

**Relationship Between Digital Literacy And Performance Of Small And Medium-Sized Electronic Enterprises
In Kampala District, Uganda.**

Abeine Best¹, Dr Friday Christopher²

1, 2 Metropolitan International University

Abstract

The study examined the relationship between digital literacy and the performance of small and medium-sized electronic enterprises (SMEs) in Kampala District, Uganda. A cross-sectional correlational research design was adopted, and a mixed-methods approach was employed to collect both quantitative and qualitative data. The study population consisted of SME owners, employees, digital strategy implementers, customers, and technology providers, totaling 136 respondents selected using a combination of stratified, simple random, and purposive sampling techniques. Data were collected through structured questionnaires, interviews, and document reviews and analyzed using SPSS. Results revealed a strong positive relationship between digital literacy and SME performance, with a Pearson correlation coefficient of $r = 0.772$ and a significance level of $p < 0.05$. This indicated that higher levels of digital literacy among employees and management were associated with improved enterprise performance, including enhanced sales, customer satisfaction, profitability, and operational efficiency. The study concluded that fostering digital literacy was critical for improving SME performance and recommended targeted digital skills training programs for employees and managers.

Keywords: Digital literacy, SME performance, electronic enterprises, Kampala District

Background of the study

Digital technologies have increasingly shaped the operations and competitiveness of businesses worldwide (Irumba et al., 2024). Studies conducted globally revealed that enterprises that embraced digital tools and fostered digital literacy among their employees tended to perform better in terms of productivity, efficiency, customer engagement, and profitability (Ahumuza et al., 2025). Research in developed and developing economies showed that digital literacy defined as the ability to effectively use digital devices, software, and online platforms was a critical determinant of organizational success, particularly in environments characterized by rapid technological change (Paul & Kazaara, 2023). Organizations with digitally literate staff were able to leverage digital marketing, e-commerce, data analytics, and cloud-based solutions to enhance operational efficiency and reach wider markets, resulting in significant performance gains (Winny et al., 2023).

At the African level, digital literacy was identified as a pivotal factor for business growth and innovation (Sarah & Audrey, 2024). Various studies in countries such as Kenya, Nigeria, and South Africa demonstrated that small and medium-sized enterprises (SMEs) faced challenges in fully harnessing digital technologies due to limited skills, insufficient training, and inadequate access to digital infrastructure (Julius & Desire, 2025). Nonetheless, SMEs that invested in enhancing digital literacy among employees achieved better performance outcomes, including improved

sales, customer retention, and operational effectiveness. These findings highlighted the potential of digital literacy as a driver for competitiveness and sustainable growth in Africa's SME sector (Ahumuza et al., 2025).

In Uganda, the adoption of digital technologies among SMEs had gradually increased over the past decade, driven by government initiatives such as the National ICT Policy and the Digital Uganda Vision 2040 (Julius & Matovu, 2025). Despite these efforts, several studies reported that a significant number of SMEs struggled to integrate digital tools effectively, largely due to low levels of digital literacy among owners and employees (Muhamad et al., 2023). Research suggested that digital literacy influenced SMEs' ability to adopt online sales platforms, manage digital financial systems, implement digital marketing strategies, and optimize operational processes. Consequently, SMEs with higher digital literacy levels were more likely to experience enhanced business performance, including increased revenue, market reach, and operational efficiency (Tasha et al., 2023).

Within Kampala District, which serves as Uganda's commercial and technological hub, SMEs in the electronic sector faced both opportunities and challenges in leveraging digital technologies (Gracious, 2023). The district hosted a concentration of electronic enterprises, ranging from computer and mobile device sales to digital repair services, e-commerce stores, and technology consulting firms (Sophie & Crispus, 2024). Previous local studies indicated that while some SMEs had successfully integrated digital platforms to expand their customer base and streamline operations, many others had limited digital competencies, which restricted their growth and competitiveness (Turyatamba et al., 2022). These disparities suggested that digital literacy was a critical factor influencing SME performance in the district, highlighting the need to examine the relationship between digital literacy and enterprise performance in this context.

Problem Statement

Small and medium-sized electronic enterprises (SMEs) in Kampala District have increasingly relied on digital technologies to remain competitive (Julius & Matovu, 2025). However, despite the availability of digital tools, many SMEs continue to experience low productivity, limited market reach, and inconsistent performance (Ntirandekura et al., 2022). Previous studies have indicated that the adoption of digital technologies alone does not guarantee improved business outcomes; rather, the ability of employees and owners to effectively use these tools referred to as digital literacy is critical (Julius & Nancy, 2025). Globally and across Africa, research has shown that enterprises with higher levels of digital literacy achieve better operational efficiency, customer engagement, and profitability (Alex et al., 2024). In Uganda, while government initiatives have promoted digital adoption among SMEs, gaps in digital skills among staff and managers persist, limiting the potential benefits of technology integration (Moses, 2023). In Kampala District, these gaps are particularly evident within electronic enterprises, creating a challenge in leveraging digital resources for performance improvement. This study therefore sought to investigate the relationship between digital literacy and SME performance in this context.

