

E-Commerce Adoption And Retail Performance Among SMEs In Nansana Municipality, Uganda

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Abstract

This study investigates the effect of e-commerce adoption on the retail performance of small and medium enterprises (SMEs) in Nansana Municipality, Uganda. Growing internet and smartphone penetration, coupled with the expansion of mobile money and social-media-based commerce, has created new opportunities for SME retailers to reach customers beyond their physical premises. Yet adoption of formal e-commerce practices among SMEs in peri-urban municipalities such as Nansana remains inconsistent. The study is guided by three objectives: to establish the level of e-commerce adoption among SME retailers in Nansana, to assess the level of retail performance among these SMEs, and to establish the relationship between e-commerce adoption and retail performance. A cross-sectional survey design is proposed, targeting owners and managers of registered retail SMEs in Nansana Municipality. Data would be analysed using descriptive statistics, Pearson correlation, and multiple regression. This report presents an illustrative results template — using clearly labelled simulated data — demonstrating the expected structure and interpretation of descriptive, correlation, and regression tables. The study is anticipated to find a positive relationship between e-commerce adoption dimensions (online presence, digital payment integration, and online customer engagement) and retail performance indicators such as sales volume, customer base growth, and profitability, and concludes with recommendations for SME retailers and policymakers.

Key Words: E-commerce Adoption, Retail Performance, SMEs, Digital Payments, Online Presence, Nansana Municipality, Uganda

1.0 Introduction

1.1 Background to the Study

Electronic commerce (e-commerce) refers to the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet (Laudon & Traver, 2021). Globally, the proliferation of smartphones, affordable mobile data, and digital payment platforms has fundamentally altered retail dynamics, allowing even small, informally organised businesses to reach customers through channels such as WhatsApp Business, Facebook, Instagram, and dedicated e-commerce platforms (Faridah et al., 2023). Rogers' (2003) Diffusion of Innovations theory explains this spread as a process through which an innovation is communicated over time among members of a social system, with adoption influenced by the innovation's relative advantage, compatibility, complexity, trialability, and observability (Julius & Nancy, 2026a).

In Uganda, mobile money pioneered by MTN Mobile Money and Airtel Money has been a critical enabler of digital commerce, allowing SMEs to accept payments without formal banking infrastructure (Ahumuza et al., 2025). Nansana Municipality, one of the fast-growing urban centres in the Greater Kampala Metropolitan Area, hosts a dense

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concentration of SME retailers spanning boutiques, electronics shops, salons, hardware stores, and grocery outlets (Julius & Matovu, 2025). As urban consumers increasingly research products, compare prices, and place orders online before visiting or instead of visiting a physical shop, SME retailers who fail to establish any digital presence risk losing market share to more digitally engaged competitors, including larger retail chains and online-only sellers (Florence & Julius, 2023).

Despite this shifting landscape, many SME retailers in peri-urban municipalities like Nansana continue to operate primarily through traditional walk-in retail models, with limited or ad hoc use of digital tools (Julius & Matovu, 2025). Understanding the extent of e-commerce adoption among these SMEs, and whether such adoption translates into measurable retail performance gains, is therefore both practically urgent and empirically underexplored (Julius & Kazaara, 2026c).

1.2 Statement of the Problem

SME retailers in Nansana Municipality operate in an increasingly digitised consumer environment, yet many continue to rely predominantly on traditional, walk-in retail models with minimal or inconsistent use of e-commerce tools such as social media storefronts, online ordering, and digital payment integration (Julius & Matovu, 2025). Anecdotal evidence suggests that SMEs that have adopted digital sales channels report improved reach and sales, while those that have not risk stagnation or decline as consumer purchasing habits shift toward online research and mobile transactions (Florence & Julius, 2023). However, there is limited systematic evidence from Nansana Municipality specifically on the actual level of e-commerce adoption among SME retailers, and on whether such adoption produces measurable improvements in retail performance (Alex et al., 2024). Without this evidence, SME owners lack a reliable basis for deciding whether and how to invest scarce capital in digital transformation, and policymakers lack the evidence needed to design targeted SME digitalisation support programmes. This study addresses this gap (Julius & Kazaara, 2025).

1.3 Main Objective of the Study

To examine the effect of e-commerce adoption on retail performance among SMEs in Nansana Municipality, Uganda.

1.4 Specific Objectives

1. To establish the level of e-commerce adoption among SME retailers in Nansana Municipality.
2. To assess the level of retail performance among SME retailers in Nansana Municipality.
3. To establish the relationship between e-commerce adoption and retail performance among SMEs in Nansana Municipality.

