Annals of Management and Organization Research (AMOR)
ISSN: 2685-7715, Vol 7, No 1, 2025, 127-140 https://doi.org/10.35912/amor.v7i1.3369

Technology adoption and social media marketing performance of small and medium enterprises

Nnanna-Ohuonu Okwudiri[1], Peter Sunday Oliseh[2], Victoria Kenechukwu Anagwu[3], Christian Chidi Nwanya[4], Chinedumathew Chukwu[5]
Abia State University, Uturu, Nigeria[1]
Nnamdi Azikiwe University, Awka, Nigeria[2,3,4,5]
okwudiri.ohuonu@abiastateuniversity.edu.ng[1], olisehpetersunday@gmail.com[2], avictoriakenechukwu@gmail.com[3], chidinwanya@yahoo.com[4], neduforjesus@gmail.com[5]

Article History:
Received on 25 August 2025
1st Revision on 3 September 2025
Accepted on 4 September 2025

Abstract
Purpose: This study examined how small and medium-sized businesses (SMEs) in Sub-Saharan Africa (SSA) use technology, and how well they perform on social media marketing. The objectives of the study were to determine the most suitable methods for evaluating the digital competence of SMEs to achieve customer engagement, and to evaluate the challenges SMEs face in acquiring digital competence for enhanced customer engagement among Sub-Saharan SMEs.
Methods: The study synthesized findings from existing academic literature published between 2015 and 2025 using a qualitative research design that included a systematic literature review and thematic content analysis.
Results: The findings revealed that assessing employees' perceived usefulness and ease of use of digital tools, evaluating performance metrics related to customer engagement, and analyzing investment in digital training are suitable methods for evaluating digital competence. The study also identified significant challenges, including a lack of necessary digital skills, financial constraints, inadequate technological infrastructure, and low digital literacy.
Limitations: The generalizability of the this study is limited because of using only qualitative analysis. Also, focusing on a single source of data (secondary qualitative) which may have context specific issues limited this study also.
Contribution: Given that technology in marking is a very significant area in the management and sustainability of organizations, especially SMEs to be able to compete with bigger and more established businesses, this study makes a case for social media marketing integration into the operations of SMEs, and ways to evaluate their digital competence so as to achieve customer engagement.

Keywords: *Customer Engagement, Digital Competence, Social Media Marketing, Sub-Saharan Africa, Technology Adoption*

How to Cite: Okwudiri, N. O., Oliseh, P. S., Anagwu, V. K., Nwanya, C. C., & Chukwu C. (2025). Technology adoption and social media marketing performance of small and medium enterprises. *Annals of Management and Organization Research*, 7(1), 127-140.

1. Introduction

Small and medium-sized enterprises (SMEs) continuously play an important role in fostering socio-economic growth, particularly in developing countries, where they are key contributors to employment and GDP expansion (John, Mwakalobo, & Bengesi, 2023). Globally, a considerable percentage of SMEs, between 40% and 70% partake in cross-border activities, thus contributing about 55–65% to the overall growth of the world economy. They are essential for creating job opportunities, accounting for approximately 79% of the total employment generated globally (John, 2024). Hence, facilitating their activities and contributing to their growth is essential. Central to this growth in recent times is technological innovation.

Technological innovation serves as a crucial and effective instrument for boosting economic growth in Sub-Saharan Africa through job creation and enhancing the performance of SMEs, allowing them to play a significant role in economic development. SMEs in Sub-Saharan Africa operate in an environment where digital technology is expanding rapidly. As of 2023, approximately 520 million individuals in the area held mobile phone subscriptions, with around 320 million accessing mobile Internet, nearly triple the figure from 2015. Nevertheless, only approximately 25% of adults frequently use the mobile Internet, facing obstacles such as high data prices and low levels of digital literacy.

The significance of various technologies in the expansion of SMEs is undeniable. Various technological platforms and strategies, such as online advertising, social media engagement, and search engine optimization (SEO), improve market visibility and customer outreach, thereby boosting SME performance. One of the most significant achievements in the region has been the advent of mobile money. Sub-Saharan Africa now boasts over 1.1 billion mobile money accounts, representing the largest share globally. In 2023, mobile money accounted for approximately $190 billion of the region's economy, with transactions totaling $1.1 trillion, or 65% of the world's mobile money value. In an increasingly digital world, the implementation of technology and successful digital marketing approaches, especially social media marketing (SMM), has become essential for SMEs to boost operational efficiency, broaden market access, and elevate competitiveness.

Digital technology, particularly social media, can assist SMEs in enhancing their operations and marketing effectiveness. However, research indicates that this digital advancement has not fully realized its potential yet. Disse and Sommer (2020) note that while digital tools are increasingly accessible, they have not significantly transformed SME operations. Traditional practices still prevail, and numerous SMEs fail to capitalize on digital platforms, especially in Africa. Achieng and Malatji (2022) assert that due to numerous obstacles, SMEs in the Sub-Saharan Africa region have been hesitant to embrace digital technologies. When SMEs implement technology, they tend to focus on enhancing efficiency and competitiveness within their business practices. However, integrating certain technological innovations into daily business operations remains difficult because of a range of complex challenges, including inaccessible markets, limited financial support, poor infrastructure, lack of skilled personnel, weak public policies, low digital literacy, and limited confidence in technology use (Achieng & Malatji, 2022). These obstacles lead to less-than-optimal performance in social media marketing, preventing SMEs from fully tapping into the economic advantages of digitalization and obstructing their capacity to contribute significantly to job creation and sustainable regional development.

While the existing literature acknowledges the importance of technology adoption and social media marketing for SMEs in Sub-Saharan Africa (Achieng & Malatji, 2022; Ghobakhloo, Iranmanesh, Vilkas, Grybauskas, & Amran, 2022), and individual studies touch upon aspects of digital skills, investment, and infrastructure, there remains a significant gap in comprehending the most suitable methods of technology adoption in relation to social media marketing and specific challenges faced. Neglecting to evaluate specific methods and challenges could hinder Sub-Saharan African SMEs from reaping the full benefits of technology for improved social media marketing. Against this backdrop, this study seeks to:

a) Determine the most suitable methods for evaluating the digital competence of SMEs to achieve customer engagement in Sub-Saharan Africa.
b) This study evaluates the challenges SMEs in Sub-Saharan Africa face in acquiring digital competence for enhanced customer engagement.

