INDERSCIENCE PUBLISHERS
Linking academia, business and industry through research

International Journal of Technoentrepreneurship

ISSN online: 1746-5389 - ISSN print: 1746-5370
https://www.inderscience.com/ijte

Effects of social media adoption on SME performance: the moderating role of business strategy

Ahmed Aliyu Palladan, Kadzrina AbdulKadir, Idris Sani Ahmed, Yakubu Abubakar

DOI: 10.1504/IJTE.2023.10059488

Article History:

Received:	14 July 2022
Last revised:	16 July 2022
Accepted:	23 May 2023
Published online:	21 November 2023

Effects of social media adoption on SME performance: the moderating role of business strategy

Ahmed Aliyu Palladan*

School of Business,
FCE (T) Gombe,
Nigeria
Email: aapalladan@live.com
*Corresponding author

Kadzrina AbdulKadir

School of Business Management,
Universiti Utara Malaysia,
Malaysia
Email: kadzrina@gmail.com

Idris Sani Ahmed

Department of Economics,
Prince Abubakar Audu University,
Anyigba, Nigeria
Email: idris.sa@ksu.edu.ng

Yakubu Abubakar

School of Business,
FCE (T) Gombe,
Nigeria
Email: ysarkinshanu@yahoo.com

Abstract: The present study is an attempt to empirically examine the influence of three broad components of technology, organisation, and environment, i.e., the TOE model on social media adoption by small and medium-scale enterprises (SMEs) in Nigeria. The study equally considers organisational business strategies that comprise cost and differentiation strategies as moderating variables in the proposed model. Findings revealed that technological, organisational, and environmental factors positively influence social media adoption by SMEs in Nigeria. Further, business strategy was equally found to moderate the relationship between social media adoption and SMEs performance. Both the theoretical and practical contributions of the paper were highlighted.

Keywords: TOE model; SMEs performance in Nigeria; social media adoption; business strategy; SMEs; small and medium-scale enterprises.

Reference to this paper should be made as follows: Palladan, A.A., AbdulKadir, K., Ahmed, I.S. and Abubakar, Y. (2023) 'Effects of social media adoption on SME performance: the moderating role of business strategy', *Int. J. Technoentrepreneurship*, Vol. 4, No. 4, pp.297–320.

Biographical notes: Ahmed Aliyu Palladan is a senior Lecturer with School of Business at the Federal College of Education (Technical) Gombe, Nigeria. He obtained his BSc degree in Business Administration from Bayero University Kano, Masters in Business Administration from Ahmadu Bello University Zaria and PhD in Management from Universiti Utara Malaysia. He is an associate member of several professional bodies that include The Academy of Management Nigeria, Nigerian Institute of Management among others. His research interests include strategic management, entrepreneurship development, human resource management and qualitative methodology. He has over 50 publications to his credit that include peer reviewed articles, books, conference papers and proceedings. He has equally won several grants awarded by different bodies in Nigeria and the World Bank.

Kadzrina AbdulKadir is an academic at the Universiti Utara Malaysia attached at the School of Business Management. She earned her PhD at Monash University, Australia. Her current research interests include supply chain management, strategic management, learning and elderly wellbeing as well as qualitative research methods. She has received several national grants and has published in several journals. In addition, she has also supervised graduate students, PhD and DBA, at the university.

Idris Sani Ahmed is an Associate Professor with department of Economics Prince Abubakar Audu University Anyigba, Nigeria. He obtained a PhD in Economics from Universiti Utara Malaysia. He is an associate member of several professional bodies that include The Nigeria Economics Society, Institute of Chartered Economist of Nigeria, Chartered Project Managers, and Advanced Planning and Strategic Management. His research interests include international financial economics, development economics, and quantitative economics. He has over 30 publications to his credit that include peer reviewed articles, chapter in books, conference papers and proceedings. He has equally won several grants awarded by different bodies in Nigeria.

Yakubu Abubakar is a Senior Lecturer in the School of Business Education at Federal College of Education (Technical) Gombe in Nigeria. He obtained his BSc degree in Accounting Education from Abubakar Tafawa Balewa University Bauchi, Masters in Accounting Education from Abubakar Tafawa Balewa University Bauchi. He is a member of many professional organisations, such as, The Association of Business Educators of Nigeria, Association of Business and Technical Educators of Nigeria, among others. His areas of interest include learning and qualitative research methods, human resource management, and entrepreneurial development. He has many publications in several journals, conference papers and proceedings to his credit.

1 Introduction

Small and medium scale enterprises (SMEs) are globally recognised as the economic bedrock in several countries. They are an equally dynamic (Abdullahi et al., 2021) and vibrant sector for the world economy (Li et al., 2020). SMEs in developing economies

provide more than 80% of jobs and contribute 70% of their GDP (Janavi et al., 2021). Thus, governments are undertaking several efforts to enhance SMEs efficiency, which will enable them to compete effectively for emerging business opportunities (Borah et al., 2022). Kaplan and Haenlein (2010, p.61) defined social media (SM) as "a group of internet-based applications that build on the ideological and technological foundations of Web 2.0 and allow the creation and exchange of user-generated content". SM adoption by SMEs has been on the increase (Tiwasing, 2021) due to the strategic role that SM plays in SMEs performance (Qilati et al., 2021). Proper integration of social media by SMEs has the potential to improve their sales (Guesalaga, 2016), boost customer loyalty (van Asperen et al., 2018), enhance business engagement (Rossmann et al., 2017), facilitate traffic to the company's page (Luo and Zhang, 2013), and enhance business performance (Abu Bakar et al., 2019; Qalati et al., 2021; Tiwasing, 2021).

On the other hand, as long as there is fit (Oltra and Flor, 2010), business strategy as a moderating variable in the relationship between SMEs adoption of SM and SMEs performance is expected to influence the operations and strategy of the SMEs, depending on the business strategy being adopted and the level of SM adoption by the SMEs (Bouwman et al., 2019). Due to the turbulent environment in which SMEs operate, literature (Maduka et al., 2016; Smutkupt et al., 2010a, 2010b; Zanjani et al., 2013) calls for more robust frameworks that could assist SMEs in effectively exploiting the advantages offered by the SM. Though SMEs are believed to be predominantly less formalised (Pentina and Koh, 2012), their adoption of strategic patterns is reported to bring substantial benefits and greatly assist in resource allocation as well as objective settings in SM adoption (Beier and Wagner, 2016; Sainidis et al., 2001).

