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Social media adoption in smes sustainability: evidence from an emerging economy

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Abstract: Social media is constantly changing the business landscape across all economic sectors. Given this, small and medium enterprises (SMEs) are leveraging this to give their businesses a new trend. In emerging economies, however, the rate of adoption and integration of social media among small and medium enterprises appears to have lagged due to a multitude of factors. Drawing on the technology organization and environment (TOE) framework, the purpose of this study was to investigate the factors affecting social media application adoption and their impact on SMEs' sustainability in Ghana's context. Data was collected from 430 managers of SMEs in Ghana using a structured questionnaire and analyzed using a PLS-SEM. Findings revealed that cost-effectiveness, customer pressure, employees' competence, financial resource availability, and leaders' support positively influence social media adoption, while social media adoption also impacts SME firms' sustainability. A negative effect was, however, observed for factors like industry pressure, perceived complexity, relative advantage, and perceived compatibility. This study

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PUBLIC INTEREST STATEMENT

Social media adoption has attracted the attention of scholars and practitioners, particularly within the small and medium enterprises space. Although social media serve not only as a digital entertainment platform but also as a medium of SMEs sustainability. Once more, the impact of technology and the fierce competition among organizations in the modern era of marketing cannot be understated. Against this backdrop, this current study aims to investigate the adoption of social media applications on the sustainable performance of SMEs and again to explore the factors that affect social media application adoption and SMEs' sustainability using the TOE framework and examine social media impact on SMEs' sustainability in the context of emerging economies, particularly, Ghana, which remains under-explored. The study's findings should serve as a reminder to business owners and entrepreneurs that social media adoption may be used as an effective and efficient tool for their sustainability. The study not only contributes to the body of knowledge but also serves as a reminder to academics that developing nations must accelerate the adoption of social media.

contributes to the rising deployment of social media by businesses to improve their competitiveness. The implications of the research are also discussed.

Subjects: World Wide Web; Legal, Ethical & Social Aspects of IT; Management of IT; Web Usability; World Wide Web; e-Business; Management of Technology & Innovation; Marketing; Internet / Digital Marketing / e-Marketing; Information Technology

Keywords: Social media; Technology adoption; SME; Sustainability; TOE

1. Introduction

Small and medium enterprises (SMEs) are defined as a company whose sizes fall below a limit example number of employees' value of assets and can vary from one country and industry. The small and medium enterprises sector is considered the main driver for both developed and developing economies. SMEs contribute to the economy through job creation, innovation, social cohesion, and a foundation for large firms (Fan et al., 2021; Lutfi et al., 2022). The sector (SME) contributes over 70% to the Gross Domestic Product and is a major revenue contributor to the economy of Ghana (Amoah & Jibril, 2021). Consequently, providing a significant step in poverty reduction increases production volume, and allows SMEs to compete both domestically and internationally (Alkhateeb & Abdalla, 2021; Bruce, Shurong, Akakpo, et al., 2022). Despite the enormous contribution of SMEs to the global economy, they faced the challenge of adopting and using modern technological applications to compete with larger firms (Chatterjee et al., 2021a; Wadood et al., 2022). Recently, globalization has propelled enterprises to adopt modern technologies to compete and innovate which significantly improve business growth (Dahnil et al., 2014; Fong, 2011). In the background of Widya-Hasuti et al. (2018), businesses' adoption of new technologies is crucial for sustainable business growth. Modern technologies and the emergence of social media have reshaped enterprise practices such as marketing, operations, finance, and human resource management and have helped enterprises to gain a competitive advantage (Ali Guha et al., 2018; Qalati et al., 2021). A Digital Market Outlook (2020) survey reported that business expenses on social media adoption are expected to increase by 7.6% annually by 2024, representing social media market volume of US $132,245 million. Therefore, indicating that social media is progressively becoming an essential marketing tool for business operations.

Social media has become a strategic innovative tool to share information and build profitable customer long-lasting relationships (Alayón et al., 2022; Tajvidi & Karami, 2017). Due to the effectiveness of social media applications, large firms have adopted social media applications to enhance business performance and to achieve competitive advantage (He, 2022; Pandey et al., 2020). Large firms have utilized social media for promotions, market penetration, and networking with potential partners (Dwivedi et al., 2022; George & Schillebeeckx, 2022; Talukder et al., 2013). Moreover, social media acceptance enables firms' strategic partnerships through collaborative information and knowledge sharing (Hitchen et al., 2017). Conversely, it was evidenced that financial resources, limited resources and time constraints have been the main challenges faced by SMEs with regards to technology adoption (Burlea-Schiopoiu & Mihai, 2019; Philbin et al., 2022). In addition, past literature has also argued that inadequate technical skills, implementation processes, and trust factors are the main reasons for SMEs inability to adopt social media in developing countries (Borah et al., 2022; Nisar & Shafiq, 2019; Sangi et al., 2018). A study by Jussila et al. (2014) also shows that exclusively 30% of SMEs have adopted and exploited these modern technologies for achieving sustainability. Moreover, studies show that social media adoption is low among SMEs in developing economies (Bruce, Shurong, Egala, et al., 2022; Kusumadewi et al., 2022). Mention et al. (2019) submit that SMEs should adopt and use social media terminologies to achieve sustainable performance. Ur Rahman et al. (2020) described SMEs' sustainability as practices that encompasses accomplishing a balance between financial resources, and technological, social, and economic objectives. In this context, Vrontis et al. (2022) highlights the relevance of social media technologies in achieving sustainable performance. Borah recently

investigates social media usage and SME's sustainable performance and witnessed social media plays a significant role in SME's sustainable performance.

Past literature has discussed the association between social media usage and SME business performance in developed countries (Fang et al., 2022; Obermayer et al., 2022; Rakshit et al., 2022; Scuotto et al., 2017; Wang et al., 2016). Awiagah et al. (2016) for instance, evidenced that social media allows SMEs to enhance customer relationship capabilities, which positively influences firm performance. Kietzmann et al. (2011) also submit that social media adoption and its usage can empower SMEs to effectively interact with major stakeholders and build connections, which significantly helps in achieving sustainability. Furthermore, Zaglago (2019) evidenced that social media adoption can improve business growth and argued social media usage can lead to firm business growth. Although previous studies have proved significant effect of social media usage on SMEs business growth in developed economies, it has been further proposed that the adoption of social media positively influences SMEs sustainability in developing economies. Recently, very few studies have explored link between social media adoption and SMEs sustainability from the developing countries perspective (Ahmad, Jabeen, et al., 2019; Chatterjee et al., 2021a; Effendi et al., 2020; Qalati et al., 2021; Sulistyaningsih & Hanggraeni, 2021); and further called for future empirical studies to explore social media adoption and its effect on SMEs sustainability (Fan et al., 2021). Moreover, the outcomes from the limited studies on social media adoption among SMEs and measuring its sustainability have not been coherent especially in the Ghanaian context (Amoah, Belás, et al., 2021; Bruce, Shurong, Akakpo, et al., 2022; Nyarko et al., 2022). Against this backdrop, this present study aims to investigate the adoption of social media applications on the sustainable performance of SMEs. The current study attempts to explore the factors that affect social media application adoption and SMEs' sustainability using the TOE framework and to examine social media impact on SMEs' sustainability in the context of emerging economies, particularly, Ghana, which remains under-explored. This study would contribute to the existing knowledge on social media adoption and SMEs sustainability. The study would assist SME owners/managers in making future strategies in social media marketing from emerging economies' perspective. The sections of the paper in this study are arranged as follows: literature review, methodology, and findings/results. The theoretical and practical implications of the findings are discussed in the last section including the study's limitations and directions for future research.