2. Literature review

2.1 Technology adoption

Technology adoption is an extensive and complex process involving decisions and actions taken by individuals, organizations, or specific groups to acquire, integrate, and routinely use new innovations or technologies within their current operations, practices, or everyday activities (Al-Emran & Griffy-

Brown, 2023; Granić, 2024). This process goes beyond simple procurement and signifies a more profound dedication to incorporating the technology in a way that it becomes a fundamental component of task execution and goal attainment (Granić, 2024). On an individual level, it includes the cognitive, behavioral, and motivational elements that affect a person's engagement with and ongoing use of a new digital tool. For organizational bodies, particularly, it represents a strategic transition towards utilizing advanced digital solutions to enhance business operations and overall competitiveness (Ghobakhloo et al., 2022; Shahadat, Nekmahmud, Ebrahimi, & Fekete-Farkas, 2023).

The main driving force behind technology adoption is the considerable opportunities and transformative advantages it presents across different scales. From a societal standpoint, the successful integration of technology is increasingly viewed as a crucial facilitator of achieving sustainable development goals, enhancing efficiency, and contributing to both economic and social advancement (Al-Emran & Griffy-Brown, 2023). For businesses, especially SMEs, the adoption of new technologies, particularly those associated with Industry 4.0, is essential for boosting productivity, optimizing operations, and securing a competitive edge (Ghobakhloo et al., 2022; Shahadat et al., 2023). This movement toward digital transformation is recognized worldwide, with research in areas such as Sub-Saharan Africa highlighting its potential to empower SMEs to meet market needs and stimulate growth (Achieng & Malatji, 2022).

The effective adoption of technology is influenced by the complex interplay of various drivers. Studies indicate that, for SMEs, these drivers can be generally classified into technological (e.g., perceived usefulness and ease of use), environmental (e.g., competitive pressure and market demand), and organizational factors (e.g., internal resources, management backing, and organizational culture) (Shahadat et al., 2023). In the specific context of Sub-Saharan Africa, research shows that factors such as perceived benefits, access to information, management support, and external pressure significantly impact the adoption of digital technologies by businesses (Naatu, Selormey, & Naatu, 2025). At the individual level, a thorough understanding of adoption factors encompasses aspects such as personal characteristics, social influences, and the particular situation in which technology is implemented (Granić, 2024).

2.2 Social Media Marketing

Social media marketing for SMEs can be described as a modern strategic method that utilizes online social platforms to advertise products, services, and brands, ultimately aiding business development and growth. It acts as an essential promotional instrument, especially in developing regions, allowing SMEs to access a broader audience and improve market visibility (Amoah & Jibril, 2021). This marketing approach represents a departure from traditional advertising techniques, enabling businesses to interact directly with potential and existing customers in an engaging digital space (Urban & Maphathe, 2021). The effective use of this strategy is increasingly acknowledged as vital for the survival and growth of SMEs (Nadkar, 2023; Swallehe, 2021).

The realm of social media marketing goes beyond simple advertising and involves various interactive activities designed to build significant customer relationships. It empowers SMEs to promote customer interaction, which is critical for cultivating brand loyalty and fostering positive word-of-mouth (Urban & Maphathe, 2021). Social media allows businesses to communicate their unique value propositions, address customer queries, collect feedback, and cultivate communities around their brands. In the financial sector of developing economies, social media serves as a potent promotional channel, enabling SMEs to share information about their services and establish trust with their target audience (Amoah & Jibril, 2021).

The significance of social media marketing for SMEs is highlighted by its ability to spur development and provide a competitive edge, particularly in areas such as South Africa and Tanzania. It offers a budget-friendly option for SMEs, which typically function with limited resources, to carry out marketing efforts and compete with larger corporations (Nadkar, 2023). By leveraging social media, SMEs can boost their visibility, attract new customers, and maintain their current clientele through ongoing engagement and personalized content (Urban & Maphathe, 2021). Therefore, the strategic embrace of these platforms is regarded as essential for achieving business sustainability and growth in today's market (Nadkar, 2023; Swallehe, 2021).

The adoption of social media marketing by SMEs is shaped by various factors and exhibits particular contextual characteristics. Research has identified the elements that promote or impede its adoption, including perceived advantages, organizational preparedness, and the technological resources available to businesses (Swallehe, 2021). The relevance of social media marketing for SMEs is particularly emphasized in developing economies such as those in Sub-Saharan Africa, where digital connectivity is growing and creating fresh opportunities for market entry (Amoah & Jibril, 2021; Nadkar, 2023; Swallehe, 2021). Therefore, social media marketing is seen not only as a tactical option but also as a strategic necessity that enables SMEs to adapt to the digital environment and explore new avenues for customer engagement and overall business success (Urban & Maphathe, 2021).

2.3 Digital Competence

Digital competence can be described as a complex and changing array of knowledge, abilities, and attitudes that are needed to navigate the digital environment effectively and critically. It includes not only the technical skills to operate digital tools but also the cognitive and social capabilities required for responsible, ethical, and effective engagement with digital technologies (Sánchez-Canut, Usart-Rodríguez, Grimalt-Álvaro, Martínez-Requejo, & Lores-Gómez, 2023; Zhao, Llorente, & Gómez, 2021). This comprehensive definition underscores the necessity of digital competence across various sectors, ranging from personal life to professional environments and higher education, highlighting an essential skill set for modern society (Sánchez-Canut et al., 2023).