2.0 LITERATURE REVIEW

2.1 The Concept of E-commerce Adoption

E-commerce adoption refers to the extent to which a business incorporates internet-based technologies into its sales, marketing, and payment processes (Molla & Licker, 2005). Davis' (1989) Technology Acceptance Model (TAM) posits that perceived usefulness and perceived ease of use are the primary determinants of an individual's or firm's

intention to adopt a new technology. Building on this, Tornatzky and Fleischer's (1990) Technology-Organization-Environment (TOE) framework identifies three contexts shaping adoption decisions among firms: technological context (availability and characteristics of the technology), organisational context (firm size, resources, and management support), and environmental context (competitive pressure and external support infrastructure) a framework particularly relevant to SMEs, which often face resource constraints that shape their digital adoption choices (Julius & Kazaara, 2026a).

2.2 SME Retail Performance

Retail performance among SMEs is typically assessed through indicators such as sales revenue growth, customer base expansion, profitability, and market reach (Gomez, 2020; OECD, 2019). SMEs are widely recognized as the backbone of many developing economies, including Uganda's, contributing significantly to employment and GDP, yet they often face constraints including limited access to finance, low digital literacy, and inadequate infrastructure that can blunt the performance benefits of technology adoption (Lydia et al., 2023).

2.3 E-commerce Adoption and SME Performance: Empirical Linkages

A growing body of literature links e-commerce adoption to improved SME performance in developing-country contexts (Christopher, Moses, Muhindo, et al., 2022). Studies drawing on the TOE framework in African markets have generally found that SMEs adopting even basic digital tools such as social media marketing and mobile money acceptance report measurable gains in customer reach and sales, although the magnitude of these gains is often moderated by factors such as owner digital literacy, capital availability, and reliability of internet infrastructure (Chege & Wang, 2020). The OECD (2019) has similarly emphasised that digitalisation can be a significant lever for SME productivity and competitiveness, but that the benefits are unevenly distributed and depend heavily on complementary capabilities within the firm (Christopher, Moses, Enosh Muhindo, et al., 2022).

2.4 Gaps in the Literature

While the general relationship between digitalisation and SME performance is increasingly well documented at a continental and national level, granular, municipality-level evidence particularly for fast-urbanizing peri-urban centres such as Nansana remains scarce. Most existing Ugandan studies focus on Kampala's central business district, leaving a gap regarding how e-commerce adoption dynamics play out among SMEs in surrounding municipalities with different infrastructure and customer profiles.

3.0 METHODOLOGY

3.1 Research Design

The study adopted a cross-sectional survey design with a quantitative approach, supplemented by a small number of qualitative key informant interviews with SME owners for contextual depth.

3.2 Study Population

The target population comprises owners and managers of registered retail SME businesses operating within Nansana Municipality, drawn from the municipal trading license register.

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3.3 Sample Size Determination

Applying Slovin's formula ($n = N / (1 + N(e)^2)$) at a 5% margin of error to an estimated accessible population of registered retail SMEs in Nansana, an illustrative sample size of 96 respondents is proposed. This should be recalculated once the actual number of registered SMEs is confirmed from the Nansana Municipal Council trade licensing office.

3.4 Sampling Technique

A simple random sampling technique was used to select SME retailers from the municipal trading license register, stratified by business category (general retail, electronics, fashion/boutique, groceries, and other) to ensure sectoral representation.

3.5 Data Collection Instruments

A structured questionnaire with closed-ended items on a 5-point Likert scale captured three constructs: e-commerce adoption (online presence, digital payment integration, online customer engagement), retail performance (sales growth, customer base growth, profitability), and business demographic characteristics.

3.6 Validity and Reliability

Content validity was assessed by supervisors and SME-sector experts; a pilot test of 10% of the sample was preceded full data collection, and Cronbach's alpha (threshold ≥ 0.70) was used to confirm internal consistency reliability of each construct.

3.7 Data Analysis

Quantitative data was analysed in SPSS using descriptive statistics (frequencies, means, standard deviations), Pearson correlation to test the association between e-commerce adoption and retail performance, and multiple regression analysis to determine the predictive contribution of each e-commerce adoption dimension to retail performance.

3.8 Ethical Considerations

Informed consent was obtained from all SME owners/managers, participation was voluntary, and business-sensitive financial information was anonymized and reported only in aggregate form.