An extensive literature review, however, suggests a paucity of research relating SM adoption and SME performance, precisely in developing economies (Ainin et al., 2015; Qalati et al., 2021; Palladan, 2019; Tiwasing, 2021). More so, apart from studies conducted by Ahmad, Abu Bakar, and Ahmad (2015), Qalati et al. (2020, 2021), very scanty research exists linking SM adoptions with SMEs performance. Others employed a mediating or moderating variable between the relationships (Awa et al., 2015; Qilati, 2020). But then again, there are several areas that remain unexploited. One of these areas is the moderating role of business strategy in the relationship between factors influencing SM adoption and SMEs performance. It would be interesting, therefore, to explore how organisational strategy moderates the relationship between SM adoption influencers and SMEs performance (Eze et al., 2021; Chatterjee and Kar, 2020).

The contribution of this study is twofold. The first is the use of the Technology Organisation Environmental Framework (TOE) theory to examine how SM adoption affects SMEs performance. TOE is considered more appropriate by this study because of the context of the SMEs it is focusing on. We consider this essential because, as argued by Dewan and Kraemer (2000), findings obtained from developed economies may not necessarily be replicable in developing economies. Thus, conducting empirical studies on the determinants influencing social media adoption by SMEs in developing economies like Nigeria will avoid problems related to the non-transferability of findings from research conducted in developed economies. More so, the TOE framework has been proven to be very effective for examining various problems related to information technology implementation and business competitive advantage (Handayani and Mahendrawathi, 2019; Oliveira and Martins, 2010).

The second contribution offered by the study is examining the moderating role of business strategies between SM adoption factors and SMEs performance. This is

important since the type of strategy employed by a firm affects its relative emphasis on capability development (Coreynen et al., 2020), which subsequently influences its performance (Chen and Lin, 2021). SM has become a comprehensive arena for globalisation and a vital tool for SMEs growth (Tajvidi and Karami, 2021). SM offers businesses readily available tools that facilitate knowledge flow and the building of robust business relationships and collaborations (Williams, 2019). Despite these benefits, literature suggests that few studies have explored the adoption of SM and SMEs performance in Nigeria (Abdullahi et al., 2021; Eze et al., 2021).

2 Conceptual development and hypotheses

2.1 Social media adoption and SMEs performance

Social media is defined as "a group of internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content" (Kaplan and Haenlein, 2010, p.61). Chaffey (2021) argued that presently, there are 4.66 **billion** social media users around the globe. These comprise Facebook with 2.8 billion active users, YouTube with 2.3 billion, WhatsApp with 2 billion, and Instagram with 1.4 billion active users (Statista, 2021). The figures are expected to increase perversely due to connectivity upgrades, increased smartphone penetration, and amplified customer demand for new products and services (Ahmed et al., 2019).

Several previous studies had linked SM adoption to SME performance (Figure 1). Jagongo and Kinyua (2013) found that social media allows speedy and cheap communication between businesses and customers and also enables SMEs to build databases that translate into sales increases. Social media, as observed by Gekombe et al. (2019), significantly influences SME growth by attracting new customers to the business. Similarly, Fang et al. (2021) found that social media improves the relationship between a firm and its customers, which subsequently leads to customer loyalty. SMEs increase in interactivity, visibility, and reputation through social adoption was equally reported by Qalati et al. (2021). Also reported in the literature are Tajudeen et al. (2018), who evidenced that greater SM adoption by SMEs widens their marketing products and services, promotions, and customer relationships. All these would not be surprising since, as posited by Williimas (2019), SM offers numerous ready-to-use tools that facilitate knowledge flow and business-customer reboots. Thus, we conclude that:

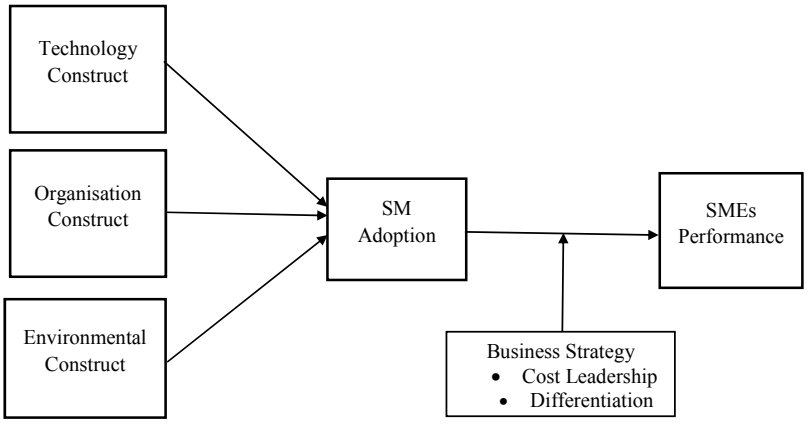
HI: SM adoption has positive effects on SMEs performance.

2.2 TOE factors and SMEs performance

This study, instead of focusing on a particular application (e.g., marketing, market share, etc.), focused on studying SM adoption in its broadest sense. The TOE framework employed by this study considers a wide range of factors influencing SMEs adoption based on three main domains – technology, organisation, and environment – and is suitable for a wide variety of organisations, not just SMEs (Qalati et al., 2020). The three main dimensions of the TOE model (technology, organisation, and environment) influence SME adoption of social media, which subsequently affects SME performance (Kumar et al., 2022). Each of the three broad dimensions, argued Paryeen (2012),

encompasses an array of constructs that may influence SMEs' decisions on the adoption of new technology.

Figure 1 Propose research framework



2.3 Technological factors in SM adoption

According to Cruz-Jesus et al. (2019), technological factors are concerned with the technologies already being used, or readily available and known to have potential benefits, but not yet being used by an organisation. Five technological characteristics exist: relative advantage, compatibility, complexity, trialability, and observability (Tripopsakul, 2018). Relative advantage, according to Roger (2003), connotes the degree to which SMEs see a potential innovation as being more viable than the alternatives being used. Perceived compatibility refers to how suitable an innovation is for fitting with a SME's existing business processes, customers, and suppliers (Awa et al., 2016). Complexity refers to whether an innovation is easy to use and does not require substantial training (Hiran and Henten, 2020). The more complex technology is, the less likely it is to be adopted (Palladan, 2021; Zhu and Kraemer, 2016). Rogers (2005) posits that trialability means whether a technology can be tested prior to its full adoption. Thus, determine whether the technology is suitable for a particular department before extending it to the entire organisation. Trialability has also been confirmed to be an important predictor of the adoption of e-commerce (Chong and Pervan, 2007). Lastly, Rogers (2005) posited that observability refers to how effective a technology adoption is based on people's judgement. Thus, successful usage of a new technology by other firms can encourage individuals or organisations to adopt it. Based on these considerations, we can safely hypothesise that:

Hypothesis 1: Technological factors have significant effects on SMEs*'* adoption of SM.