Digital competence is usually organized into different domains that reflect the various activities conducted within digital spaces. In the context of higher education, research often refers to specific frameworks such as the Digital Competence Framework for Educators (DigCompEdu), which details competence areas pertinent to technology-enhanced teaching and learning (Aiastui, Arruti, & Morillo, 2021). More generally, professional digital competence encompasses skills related to information and data literacy, communication and teamwork, digital content creation, safety, and problem-solving in the workplace (Sánchez-Canut et al., 2023). These frameworks aim to provide a standardized and holistic understanding of the skills and knowledge that constitute digital proficiency.

Digital competence is especially evident in global contexts, including developing areas such as Africa, where it is vital for socioeconomic progress and individual empowerment (Bashir & Daniels, 2022). In higher education, the level of digital competence among students and educators greatly influences the quality of learning, research, and administrative functions (Aiastui et al., 2021; Zhao et al., 2021). Moreover, investigations into professional digital competence recognize its crucial role in workforce preparedness and effectiveness while examining aspects such as gender differences in its assessment and application (Sánchez-Canut et al., 2023). Consequently, grasping and promoting digital competence is essential for individuals to succeed in an increasingly digital world, allowing them to engage effectively in education, the workforce, and society.

2.4 Customer Engagement

Customer engagement refers to the interactive and dynamic relationship formed between a business and its customers, going beyond simple transactions to include active involvement and meaningful exchange. For Small SMEs, this engagement is nurtured through avenues such as social media marketing, where companies actively communicate with their customers to cultivate brand loyalty and develop positive relationships (Urban & Maphathe, 2021; Wattenberg, 2024). It represents a strategic necessity for businesses to attract and retain customers by fostering an environment in which customers feel valued and connected (Iyelolu, Agu, Idemudia, & Ijomah, 2024). The expressions of customer engagement vary and often occur through different touchpoints, particularly in the digital space. For instance, on social media platforms, it encompasses interactive communication, feedback systems, and content engagement, allowing SMEs to forge and enhance customer relationships (Urban & Maphathe, 2021).

The effectiveness of this engagement relies on strategically integrating efforts, as businesses aim to draw customers into meaningful conversations and experiences (Wattenberg, 2024). Additionally, SMEs increasingly utilize technological advancements, such as AI-powered solutions, to improve and streamline engagement processes, facilitating more personalized and efficient customer interactions (Iyelolu et al., 2024). The significance of customer engagement for businesses, particularly SMEs, lies in its considerable influence on various key performance indicators and overall success. Successful customer engagement is fundamentally connected to strong Customer Relationship Management (CRM) capabilities, which collectively impact a firm's innovation outcomes by promoting insights and collaborative opportunities (Binsaeed et al., 2023). For SMEs operating in contexts such as South Africa, cultivating customer engagement through social media marketing is essential for establishing a market presence and gaining a competitive edge (Urban & Maphathe, 2021). It plays a role in fostering trust, which can be a vital element in alleviating customer skepticism, ultimately resulting in strengthened customer relationships and enhanced business performance (Binsaeed et al., 2023).

2.5 Linking Technology and Social Media Marketing

People in many fields, including health, entertainment, agriculture, and business, are becoming more interested in the idea of using technology in different areas of their operations, including marketing operations. Social media is a type of technology that clearly lets business owners show off what they sell without having to bring the goods or services right to the door of potential customers (Oyewobi, Adedayo, Olorunyomi, & Jimoh, 2023). The integration of technologies, such as social media, enhances the marketing efficacy of SMEs by facilitating cost-effective information dissemination. An empirical study shows the importance of technology in the marketing activities of firms. For instance, Oyewobi et al. (2023) assert that the utilization of technology enhances knowledge accessibility, decreases expenses, and improves customer relations.

Social media helps businesses market their brands, improving awareness and strengthening networking. Using social media may help SMEs enter new worldwide markets and continue to improve. This gives SMEs a competitive edge and better social media marketing performance, leading to more customers and better customer engagement (Mookerjee & Chattopadhyay, 2022). In today's digital economy, the use of technology and social media marketing is the key to getting ahead of the competition (Fu, Silalahi, Yang, & Eunike, 2024). Digital skills and the capacity to create content that will keep customers interested are now also important for getting a job in most companies, especially SMEs, where having a wide range of skills is important. Hence, there is a clear connection between technology and marketing. Using new technologies can help SMEs contact more people and improve their marketing. Research continually demonstrates that when companies invest in compatible technology, cultivate internal digital competencies, and effectively integrate social media, they enhance brand awareness, customer engagement, and revenues.

2.6 Empirical Insights

Dankwa and Yeboah (2025) examined the influence of digitalization and customer involvement on SME performance in Accra using a quantitative survey methodology. A random sample of 300 was selected from 14,230 registered SMEs, yielding 253 valid responses. The data were evaluated using Structural Equation Modeling (SEM-AMOS). The research shows that communication-integrating, general-use, and market-oriented digitalization significantly enhance SME performance. Moreover, consumer involvement was identified as a mediating factor in these interactions, improving performance when digital tools were used interactively with customers. The control variables, including educational attainment and digital platform type, did not significantly affect performance. The findings underscore the significance of digitalization in enhancing the operational and financial performance of SMEs, particularly via proactive customer involvement.

Alkhasoneh, Jamaludin, Bin Zahar, and Al-Sharafi (2025) investigated the determinants affecting social media usage by SMEs and evaluated its impact on brand awareness and consumer engagement within the Jordanian context. This study employed a quantitative methodology to analyze adoption of social media by SMEs. Data were gathered from 290 SMEs in Jordan using purposive sampling through paper-based and online surveys. The validity of the proposed model was affirmed using partial least squares (PLS) methodology, utilizing SmartPLS 4 for analysis. The findings indicate that the analyzed model encapsulates the dynamics of social media use among SMEs well, elucidating the key factors that influence their decision to engage with social media in their operations. The results emphasize the crucial importance of social media utilization in SMEs, especially in improving brand awareness and promoting consumer involvement in the Jordanian business environment.