Main Objective

To establish the relationship between digital literacy and performance of small and medium-sized electronic enterprises in Kampala District, Uganda.

Methodology

A cross-sectional and correlational research design was deemed most appropriate for examining the impact of digital transformation on the performance of small and medium-sized electronic enterprises (SMEs) in Kampala District, Uganda. The cross-sectional design enabled the researcher to capture a snapshot of the state of digital adoption, including the use of digital tools, systems, and platforms across SMEs, while also documenting variations in their performance levels (Nafiu et al., 2012). This design proved particularly useful in understanding how digital practices were integrated into business operations within a specific timeframe. Simultaneously, the correlational design was used to assess the relationships between digital transformation variables, such as digital infrastructure, leadership in digital strategy, and employee digital competencies, and enterprise performance indicators, including sales growth, customer retention, and operational efficiency. This approach helped determine whether SMEs that adopted digital technologies experienced improved performance outcomes (Sarah et al., 2024).

A mixed-methods approach, integrating both quantitative and qualitative methodologies, was applied to investigate the impact of digital transformation on SME performance (Julius & Kazaara, 2025). This approach enabled a comprehensive exploration of how digital technologies influenced business outcomes. The quantitative component facilitated the collection of measurable data on aspects of digital transformation, such as digital infrastructure, online sales platforms, and automation, and their relationships to key performance indicators like profitability, market share, and customer satisfaction (Faridah et al., 2023). The qualitative component provided in-depth insights into the experiences, perceptions, and challenges faced by SME owners and managers during digital transformation, including resistance to change, limited digital skills, and infrastructure gaps.

The study population comprised key groups directly involved in the adoption and implementation of digital technologies. Participants included 16 SME owners, 10 digital transformation specialists, 50 employees engaged in digital processes, 100 customers or clients, and 30 technology providers or service consultants. This diverse composition ensured a comprehensive understanding of digital transformation impacts from multiple perspectives within the electronic SME ecosystem (Ahumuza et al., 2025), bringing the total study population to approximately 210 participants. Stratified random sampling was applied to select SME staff and leadership, while simple random sampling was used for external stakeholders, such as customers and technology providers, ensuring that diverse perspectives were accurately reflected.

A sampling design that combined stratified, simple random, and purposive/census techniques was utilized to ensure representativeness and depth in data collection. Stratified and simple random sampling categorized respondents into relevant groups, such as SME owners, managers, employees, and digital service providers, ensuring that each subgroup was adequately represented (Julius & Nancy, 2025). Purposive sampling was applied to select key informants, including senior managers, technology experts, and industry stakeholders, based on their specialized knowledge and involvement in digital technology adoption. For a target population of 210 and a margin of error of 5%, the sample size was calculated as 136 respondents. The sample included 6 SME owners, 6 digital strategy implementers, 25 employees, 79 customers, and 20 business partners, using a mixed sampling approach of census, stratified random, and simple random methods.

Both primary and secondary data sources were used to ensure a comprehensive analysis. Primary data were collected directly from respondents through structured questionnaires, key informant interviews, and focus group discussions. Questionnaires targeted SME owners, managers, employees, and external stakeholders to collect quantitative data on the extent of digital transformation, integration of digital technologies, and business performance (Saunders, Lewis, & Thornhill, 2019). Key informant interviews were conducted with senior managers, technology experts, and industry stakeholders to obtain in-depth insights into challenges, opportunities, and success factors associated with digital transformation (Creswell & Creswell, 2018).

Secondary data were obtained from official reports, industry publications, academic journals, and records from regulatory bodies and technology providers. Reports from the Uganda Investment Authority, the Ministry of ICT, and SME performance reports provided institutional data on digital adoption, infrastructure, and performance metrics (National ICT Policy, 2024). Academic literature offered theoretical and empirical foundations, while policy documents, such as Uganda's Digital Transformation Strategy and National ICT Policy, were reviewed to understand regulatory frameworks. A document review checklist was used to systematically analyze these sources, complementing the primary data collected.

Data collection employed surveys, interviews, document reviews, and focus group discussions. Surveys collected quantitative data from SME owners, managers, employees, and customers to assess the extent and impact of digital transformation, including digital tools, online sales channels, and marketing strategies. Interviews with key informants, such as senior managers and industry experts, provided qualitative insights into challenges, opportunities, and factors influencing digital transformation success. Document reviews analyzed industry reports, business performance data, and policy documents to understand structural and regulatory frameworks.