2.4 Organisational factors and SMEs SM adoption

Organisational factors in this context connote 'the internal characteristics of a firm' (Chatterjee et al., 2021). These characteristics, according to Tornatzky et al. (1990), comprise organisational size, level of formalisation, staffing, management issues, and

relationships among workers. Since this study is purely based on SMEs, we conceptualise organisational factors as 'owner/management support of SM'. Owners of SMEs (Ahmad et al., 2015) play a tremendous role in making sure the aim of SM adoption is properly and convincingly explained within their enterprise in order to ensure synergy. Top management support is very essential in building an environment that is supportive, and they equally shoulder the responsibility of providing adequate funding that will make the adoption of the new technology successful (Lin, 2014). Empirical evidence from Ahmad et al. (2015), Ahmad et al. (2019), Effendi et al. (2020), Qalati et al. (2020), and Zhu et al. (2003) is all in agreement that top management support is an indispensable key to organisational adoption of new technologies like SM. Hence, we conclude that:

Hypothesis 2: Organisational factors have significant effects on SMEs' adoption of SM.

2.5 Environmental factors and SMEs SM adoption

According to Haseeb (2019), "environmental impacts consist of the firm's structure as well as other environmental factors originating from the climate outside the organisation". These factors include organisational structure, technology availability, and existing regulations (Tornatzky and Fleischer, 1990). Through technology adoption, SMEs may alter the structure of the industry they operate in and perhaps change the prevailing competition rules by gaining competitive advantages through leveraging the new innovation the firm employs (Porter and Millar, 1985). Singla and Durga (2015) opined that SMEs can use SM as organisational and information strategies in dealing with their competitors. Studies conducted by Idota et al. (2015) showed that SM is important for product innovation because it assists in identifying customers' trends and needs. Furthermore, SM is equally found to positively influence a firm's sustainability, which subsequently enhances firm performance (Du et al., 2016). The bandwagon effect, according to Wang et al. (2020), refers to a psychological phenomenon in which organisations or individuals take certain actions, like the adoption of new technology, mainly because their peers are already doing it, and not necessarily because the technology is in line with the organisation's strategy. Acedo and Casillas (2007) argued that as the number of firms adopting a particular technology surges, so does the pressure on other firms to "keep up". The bandwagon effect is more apparent when the business environment is very volatile (Abrahamson, 1991). Our fourth hypothesis is therefore:

Hypothesis 3: Environmental factors have significant effects on SMEs' adoption of SM.

2.6 SM adoption and SMEs performance

The pervasive proliferation and advancements of the internet have drastically altered the concept of "service failures and recovery strategies" for multinational web quality. Numerous studies have confirmed the positive effects of SM adoption on firm performance. For example, results from Nurfarida et al. (2021) showed that customer orientation associated with SM adoption improves firm performance since it facilitates proper understanding of customer needs and thereby creates value. Hair et al. (2011)

discovered that the use of SM had a positive influence on customer-facing activities and consequently enhanced sales. Frequent utilisation of SM was equally found by Chou et al. (2022) to improve firm performance, especially when SM platforms were judiciously and appropriately selected by the firms. Further, Foltean et al. (2019) noted that SM can have a significant influence on customer purchasing decisions. Thus, we hypothesise:

Hypothesis 4: SM adoption has significant effects on SMEs' performance.

2.7 Moderating effects of business strategy

Business strategies do have an impact on the performance of SMEs (Kalnins and Williams, 2014; Powell and Eddleston, 2013). Business strategy refers to "the set of decisions and actions that management uses to achieve better organisational performance compared to their market rivals". (Parthasarthy, 2007, p.7). A particular business strategy a firm adopts has the power to have a significant impact on the technology it adopts (Levenburg et al., 2006). Thus, when business strategy is considered a moderating variable in the relationship between SM adoption and SME performance, it is assumed that SME performance enhancement due to SM adoption will be contingent on its business strategy.

The role of organisational-level strategies in enhancing the profitability and long-term performance of organisations is fully documented in the extant literature. Numerous strategic typology theories have emerged as important fields of research in strategic management. Among the various typologies of business strategies reported in the literature, this study settled on Porter's model of business strategies. The model is considered because of its clarity and generality (Ormanidhi and Stringa, 2008). Two dimensions of this model were considered in this study: cost leadership strategy and differentiation strategy. Focused strategy was ignored because 'the dimension is more appropriate for organisations focusing on niche markets" (Dalgic, 1998).

The strategy of cost leadership connotes several tasks that management handles. One of the most important of these tasks is producing goods or services at a lower cost compared to prices offered by competitors (Bayighomog et al., 2020). Several empirical and anecdotal studies have shown that cost leadership strategy is an important resource in attaining an organisation's performance (Kankam-Kwarteng et al., 2019). On the other hand, differentiation strategy implies the collection of managerial roles. On top among these roles is producing goods or services with the aim of differentiating them from those of competitors but at the same cost (Spillan et al., 2021). This will enable the organisations to accomplish durable competitive gains that will lead to higher performance. Several studies have attributed the execution of this strategy to significant and positive firm performance (Bhardwaj et al., 2021; Haque et al., 2021; Liu and Atuahene-Gima, 2018). Moreover, Parnell (2010) posited that business strategy plays an important role in boosting business performance. Sirmon et al. (2011) further opined that business strategy can enhance the relationship between technology adoption and business performance. Thus, we hypothesise that:

Hypothesis 5: Business strategy moderates the relationship between SM adoption and SMEs performance.

3 Material and methods

3.1 Constructs measurements

Being a cross-sectional study, a questionnaire was administered to the respondents. To ensure content validity, the measures used in the study were adapted from previous studies. The construct of the technology factor was used as a 3-dimensional variable with 18 questionnaire items, as shown in Table 1. Environmental factors are equally a multidimensional construct with three dimensions and were assessed using 12 items. Organisational factor is a unidimensional variable measured using three items. Furthermore, business strategy was measured with five questionnaire items adapted from Auzair (2011) and Boehe and Barin (2010). Finally, SMEs performance was measured using six indicators adapted from the work of Ahmad et al. (2018). A 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree, was used to measure the five constructs.

Table 1 The study indicators and their sources

Source	*No of indicators*	*Construct and dimensions*
Khushnir et al. (2010)	6	**Respondents characteristics**
Cesaroni and Consoli (2015)	5	**Social Media Adoption**
		Technological Factors
Grandon and Pearson (2004)	6	Relative advantage
Al-Qirim (2007)	5	Complexity
Anderson (2007)	3	Trialability
Sin Tan et al. (2009)	4	Observability
		Organisational Factor
Thong (2001)	3	Top management support
		Environmental Factors
Thong and Yap (1995)	3	Competitive industry
Sun (2013)	3	Bandwagon pressure
Gutierrez et al. (2015)	6	Competitive pressure
Ahmad et al. (2018)	6	**SMEs Performance**
		Business Strategy
Auzair, (2011)	3	Cost leadership strategy
Boehe and Barin (2010)	2	Differentiation strategy
TOTAL	**56**	

3.2 Population and sample

The population of this research comprised entire SMEs in the north-east geopolitical zone of Nigeria. SMEs in Nigeria play a significant role as they provide 84% of Nigeria's employment opportunities and have contributed 48% of the country's GDP in the last five years (Nigerian Bureau of Statistics, NBS, 2021). According to SMEDAN (2007), SMEs in Nigeria refer to enterprises employing from 5 to 500 people. The NBS (2021)

further revealed that there are 41.5 million SMEs spread out across the 36 states of Nigeria.