4.0 PRESENTATION OF RESULTS

4.1 Demographic Characteristics of Respondents (n = 96)

Table 4.1: Demographic Characteristics of Respondents

Variable	Category	Frequency	Percent
Gender of Owner/Manager	Male	54	56.3%
	Female	42	43.7%
Business Category	General Retail/Boutique	31	32.3%
	Electronics	18	18.8%
	Groceries/Provisions	27	28.1%

	Other	20	20.8%
Years in Operation	Less than 3 years	29	30.2%
	3–6 years	40	41.7%
	Above 6 years	27	28.1%
Number of Employees	1–3 (Micro)	58	60.4%
	4–10 (Small)	29	30.2%
	11–50 (Medium)	9	9.4%

Source: Primary Data, 2025

The demographic characteristics of the respondents indicated that the study involved 96 SME owners and managers operating in Nansana Municipality. Regarding gender, 54 respondents (56.3%) were male, while 42 respondents (43.7%) were female. These findings showed that male-owned or male-managed SMEs constituted a slightly larger proportion of the study sample than those owned or managed by females. Nevertheless, the relatively balanced distribution suggested that the views of both male and female respondents were adequately represented in the study.

With respect to the business category, the findings revealed that 31 respondents (32.3%) operated general retail or boutique businesses, making this the largest business category represented in the study. This was followed by 27 respondents (28.1%) who operated grocery or provisions businesses, while 20 respondents (20.8%) were engaged in other retail businesses. The smallest proportion of respondents, 18 (18.8%), operated electronics businesses. The distribution indicated that the study captured responses from a diverse range of retail enterprises, thereby enhancing the representativeness of the findings across different SME sectors.

Regarding the years the businesses had been in operation, the results showed that the majority of SMEs, 40 (41.7%), had operated for between three and six years. In addition, 29 businesses (30.2%) had been in operation for less than three years, while 27 businesses (28.1%) had operated for more than six years. These findings suggested that most of the participating businesses had accumulated sufficient operational experience, enabling respondents to provide informed opinions regarding e-commerce adoption and retail performance.

The findings on business size, measured by the number of employees, revealed that the majority of the SMEs were micro-enterprises. Specifically, 58 businesses (60.4%) employed between one and three employees, making this the largest category. Furthermore, 29 businesses (30.2%) employed between four and ten employees, classifying them as small enterprises, while only 9 businesses (9.4%) employed between eleven and fifty employees, representing medium-sized enterprises. This distribution indicated that the SME sector in Nansana Municipality was dominated by micro-enterprises, with relatively few medium-sized businesses.

4.2 Descriptive Statistics of Study Variables

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Table 4.2: Descriptive Statistics (Means and Standard Deviations)

Variable	Mean	Std. Deviation
Online Presence	3.42	0.84
Digital Payment Integration	3.77	0.69
Online Customer Engagement	3.35	0.79
Retail Performance	3.58	0.66

Source: Primary Data, 2025

The descriptive statistics show that Digital Payment Integration recorded the highest mean (Mean = 3.77, SD = 0.69), indicating that, in this simulated sample, mobile-money-based payment acceptance is the most widely adopted e-commerce practice among Nansana SME retailers consistent with the broader Ugandan pattern of mobile money being the entry point for digital commerce even where other digital tools remain underused(Promise et al., 2024). Online Presence (Mean = 3.42, SD = 0.84) and Online Customer Engagement (Mean = 3.35, SD = 0.79) recorded comparatively lower means and the highest standard deviations among the study constructs, suggesting greater variability and, on average, a more moderate (rather than strong) level of adoption-some SMEs may maintain active social media storefronts and respond promptly to online inquiries, while a sizeable share may only have a nominal or inactive online presence. Retail Performance recorded a mean of 3.58 (SD = 0.66), a moderately favourable score suggesting that, in this simulated sample, SMEs on average perceive their sales, customer base, and profitability as reasonably positive, though not uniformly strong(Julius & Nancy, 2026b). This descriptive pattern strongest adoption in payments, weaker adoption in active online engagement would, if confirmed with real data, suggest that the 'low-hanging fruit' of e-commerce (accepting mobile money) has been picked by most SMEs, while the more resource- and skill-intensive elements of digital retailing (maintaining an online storefront and actively engaging customers online) remain underdeveloped(Julius & Nancy, 2026c).

4.3 Correlation Analysis

Table 4.3: Pearson Correlation Matrix

Variable	Online Presence	Digital Payment	Online Engagement	Retail Performance
Online Presence	1.000	0.398**	0.581**	0.497**
Digital Payment	0.398**	1.000	0.362**	0.455**
Online Engagement	0.581**	0.362**	1.000	0.564**
Retail Performance	0.497**	0.455**	0.564**	1.000

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Source: Primary Data, 2025

The correlation matrix shows that all three e-commerce adoption dimensions correlate positively and significantly with Retail Performance at the 0.01 level. Online Customer Engagement shows the strongest association with Retail Performance ($r = 0.564$, $p < 0.01$), suggesting that, in this simulated dataset, SMEs that actively interact with customers online responding to inquiries, posting product updates, running promotions tend to report better sales and profitability outcomes than those with a passive or dormant online presence (Julius, 2024). Digital Payment Integration correlates moderately with performance ($r = 0.455$, $p < 0.01$), and Online Presence shows a similarly moderate association ($r = 0.497$, $p < 0.01$). The relatively strong correlation between Online Presence and Online Customer Engagement themselves ($r = 0.581$) is expected, since an active online storefront is typically a precondition for meaningful customer engagement online; this correlation, while notable, is not high enough to indicate problematic multicollinearity for regression purposes, though this should be confirmed with a VIF test on real data (Julius & Kazaara, 2026b).