2. Literature review

2.1 Theoretical review

Tornatzky et al. (1990) proposed that the adoption and usage of new technology are influenced by three main predictors, namely the technological, organizational, and environmental factors. Technology adoption in enterprises is explained theoretically by the technology-organization-environment (TOE) framework. TOE explains how the technological, organizational, and environmental contexts all have an impact on how technological advances are adopted and implemented. According to the Technology Acceptance Model (Davis, 1989), or TAM, two criteria affect whether a computer system is adopted by its potential users: (1) perceived usefulness and (2) perceived ease of use. Specifically, the TOE framework has been applied in information and technology adoption and implementation (Bogea and Brito (2018; Borgman et al. (2013, January); Rosli et al., 2012; Sugandini et al., 2022); Awa et al. (2016); Al-Hujran et al. (2018); Alkhateeb and Abdalla (2021); Li (2020). Namankani et al. (2016) argued that technological, organizational, and environmental factors are significant determinants in adopting new technology. Accordingly, Ghanem and Hamid (2021) stated that the TOE framework described conditions in the firm context that affect new technology adoption and implementation. In the context of SMEs, Abed (2020) reported that the TOE framework supports this, providing empirical evidence when it comes to new technology adoption such as social media technologies. A study conducted by Tripopsakul (2018) for instance, integrated the TOE-TAM framework into social media technologies adoption and concluded that technological, organizational, and environmental factors positively influence SMEs' decisions to adopt social media technologies. According to Pateli et al. (2020) investigation

of organizational adoption of social media also integrated the TOE framework and demonstrated that technological factors have a significant effect on social media in the context of hospitality firms located in Greece. Their study further observed that organizational and environmental factors indirectly influence the adoption of social media. Furthermore, Ndekwa and Katunzi (2016) employed the TOE framework in assessing the factors that influence social media adoption among SMEs in Tanzania. The authors found that organizational and environmental factors significantly influence SMEs' adoption of social media. Eze et al. (2020) study examined social media adoption based on the technology-organization-environment (TOE) framework. The study findings reveal that technological, organizational, and environmental factors significantly influence SMEs' social media adoption decisions among SMEs in Nigeria. Moreover, Na et al. (2022) recently evidenced a positive effect of technological, organizational, and environmental factors on new technological innovation adoption among SMEs. Matikiti et al. (2018) integrated both Technology Acceptance Model (TAM) and the TOE framework to investigate factors that affect social media adoption among SMEs in the tourism sector. The authors witnessed a positive association between the technological, organizational and environmental factors and SMEs' intention to adopt social media applications. In addition to the above, other scholars found a significant role of technological, organizational, and environmental factors in SMEs' social media adoption decisions (Ali Abbasi et al., 2022; Bhattacharya & Wamba, 2018; Gangwar et al., 2015; Puspitaningtias et al., 2022). From the forgone, it evident that, the TOE framework aid in the understanding of the technological, organizational and environmental dimensions of businesses. While some prior studies have utilized the TOE in social media adoption, we argue that a proper empirical introspection of the SMEs adoption of social media towards the firms' sustainability has not been explicitly done. Thus, we utilize the TOE framework to provide an in-depth investigation of social media adoption for SMEs firms sustainability. In this study, we elucidate some dimensions of firm's social media adoption criteria such as cost, customer pressure, employee competence, management support, complexity, compatibility and relative advantage to explore the understanding of social media adoption by SMEs. The study emphasizes that, these dimensions among others are key tenet of the TOE framework which makes if worth adopted for this study.

2.2 Social media adoption

Obar and Wildman (2015) described social media as *a "computer-mediated interactive communication medium that supports the development and dissemination of information, knowledge, and further forms of expression through social networking sites (SNSs)"*. Drury (2008) indicates that social media applications support the exchange of content, thus sharing information (pictures, videos, audio, text) and ideas. Social media acts as an avenue for the diffusion and improvement of information (Bugshan, 2019). According to Ur Rahman et al. (2020), social media applications are economical, simple, and can reach the masses. In this context, SMEs are gradually adopting social media as an essential tool for business performance (Kateri, 2021). Mukherjee et al. (2022) for instance, demonstrated the significant effect of big data analytics on the performance of SMEs setting in emerging economies. Findings of Amoah and Bashiru Jibril (2020), indicated that social media helps SMEs to gain a competitive advantage, particularly through information sharing (Pentina & Koh, 2012), customer awareness (Hernandez et al., 2022), customer relationship management (Cheng & Shiu, 2019), customer service (Silver et al., 2020), building firms' image (Bruce, Shurong, Akakpo, et al., 2022) and improving co-creation efficiency (Virglerová et al., 2022). Additionally, Ndekwa and Katunzi (2016) further stated that social media enable SMEs to reduce the cost of operations and connect with other stakeholders. Previous empirical evidence shows that SMEs' adoption of social media has a significant effect on firms' business growth (Auker, 2011; Corral de Zubielqui & Jones, 2022). Olayah (2019) study explored social media integration and its impact on firms' performance and witnessed that social media positively influence business performance in the context of SMEs. A study conducted by Yasa et al. (2020) also provided evidence of the significant influence of social media adoption on SMEs' business growth. Similarly, Samsudeen et al. (2021) recently concluded that social media have a positive correlation with SMEs' performance in Sri Lanka. Floris and Dettori (2020) further argued that social media adoption significantly improves SMEs' financial and economic performance. Wulandari et al. (2020)

study witnessed that social media adoption would positively affect SMEs' performance in the areas of internal operations, marketing, and sales. As demonstrated by the literature above, adopting social media has become very crucial for SMEs' business growth and sustainability. In addition, Sedalo et al. (2022) demonstrated that social media technologies utilization positively influences SMEs performance.

2.3 Cost effectiveness

Studies have shown the link between cost-effectiveness and innovation technology adoption. Chatterjee and Kar (2020) explain cost-effectiveness as a crucial technological variable that can be used to determine the level of adoption by an organization. According to Ghobakhloo and Tang (2015), organizational adoption of new technology will result in significant start-up costs in the context of SMEs. Ainin et al. (2015) argued that cost plays a vital role in SMEs' new technological innovation adoption. A study conducted by Ramayah et al. (2016) maintained that new technology adoption among SMEs highly depends on the cost incurred. Accordingly, Lestari and Indra Sensuse (2021) added that cost-effectiveness has a direct influence on SMEs' intention to adopt new technology. Furthermore, a recent study by Abdul Rasheed and Nafiz (2022) studied a sample of MSMEs to explore social media adoption and its effect on their performance; the authors' findings revealed that cost-effectiveness has a positive significant effect on technology adoption among the MSMEs in the Maldives. In addition, Sangi et al. (2018) studied a sample of SMEs in Pakistan's adoption of Facebook and asserted a significant influence of cost-effectiveness in Facebook adoption among SMEs in the long term. Nonetheless, other scholars also observed an insignificant influence of cost on SMEs' innovation technology adoption decisions (Kumar, 2021; Maduku et al., 2016). Rana et al. (2019) study on social media adoption proved that SMEs adopt new technology based on its cost-effectiveness. Pranoto and Lumbantobing (2021) recently confirmed the hypothesis that cost-effectiveness positively influences SMEs' technology adoption. Moreover, Awa et al. (2016) evidenced the significant link between cost-effectiveness and SMEs' innovation technology adoption. Thus, SMEs are likely to adopt and utilize social media when they perceived the associated costs are reasonable (Alkhateri et al., 2022; Hussain & Merigo, 2022). Hence, the study proposes that:

H1: *Cost-effectiveness would positively affect SMEs' social media adoption.*

2.4 Customer pressure

According to Rahayu and Day (2015), customer pressure is a key environmental factor that forces organizations to adopt new technologies for survival and to meet the changing needs of customers. Premkumar and Roberts (1999) also pointed out that pressure from customers heavily affects SMEs compared to larger enterprises. Due to technological advancement, customers are becoming more informed and have had influences on business major decisions (Ali Abbasi et al., 2022; Maduku et al., 2016). Evaluating customers' needs can positively affect SMEs' decisions to adopt new technologies to enhance performance (Zaitul & Ilona, 2022). According to Matikiti et al. (2018), SMEs' decisions on the adoption of technology significantly depend on the pressure from their customers. Research has assessed the perceived customer pressure influence in adopting technological innovation from the SME perspective. A study conducted by Thong (2019) highlighted the perceived customer pressure correlation with the adoption of technology among SMEs for business growth. A work by Studen and Tiberius (2020) evidenced a positive effect of customer pressure on technology adoption among SMEs in Indonesia. Furthermore, El-Gohary (2012) proposed the hypothesis that perceived customer pressure has a significant positive relationship with technological innovation adoption and confirmed the hypothesis. Moreover, (Qalati et al., 2022a; Ramdani et al., 2009) demonstrated that perceived customer pressure has a significant effect on SMEs' adoption of new technologies. In light of this, Cao et al. (2018) submit that SME management should recognize emerging social media technologies to effectively communicate with customers for business growth. Based on this review, the study proposes that:

H2: *Customer pressure has a positive influence on SMEs' social media adoption.*

2.5 Employee competence

Several studies have established the importance of employee competency in adopting information technology (Teng et al., 2022; Ramadan & Eleyan, 2021; L. O. Oyewobi et al., 2021; Sugandini et al., 2020). For instance, Borah et al. (2022) advocated that expertise is needed in handling the complexities of the technologies adopted by firms. Effendi et al. (2020) stated that employee skills are an essential factor to determine technology adoption. Ghobakhloo et al., (2012) argued that employee competence facilitates the technology-related adoption process. However, a lack of expertise and knowledge in information technology hinders technology adoption by an organization (MacGregor & Vrazalic, 2005). A study by Rowe and Abdelatty (2012) observed that a lack of knowledge about new technology adoption is one of the key impediments to technology adoption in the SME context. Besides, Bharati and Chaudhury (2015) witnessed that firms with employee knowledge of information technology are likely to adopt new technology. A recent study by Ali Abbasi et al. (2022) asserted that employees who are ready to learn and enhanced their learning capacities will motivate and facilitates SMEs to adopt new technology. Tajpour et al. (2022) further argued that employee skills positively affect firms' decisions to adopt and use new technology. Therefore, SMEs' adoption of social media can be determined by the employees' competence (Sendawula et al., 2022). Henceforth, we hypothesize that:

H3: *Employee capability would have a positive influence on SMEs' adoption of social media.*

2.6 Financial resource availability

Literature suggests that financial resource availability is essential in adopting new technological innovation (Fu et al., 2019; Murire & Cilliers, 2019). Examining the literature, Karjaluoto and Huhtamäki (2010) investigated the role of electronic channels in the context of SMEs. The authors' findings witnessed that financial availability positively influences SMEs' decision of technology adoption. Marete et al. (2021) further added that financial availability in an organization determines the fate of the adoption of information technology. Recent evidence Boateng et al. (2022) studied a sample of 314 IT and gathered data from management-related employees among SMEs operating in Ghana. The study witnessed the influence of financial support on SMEs' decisions regarding the adoption of new technology. Furthermore, Ramadan and Eleyan (2021) reported that financial availability significantly influences the decision of SME's technological adoption. Moreover, Zhu et al. (2003) concluded that the adoption of social media is dependent on the financial availability of SMEs. To and Ngai (2006) empirically evidenced a positive effect of financial resources on SMEs' technological adoption. Other scholars have argued that other firms' resources such as technical, and human resources influence technological adoption (Fan et al., 2021; Kateri, 2021). Consequently, SME firms' availability of financial resources may have a significant influence on new technology adoption (Ali Abbasi et al., 2022). Based on the above literature, the study hypothesizes that:

H4: *Financial availability would have a positive influence on SMEs' social media adoption*

2.7 Industry pressure

According to Ali Abbasi et al. (2022), smaller firms are vulnerable to stiff competition. Ur Rahman et al. (2020) stated that industrial competition serves as an incentive for firms. Competition drives firms to innovate and outperform others in the same industry (Ali Abbasi et al., 2022; Bruce, Shurong, Akakpo, et al., 2022; Teng et al., 2022). It has proven that organizations are likely to adopt and implement information technology when there is a strong competitive market (Haller & Siedschlag, 2011). In the SME context, Al-Qirim and Al-Qirim (2004) reports that the adoption of new technologies helps to remain competitive and increase performance. Moreover, Sugandini

et al. (2022) witnessed that industry pressure positively relates to SMEs' adoption of technology. Previous evidence shows that industry pressure significantly affects SMEs' technological adoption decisions (Gangwar et al., 2015; Honinah & Alhakimi, 2021; Oliveira et al., 2014). Low and Wu (2016) study findings show that industry pressure and other external pressure significant impact on technology adoption. Furthermore, Rahayu and Day (2015) witnessed a positive association between industry pressure and innovation among SMEs in Indonesia. A study conducted by Ma et al. (2021) explored the adoption of social media among SMEs in China and confirmed a positive correlation relationship between industry pressure and SMEs technology adoption. Gazal et al. (2016) also evidenced that industry pressure plays an important role in a SMEs adoption of new technology. As a result of the above discussion, we propose that:

H5: *Industry pressure has a positive influence on SMEs' social media adoption.*

2.8 Leadership support

Leaders are considered the main key decision-makers in the SME context (Borah et al., 2022; Premkumar & Roberts, 1999). Zailani et al. (2014) stated that leaders' decisions have both positive and negative implications on organizational success. The study findings reveal that leaders' provision of resources informed their technological adoption decisions. Accordingly, Gutierrez et al. (2015) maintained that leaders' ability to create a feasible environment motivates and facilitates new technology adoption. Past studies have established that leadership support plays a central role in adopting and implementing new technology in SMEs (Alatawi et al., 2013). A study by Narbona (2016) admonished that the leadership role of information sharing, coaching, and encouraging has influenced their support for innovation and its adoption. Borah et al. (2022) studied a sample of 549 employees of SMEs and hypothesized that digital leadership positively correlated with technology adoption and usage. The authors evidenced a significant effect of digital leadership on new technology adoption and usage in the SME context. Niranjala (2020) investigated the determining factors of social media and found a positive correlation between leadership support and technology adoption among SMEs. Furthermore, Ndung'u et al. (2020) findings witnessed that leadership support significantly influences SMEs' adoption of new technologies. In this regard, we propose that leadership support can positively contribute to SMEs' social media adoption. Hence, the study hypothesizes that:

H6: *Leadership support has a positive influence on SMEs' adoption of social media.*

2.9 Perceived complexity

Perceived complexity is another crucial indicator in innovation adoption and acceptance (Zailani et al., 2015). Chatterjee and Kar (2020) described perceived complexity as the degree to which new technology depends on how cumbersome or difficult is it to use. In this regard, the observation by Berman et al. (2012) explains that the adoption of new technology should be user-friendly and simple to use. Ali Abbasi et al. (2022) argued that it is very unlikely that new technology would be adopted if they are perceived to be complex. In the context of SMEs, scholars have found the significant influence of perceived complexity in the adoption of information technology. For instance, Maduka et al. (2016) hypothesized that perceived complexity has a positive influence on a SMEs new technology adoption. The study sampled 205 data from SMEs in South Africa and evidenced the positive correlations between perceived complexity and SMEs' new technology adoption. Besides, Qalati et al., 2022b) further evidenced the significant influence of perceived complexity in SMEs' new technology adoption. It was also revealed that perceived complexity is an enabling factor influencing innovation adoption by potential adopters. However, other scholars have found no relationship between perceived complexity and new technological innovation (Ahmad, Jabeen, et al., 2019). The study by Chong and Olesen (2017) also show that perceived

complexity has a direct impact on SMEs' new technology adoption decisions. In line with the aforementioned, we propose that:

H7: *Perception of complexity would have a positive influence on SMEs' social media adoption.*

2.10 Perceived compatibility

Rogers (2003) explains perceived compatibility as the "*extent to which an innovation is perceived as consistent with the existing values, past experiences, and needs of the potential adopters*". New technological innovation should be compatible with organizational social and cultural beliefs and values (El-Gohary, 2012; Oliveira et al., 2014). In this regard, Ali Abbasi et al. (2022) stated that new technological innovation without being consistent with firms' cultural and social norms can block its adoption and usage. Nuseir and Elrefae (2022) recently witnessed a positive association between perceived compatibility and SMEs' technological innovation in the hotel industry. A study by Lestari and Indra Sensuse (2021) highlighted the significant relationship between perceived compatibility and SME technology adoption. Siamagka et al. (2015) examined the determinants of social media adoption by B2B organizations and concluded that perceived compatibility influences B2B organizations' decision to adopt new technology, specifically social media. Honinah and Alhakimi (2021) maintained that perceived compatibility is positively related to SMEs' technological adoption decisions. A study by Khan et al. (2021) argued that the adoption of new technological innovation has become an innovative tool for SMEs. Findings from their study reveal that perceived compatibility plays a significant role in SMEs' adoption of new technology. Preliminary work by Ashraf et al. (2021) evidenced a positive link between perceived compatibility and SMEs' new technological adoption. In addition, prior studies have proven that the adoption of technological innovation is largely influenced by perceived compatibility (Faqih, 2019; Vatanasakdakul et al., 2020). Thus, the study proposes:

H8: *Perceived Compatibility has a positive influence on SMEs' social media adoption.*

2.11 Relative advantage

According to Ahmad, Jabeen, et al. (2019), relative advantage is the *degree to which potential adopter sees innovation as being better than the alternatives*. The authors further stated that perceived relative advantage is a determining factor that may influence new technology adoption decisions. Particularly, Ho & Wu (2011) states that relative advantage is a powerful consistent predictor of technology adoption. Previous studies have established that organizations' adoption-led decisions on innovation are primarily motivated by the perceived advantage that technology offers to the firms in the context of SMEs (Abdul Rasheed & Nafiz, 2022; Ahmad, Jabeen, et al., 2019; Ali Qalati et al., 2020). A study conducted by AlSharji et al. (2018) sampled 107 SMEs operating in the UAE and concluded that relative advantage positively affects innovation technology adoption decisions. Sugandini et al. (2019) also witnessed the influence of relative advantage in social media adoption among SMEs in the tourism sector. Furthermore, a study by AliQalati et al. (2021) on the adoption of social media and SMEs' performance from developing countries evidenced the effects of perceived relative advantage on social media and SMEs' performance. However, Li et al. (2008) argued that there is the possibility of not adopting innovation if SME management perceived that adoption will not benefit the firms' performance. Oliveira et al. (2014) indicated that SMEs will adopt new technological innovation if they perceived it will be beneficial to the firm in terms of performance and sustainability. Thus, the study hypothesizes that:

H9: *Relative advantage has a positive influence on SMEs' social media adoption.*

2.12 Social media adoption and SMEs' sustainability

To achieve sustainability, Amoah and Bashiru Jibril (2020) submit that SMEs should adopt social media to interact with customers and other stakeholders for business continuity. Garbie (2014) described *"sustainability as a composition well-balanced financial resources, and environmental, technological, and social-economic objectives*." SMEs have recently been adopting social media for effective communication, even though limited technical capability and resources (Jussila et al., 2014; Schweidel & Moe, 2014; Sedalo et al., 2022). Mujahid and Mubarik (2021) observed that SMEs adopt social media as a strategic marketing tool to achieve superior performance. According to Setya et al. (2021), social media has helped SMEs to innovate and compete with larger enterprises, which ultimately affects business sustainability. A study by Bruce, Shurong, Akakpo, et al. (2022) evidenced that social media applications provide an avenue for SMEs to share information with potential customers, build brand image, and customer relationships and create value, which significantly improves business sustainability. In addition, Baral et al. (2022) provided the support for the positive association between social media adoption and SMEs sustainable performance.

Chatterjee et al., 2021a) asserted that social media applications help to improve firms' sustainable growth in the SME context from developing countries. Khan et al. (2021) recently concluded that social media adoption has a significant influence on SMEs' sustainable performance. Patma et al. (2021) focused on social media's impact on SME sustainability and sampled 130 managers from SMEs operating in Indonesia and concluded that social media positively influence SMEs' sustainability. Research findings of Borah et al. (2022) show a positive correlation between social media and SMEs' sustainable performance. Ali Qalati et al. (2020) further witnessed the positive role of social media in SME business sustainability. Furthermore, Pateli et al. (2020) observed that social media applications have a beneficial impact on SMEs' sustainability. In line with the above, Olanrewaju et al. (2020) submit a further investigation of social media adoption and firms' sustainability in the context of SMEs from an emerging economy perspective. Therefore, we propose that:

H10: There is a positive relationship between social media adoption and SME sustainability.

In Figure 1, the conceptualized framework for the study is synthesized with the theoretical constructs as demonstrated in each of the hypotheses discussed.

3. Methodology

This study employs a quantitative research methodology to determine the distinctiveness, attitude, and behavior of the targeted sample (Creswell, 2003). The study aims to explore the factors that affect social media application adoption and SMEs' sustainability using the TOE framework and to examine social media impact on SMEs' sustainability in the context of emerging economies, particularly, Ghana, which remains under-explored. The study uses a survey method that is appropriate for gathering quantitative data and allowing for the assessment of relationships between variables. Using the proposed model, a structured questionnaire was created (see Figure 1). The survey questionnaire