This study adopted the technique of cluster sampling. When a population is homogeneous, as Thompson (2012) posited, it can be classified into sub-populations. In adherence to this, the study opted for cluster sampling, which was the most effective and suitable method to be utilised for the research. The homogeneity of the study lies among its population, specifically when looking at SMEs in a Nigerian context. Thus, the large number of SMEs spread across different parts of Nigeria were divided into six geographical clusters (Nigeria has six geopolitical zones). The focus of this study is therefore on SMEs located in the north-eastern geopolitical zone of Nigeria. This zone consists of six states, namely: Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe. Thompson (2012) argue that in situations where the details of individual units are not known, the technique of cluster sampling has the power to offer researchers a convenient procedure for selecting samples for random data collection. Consequently, 407 hand-delivery questionnaires were admitted to SMEs situated in the north-eastern geopolitical zone. The zone is reported to be among the zones witnessing tremendous progress in terms of SME activities (Nigeria SME Survey, 2021; Palladan and Ahmad, 2021). A total of 316 usable questionnaires were returned, suggesting a 77.6% response rate.

4 Presentation of results

4.1 Descriptive information

The results from Table 2 display, among other things, the number of employees in the SMEs considered by the study, showing 114 (32.2%) industries employing below 9 staff; 112 (38.7%) SMEs employing 9 to 17 workers; and 79 (25.1%) enterprises employing 18 to 25 staff. Based on SMEDAN (2017)'s categorisation, all these firms are regarded as small businesses. The level of SM utilisation by SMEs equally varies. For example, 6 firms (1.9%) of the SMEs engage in minimal use; 196 (61%) firms usage is basic; 100 SMEs (31%%) use is moderate; and 14 (4.4%) use SM extensively. For the most popular SM site used by the SMEs, the table suggests that 200 businesses (63.5%) use Facebook and 115 (36.5%) use Whatsapp. Moreover, on the years spent since SM adoption by the SMEs, the table indicated that 14 (4.4%) spent less than one year, 66 (21%) spent between 1 and 2 years, 115 (49%) had spent between 3 and 4 years, and finally 80 (25.4%) had spent more than 5 years. Regarding SM usage by the SMEs, the results posits that 89 (27.6%) respondents admitted that their SM usage was very little, suggesting a lack of interest and technical knowledge; 226 (72.4%) confessed their usage of SM for marketing purposes is little.

4.2 Tool for analysis

Partial-least-squares structural equation modelling (PLS-SEM) was used to test the model hypotheses (Hahsmi and Siddiqui, 2020). PLS-SEM is a very popular technique that is widely used in business management and related disciplines, and it is regarded as the most comprehensive and fully developed system of variance (Rhee et al., 2020).

Table 2 Demographic information

Features	*Level*	*Frequency*	*Percentage*
Number of Employees	Below 9	114	36.2%
	9 –17	122	38.7%
	18 - 25	79	25.1%
	Above 25	00	00%
Level of SM Utilisation	Minimal	6	1.9%
	Basic	196	61%
	Moderate	100	31%
	Extensive	14	4.4%
Popular Sites Use	Facebook	200	63.5%
	WhatssApp	115	36,5%
	Twitter	00	00
	Instagram	00	00
Years Spent Using SM	Less than 1Year	14	4.4%
	1 to 2 Years	66	21%
	3 to 4 Years	155	49%
	More than 4 Years	80	25.4%
Using SM for Marketing	Very Little	87	27.6%
	Little	226	72.4%
	Quite A lot	00	00
	Extensive	00	00

Table 3 Fornel and Larcker Criteria and Heterotrait-Monotrait Ratio

FLC	*BUS STR.*	*ENV FAC.*	*ORG FAC.*	*SMEs ADOP.*	*SME PER.*	*TEC FAC.*
BUS STRA.	**0.739**					
ENVR. FACTORS	0.186	**0.719**				
ORG FACTORS	0.177	0.680	**0.854**			
SM ADOPTION	0.190	0.818	0.471	**0.757**		
SMEs PERF.	0.082	0.061	0.518	0.260	**0.803**	
TECH. FACTORS	0.341	0.350	0.358	0.411	0.594	**0.811**
HTMT	*BUS STR.*	*ENV FAC.*	*ORG FAC.*	*SMEs ADOP.*	*SME PER.*	*TEC FAC.*
BUS STRA.	**0.735**					
ENVR. FACTORS	0.374	**0.705**				
ORG FACTORS	0.619	0.605	**0.754**			
SM ADOPTION	0.592	0.638	0.471	**0.686**		
SMEs PERF.	0.765	0.341	0.518	0.671	**0.592**	
TECH. FACTORS	0.341	0.752	0.358	0.377	0.555	**0.609**

FLC = Fornel and Larcker Criteria; HTMT = Heterotrait- Monotrait Ratio.

Thus, a two-step approach was used by this study to assess the second-order constructs, which paved the way for accurate prediction of a more parsimonious model (Ali et al., 2021).

4.3 Model analysis

Collinearity was fully assessed by the study, specifically the variance inflation factor (VIF) that allows for common method bias (CMB) detection. As shown in Table 4, the results of this test confirmed that CMB is not a key concern, considering the VIF values that are less than 5 (Adel et al., 2020).