Naatu et al. (2025) examined the factors influencing the adoption of digital technology in Sub-Saharan Africa, specifically in Ghana. This study examined the influence of perceived ease of use and perceived utility on consumer attitudes and intentions to adopt digital technologies in Ghana. Covariance-based structural equation modeling was employed to assess the model using a dataset of 204 respondents. The study was performed using R (version 0.6–12). The findings validated that both perceived ease of use and perceived utility are significant determinants of the propensity to adopt a technology. Moreover, elements such as attitude, subjective standards, and perceived behavioral control significantly influenced adoption intent. The research revealed that perceived ease of use influences peer dynamics among consumers and enhances their confidence in utilizing technology efficiently.

The utilization of social media to improve business performance in Harare Metropolitan Province, Zimbabwe. This study incorporated the diffusion of innovation and technology-organization-environment frameworks to investigate this phenomenon. A cross-sectional research approach enabled data collection using an online questionnaire distributed to 938 participants managing business organizations in the Harare region of Zimbabwe. SmartPLS 4.0 software facilitated data analysis and the use of the partial least squares method to discern the interconnections among the measurement components. The data were analyzed and the proposed hypotheses were tested using Structural Equation Modeling (SEM). The findings suggest that the integration of theoretical frameworks elucidates the factors influencing the acceptability and utilization of social media.

Achieng and Malatji (2022) conducted a study to determine how SMEs in sub-Saharan Africa may formulate comprehensive strategies for the integration of digital technology into their operations to enhance resilience. Arksey and O'Malley's systematic scoping review (SR) was employed to locate and delineate publications throughout a five-year span utilizing specified inclusion and exclusion criteria. Forty-four publications were selected for a comprehensive examination of the problem at hand. The results suggest that economic, market-based, and socio-technical contextual variables emerged as themes that hinder the digital transformation of SMEs in sub-Saharan Africa.

Mapunda (2021) synthesized the factors influencing E-Marketing adoption by SMEs in African nations. A thorough examination of the empirical literature on e-marketing in Africa was conducted, and the findings were processed using Microsoft Excel. The results indicated that 20 African nations used e-marketing, encompassing five categories: ICT in 14 countries (70%); e-marketing in three countries (15%); and online marketing, web marketing, and mobile money services in one country (5% each). Three primary determinants of e-marketing adoption in African nations were identified: IT skills, knowledge, and education (60%) (self-efficacy); availability of resources (55%) (facilitating conditions); and IT infrastructure and facilities (50%) (facilitating conditions).

Lewandowska (2021) examined the impact of innovation investment on the competitiveness of SMEs in a peripheral region of Poland. This research utilized data obtained from CATIs conducted with 808 enterprises, comprising 410 innovative and 398 non-innovative entities. Logistic regression was employed to ascertain statistically significant differences between the factors of innovative and non-innovative organizations. The research findings indicate that within SMEs in peripheral regions, not all forms of investment influence competitiveness. The highest reliance was evidenced by expenditures on machinery and equipment, marketing initiatives, intellectual property protection, and training. The study also demonstrated the presence of adverse influences, the escalation of which resulted in a diminished degree of competitiveness.

3. Research Methodology

This study employs a qualitative approach, specifically a systematic literature review and thematic content analysis, to assess the influence of technology adoption on social media marketing performance among Small and Medium-sized Enterprises (SMEs) in Sub-Saharan Africa. This approach is most suitable for exploring the underlying mechanisms and contextual factors that enable an in-depth understanding of the best methods for evaluating digital competence to gain customer engagement. The data for this study were obtained exclusively from secondary sources. These sources included peer-reviewed academic journals, conference proceedings, institutional reports, and relevant industry publications. The collection focused on materials published within a recent timeframe, specifically between 2015 and 2025, to ensure contemporary relevance while capturing recent trends in technology and marketing. This was part of the inclusion and exclusion criteria for the study. Other requirements are that the data must be written in English, peer-reviewed, and the complete work must be available online.

Articles that did not meet these criteria were excluded. Finally, 36 of the 76 articles downloaded were included and used in this study. Keywords used in the search bars to source these materials include technology adoption in SMEs across Sub-Saharan Africa, technology disruption, digital marketing in SMEs across Sub-Saharan Africa, online marketing, social media marketing, and digital transformation initiatives in SMEs across Sub-Saharan Africa. Others are social media marketing strategies in SMEs across Sub-Saharan Africa, challenges of adopting digital marketing, and social media marketing in SMEs across Sub-Saharan Africa, factors influencing and performance outcomes in developing economies, and broader studies on the various methods used to analyze digital competence in SMEs across Sub-Saharan Africa. Furthermore, documents detailing the challenges faced in acquiring and utilizing digital competence for customer engagement within African SMEs were also searched. These documents provide rich qualitative and quantitative data on technology adoption initiatives, social media marketing practices, digital competence development methods, and challenges faced by SMEs in Sub-Saharan Africa. The databases used to source these materials included Web of Science, Google Scholar, Science Direct, Semantic Scholar, ResearchGate, and Academia.

4. Results and discussions

The data analysis for this qualitative study primarily involved thematic content analysis of the secondary data collected. This method entails systematically reading, coding, and categorizing the information extracted from the reviewed literature to identify recurring themes, patterns, and relationships relevant to the research objectives of this study. The thematic content analysis yielded several interconnected themes, each shedding light on specific aspects of technology adoption and social media marketing performance in SMEs in Sub-Saharan Africa. The themes are now presented and discussed based on the empirical evidence.

a) Determine the most suitable methods for evaluating the digital competence of SMEs to achieve customer engagement in Sub-Saharan Africa.

Thematic Analysis of Methods for Evaluating Digital Competence

The literature analysis highlights several suitable methods for evaluating the digital competence to achieve customer engagement.