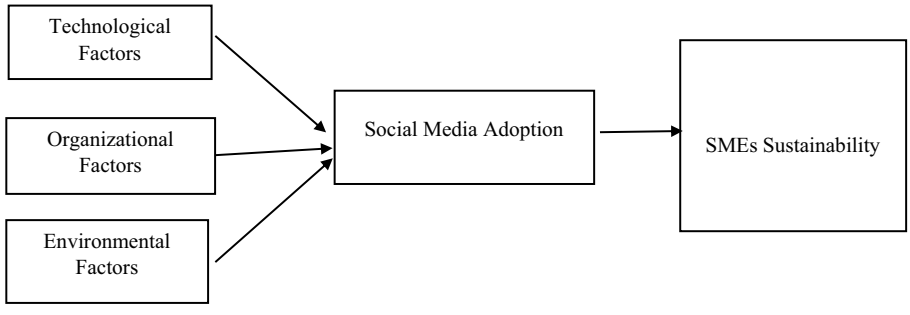

Figure 1. A proposed conceptual framework

was distributed in both soft and hard copies using both probability and non-probability sampling techniques. Because of the convenience of respondents, geographic proximity, and cost-effectiveness, among other factors, the unit of analysis (service-based firms) was chosen using a non-probability sampling technique (Amoah, Jibril, et al., 2021). The service-based firms comprise small and medium enterprises (SMEs) in the services sector particularly manufacturing and production, banking (micro-finance institutions), and the tourism industry. A number value is assigned to each statement on a Likert scale, and the respondent selects one to signify the degree of agreement and disagreement. Responses from managerial staff comprising managers, unit heads, departmental heads, etc. were subsequently collected using a probability sampling technique (Amoah, Belás, et al., 2021). The targeted unit of analysis's respondents was intercepted using the hard copy of the questionnaire. Thus, a face-to-face approach was used to administer the questionnaire to the respondents. Relatedly, respondents who were not prepared to respond to the research questions at the time of interception were given a soft copy of the questionnaire. After submitting a letter of confidentiality, the information's privacy was guaranteed (Amoah et al., 2022). Because of the information in their possession, in-depth knowledge, and the fact that they represent the primary decision-makers in the sector, the study concentrated on the managerial personnel in the industry in answering the questionnaire. Only 430 (or 86%) of the 500 research questionnaires (both soft and hard copies) that were given to full-time employees working for the aforementioned organizations and institutions were valid for analysis. A glance at Table 1 reveals that the majority of the respondents (65.12%) are male and the remainder (34.88%) are female. It is interesting to note that the majority of respondents are between the ages of 25-30 with a percentage of (27.91%). The authors would like to emphasize that, before the main research data collection, a pretest (pilot study) of 50 employees was conducted to prune the variables and constructs under study. This was achieved through the reliability and validity test of the constructs, specifically, with the values of Cronbach alpha. All items in the questionnaire were valid since they all fell within the acceptable reliability threshold. The study used the 0.5 thresholds as the benchmark (Hair et al., 2019). The data was collected between June-September, 2022. The questionnaire took each respondent an average of seven minutes to complete. Again, the respondents/participants were at their liberty to quit/exit the online portal of the questionnaire after answering. To ensure a high level of ethical standard and confidentiality, respondents/participants were specifically advised not to state/write their names on the questionnaire before/after answering. In all, the 310 corrected responses received were processed and analyzed through Partial Least Square-Structural Equation Modeling-PLS-SEM (ADANCO 2.0) software version. The PLS-SEM allows researchers to estimate complex models with a large number of constructs, indicator variables, and structural paths without imposing distributional assumptions on the data. The ADANCO software has been used recently by (Amoah et al., 2022).

3.2 Measurement of the constructs

The construct measurements from previously published works of literature were modified using the five-point Likert scale, which has been used by scholars (Pimentel, 2010; Pimentel & Pimentel, 2019). 1 denotes strong disagreement, 2-disagreement, 3-neutral, 4-agreement, and 5-strong agreement. The constructs were therefore taken from previous literature: Relative Advantage (Ali Qalati et al., 2020; Qalati et al., 2021; Ur Rahman et al., 2020; Sikandar Ali, 2020), Perceived Complexity (Ali Abbasi et al., 2022; Patma et al., 2021; Effendi et al., 20200, Cost Effectiveness (Trawnih et al., 2021; Ahmad, Jabeen, et al., 2019; Chatterjee & Kumar Kar, 2020), Perceived Compatibility (Fan et al., 2021; Ur Rahman et al., 2020; Ali; Qalati et al., 2021), Leaders Support (Borah et al., 2022; Qalati et al., 2022b), Financial Resource Availability (Ahmad et al., 2018; Hartanto & Soelaiman, 2021; Sugandini et al., 2019), Employee Competence (Behringer & Sassenberg, 2015; Siamagka et al., 2015, Industry Pressure (AlSharji et al., 2018; Pateli et al., 2020), Customer Pressure (Ali Abbasi et al., 2022; Ur Rahman et al., 2020; Tripopsakul, 2018), Social Media Adoption (Amoah, Jibril, et al., 2021; L. O. Oyewobi et al., 2021; Wamba & Carter, 2016), SMEs Firm Sustainability (Amoah, Belás, et al., 2021; Bruce, Shurong, Akakpo, et al., 2022; Chatterjee et al., 2021a).

Table 1. Respondents' Profile

Details		Frequency	Percentage (%)
Gender	Male	280	65.12
	Female	150	34.88
Age	25-30	120	27.91
	31-35	110	25.58
	36-40	78	18.14
	41-45	56	13.02
	Above 45	66	15.35
Educational Level	Higher National Diploma	100	23.26
	Bachelor Degree	170	39.53
	Masters/PGD	86	20.00
	Others	74	17.21
Company Size	Micro (1-25 employees)	130	30.23
	Small (26-55 employees)	82	19.07
	Medium (56-100 employees)	118	27.44
	Large (101 above)	100	23.26
Work Experience	1-3 years	67	15.58
	4-6 years	93	21.63
	7-10 years	149	34.65
	11 and above	121	28.14
Location of business	Greater Accra	138	32.09
	Central Region	59	13.72
	Western North Region	48	11.16
	Western Region	85	19.77
	Ashanti region	45	10.46
	Others	55	12.80
Business Categories	Manufacturing/Prod.	180	41.86
	Microfinance institutions	100	23.26
	tourism industry	150	34.88
Respondents Position	Managers	125	29.07
	Unit Heads	105	24.42
	Departmental Heads	95	22.09
	Others	105	24.42
Sample Size (n)		**430**	**100**

Source: Author's field survey June-September 2022

3.3 Test of common method variance

Because the study collects data independently, there is a chance of shared technique variance. Additionally, the study's participants were told that their information would be kept private and advised that there was no right or incorrect response to any of the survey's questions. Bagozzi and Yi's (1988) study revealed the existence of Common Method Bias (CMB), which led the researchers to construct a questionnaire that included a description on the title page and treated respondents or participants with the utmost confidence. To be more specific, the questionnaire was created so that respondents or participants might choose not to participate at any time. To identify the presence of Common Method Bias, the researchers first conducted a multicollinearity test involving the VIF (variance inflation factor) (CMV). When the thresholds are fewer than ten (10) as shown (see Alin, 2010; Kock & Hadaya, 2018; Podsakoff et al., 2003; Salmerón et al., 2020), the post-hoc

evaluation results show that CMV has a small existence. Finally, the CMB concerns in this poll are minor, therefore they are not as important.

4. Results and discussions

4.1 Reliability test and Cronbach's alpha

To assess the capability of a data collection instrument, reliability and validity tests are always recommended. Cronbach alpha and composite reliability were used to determine reliability, while average variance extracted (AVE) was used to determine validity (Hair et al., 2012). As recommended, the reliability of each item of its associated construct is measured (Hair et al., 2012). Since the researchers were inspired by the PLS-SEM literature, utilization of Dijkstra-rho Henseler's and Cronbach's alpha coefficients were the best option to test construct reliability and validity (Bagozzi & Yi, 1988; Hair et al., 2019). Table 2 demonstrates the strong coefficients of construct dependability established by (Bagozzi & Yi, 1988; Hair et al., 2019) by showing that all threshold values were larger than 0.5. The constructs and supporting items were evaluated for their psychometric properties using version 2.0 of the PLS-SEM ADANCO (Henseler et al., 2015). It is important to assign the threshold value of 0.60 and Cronbach alpha's value of 0.70 to be recognized as a good metric to presume construct dependability (Bagozzi & Yi, 1988). Moreover, our PLS-SEM estimates met the aforementioned thresholds, indicating the validity of the underlying research constructs. The values of Jöreskog's rho (pc) and Composite reliability were both higher than the required limits of 0.7 and 0.8, respectively. Thus, composite reliability provided the result, which had a minimum reliability coefficient of 0.809 and a maximum of 0.947, while the average variance extracted (AVE) presented convergent validity with a minimum threshold of 0.5. (see table 2).