Table 4 Measurement models, convergent validity and reliability

Constructs and items	*Outer loadings*	*AVE*	*C.alpha*	*CR*	*DGrho_A*	*VIF*	*Model type*
Technological Factors (SD = 1.34, M = 4.45)		0.665	0.771	0.849	1.28	1.18	Reflective
TERA1	0.952						
TERA5	0.807						
TETR2	0.646						
Organisational Factor (SD = 1.47, M = 3.67)		0.738	0.828	0.782	0.951	1.92	Reflective
ORGF1	0.816						
ORGF2	0.842						
ORGF3	0.902						
Environmental Factors (SD = 0.88, M = 4.59)		0.523	0.702	0.782	0.813	1.91	Reflective
ENBP3	0.619						
ENCI1	0.815						
ENPP1	0.985						
ENPP3	0.614						
Social Media Adoption (SD = 1.35, M = 4,38)		0.570	0.701	0.817	0.846	1.04	Reflective
SMAD2	0.562						
SMAD3	0.853						
SMAD4	0.915						
SMAD5	0.836						
Business Strategy (SD = 1.14, M = 4.52)		0.558	0.748	0.759	1.555	1.05	Reflective
BSCL1	0.992						
BSCL2	0.330						
BSDS1	0.973						
BSDS2	0.506						

Table 4 Measurement models, convergent validity and reliability (continued)

Constructs and items	*Outer loadings*	*AVE*	*C.alpha*	*CR*	*DGrho_A*	*VIF*	*Model type*
SMEs Performance (SD = 1.87, M = 3.25)		0.659	0.733	0.844	0.761	1.04	Reflective
SMEP1	0.736						
SMEP2	0.851						
SMEP3	0.818						

AVE = average of variance extracted; C.alpha = Cronbach's alpha;

CR = Composite Reliability; DG.rho = Dillon-Goldstein's rho; SD = Std. Deviation; M = Mean.

4.4 Evaluating the measurement model

We begin with the validity and reliability tests of the measurement model's outer loadings. The components forming the outer loadings consist of composite reliability (CR), average variance extracted (AVE), and heterotrait-monotrait (HTMT). The loadings from the results in Tables 3 and 4 indicated the items outer loadings range from 0.506 to 0.992. For the CR and the AVE, the loadings were 0. 0.558 and 0.849, respectively. With these scores, the study has now satisfied the requirement for a measurement model (Iranmanesh et al., 2017). Discriminant validity and heterotrait-monotrait (HTMT) were also assessed by the study (Franke and Sarstedt, 2019). From the results in Table 3, the entire HTMT value was below 0.85 (Goodboy and Kline, 2017). With these figures, we can safely conclude that the respondents understood the distinction among the 12 constructs, and as such, the criterion for discriminant validity was satisfied. These validity tests have suggested the validity and reliability of the measurement model, so we can proceed to the structural model analysis.

4.5 Evaluation of the structural model

Reid-Griffin and Carter (2004) posted that the SEM is used to examine the effects of linear regression of the independent variable on the dependent variable and vice versa. The path coefficient, p-value, and variance were used in this study for the PLS analysis (Basri and Siam, 2019). We used the 5000 bootstrapping technique, and the results paths and their level of significance are shown in Table 5. Using a *t*-value *of* 1.96 and a *p*-value of 0.05, the results show that the three TOE components play a significant role in SMEs adoption of SM in Nigeria, with 78% of the variance explained by the model. Furthermore, Table 5 depicts the values of the path coefficients, highlighting their significance level and R^2 value. Cameron and Windmeijer (1997) argued that R^2 values of 0.60 are regarded as substantial, 0.33 as moderate, and 0.19 as weak. For this study, the R^2 coefficient is 0.708, suggesting that 71% of the SM adoption by Nigerian SMEs occurred due to the TOE effects, while 45% of the SMEs performance was because of SM adoption, as portrayed in Table 6.

Table 5 Path coefficients and hypotheses testing

Hypotheses	*Relationships*	*Path Coefficient*	*SD*	*T Statistics*	*P Values*	*Decision*
H1	Technological Factors → SM Adoption	0.199	0.036	4.727	0.000	Accepted
H2	Organisational Factors → SM Adoption	0.196	0.048	4.063	0.000	Accepted
H3	Environmental Factors → SM Adoption	0.492	0.044	6.202	0.000	Accepted
H4	SM Adoption → SMEs Performance	0.337	0.061	5.565	0.000	Accepted
		Moderating Relationship				
H5	SM Adoption → Business Strategy → SMEs Performance	0.057	0.018	3.142	0.001	Accepted

Table 6 Structural model

Variables	*Cross validated redundancy (Q^2)*			*Coefficient of determination (R^2)*	
Construct	*SSO*	*SSE*	*Q^2 (= 1–SSE/SSO)*	*R^2 Adj.*	*R^2*
SM Adoption	1260	775.56	0.384	0.706	0.708
SMEs Performance	945	690.45	0.269	0.454	0.445

Overall model fit: standardised root means square residual (SRMR) = 0.228, d_ULS = 12.014, d_G = 0.014, Chi-square = 29.597, NFI = 0.979

Additionally, the study assessed the model's predictive relevance using cross-validated redundancy (Q^2) (Chin et al., 2020). Q^2 values of 0.02 are regarded as small, 0.15 as medium, and 0.35 as big. The present study's Q^2 score indicated that its model has considerable predictive relevance with q2 > 0 (Hu and Bentler, 1999). Thus showing 0.384 predictive reliance for SM adoption and 0.269 SMEs performance.

4.6 Evaluating the moderation relationship

For the moderating effect, the proposed hypothesis of business strategy on the relationship between SM adoption and SMEs performance was found to be supportive. To test the moderating effects, this study opted for the approach suggested by Christian and Gabriel (2016). Becker et al. (2018) argued that 'the effect of Y1 on Y2 is estimated as (1 + p3 M*M*). Therefore, the strength of the effect of Y1 depends on the level of the moderator M'. From the PLS SEM analysis results in Table 6, the moderating effect of business strategy (cost leadership strategy and differentiation strategy) on the relationship between SM adoption and SMEs performance is (SD = 0.018, *P* = 0.001, T Statistics = 3.142). This indicates that H5 is supported.

5 Discussion

This study is among the very few that comprehensively investigates the effects of SM adoption and SME performance in the West African sub-region using the TOE model. Literature asserts that many technologies were adopted by different organisations. Some of these technologies, including electronic workflow technology (Gutierrez Lopez, 2022), block chain technology (Mathur and Vijayvargy, 2022), and robotic technology (Zhang, 2022), have all been confirmed to boost organisational efficiency and performance. This might buttress the indispensable role of SM technology in SMEs performance.

Going by the findings of this study, our first objective is to examine how TOE dimensions influence SMEs SM adoption. The results indicate positive and significant relationships between the TOE's three broad dimensions and SM adoption. Precisely, the study revealed the superiority of the effects of environmental factors on SMEs SM adoption with values of T statistics = 6.202, path coefficient = 0.492, and SD = 0.044. These findings are in agreement with Abed (2020), who observed that pressure from competitors, support from top management, and perceived technology usefulness are among the most significant influencers of SMEs intentions to adopt SM for business in Saudi Arabia. More so, Ainin et al. (2015) found a positive and significant effect of relative advantage and SMEs intentions to adopt SM in their businesses among Malaysian SMEs.