1. Assessing Perceived Usefulness and Ease of Use: The research indicates that one of the most effective ways to evaluate digital competence is by assessing employees' perception of the usefulness and ease of use of digital tools (Akpe, Mgbame, Ogbuefi, Abayomi, & Adeyelu, 2023; Muazu, Inuwa, & Ibrahim, 2024; Wongkhamdi, Cooharojananone, & Khlaisang, 2020). When employees find social media tools beneficial for achieving customer engagement goals (e.g., quick responses, personalized interactions) and easy to use, their effective utilization increases (Naatu et al., 2025). This subjective evaluation serves as a direct measure of their confidence and skill in using the technology, which is crucial for proactive and effective customer interaction.
2. Evaluating Employee Proficiency through Performance Metrics: A second method involves evaluating employee proficiency by examining performance metrics related to customer engagement (Mashavira, Guvuriro, & Chipunza, 2022; Mdhluli, 2024). The analysis shows that an

SME's social media marketing performance, including metrics such as higher engagement rates and improved customer service, is directly linked to the digital proficiency of the employees managing these platforms. Therefore, evaluating the quality of online customer relationships, response times, and content engagement provides a tangible measure of employees' digital competence. This approach moves beyond theoretical knowledge to practical applications.

3. Investment in Training as an Indicator: The study also suggests that the level of investment in employee training to bolster digital competence can be used as an evaluation method. This demonstrates a strategic commitment to improving human capital, which directly impacts market-facing performance, including customer engagement (Drydakis, 2022; Lewandowska, 2021; Ollerenshaw, Corbett, & Thompson, 2021).

Table 1. Most Suitable Methods for Evaluating Digital Competence of SMEs in Sub-Sahara Africa

S/N	CODES	THEMES	DESCRIPTION	REFGERENCES
1	Perception	Perceived Usefulness and Ease of Use	How useful and easy to use employees find social media tools could affect their competency towards the adoption and use of digital tools	Wongkhamdi et al. (2020); Akpe et al. (2023); Muazu et al. (2024); (Naatu et al., 2025)
2	Customer engagement	Performance Metrics	Evaluating employee proficiency by examining performance metrics related to customer engagement, quality of online customer relationships, response times, and content engagement provides a tangible measure of employee digital competence.	Mashavira et al. (2022); Mdhluli (2024).
3	Human Capital	Investment in Training	Strategic commitment towards improving human capital, can directly impact market-facing performance and customer engagement of SMEs.	Lewandowska (2021); Drydakis (2022); Ollerenshaw et al. (2021)

Source: Researcher's compilation, 2025

Table 1 shows the themes for the most suitable methods for evaluating the digital competence of SMEs in Sub-Sahara Africa. The table contains the codes leading to the themes, descriptions of the themes, and citations that support each code/theme.

b) This study evaluates the challenges SMEs in Sub-Saharan Africa face in acquiring digital competence for enhanced customer engagement.

Thematic Analysis of Challenges in Acquiring Digital Competence

The thematic analysis of the literature identified several significant challenges faced by SMEs in Sub-Saharan Africa in acquiring digital competence for enhanced customer engagement.

1. Lack of Necessary Digital Skills and Human Capital: A key challenge is the limited digital skills among employees, which hampers their ability to manage social media platforms effectively and create engaging content (Stofkova et al., 2022). This lack of proficiency leads to missed opportunities to build strong online relationships and brand loyalty. As noted by Achieng and Malatji (2022), the lack of skilled personnel is a significant industry challenge that impedes digital transformation.

2. Financial Constraints and High Costs: SMEs often face limited financial resources, which makes it difficult to invest in the necessary technology and training to develop digital competence (Frimpong, Agyapong, & Agyapong, 2022). The high cost of digital tools and platforms, as well as the expense of quality training initiatives, presents a major economic barrier to acquiring and improving digital skills (James, 2021; Mapunda, 2021; Telukdarie, Dube, Matjuta, & Philbin, 2023).
3. Inadequate Access to Reliable Technological Infrastructure: Poor digital infrastructure, such as unreliable Internet access and a lack of affordable technology, is a persistent challenge in the SSA region (Achieng & Malatji, 2022; Ebuka, Emmanuel, & Idigo, 2023). This infrastructural deficiency makes it difficult for SMEs to fully utilize digital tools, regardless of their employees' potential competence (Msomi & Kandolo, 2023). Without a stable and accessible foundation, efforts to acquire digital skills for customer engagement are often impeded.
4. Low Digital Literacy and Resistance to Change: A socio-technical challenge is the low digital literacy among some adults in the region (James, 2021; Uludağ, 2023). This can lead to a lack of confidence in using technology and an inherent resistance to change within organizations, making it difficult to successfully implement new digital practices for customer engagement (Omowole, Olufemi-Philips, Ofadile, Eyo-Udo, & Ewim, 2024; Umetiti, Nwafor, Arachie, & Ifeme, 2025). The gap between the perceived value of digital tools and their actual implementation highlights this challenge.

Table 2. Analysis of Challenges in Acquiring Digital Competence, amongst SMEs in Sub-Sahara Africa

S/N	CODES	THEMES	DESCRIPTION	REFGERENCES
1	Skill Gap, Human Resources	Lack of Necessary Digital Skills and Human Capital	Limited digital skills among employees, can affect their ability to effectively manage social media platforms and create engaging content.	Stofkova et al. (2022); Achieng and Malatji (2022)
2	Financial Resources	Financial Constraints and High Costs	SMEs often face limited financial resources, which makes it difficult to invest in the necessary technology and training to develop digital competence	Frimpong et al. (2022); Mapunda (2021); James (2021); Telukdarie et al. (2023); Umetiti et al. (2025)
3	Digital Infrastructure, internet access	Inadequate Access to Reliable Technological Infrastructure	Poor digital infrastructure, such as unreliable internet access and a lack of affordable technology, makes it difficult for SMEs to fully utilize digital tools, regardless of their employees' potential competence	Achieng and Malatji (2022); Ebuka, Nzewi, Gerald, and Ezinne (2020); Msomi and Kandolo (2023)
4	Organisational Change, Digital Practices	Low Digital Literacy and Resistance to Change	Digital literacy among adults in some regions is a huge challenge. Most of these adults, refuse to adjust from traditional methods to more advance methods.	Uludağ (2023); James (2021); Omowole et al. (2024)

Source: Researcher's compilation, 2025

Table 2 shows the themes for the challenges SMEs in Sub-Sahara Africa face in acquiring digital competence. The table contains the codes leading to the themes, descriptions of the themes, and citations that support each code/theme.