On the other hand, the indicator loadings of the latent constructs were carefully evaluated and loaded to their corresponding constructions. Bagozzi and Yi (1988) assert that all factor loadings exceeded 0.5. The factor loadings result in minimum and maximum loads of (0.522 and 0.963

Table 2. Reliability and Validity of Constructs

Constructs	Cronbach's Alpha	Jöreskog's rho (pc)	Composite Reliability	Average Variance Extracted (AVE)
1. Cost Effectiveness	0.891	0.797	0.836	0.598
2. Customer Pressure	0.904	0.905	0.940	0.839
3. Employee Competence	0.897	0.897	0.936	0.829
4. Financial Resource Availability	0.805	0.807	0.911	0.837
5. Industry Pressure	0.852	0.854	0.910	0.771
6. Leaders Support	0.814	0.816	0.915	0.843
7. Perceived Complexity	0.813	0.707	0.809	0.686
8. Perceived Compatibility	0.989	0.811	0.823	0.688
9. Relative Advantage	0.898	0.802	0.881	0.711
10. SME firm Sustainability	0.930	0.930	0.947	0.781

Source: Processing from PLS-SEM

respectively). Table 3 illustrates the factor loadings in detail, as well as the various research constructs and matching loadings (coefficients). The following items CE2, CE3, CP4, EC4, FRA3, LS3, LS3, LS4, PC3, PC4, PCC3, RA1, RA2, SFS2, and SMA2 were deleted since their threshold was less than the standard value of 0.5. The deletion was done as revealed by the scholarly works of (Hair et al., 2017, 2019). To find evidence of common method variance (CMV) for the variance inflation factor measurement scale, multicollinearity was also applied (VIF). Additionally, Fornell and Larcker (1981) was used to assess the discriminant validity of the constructs among the latent variables (Henseler et al., 2015), as shown in (Table 4) below. The Average Variance Extracted (AVE) values of the measured constructs are shown in the diagonal (in bold) of Table 4, and they must be greater than or equal to 0.5, according to experts (Hair et al., 2019; Henseler et al., 2015). All of the AVE constructs should have higher coefficients at both column and row positions than other constructs to demonstrate discriminant validity. The results show that the constructs satisfy both basic and rigorous assumptions, proving their discriminant validity.

4.2 Structural modeling- Path analysis (Hypothesis testing - PLS-SEM)

The researchers also realized that path analysis is necessary after model fit evaluation or assessment. This analysis is critical because it ultimately demonstrates how the research constructs emphasized in the analysis relate to one another. The results obtained strongly affirmed that social media adoption has a positive correlation with cost-effectiveness, customer pressure, employees' competence, financial resource availability, leaders' support, and SME firm's Sustainability as shown in their respective p-values. In the same, four of the hypothetical statements were not significant: industry pressure, perceived complexity, relative advantage, and perceived compatibility. Also, the table below displays the regression coefficients, Beta, and the significant values, T-values > 1.96 (or P-values 0.05). The coefficient of determination (R2) of the regression model was used to measure the predictive capacity of the research constructs. The coefficient shows how much of the variance in the dependent variable can be attributed to the independent (predictor) variable. The coefficient of determination (R2) of the regression model was evaluated concerning the prediction ability (coefficient of determination) of the research model. The amount of variance in the endogenous construct that is explained by the exogenous constructs is shown by the Adjusted R^2. As a result, the table 5 below and Figure 2 accurately display the R2 of the predictor variable, which is 64 percent.

4.3 Discussion

It is no doubt that SMEs are the driving force behind most developing and developed economies across the globe. The trend has transcended into a competitive sphere where SMEs are constantly improving their business processes to meet to be profitable and competitive under the current global economic austerities. This has also promulgated the adoption and use of varied innovations to scale up the competitive strategies of firms. The provenance of social media for instance has been far-fetched, particularly in the current dispensation where the medium is aggressively being used to bridge the gap between businesses and their customers. Despite this, extant studies have provided evidence why social media adoption by SMEs is still low due to reasons such as technical competence and trust factors particularly among developing economies (Nisar & Shafiq, 2019; Sangi et al., 2018).

Hence, this study set out to investigate the factors that affect the adoption of social media applications among SMEs toward their sustainability. Based on extensive literature and drawing on the TOE we derived ten hypotheses based on the conceptual framework. First, the study hypothesized that *Cost-effectiveness would positively affect SMEs' social media adoption (H1)* was supported. This implies cost plays an important part in the adoption of a modern technologies (Ghobakhloo & Tang, 2015). Since SMEs are racing for profitability to stay in business, it implies that the least cost implication to their existing cost variables will impact their profitability (Leitch (2019). Thus, consistent with (Abdul Rasheed & Nafiz, 2022; Pranoto & Lumbantobing, 2021), it can be inferred that the cost variable significantly impacts the adoption of social media. In addition,

Table 3. Construct items, loading, and variance inflation factor (VIF)

Construct	Indicator	Loading	VIF
Cost Effectiveness	**CE1**: social media reduces the cost of marketing communications	0.941	1.063
	CE2: social media saves time and effort in dealing with customers	-	1.063
	CE3: social media is cost-effective compared to traditional media and serves as a medium for public education.	-	3.001
	CE4: Social media adoption is costly.	0.556	5.424
Customer Pressure	**CP1**: social media would allow the firm stronger competitive advantage	0.902	2.604
	CP2: social media helps customers to challenges firms to innovate	0.929	3.288
	CP3: Our firms adopt social media help us to attract newly informed customers.	0.917	3.003
	CP4: In my view, indigenes and foreigners are usually satisfied with payments made in the tourism sector.	-	2.490
Employee Competence	**EC1**: Employees are capable of learning new technology.	0.922	2.994
	EC2: Employees are willing to use social media for marketing purposes	0.900	2.543
	EC3: Employees are willing to embrace innovation and generate new ideas	0.909	2.762
	EC4: Employees are capable of using social media to communicate with our customers.	-	2.529
Financial Resource Availability	**FRA1**: Our firm has the financial capabilities for adopting social media.	0.910	1.8549
	FRA2: My firm has enough budgets to reinforce social media adoption	0.920	1.7947
	FRA3: In my view, my firm is ready financially and invest in adopting social media	-	2.8134
Industry Pressure	**IP1**: social media helps us to monitor our competitors' marketing activities	0.883	2.224
	IP2: social media helps customers to enjoy a variety of products easily	0.878	2.196
	IP3: social media helps customers to get access to existing products	0.873	1.923
Leaders Support	**LS1**: Leaders and management supports adopting social media	0.913	1.890
	LS2: My leaders appraise social media adoption	0.923	1.890
	LS3: Leaders in my organization has open to critique, feedback, and new ideas	-	4.120
	LS4: Leaders in my company recognize innovations by identifying the competencies and contacts of individual employees.	-	1.421

(*Continued*)

Construct	Indicator	Loading	VIF
Perceived Complexity	**PC1**: Social media adoption requires mental effort	0.667	1.279
	PC2: Social medial adoption would be too complex for our marketing activities	0.963	1.209
	PC3: Social media adoption would be complex for employees	-	1.140
	PC4: Social medial adoption would be frustrating	-	2.077
Perceived Compatibility	**PCC1**: Our firm's IT infrastructure is consonant with social media use	0.657	1.242
	PCC2: Social media use is compatible with the firm's values and beliefs	0.522	1.242
	PCC3: Social media use is compatible with all aspects of work.	-	2.241
	PCC4: Social media adoption and use fits well with business operations	0.925	3.451
Relative Advantage	**RA1**: social media provides SMEs with new opportunities.	-	3.228
	RA2: Social media aids SMEs to accomplish specific tasks more quickly	-	1.501
	RA3: social media enable SMEs to build better relationships with their customers	0.825	1.934
	RA4: Social media adoption enhances the effectiveness and efficiency of the business	0.846	1.871
	RA5: social media allows us to learn more about our competitors	0.859	2.557
SMEs Firm Sustainability	**SFS1**: social media increased awareness and market share	0.862	2.583
	SFS2: social media improves the productivity of the firm	-	2.827
	SFS3: social media helps to identify customer demands and satisfy them accordingly	0.877	3.307
	SFS4: social media enhanced customer service.	0.890	3.302
	SFS5: social media increased sales growth via constant interaction with the customers	0.892	3.548
	SFS6: Social media use helps to gain a competitive advantage	0.862	1.556
Social Media Adoption	**SMA1**: Social media adoption helps in conducting marketing research	0.645	2.763
	SMA2: Social media adoption helps advertise and promote products/ services	-	2.761
	SMA3: SM adoption enhance customer service	0.879	2.998
	SMA4: social media helps enhance brands' and firms' reputation	0.887	2.336
	SMA5: Our firm uses social media to develop customer relations.	0.848	1.556
	SMA6: Our firm communicates with customers using social media	0.645	2.763

Source: Author's processing from ADANCO 2.0 version

the results support the findings of (Ur Rahman et al., 2020) who found the positive link between cost-effectiveness and social media adoption in the SME setting.