More so, technological factors were found to influence SMEs' decisions to adopt SM in their activities. The findings of this study are in line with previous studies carried out in similar developing economies like Nigeria, such as Saudi Arabia (Abed, 2020), South Africa (Matikiti et al., 2018), Indonesia (Ilona et al., 2019), Pakistan (Qalati et al., 2021), the UAE (Ahmad et al., 2018), and Jordan (Lutfi et al., 2022). These findings posit that technological factors influence SM adoption by SMEs in Nigeria. The relationship between the aggregate technological factors and SM adoption is found to be significant with the values T statistics = 4.727, path coefficient = 0.199, and SD = 0.036. SM adoption for business purposes is still in its infancy stage in nearly all developing economies (Ur Rahman et al., 2020), highlighting the need to pay more attention to the enhancement and growth of awareness toward SM adoption by businesses in general and SMEs in particular. Ali Qalati et al. (2020) posit that in developing countries, an increasing number of SMEs are having more access to the internet and internet-related technologies, which has motivated them to adopt SM tools like Facebook, WhatsApp, Twitter, etc. for business purposes. Hence, this implies that SMEs SM adoption is highly linked with their current infrastructure (Alkhateri et al., 2022). This is very important since SM adoption allows SMEs to promote their businesses to numerous customers, both locally and internationally.

The study findings equally revealed that SM adoption by SMEs is influenced by organisational factors, with values of T statistic = 4.063, path coefficient = 0.196, and SD = 0.043. The result implies that top managerial support is another indispensable element that influences SM adoption and motivates SMEs to use SM for business activities. The practical implications of the study suggest that young and educated owners and managers of SMEs in Nigeria are already using SM in their day-to-day activities to communicate with their friends and families, which subsequently allows them to adopt the technology for their business operations. This finding is in line with other previous works like Ali Abbasi (2022), Kumar et al. (2022), and Effendi et al. (2020). The central role of top management in enhancing SMEs adoption of SM in developing countries was

highlighted here. In a competitive market environment like that of Nigeria, core team members that comprise middle-level managers and executives take decisions that positively affect the future perspective and enhance the entire SMEs performance (Tajvidi and Karami, 2021).

The next target of this study is to assess the effects of SM adoption by Nigerian SMEs on their performance. Results from the analysis showed a positive and significant relationship between adoption and SMEs performance, with T statistics of 5.565, a path coefficient of 0.337, and a SD of 0.061. McCann and Barlow (2015) opined that for any measurement to be meaningful and successful, it must be linked to the original objectives of SM adoption. More so, Hoffman and Fodor (2010, p.47) argued that "the question is not whether to blog or tweet, but what objectives need to be achieved and which set of tools with their corresponding metrics can best achieve them." Other empirical evidence from Ali et al. (2020), Fan et al. (2021), and Borah et al. (2022) is in agreement with this finding.

Further, the study examines the moderating effects of organisational strategy on the relationship between SM adoption and SMEs performance. Values from the above analysis suggest: T statistics = 3.142, path coefficient = 0.057, and SD = 0.018. This posits that for effective use of SM, SMEs should therefore have a strategy that guides its usage and how it can support their objectives (Blanchard, 2011; Stockdale et al., 2012). SM adoption, argued Dutot and Bergeron (2016), only offers reasonable value to adopters if the technology is in support of the organisation's existing strategies and business objectives. This also insinuates that SMEs adoption of SM should be in response to their competitors and with the aim of gaining competitive advantage and intelligence (Ali et al., 2022). This will allow the firms to respond effectively to customer needs and also build long-lasting relationships with customers and other stakeholders.

This paper makes theoretical contributions in many ways. Firstly, it adds to the growing literature on SM and SMEs management from an African perspective, with specific reference to Nigeria. So far, very little empirical evidence has assessed the factors motivating SMEs to adopt SM in their activities and the effects of the adoption on performance in an African context. Another essential theoretical contribution of this study is the introduction of intervening variables to moderate the relationship between SM adoption and SMEs performance. In this regard, business strategies that encompass two dimensions (cost leadership strategies and differentiation strategies) were used as moderators. When employing business strategy in the relationship between SM adoption and SMEs performance, it is assumed that the influence of SM adoption will result in increasing SMEs performance due to the moderator (Lovett et al., 2022).

The third theoretical implication of the study is the development and testing of a new empirical theoretical model that incorporates the TOE's broad components with the moderating role of organisational business strategy and SMEs business performance. Thus, this study used an organisation's business strategies as a moderating variable between SM adoption and SMEs performance that was previously ignored by other studies. Erind (2015) lamented that the TOE model theory ignores organisations' business strategies despite their enormous role in influencing business performance. Thus, this study used the organisation's business strategies in light of the TOE model.

5.1 Practical implications

The study has multiple practical implications for SMEs as it relates to SM adoption in the purview of TOE technology. Firstly, SM technologies are social network sites that are popular and being used by people locally and regionally. Thus, it implies that the SMEs considered by this study were using these technologies to communicate externally with existing and potential customers. Therefore, it's worth noting for SMEs that wish to adopt SM as part of their operation to consider sites that are popular in their respective location and context (e.g., target market profile, geography, etc.).

Secondly, there is ongoing debate on the merits and demerits of SM adoption by SMEs, with particular reference to developing economies. The present study offers a complete view of important factors that could pave the way for owners, executives, managers, and other relevant stakeholders to comprehend the relevance of SM in SMEs operations. The study is expected to broaden their understanding of how to effectively adopt SM for the enhancement of SMEs performance. For instance, findings from this study suggest that SM adoption by SMEs has a significant influence on their performance in terms of cost reduction in marketing activities. Furthermore, employing SM by SMEs will go a long way toward enhancing customers' loyalty since the persistent presence of SMEs on SM enhances customer service (Qilati et al., 2021). Additionally, SM adoption widens brands visibility, which in turn allows pervasive customers to be reached. SM equally facilitates customers' access to information, making it easy for buyers to share their feedback with each other and with the SMEs.

Conclusively, SME owners in developing economies like Nigeria are struggling to improve their marketing practices through SM adoption. SM technologies have been confirmed by this study to offer multiple tools that enhance SMEs performance. However, for SME owners and managers to maximise the benefits of SM adoption, they should exploit the technology for marketing-related purposes. Popular SM types used by SMEs are Facebook and WhatsApp. These apps are considered by many SMEs to be cost-effective, easy to use, friendly, and instantaneous, as well as having the ability to reach large customers. Attracting potential customers and retaining existing customers through content creation, content sharing, and monitoring the activities of competitors via SM are some of the potential benefits for SMEs adopting SM.