4.1 Discussion of Findings

The literature analysis reveals a multifaceted approach to evaluating the digital competence for customer engagement. The findings highlight three primary methods that move from subjective perceptions to objective performance-based metrics. First, the assessment of perceived usefulness and ease of use emerged as a foundational method, with employees' confidence and comfort with digital tools directly influencing their effective utilization for customer interaction. This is supported by Wongkhamdi et al. (2020) and Akpe et al. (2023), who underscore that when digital tools like social media are seen as beneficial and easy to navigate, their use becomes more proactive and effective. Second, the evaluation of employee proficiency through performance metrics provides a more tangible measure of digital competence.

This method focuses on the practical application of skills, using metrics such as engagement rates, response times, and overall customer service quality to gauge an SME's social media marketing performance. As noted by Mashavira et al. (2022) and Mdhluli (2024), this approach directly links an employee's digital skills to business outcomes, demonstrating the real-world impact of their competence. Finally, the level of investment in employee training was identified as a strategic indicator of digital competence. A company's commitment to developing its human capital through training initiatives, as highlighted by Lewandowska (2021) and Drydakis (2022), signals a strategic intent to improve market-facing performance and enhance its customer engagement capabilities.

Despite these established evaluation methods, thematic analysis also uncovers significant and interconnected challenges for SMEs in Sub-Saharan Africa (SSA) in acquiring digital competence. A key hurdle is the widespread lack of the necessary digital skills and human capital. This is an industry-based challenge that directly impedes employees' ability to manage digital platforms effectively and create engaging content, leading to missed opportunities for building online customer relationships (Achieng & Malatji, 2022; Ebuka et al., 2020). Compounding this issue are Financial constraints and high costs act as major economic barriers. The high expense of quality training programs and essential digital tools makes it difficult for many SMEs to invest in the resources required to bridge the skills gap (Frimpong et al., 2022; Telukdarie et al., 2023). This financial limitation is often the root cause of the skills deficit, creating a cycle in which limited resources prevent the acquisition of the skills needed to grow the business.

Furthermore, these challenges are exacerbated by infrastructural and sociotechnical issues. Inadequate access to reliable technological infrastructure, such as poor Internet connectivity, remains a persistent and fundamental challenge in the SSA region (Achieng & Malatji, 2022; Msomi & Kandolo, 2023). Without a stable digital foundation, even highly skilled employees cannot effectively use digital tools for customer engagement. This infrastructural deficiency renders efforts to improve digital competence moot and ineffective. Finally, low digital literacy and pervasive resistance to change within some organizations present significant socio-technical barriers.

As noted by Omowole et al. (2024), a lack of confidence in using technology can lead to an unwillingness to adopt new practices, even when their value is evident. This cultural resistance makes implementing new digital strategies for customer engagement a difficult undertaking, regardless of the availability of skills or resources. Together, these findings illustrate that the acquisition of digital competence is not merely a matter of training but also requires addressing fundamental economic, infrastructural, and cultural barriers.

5. Conclusion

5.1. Conclusion

This study critically examined how SMEs in Sub-Saharan Africa adopt technology and how such adoption influences social media marketing performance, with particular emphasis on digital competence in customer engagement. The findings establish that SMEs' digital competence can be effectively evaluated using three methods: assessing employees' perceived usefulness and ease of use of digital tools, monitoring performance metrics linked to customer engagement, and examining investments in digital skills training. Simultaneously, the study highlights key obstacles hindering SMEs' ability to acquire and utilize digital competence, namely inadequate digital skills, financial constraints, poor technological infrastructure, and low digital literacy. Overall, the study underscores that while digital competence is central to strengthening customer engagement and sustaining competitiveness, its successful development in Sub-Saharan Africa (SSA) requires a balance between individual, organizational, and systemic enablers. Addressing these barriers is not only a prerequisite for improved marketing performance but also a pathway to sustainable growth and resilience for SMEs across the region.

5.2 Recommendations

Based on the objectives and findings of the study which focused on assessing the most suitable methods for evaluating the digital competence of Sub-Saharan SMEs in order to achieve customer engagement, and to evaluate the challenges Sub-Saharan SMEs face in acquiring digital competence for enhanced customer engagement. The following recommendations are made:

1. The development of Targeted Digital Skills and Capacity Building for SME Employees should be enhanced. Easily accessible and pertinent training initiatives should be formulated. These initiatives should cover not only fundamental digital literacy but also advanced skills in social media management, digital content creation, online customer service, and using marketing analytics tools.
2. Facilitation of Cost-Effective Access to Relevant Digital Marketing Technology and Infrastructure. Programs should explore methods to lower the costs of digital tools and platforms for SMEs.
3. Creation and Adoption of Context-Sensitive and User-Friendly Digital Solutions. The success of technology adoption is closely linked to its applicability and ease of use in the local context. Technology developers and innovators in Sub-Saharan Africa should design digital marketing tools and platforms that are intuitive, mobile-friendly, affordable, and culturally relevant to the region.
4. Promotion of Digital Ecosystems and Peer Learning Among SMEs. Encouraging collaboration and knowledge sharing can help address implementation challenges and accelerate effective adoption. This includes creating and supporting platforms for peer learning, mentorship programs, and digital communities of practice for SMEs.
5. Enhanced Digital Infrastructure and Supportive Policy Frameworks. Governments and regional organizations should prioritize investing in strong and affordable Internet infrastructure, and policy frameworks need to be developed or improved to foster a supportive environment for digital businesses.