Again, the study hypothesized that *Customer pressure has a positive influence on SMEs' social media adoption (H2)*. The competitiveness among SMEs arising from the increasing growth in the sector has placed stern pressure on them to adopt sustainable marketing strategies driven by information technology. As affirmed by Maduku et al. (2016), customers are constantly becoming informed about the use of social media for their business transactions. Hence, the hypothesis was supported. This implies, not only do customers make informed decisions, but social media also help SMEs increase their presence and reduce the competitive pressure from their peers. Following prior studies (Qalati et al., 2022b; Tripopsakul, 2018), the current study has proven that customer pressure plays a crucial role in adoption of social media adoption among SMEs in developing economies.

Furthermore, the study hypothesized that e*mployee capability would have a positive influence on SMEs' adoption of social media (H3)*. This proposition was supported by affirming (L. O. Oyewobi et al., 2021; Ramadan & Eleyan, 2021). Ramadan and Eleyan (2021) for instance intimated that the competence level of an employee to the use of information technology significantly impacts its use. This includes the employee's level of understanding and skill sets needed to use the technology. This finding is consistent with Ahmad et al. (2018) corroborated that employee capability has a significant effect on social media adoption.

The study again hypothesized that; *financial resource availability would have a positive influence on SMEs' social media adoption (H4)*. This proposition was supported because the availability of the needed financial resources will impact the adoption process. As affirmed by intimated by Marete et al. (2021), the financial capability of an organization determines the degree of the adoption of information technology. Moreover, (Ali Abbasi et al., 2022; Boateng et al., 2022) affirmed that technical and human resources also play a key role in a firm's adoption of social media technology. This finding is coherent with works of (Maduku et al., 2016; To & Ngai, 2006) who supports that financial resource significantly influence SMEs adoption of social media technologies.

Following this, the study also tested hypothesis H5, *Industry pressure has a positive influence on SMEs' social media adoption* which sought to measure how external forces such as industry regulation and major competitors influence the adoption of social media. The proposition was not supported. Contrary to prior studies (Gangwar et al., 2015; Honinah & Alhakimi, 2021) which indicates that industry pressure significantly impacts the adoption of technology by SMEs. On the other hand, hypothesis (H6), was supported. The proposition affirmed agrees that *Leadership support has a positive influence on SMEs' adoption of social media*. The finding is in line with recent studies of (Borah et al., 2022; Chatterjee et al., 2021b), confirming that leadership and decision makers have a significant effect on social media adoption among SMEs in developing countries. Moreover, the outcome is consistent with work of (Alshamaila et al., 2013; Ndung'u et al., 2020) who argued that support from leadership, i.e., top management and decision-makers has the propensity to influence the adoption of technology among SMEs.

However, hypotheses H7, H8, and H9 were not supported. While H7 determines the *perception of the complexity of social media*, H8 determined *perceived compatibility and their positive influence on SMEs' social media adoption*. Both propositions were not supported. Regarding the influence of perceived complexity on social media adoption, the current finding is in line with (Ali Abbasi et al., 2022; Maduku et al., 2016) works, which witnessed insignificant association between perceived complexity and social media adoption in SME setting in developing economies. In addition, perceived compatibility and SME social media adoption relationship was negative, not supporting H8. This result is consistent with (Ahmad, Abu Bakar, et al., 2019; Maduku et al., 2016), confirming no significant link between perceived compatibility and social media adoption among SMEs.

Table 4. Discriminant Validity-Fornell-Larcker

Construct	Cost Effectiveness	Customer Pressure	Employee Competence	Fin. Res. Availability	Industry Pressure	Leaders Support	Perceived Complexity	Perceived Compatibility	Relative Advantage	SME firm Sustainability	SM Adoption
CE	**0.773**										
CP	0.005	**0.916**									
EC	0.038	0.667	**0.911**								
FRA	0.013	0.628	0.836	**0.915**							
IP	0.009	0.786	0.712	0.648	**0.878**						
LS	0.084	0.544	0.676	0.722	0.596	**0.918**					
PC	0.427	0.032	0.038	0.034	0.007	0.055	**0.828**				
PCY	0.454	0.009	0.001	0.017	0.024	0.063	0.445	**0.699**			
RA	0.001	0.748	0.593	0.598	0.666	0.576	0.016	0.012	**0.843**		
SFS	0.002	0.638	0.569	0.572	0.544	0.510	0.059	0.029	0.745	**0.884**	
SMA	0.068	0.540	0.596	0.622	0.543	0.576	0.026	0.095	0.529	0.552	**0.830**

Note: The diagonal (in bold) is the average variance extracted (AVE).

Similarly, H9, *relative advantage has a positive influence on SMEs' social media adoption* was also not supported. Yet, the users' perception of the complexities of the social media platform influences its adoption as affirmed by (Ali Abbasi et al., 2022). Relative to perceived compatibility, Lestari and Indra Sensuse (2021) affirmed that the ability of SMEs to integrate the social media platform into their existing information systems drives their acceptability and adoption. Yet, Ali Qalati et al. (2021) mentioned that the relative advantage of social media to SMEs is enormous. It is, however, surprising to observe a contrary view from this study. Contrary to the above propositions, the final hypothesis (H10), *there is a positive relationship between social media adoption and SME sustainability* was supported affirming the position of (Amoah & Bashiru Jibril, 2020). For instance, Mujahid and Mubarik (2021) put forth that, SMEs serve as a strategic tool for SMEs to achieve competitive superiority leading to performance. The findings of this study is consistent with previous work (Algumzi, 2022; L. Oyewobi et al., 2022) confirming the hypothesis that social media adoption and usage is significant for SMEs sustainable performance. Similarly, the current study finding is in line with research work (Alraja et al., 2022; Fang et al., 2022) corroborated the positive effect of social media adoption on SMEs sustainability in the form of customer relationship management, effective communication, knowledge creation and value creation. According to (Alayón et al., 2022; Setya et al., 2021), social media has helped SMEs to innovate and compete with larger enterprises, which ultimately affects business sustainability. Recent evidenced from (Bruce, Shurong, Akakpo, et al., 2022; Vrontis et al., 2022) emphasized that social media and other digital technologies enables SMEs to share disseminate information with potential customers, build brand image and customer relationships, and create value, confirming that social media adoption drives SMEs to be sustainable. Nonetheless, the current study outcome is discordant with the prior findings of (Ahmad, Jabeen, et al., 2019).

5. Implications

5.1 Theoretical implications

Theoretically, this study adds to the existing knowledge on social media, technology adoption, and SME sustainability. Therefore, the current study highlights that social media technologies have positive effect on improving SMEs performance and on achieving SME performance.