5.2 Limitations and future research

One of the main limitations of this study has to do with its sample size and reach. Though the sample was from specific local markets in the north-eastern region of Nigeria, the responses were largely from small firms doing whole sales of small commodities. These shops deal with various commodities and operate their businesses in several locations. The average size of the SMEs is between 3 and 25 personnel. The sample does not reflect larger businesses of other sizes or those outside northern and eastern Nigeria. This is important since SM adoption might have a different impact on the performance of larger businesses. Thus, the findings from this study need to be corroborated using multiple samples from multiple industries and multiple contexts. A further limitation associated with this study is that the hypotheses herein were tested using SMEs obtained from a single country using cross-sectional data. Therefore, the results are a snapshot in time, but the influence of SM adoption may not be static. Hence, future research should consider a longitudinal study approach in examining the effects over time.

6 Conclusion

The research examines the effects of technology, organization, and environment as essential determinants of SM adoption by SMEs and how the adoption affects their performance. It equally examined the moderating role of an organization's business strategy. The findings reveal that the TOE model factors influence SM adoption by SMEs, and the adoption in extension leads to an increase in SMEs performance. The study further suggests that business strategy moderates the relationship between SM adoption and SMEs performance. This research confirms that SM allows SMEs in developing economies to effectively link with their business partners, customers, and other stakeholders since SM enables direct mentions and instant replies. Most essentially, this paper indicates how SM adoption facilitates SMEs brand building awareness and loyalty, boosts customer relationships, and offers numerous benefits, including 'cost-effectiveness, relative advantage, visibility, and interactivity'.

Funding

This study was supported by the Tertiary Education Trust Fund (Tetfund) through its Institutional Based Research (IBR) Intervention to FCE (T) Gombe, Year 2020 grant.

Conflicts of interest

The authors declare no conflicts of interest.

References

Abdullahi, I.N.U., Husin, M.H. and Baharudin, A.S. (2021) 'Factors influencing the adoption of Facebook as a marketing channel among SMEs in Nigeria as a developing country: a conceptual framework', *Jurnal Intelek*, Vol. 16, No. 1, pp.99–107.

Abed, S.S. (2020) 'Social commerce adoption using TOE framework: an empirical investigation of Saudi Arabian SMEs', *International Journal of Information Management*, Vol. 53, p.102118.

Abrahamson, E. (1991) 'Managerial fads and fashions: the diffusion and rejection of innovations', *Academy of Management Review*, Vol. 16, No. 3, pp.586–612.

Abu Bakar, A.R., Ahmad, S.Z. and Ahmad, N. (2019) 'SME social media use: a study of predictive factors in the United Arab Emirates', *Global Business and Organizational Excellence*, Vol. 38, No. 5, pp.53–68.

Adel, H.M., Mahrous, A.A. and Hammad, R. (2020) 'Entrepreneurial marketing strategy, institutional environment, and business performance of SMEs in Egypt', *Journal of Entrepreneurship in Emerging Economies*, Vol. 12, pp.727–746.

Ahmad, S.Z., Abu Bakar, A.R., Faziharudean, T.M. and Mohamad Zaki, K.A. (2015) 'An empirical study of factors affecting e-commerce adoption among small-and medium-sized enterprises in a developing country: evidence from Malaysia', *Information Technology for Development*, Vol. 21, No. 4, pp.555–572, http://doi.org/10.1080/02681102.2014.899961

Ahmed, E.R., Rahim, N.F.A., Alabdullah, T.T.Y. and Thottoli, M.M. (2019) 'An examination of social media role in entrepreneurial intention among accounting students: a SEM study', *Journal of Modern Accounting and Auditing*, Vol. 15, No. 12, pp.577–589.

Ainin, S., Parveen, F., Moghavvemi, S., Jaafar, N.I. and Shuib, N.L.M. (2015) 'Factors influencing the use of social media by SMEs and its performance outcomes', *Industrial Management and Data Systems*, Vol. 115, No. 3, pp.570–588 DOI 10.1108/IMDS-07-2014-020.

Ali Abbasi, G., Abdul Rahim, N.F., Wu, H., Iranmanesh, M. and Keong, B.N.C. (2022) 'Determinants of SME's social media marketing adoption: competitive industry as a moderator', *SAGE Open*, Vol. 12, No. 1, p.21582440211067220.

Ali Abbasi, G., Abdul Rahim, N.F., Wu, H., Iranmanesh, M. and Keong, B.N.C. (2022) 'Determinants of SME's social media marketing adoption: competitive industry as a moderator', *SAGE Open*, Vol. 12, No. 1, p.21582440211067220.

Ali Qalati, S., Li, W., Ahmed, N., Ali Mirani, M. and Khan, A. (2020) 'Examining the factors affecting SME performance: the mediating role of social media adoption', *Sustainability*, Vol. 13, No. 1, p.75.

Ali, Y., Younus, A., Khan, A.U. and Pervez, H. (2021) 'Impact of lean, six sigma and environmental sustainability on the performance of SMEs', *International Journal of Productivity and Performance Management*, Vol. 70, No. 8, pp.2294–2318, https://doi.org/10.1108/Ijppm-11-2019-0528

Alkhateri, N.S., Ahmad, S. and Husseini, S.A. (2022) 'Conceptual framework of the social media adoption and its impact on small and medium-sized enterprises (SMEs) service performance in UAE', *Journal of Positive School Psychology*, Vol. 6, No. 3, pp.4737–4746.

Alkhateri, N.S., Ahmad, S. and Husseini, S.A. (2022) 'Conceptual framework of the social media adoption and its impact on small and medium-sized enterprises (SMEs) service performance in UAE', *Journal of Positive School Psychology*, Vol. 6, No. 3, pp.4737–4746.

Auzair, S. (2011) 'The effect of business strategy and external environment on management control system: a study of Malaysian hotels', *International Journal of Business and Social Science*, Vol. 2, No. 13, pp.236–224.

Awa, H.O., Ojiabo, O.U. and Emecheta, B.C. (2015) 'Integrating TAM, TPB and TOE frameworks and expanding their characteristic constructs for e-commerce adoption by SMEs', *Journal of Science and Technology Policy Management*, Vol. 6, No. 1, pp.76–94, doi: org/10.1108/Jstpm-04-2014-0012.

Awa, H.O., Ukoha, O. and Emecheta, B.C. (2016) 'Using TOE theoretical framework to study the adoption of ERP solution', *Cogent Business and Management*, Vol. 3, No. 1, p.1196571.

Basri, W.S.M. and Siam, M.R. (2019) 'Social media and corporate communication antecedents of SME sustainability performance', *Journal of Economics and Administrative Sciences*, Vol. 35, pp.172–182.

Bayighomog Likoum, S.W., Shamout, M.D., Harazneh, I. and Abubakar, A.M. (2020) 'Market-sensing capability, innovativeness, brand management systems, market dynamism, competitive intensity, and performance: an integrative review', *Journal of the Knowledge Economy*, Vol. 11, No. 2, pp.593–613.