5.3. Limitation

The mono-method of this study, where data for the study were obtained through secondary qualitative sources and the analysis was qualitative, utilizing thematic analysis, limits the generalizability of this study.

5.4. Suggestion

Other researchers looking at this area may wish to combine both quantitative and qualitative data analysis techniques, which will allow for the collection of data using mixed methods and improve the generalizability of the study. A comparative analysis study could also be conducted to examine what obtains in different countries in sub-Saharan Africa.

Acknowledgement

There was no financial support for the study; the study was entirely financed by the researchers alone.

References

Achieng, M. S., & Malatji, M. (2022). Digital transformation of small and medium enterprises in sub-Saharan Africa: A scoping review. *The Journal for Transdisciplinary Research in Southern Africa, 18*(1), 1257. doi:https://doi.org/10.4102/td.v18i1.1257

Aiastui, E. B., Arruti, A., & Morillo, R. C. (2021). A systematic literature review about the level of digital competences defined by DigCompEdu in higher education. *Aula abierta, 50*(4), 841-850. doi:https://doi.org/10.17811/rifie.50.4.2021.841-850

Akpe, O., Mgbame, A. C., Ogbuefi, E., Abayomi, A. A., & Adeyelu, O. O. (2023). Technology acceptance and digital readiness in underserved small business sectors. *Journal of Frontiers in Multidisciplinary Research, 4*(1), 252-268. doi:https://doi.org/10.54660/.ijfmr.2023.4.1.252-268

Al-Emran, M., & Griffy-Brown, C. (2023). The role of technology adoption in sustainable development: Overview, opportunities, challenges, and future research agendas. *Technology in Society, 73*. doi:https://doi.org/10.1016/j.techsoc.2023.102240

Alkhasoneh, O. M., Jamaludin, H., Bin Zahar, A. R. i., & Al-Sharafi, M. A. (2025). Drivers of social media use among SMEs and its impact on brand awareness and customer engagement. *Asia-Pacific Journal of Business Administration, 17*(3), 595-615. doi:https://doi.org/10.1108/APJBA-02-2024-0102

Amoah, J., & Jibril, A. B. (2021). Social media as a promotional tool towards SME's development: Evidence from the financial industry in a developing economy. *Cogent Business & Management, 8*(1), 1-21. doi:https://doi.org/10.1080/23311975.2021.1923357

Bashir, S., & Daniels, C. (2022). *Digital skills in Africa*. Retrieved from https://hdl.handle.net/10779/uos.23493371.v1

Binsaeed, R. H., Yousaf, Z., Grigorescu, A., Chitescu, R. I., Nassani, A. A., & Samoila, A. (2023). Customer engagement and customer relationship management capabilities' effects on innovation performance and customer distrust's moderating role. *Sustainability, 15*(12), 1-14. doi:https://doi.org/10.3390/su15129475

Dankwa, D. D., & Yeboah, J. (2025). Digitalization, Customer Engagement, and Performance of Small and Medium Enterprises: Emerging Market Context *Digital Transformation in the Customer Experience* (pp. 3-30): Apple Academic Press.

Disse, S., & Sommer, C. (2020). *Digitalisation and its impact on SME finance in Sub-Saharan Africa: Reviewing the hype and actual developments*: Discussion Paper.

Drydakis, N. (2022). Improving entrepreneurs' digital skills and firms' digital competencies through business apps training: A study of small firms. *Sustainability, 14*(8), 1-23. doi:https://doi.org/10.3390/su14084417

Ebuka, A. A., Emmanuel, D., & Idigo, P. (2023). Artificial intelligence as a catalyst for the sustainability of Small and Medium Scale Businesses (SMEs) in Nigeria. *Annals of Management and Organization Research, 5*(1), 1-11. doi:https://doi.org/10.35912/amor.v5i1.1719

Ebuka, A. A., Nzewi, H. N., Gerald, E., & Ezinne, K. M. (2020). Digital literacy in a post Coronavirus era: a management perspective for small businesses in Africa. *Annals of Management and Organization Research, 1*(3), 203-212. doi:https://doi.org/10.35912/amor.v1i3.410

Frimpong, S. E., Agyapong, G., & Agyapong, D. (2022). Financial literacy, access to digital finance and performance of SMEs: Evidence From Central region of Ghana. *Cogent Economics & Finance, 10*(1), 1-21. doi:https://doi.org/10.1080/23322039.2022.2121356

Fu, C.-J., Silalahi, A. D. K., Yang, L.-W., & Eunike, I. J. (2024). Advancing SME performance: a novel application of the technological-organizational-environment framework in social media marketing adoption. *Cogent Business & Management, 11*(1), 1-24. doi:https://doi.org/10.1080/23311975.2024.2360509

Ghobakhloo, M., Iranmanesh, M., Vilkas, M., Grybauskas, A., & Amran, A. (2022). Drivers and barriers of industry 4.0 technology adoption among manufacturing SMEs: a systematic review and transformation roadmap. *Journal of Manufacturing Technology Management, 33*(6), 1029-1058. doi:https://doi.org/10.1108/JMTM-12-2021-0505

Granić, A. (2024). Technology adoption at individual level: toward an integrated overview. *Universal access in the information society, 23*(2), 843-858. doi:https://doi.org/10.1007/s10209-023-00974-3

Iyelolu, T. V., Agu, E. E., Idemudia, C., & Ijomah, T. I. (2024). Improving customer engagement and crm for smes with ai driven solutions and future enhancements. *International journal of engineering research and development, 20*(8), 1150-1168.

James, J. (2021). Confronting the scarcity of digital skills among the poor in developing countries. *Development Policy Review, 39*(2), 324-339. doi:https://doi.org/10.1111/dpr.12479

John, E. (2024). Show me your networks and i'll tell you your future: entrepreneurial networks and SME performance. *Cogent Business & Management, 11*(1), 1-13. doi:https://doi.org/10.1080/23311975.2024.2363433

John, E., Mwakalobo, B., & Bengesi, K. (2023). Influence of social competence on performance of small and medium enterprises (SMES): Empirical evidence from Tanzania's manufacturing SMES. *Journal of Co-operative and Business Studies (JCBS), 6*(1).