It should be reckoned that studies on these dimensions exist but, the exigencies of the dynamics offered by social media make it relevant to add to its affordances in other dimensions. Particularly in developing countries where literature on the phenomenon is slow partly due to the unimpressive rate of adoption of social media and other emerging technologies into businesses. Undoubtedly, the TOE has been extensively studied in several areas, particularly in information systems. Nonetheless, the application of the theory in related fields like marketing has been slow despite its significance in exploring the adoption, implementation, and use of technology. Thus, this study adds to the existing knowledge of the TOE in the vertical fields of marketing and information management. Furthermore, the present study integrated TOE model that helps understand the correlation between social media adoption and SME sustainability. This is a key contribution of the study to theory given that, limited studies have underscored the antecedent of social media adoption by SMEs towards their sustainability. The study demonstrated that social media adoption has a significant effect on SMEs sustainability, which confirmed that modern technologies positively contribute to enhanced organizational capabilities.

5.2 Managerial implications

To management, this study provides several implications for managers of SMEs and emerging firms. Given the stern competition among firms, the resourced businesses are gradually outpacing their peers due to effective strategies. The current study highlighted that SME (managers and owners) in the developing economies must be aware that sustainable performance could be achieved by adoption of social media and similar technologies. In this study, we have provided several factors that influence the adoption of social media towards the sustainability of SMEs. Given the empirical factors enumerated, it is expected that managers dwell on them as strategies to keep up with their peers in the industry. The current study provides in-depth understanding of

Table 5. Hypothetical Path Coefficient

Constructs	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P-Values	Decision
Cost-effectiveness -> Social Media Adoption	0.023	-0.035	0.045	0.505	0.014	Agreed
Customer Pressure -> Social Media Adoption	0.092	0.094	0.074	1.248	0.013	Agreed
Employee Competence -> Social Media Adoption	0.100	0.103	0.092	1.087	0.008	Agreed
Financial Resource availability -> Social Media Adoption	0.257	0.250	0.079	3.258	0.001	Agreed
Industry Pressure -> Social Media Adoption	0.055	0.058	0.072	0.772	0.440	Not Agreed
Leaders Support -> Social Media Adoption	0.169	0.164	0.059	2.858	0.004	Agreed
Perceived Complexity -> Social Media Adoption	0.011	0.009	0.052	0.217	0.828	Not Agreed
Perceived Compatibility -> Social Media Adoption	-0.080	-0.081	0.047	1.706	0.089	Not Agreed
Relative Advantage -> Social Media Adoption	0.113	0.111	0.060	1.868	0.062	Not Agreed
Social Media Adoption -> SME firm Sustainability	0.552	0.546	0.064	8.677	0.000	Agreed
Dependent variable:	Coefficient of determination (R^2)			Adjusted R^2		
SME firm Sustainability	0.305			0.303		
Social media Adoption	0.465			0.453		

Authors' processing from PLS-SEM software

cogent business & management

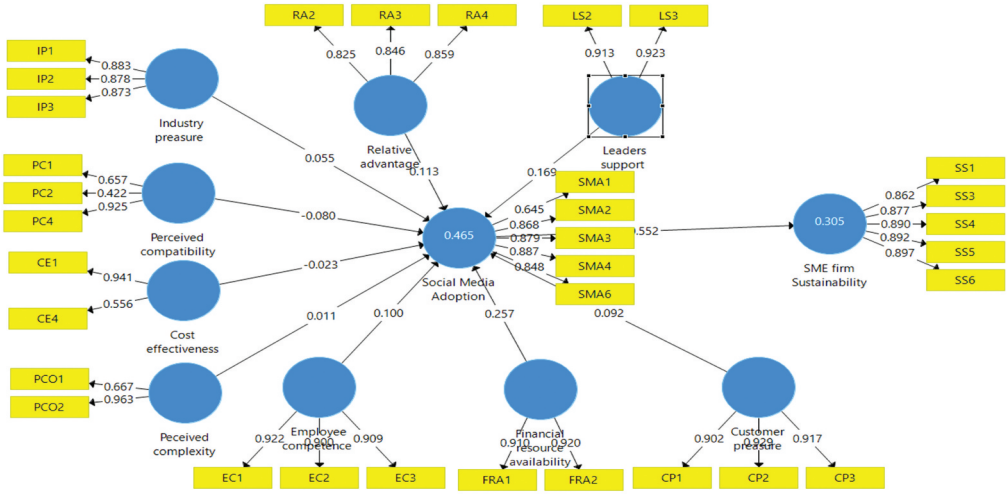

Figure 2. Estimated research model. Source: Authors' processing form ADANCO 2.2.1 software

social media adoption, enabling SMEs representatives to acknowledge the substantial effect of social media adoption and its relationship with SMEs sustainability, which is another novelty of this study. Consequently, the current study corroborates the understanding concerning social media adoption and its effect on SME performance. This study has also served as an avenue for firms to improve upon their existing strategies aimed at enhancing their competitive sustainability. As a framework for promoting sustainable SMEs, the study result provides overarching variables for SMEs to leverage and improve their profitability. Even though factors such as customer pressure, perceived complexity, compatibility, and relative advantage showed no positive relationship with social media adoption does not suggest that the factors should not be given the needed attention. These factors including others have been empirically proven to have a significant positive relationship with SM adoption. Thus, it must be emphasized that SMEs give attention to the multitude of factors enumerated in this study following the findings that emerged.

6. Conclusion

The study aims to explore the factors that affect social media application adoption and SMEs' sustainability using the TOE framework and to examine social media impact on SMEs' sustainability in the context of emerging economies, particularly, Ghana, which remains under-explored. The results or findings revealed that six of the proposed hypotheses were positive or had a significant relationship whiles the remaining four hypotheses were not significant. From the findings gathered, constructs such as cost-effectiveness, customer pressure, employees' competence, and financial resource availability, leaders support positively correlate with the dependent variable (SMEs firm sustainability) whiles industry pressure, perceived complexity, relative advantage, and perceived compatibility do not correlate with the dependent variable. The present study submit that social media adoption allows SMEs in developing economies to share information, increased sales, customer relationship management and encourages collaboration, which ultimately lead to sustainability. The present study also demonstrated that social media adoption among SMEs positively contribute to enhanced sustainable performance.

The study made use of 430 respondents (managerial staff) from small and medium enterprises particularly manufacturing, microfinance institutions, and the tourism industry. This study has investigated and applied Partial Least-Square Equational Modeling (PLS-SEM) to discuss the social media adoption on SMEs firms' sustainability within the circles of developing country context. To add more, a quantitative methodical approach was used through the development of a structured questionnaire to gather the requisite information or data needed in this study. The findings contribute to the existing body of research on the topic of social media adoption of the

sustainability of SMEs in developing nations and finally offer more practical directions on the adoption and application of social media as a 21st technology for SME firms.

6.1 Limitations and future research direction

There are various drawbacks to this study. The key drawback identified in this study is the generalizability of the main findings. The present study only comprises a few respondents from SMEs particularly; microfinance institutions, the tourism industry, and manufacturing in Ghana. In the future, the study can be carried out by collecting data from different industries to obtain sufficient and precise information to generalize the outcome. Secondly, we only did our research in one geographical area (Ghana); this research should be expanded to other nations, as well as having a larger sample size, to provide generalized data. To ensure the application of the research model in a different country context, future studies should explore comparative studies to validate our results and investigate the proposed hypothesis and model using large and small firms in various country contexts. In addition, the present study employed single construct dimensions, still future research could explore multi-dimensional constructs to test the validate of the current study in more comprehensive. Moreover, the present focused on factors related to social media adoption and it effect on sustainability; future research could focus on social media regarding sustainable SME performance. Lastly, future research can also consider the mixed method approach since the current study only used the quantitative approach.

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