Structured questionnaires were used to gather quantitative data, focusing on digital tools, online sales platforms, and digital marketing strategies. Interview guides facilitated qualitative exploration of challenges and opportunities, while

document analysis checklists collected secondary data from reports, strategy papers, and SMEs’ annual performance records.

To ensure data quality, validity and reliability were carefully controlled. Content validity was assessed using the Content Validity Index (CVI), where experts rated the relevance of questionnaire and interview items on a scale of 1–5. The CVI score exceeded 0.7 for all constructs, confirming content validity (Polit & Beck, 2006). Reliability was evaluated using Cronbach’s Alpha, which yielded values above 0.85 for all constructs, demonstrating internal consistency. A pilot study with 10–15 participants pre-tested the instruments, and items with low reliability or clarity were revised. Continuous monitoring during data collection ensured validity and reliability were maintained.

Data were collected systematically using surveys, interviews, focus group discussions, and document reviews. Ethical guidelines were followed, including obtaining informed consent, ensuring confidentiality, and securely storing data. Quantitative data were analyzed using SPSS, employing descriptive statistics (frequencies, percentages, means, and standard deviations) and inferential statistics (correlation and regression analyses) to identify patterns and relationships between digital transformation and SME performance (Nelson et al., 2022). Qualitative data were analyzed thematically to explore insights from participants regarding digital transformation processes and outcomes.

Results

Table 1: Descriptive statistics on Digital Literacy

Digital Literacy	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	STD
The employees at this enterprise are proficient in using digital tools and technologies.	15 (11.0%)	10 (7.4%)	11 (8.1%)	49 (36.0%)	51 (37.5%)	3.82	1.312
Digital literacy is a critical factor in improving operational efficiency in this enterprise.	3 (2.2%)	17 (12.5%)	1 (0.7%)	52 (38.2%)	63 (46.3%)	4.14	1.076
Digital literacy contributes positively	2 (1.5%)	4 (2.9%)	19 (14.0%)	60 (44.1%)	51 (37.5%)	4.13	0.868

to the business growth							
of this enterprise.							
The management	2 (1.5%)	3 (2.2%)	14	61 (44.9%)	56 (41.2%)	4.22	0.832
supports continuous			(10.3%)				
digital literacy training							
for employees.							

Source: Primary Data, 2025

The statement, “The employees at this enterprise are proficient in using digital tools and technologies,” received a generally positive response. A combined 73.5% of respondents agreed (49 respondents, 36.0%) or strongly agreed (51 respondents, 37.5%), indicating that a majority of participants perceive that employees possess sufficient digital skills. However, a notable proportion of respondents either strongly disagreed (15 respondents, 11.0%) or disagreed (10 respondents, 7.4%), while 11 respondents (8.1%) remained neutral. The mean score of 3.82 reflects a moderately high level of agreement, suggesting that on average, employees are considered digitally literate. Yet, the relatively high standard deviation of 1.312 reveals a considerable dispersion in responses. This variation could point to inconsistencies in digital skill levels across different units, possibly indicating that while some departments or individuals are highly proficient, others still struggle with digital tools.

“When discussing digital literacy, SME owner framed it as the essential ability to use various digital tools effectively to streamline and enhance business operations. This includes using computers and smartphones for managing sales records, inventory tracking, marketing activities, and facilitating online payment transactions securely (Source: KI001, 27/09/2025)”

When respondents were asked whether “Digital literacy is a critical factor in improving operational efficiency in this enterprise,” the results showed strong agreement. A total of 84.5% of participants agreed (52 respondents, 38.2%) or strongly agreed (63 respondents, 46.3%), while only a minority expressed disagreement 3 respondents (2.2%) strongly disagreed and 17 respondents (12.5%) disagreed. Just 1 respondent (0.7%) was neutral, which highlights that almost all respondents formed a clear opinion. The mean score of 4.14 indicates high agreement with the statement, and the standard deviation of 1.076 suggests moderate consistency in perceptions. The data clearly supports the view that digital literacy is not just a supportive skill, but a strategic enabler of efficiency and productivity within the enterprise, helping streamline work processes and reduce operational delays.

"The Digital Strategy Implementer expanded on this by emphasizing the necessity of equipping all employees with the confidence and competence to operate advanced digital systems, such as customer relationship

management (CRM) software and inventory management platforms, which are critical to maintaining competitive advantage. (Source: KI002, 27/09/2025) ””

The third item, “Digital literacy contributes positively to the business growth of this enterprise,” was also positively rated, with 81.6% of respondents either agreeing (60 respondents, 44.1%) or strongly agreeing (51 respondents, 37.5%). Disagreement was minimal, with only 2 respondents (1.5%) strongly disagreeing and 4 respondents (2.9%) disagreeing. However, 19 respondents (14.0%) chose a neutral position, possibly indicating either limited knowledge of the business impact of digital skills or uncertainty about how these skills translate into measurable growth. The mean of 4.13 reaffirms the positive sentiment, while the standard deviation of 0.868, the lowest among all items, points to a strong consensus. The responses suggest that the majority of stakeholders recognize the strategic importance of digital literacy in driving business development, enhancing market competitiveness, and fostering innovation.