Lewandowska, A. (2021). Interactions between investments in innovation and SME competitiveness in the peripheral regions. *Journal of International Studies, 14*(1), 285-307. doi:https://doi.org/10.14254/2071-8330.2021/14-1/20

Mapunda, M. (2021). Determinants of e-marketing adoption by small and medium enterprises in African countries. *African Journal of Applied Research, 7*(2), 71-87.

Mashavira, N., Guvuriro, S., & Chipunza, C. (2022). Driving SMEs' performance in South Africa: Investigating the role of performance appraisal practices and managerial competencies. *Journal of Risk and Financial Management, 15*(7), 283. doi:https://doi.org/10.3390/jrfm15070283

Mdhluli, M. E. (2024). *The impact of digital technologies on SME business performance in South Africa.* University of the Witwatersrand, Johannesburg (South Africa).

Mookerjee, J., & Chattopadhyay, S. (2022). Measuring The Adoption of social media & Internet Technology for Retailing: An Analysis of Consumer Behaviour. *Mathematical Statistician and Engineering Applications, 71*(2022), 12430-12450.

Msomi, T. S., & Kandolo, K. M. (2023). Sustaining small and medium-sized enterprises through financial awareness, access to digital finance in South Africa. *Investment Management & Financial Innovations, 20*(1), 317. doi:https://doi.org/10.21511/imfi.20(1).2023.27

Muazu, S., Inuwa, U., & Ibrahim, A. (2024). Relationship between perceived usefulness, perceived ease and e-marketing intention among SMES in Gombe state, Nigeria. *KWASU Journal of the Business of Education, 4*(1), 127-138.

Naatu, F., Selormey, F. S., & Naatu, S. (2025). Determinants of digital technology adoption in sub-Sahara Africa: Ghana. *International Journal of Emerging Markets, 20*(10), 4111-4133. doi:https://doi.org/10.1108/IJOEM-09-2023-1503

Nadkar, A. (2023). *Importance of social media marketing on SMEs in South Africa.* University of the Free State Repository. Retrieved from http://hdl.handle.net/11660/12592

Ollerenshaw, A., Corbett, J., & Thompson, H. (2021). Increasing the digital literacy skills of regional SMEs through high-speed broadband access. *Small Enterprise Research, 28*(2), 115-133. doi:https://doi.org/10.1080/13215906.2021.1919913

Omowole, B. M., Olufemi-Philips, A., Ofadile, O., Eyo-Udo, N. L., & Ewim, S. E. (2024). Barriers and drivers of digital transformation in SMEs: A conceptual analysis. *International Journal of Frontline Research in Multidisciplinary Studies, 5*(2), 019-036. doi:https://doi.org/10.56781/ijsrst.2024.5.2.0037

Oyewobi, L., Adedayo, O. F., Olorunyomi, S. O., & Jimoh, R. A. (2023). Influence of social media adoption on the performance of construction small and medium-sized enterprises (SMEs) in Abuja–Nigeria. *Engineering, Construction and Architectural Management, 30*(9), 4229-4252. doi:https://doi.org/10.1108/ECAM-01-2022-0039

Sánchez-Canut, S., Usart-Rodríguez, M., Grimalt-Álvaro, C., Martínez-Requejo, S., & Lores-Gómez, B. (2023). Professional digital competence: Definition, frameworks, measurement, and gender differences: A systematic literature review. *Human Behavior and Emerging Technologies, 2023*(1), 8897227. doi:https://doi.org/10.1155/2023/8897227

Shahadat, M. H., Nekmahmud, M., Ebrahimi, P., & Fekete-Farkas, M. (2023). Digital technology adoption in SMEs: what technological, environmental and organizational factors influence in emerging countries? *Global Business Review*. doi:https://doi.org/10.1177/09721509221137199

Stofkova, J., Poliakova, A., Stofkova, K. R., Malega, P., Krejnus, M., Binasova, V., & Daneshjo, N. (2022). Digital skills as a significant factor of human resources development. *Sustainability, 14*(20), 13117. doi:https://doi.org/10.3390/su142013117

Swallehe, O. (2021). The Determinants of Adoption of Social Media Marketing Among SMEs in Tanzania. *IUP Journal of Marketing Management, 20*(1).

Telukdarie, A., Dube, T., Matjuta, P., & Philbin, S. (2023). The opportunities and challenges of digitalization for SME's. *Procedia Computer Science, 217*, 689-698.

Uludağ, C. Ç. (2023). Digital Literacy (Competency) And Readiness for Organizational Change: The Mediator Role of Resistance to Change. *İşletme Araştırmaları Dergisi, 15*(1), 704-717. doi:https://doi.org/10.20491/isarder.2023.1613

Umetiti, C. B., Nwafor, A. E., Arachie, A. E., & Ifeme, A. P. (2025). Digital literacy in the context of small and medium enterprises (SMEs): A performance dynamics. *International Journal of Public Administration and Management Research, 11*(1), 1-17.

Urban, B., & Maphathe, T. (2021). Social media marketing and customer engagement: a focus on small and medium enterprises (SMEs) in South Africa. *Journal of Contemporary Management, 18*(1), 48-69. doi:https://doi.org/10.35683/jcm20065.96

Wattenberg, M. (2024). *Integration of Successful Customer Engagement for SMEs on Social*: Academic Conferences and publishing limited.

Wongkhamdi, T., Cooharojananone, N., & Khlaisang, J. (2020). E-commerce competence assessment mobile application development for SMEs in Thailand. doi:https://doi.org/10.3991/ijim.v14i11.11358

Zhao, Y., Llorente, A. M. P., & Gómez, M. C. S. (2021). Digital competence in higher education research: A systematic literature review. *Computers & education, 168*, 104212. doi:https://doi.org/10.1016/j.compedu.2021.104212