned with the argument of Afolabi and Ogunleye (2018) that small-scale enterprises owners leverage digital technologies through utilization of mobile applications for tasks completion, financial transactions and marketing in order to achieve scalability.

The results also revealed that (68.88%) of the selected managers/owners were opined that Digital Marketing Tools (DMT) has been recognized as a digital technology and fully embraced by entrepreneurs in SSEs sector. This implies that, the utilization of Digital Marketing Tools is a function of technological innovations brought about by the advancement in technology. This result aligned with the argument of Olumide, Olumide and Olumide (2017) that digital technologies adoption with platforms such as Jumia and Konga has provided SSEs owners with the opportunities of reaching wider customer base online and enhances their business performance.

Lastly, the results further revealed that (76.6%) of the selected managers/owners believed that the adoption and usage of Point-of-Sales (POS) by the SSEs owner has seen a tremendous improvement. This implies that, Point-of-Sales (POS) usage has been fully adopted by the Nigerian SSEs as part of the digital technologies brought about by the advancement in technology. This result buttresses the argument of Akinwale, Adepoju, and Olomu, (2017) that the integration of digital technologies is also pivotal for firm's growth, increased productivity, reducing costs particularly in competitive markets.

Objective Two/Hypothesis One: Multiple Regression Analysis of Extent to which Digital Technological Tools Affect SSEs Performance in Retail Sector of Oyo state, Nigeria

Table 3: Multiple Regression Analysis Showing the Extent to which Digital Technological Tools Affects Customers' Satisfaction of the SSEs in Retail Sector of Oyo state, Nigeria

Variable	Coefficient	Std Error	T-Values	P> T-Values
CONSTANT	1.475485	.4222043	3.49	.0001
MOBIL APP	0.0195	.0098	2.00	.0001**
POS	0.1501	.0392	3.83	.0000**
DMT	0.0005	.0001	6.88	.0000**
R ²	0.6752			
Adj. R ²	0.6532			
F-Value	2.519			

** = 0.05 significant level.

Dependent Variable; Customers' Satisfaction

Source: Author's Computation (2025)

The results the multiple regression in table 3 reported specific coefficient estimation of effect of all incorporated explanatory variables such as Mobil Applications (Mobil App), Digital Marketing Tools (DMT) and Point-of-Sales (POS) on the selected SSEs performance in relation to the level of their Customers' Satisfaction (CS). The result revealed that a unit increase in any of the identified digital technologies employed will translate into an equivalent increase in level of customers' satisfaction of the selected sampled SSEs by 0.02 units, 0.15 units and 0.001 units respectively with each variable having a positive effect on customers' satisfaction, and significantly related to each other at 0.05 significant levels. Given the $R^2 = 0.675$ and p-value = 0.0001 implies that, there is a significant effect of digital technological tools on SSEs performance. This result is align with the findings of Anucha Victor Chima, (2023) that e-payment systems (including POS, EFT) have a significant positive relationship with sales growth in retail outlets. Given the coefficient of $R^2 = 0.675$ (67%) and supported by Adjusted $R^2 = 0.653$ (65%), while the F-Value of 2.519 also confirmed the significance of the model, therefore, based on the result, the null hypothesis is rejected while the alternative hypothesis is accepted.

Discussion of Findings

Collectively, the overall implication of the descriptive analysis of the identified digital technologies employed by the SSEs in Oyo state, Nigeria shows that POS, digital marketing tools and Mobile applications are the most utilized digital technologies embraced by SSEs in Oyo State, Nigeria to facilitate effective business operations and improve their overall business performance. Further, the overall implication of the multiple regression analysis results implies that the independent variables incorporated into this model have been able to reveal that technological innovation has a positive effect on level of customers' satisfaction of SSEs in Oyo State, Nigeria.

Conclusion

Based on the outcomes of the study analyses, the study concluded that all the identified digital technologies employed formed the major digital technological tools adopted by the SSEs in retail sector of Oyo State, Nigeria as a result of the advancement in technology. Further, the study concluded that the integration of digital technological tools such as Mobil Applications (Mobil App), Digital Marketing Tools (DMT) and Point-of-Sales (POS) by the selected SSEs has a positive and significant effect on level of their customers' satisfaction.

Recommendations

In view of the conclusion drawn from the findings of the study, the following recommendations were made:

- 1) SSE owners should invest in technological innovation that can aid the exploration of innovative ideas for effective operational activities, sustainable business development, and improving the overall performance of SSEs in Nigeria.
- 2) Agencies for SME development should fund research and development programs in the field of technology in order to spur innovative opportunities among SSE owners in the retail sector and to further encourage and support digital transformation and technology adoption in order to commercialize new ideas and products.

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