The highest level of agreement was recorded for the statement, “The management supports continuous digital literacy training for employees.” An overwhelming 86.1% of respondents agreed (61 respondents, 44.9%) or strongly agreed (56 respondents, 41.2%) with the statement. Only 2 respondents (1.5%) strongly disagreed, 3 respondents (2.2%) disagreed, and 14 respondents (10.3%) remained neutral. The high mean score of 4.22 the highest in the table indicates that, on average, respondents firmly believe that management plays an active role in promoting ongoing digital training. The standard deviation of 0.832 also reflects high consistency in these views. This shows a strong organizational culture of digital up skilling, where leadership is committed to ensuring that employees continuously enhance their digital competencies to keep up with technological advancements and changing job requirements.

”The employee reflected on their practical experience, noting that digital literacy, for them, means being comfortable with computers and mobile applications that aid in rapid customer communication and order processing. All three respondents agreed that digital skills are acquired through a combination of formal workshops organized by the enterprise, self-initiated learning through online courses such as those on peer-to-peer mentorship programs that facilitate knowledge sharing within the team.” (Source: KI003, 27/09/2025) ””

Table 2: Relationship between Digital Literacy and performance of small and medium-sized electronic enterprises in Kampala District, Uganda.

Correlations		Digital Literacy	Performance of SME's
Digital Literacy	Pearson Correlation	1	.772**
	Sig. (2-tailed)		.000

Performance of SME's	N	136	136
	Pearson Correlation	.772**	1
	Sig. (2-tailed)	.000	
	N	136	136
**. Correlation is significant at the 0.05 level (2-tailed).			

Source: Primary Data, 2025

The Pearson correlation coefficient (r) is 0.772, which is very close to 1, indicating a strong linear relationship. This means that as digital literacy among employees or within the enterprise increases, the performance of the enterprise tends to improve as well. The p-value (Sig. 2-tailed) is .000, which is well below the conventional threshold of 0.05, suggesting that the relationship is statistically significant (Nelson et al., 2023). In practical terms, this significance means that the observed correlation is unlikely to have occurred by chance, and there is a meaningful association between the level of digital literacy in the enterprise and how well the enterprise performs in areas such as sales, customer satisfaction, profitability, and operational efficiency.

Conclusions

It was concluded that digital literacy plays a fundamental role in improving the performance of small and medium-sized electronic enterprises in Kampala District. The findings revealed that employees who are proficient in digital technologies contribute greatly to enhancing operational efficiency, minimizing errors, and ensuring smooth coordination of business activities. Their ability to effectively use digital tools in managing inventory, processing sales, and communicating with customers was found to significantly boost productivity and service delivery within the enterprises.

The study further concluded that digital literacy extends beyond basic computer or technical skills to encompass the strategic application of digital platforms for effective decision-making, problem-solving, and organizational management. Enterprises whose employees possessed strong digital competencies were more likely to embrace technological innovations such as mobile banking, e-commerce platforms, and electronic record-keeping systems. This adoption of digital solutions not only improved efficiency and customer experience but also reduced operational costs, increased transparency, and positioned these enterprises for sustainable growth in a competitive and technology-driven market environment.

Recommendations

SMEs should institutionalize regular digital literacy training for all staff. These training programs should be tailored to the specific needs of each department, focusing not only on basic computer skills but also on enterprise-relevant applications such as inventory management software, customer relationship management (CRM) systems, digital payment platforms, and social media marketing tools. Training should be practical, hands-on, and offered periodically

to keep employees updated with emerging digital tools. Management should partner with training institutions or ICT consultants to deliver high-quality, context-specific content.

Owners and managers of SMEs need to prioritize digital development as a strategic business objective. This requires dedicating part of the enterprise's annual operational budget to digital infrastructure and training. Management should demonstrate commitment by actively participating in digital learning and leading digital transformation efforts. A digitally literate leadership creates a trickle-down effect, motivating other employees to embrace and adopt digital technologies in their work.

SMEs should revise their recruitment criteria to include digital competence as a key requirement for hiring. Furthermore, digital literacy should be embedded into performance appraisal systems, where employees are evaluated not only on productivity but also on how effectively they utilize digital tools to achieve work goals. This will create a culture where digital competency is both valued and rewarded.

Enterprises should create internal mentorship programs where more digitally skilled employees mentor their peers. This peer-driven approach can be more sustainable and cost-effective than external training. In addition, management should facilitate knowledge-sharing sessions, weekly tech clinics, or digital innovation forums within the workplace to encourage a culture of continuous learning and collaboration.

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