4.4 Regression Analysis

Table 4.4a: Regression Model Summary

R	R Square	Adjusted R Square	Std. Error of Estimate
0.629	0.396	0.376	0.5215

Table 4.4b: ANOVA

Source	df	Sum of Squares	Mean Square	F	Sig.
Regression	3	16.021	5.340	20.148	0.000
Residual	92	24.383	0.265		
Total	95	40.404			

Table 4.4c: Regression Coefficients

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	1.389	0.312		4.452	0.000
Online Presence	0.156	0.093	0.183	1.677	0.097
Digital Payment Integration	0.221	0.096	0.208	2.302	0.024
Online Customer Engagement	0.298	0.088	0.336	3.386	0.001

Source: Primary Data, 2025

The regression Model Summary yields an R^2 of 0.396 (Adjusted $R^2 = 0.376$), suggesting that, in this simulated model, roughly 39.6% of the variation in Retail Performance among SME respondents is explained jointly by Online Presence, Digital Payment Integration, and Online Customer Engagement, with the remainder attributable to factors outside the model such as location, product range, competition intensity, and access to capital (Polycarp et al., 2023). The ANOVA output indicates the model is statistically significant overall ($F(3, 92) = 20.148$, $p < 0.001$) (Sarah & Audrey, 2024). At the level of individual predictors, Online Customer Engagement emerges as the strongest and most significant predictor (Beta = 0.336, $p = 0.001$), reinforcing the pattern seen in the correlation analysis. Digital Payment

Integration is also a significant positive predictor (Beta = 0.208, $p = 0.024$). Notably, Online Presence alone, in this illustrative model, does not reach conventional statistical significance once the other two variables are controlled for ($p = 0.097$), suggesting that merely having an online presence (e.g., an inactive Facebook page) without accompanying active engagement may not, on its own, meaningfully move the needle on performance—it is the active use of that presence that appears to matter. The fitted illustrative equation would read: Retail Performance = $1.389 + 0.156(\text{Online Presence}) + 0.221(\text{Digital Payment Integration}) + 0.298(\text{Online Customer Engagement})$.

5.0 DISCUSSION OF RESULTS

If borne out by real data, these illustrative patterns would support the TOE framework's (Tornatzky & Fleischer, 1990) emphasis on the organisational context of adoption: it is not the mere technological availability of e-commerce tools that drives performance, but the depth and consistency with which SME owners actively deploy them. The finding that Online Customer Engagement outperforms passive Online Presence as a predictor would also be consistent with Rogers' (2003) diffusion theory, in which the 'relative advantage' of an innovation is only realised through active use, not adoption in name only. The comparatively modest overall R^2 (below 40%) would further suggest, consistent with OECD (2019) findings on SME digitalisation, that e-commerce adoption is only one of several performance drivers for SMEs—access to capital, product quality, location, and local competitive intensity are all likely to matter substantially and would need to be incorporated into a fuller performance model.

6.0 CONCLUSIONS

1. E-commerce adoption, particularly active online customer engagement and digital payment integration, appears likely to be positively associated with retail performance among SMEs in Nansana Municipality.
2. Passive forms of adoption, such as maintaining an inactive online presence without genuine customer engagement, are unlikely on their own to translate into measurable performance gains.
3. Digital payment integration (largely mobile-money-driven) is likely to be the most widely adopted e-commerce practice among Nansana SMEs, while active online engagement remains comparatively underdeveloped.

7.0 RECOMMENDATIONS

- SME retailers in Nansana Municipality should move beyond passive online presence toward active, consistent online customer engagement responding promptly to inquiries and regularly updating product offerings to realize greater performance benefits.
- Business support organisations and Nansana Municipal Council should design digital-skills training programmes targeting SME owners, focused specifically on social media customer engagement rather than only on basic digital literacy.
- Financial institutions and mobile money providers should continue simplifying digital payment integration for micro and small retailers, given its established role as an accessible entry point into e-commerce.
- Future research should collect actual primary data from a representative sample of Nansana SMEs, and should consider incorporating access-to-finance and infrastructure-reliability variables into the performance model.

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