Becker, J.M., Ringle, C.M. and Sarstedt, M. (2018) 'Estimating moderating effects in PLS-SEM and PLSc-SEM: interaction term generation* data treatment', *Journal of Applied Structural Equation Modeling*, Vol. 2, No. 2, pp.1–21.

Beier, M. and Wagner, K. (2016) *Social Media Adoption: Barriers to the Strategic Use of Social Media in SMEs*, Research Papers, p.100, https://aisel.aisnet.org/ecis2016_rp/100

Bhardwaj, A., Mishra, S. and Jain, T.K. (2021) 'Analysis of strategic leadership for organizational transformation and employee engagement', *Materials Today: Proceedings*, Vol. 37, pp.161–165.

Blanchard, O. (2011) *Social Media ROI: Managing and Measuring Social Media Efforts in your Organisation*, Pearson Education Ltd., Boston, Mass.

Boehe, D.M. and Barin, C.L. (2010) 'Corporate social responsibility, product differentiation strategy and export performance', *Journal of Business Ethics*, Vol. 91, No. 2, pp.325–346.

Borah, P.S., Iqbal, S. and Akhtar, S. (2022) 'Linking social media usage and SME's sustainable performance: the role of digital leadership and innovation capabilities', *Technology in Society*, Vol. 68, p.101900.

Cameron, A.C. and Windmeijer, F.A. (1997) 'An R-squared measure of goodness of fit for some common nonlinear regression models', *Journal of Econometrics*, Vol. 77, No. 2, pp.329–342.

Carson, M., Maxwell, L., Lyons, L. and Roy, A. (2016) 'Under-skilled and out-of-time: how SMEs are marketing through social media', *Journal of Business Administration,* pp.1–7.

Casillas, J. and Acedo, F. (2007) 'Evolution of the intellectual structure of family business literature: a bibliometric study of FBR', *Family Business Review*, Vol. 20, No. 2, pp.141–162.

Chaffey, D. (2021) *Global Social Media Statistics Research Summary 2021*, Retrieved from: https://www.smartinsights.com/social-media-marketing/social-media-strategy/new-global-social-media-research/ (Accessed 17 September, 2021).

Charoensukmongkol, P. and Sasatanun, P. (2017) 'Social media use for CRM and business performance satisfaction: the moderating roles of social skills and social media sales intensity', *Asia Pacific Management Review*, Vol. 22, No. 1, pp.25–34.

Chatterjee, S. and Kar, A.K. (2020) 'Why do small and medium enterprises use social media marketing and what is the impact: empirical insights from India', *International Journal of Information Management*, Vol. 53, p.102103.

Chatterjee, S., Rana, N.P., Dwivedi, Y.K. and Baabdullah, A.M. (2021) 'Understanding AI adoption in manufacturing and production firms using an integrated TAM-TOE model', *Technological Forecasting and Social Change*, Vol. 170, p.120880.

Chin, W., Cheah, J.H., Liu, Y., Ting, H., Lim, X.J. and Cham, T.H. (2020) 'Demystifying the role of causal-predictive modeling using partial least squares structural equation modeling in information systems research', *Industrial Management and Data Systems*, Vol. 120, No. 12, pp.2161–2209, https://doi.org/10.1108/IMDS-10-2019-0529

Chong, S. and Pervan, G. (2007) 'Factors influencing the extent of deployment of electronic commerce for small and medium-sized enterprises', *Journal of Electronic Commerce in Organizations*, Vol. 5, No. 1, pp.1–29.

Chou, C.C., Lee, C., Qian, Z., Tao, X. and Lin, W.T. (2022) 'Business value of social media adoption: a comparison between the US and Taiwan', *International Journal of Management and Decision Making*, Vol. 21, No. 1, pp.51–70.

Christian, N. and Gabriel, R.J.L.C. (2016) 'Gabriel, mediation analysis in partial least squares path modeling: helping researchers discuss more sophisticated models', *Ind. Manag. Data Syst.*, Vol. 116, pp.1849–1864, https://doi.org/10.1108/IMDS-07-2015-0302

Cruz-Jesus, F., Pinheiro, A. and Oliveira, T. (2019) 'Understanding CRM adoption stages: empirical analysis building on the TOE framework', *Computers in Industry*, Vol. 109, pp.1–13.

Dalgic, T. (1998) 'Niche marketing principles: guerrillas vs. gorillas', *Journal of Segmentation in Marketing*, Vol. 2, No. 1, pp.5–18.

Devaney, E. (2015) *2015 Social Media Benchmarks Report*, Hubspot, Cambridge, MA.

Dewan, S. and Kraemer, K.L. (2000) 'Information technology and productivity: preliminary evidence from country-level data', *Management Science*, Vol. 46, No. 4, pp.548–562, https://doi.org/10.1287/mnsc.46.4.548.12057

Du, S., Yalcinkaya, G. and Bstieler, L. (2016) 'Sustainability, social media driven open innovation, and new product development performance', *Journal of Product Innovation Management*, Vol. 33, pp.55–71.

Durkin, M., McGowan, P. and McKeown, N. (2013) 'Exploring social media adoption in small to medium-sized enterprises in Ireland', *Journal of Small Business and Enterprise Development*, Vol. 20, No. 4, pp.716–734, doi: org/10.1108/JSBED-08-2012-0094.

Dutot, V. and Bergeron, F. (2016) 'From strategic orientation to social media orientation', *Journal of Small Business and Enterprise Development*, Vol. 23, No. 4, pp.1165–1190, doi: 10.1108/jsbed-11-2015-0160.

Effendi, M.I., Sugandini, D. and Istanto, Y. (2020) 'Social media adoption in SMEs impacted by COVID-19: the TOE model', *The Journal of Asian Finance, Economics, and Business*, Vol. 7, No. 11, pp.915–925.

Effendi, M.I., Sugandini, D. and Istanto, Y. (2020) 'Social media adoption in SMEs impacted by COVID-19: the TOE model', *The Journal of Asian Finance, Economics, and Business*, Vol. 7, No. 11, pp.915–925.

Erind, H. (2015) 'The technological, organizational and environmental framework of IS innovation adaption in small and medium enterprises, evidence from research over the last 10 years', *International Journal of Business and Management*, Vol. 3, No. 4, pp.1–14.

Eze, S.C., Chinedu-Eze, V.C. and Awa, H.O. (2021) 'Key success factors (KSFs) underlying the adoption of social media marketing technology', *SAGE Open*, Vol. 11, No. 2, p.21582440211006695.

Fan, M., Qalati, S.A., Khan, M.A.S., Shah, S.M.M., Ramzan, M. and Khan, R.S. (2021) 'Effects of entrepreneurial orientation on social media adoption and SME performance: the moderating role of innovation capabilities', *PloS One*, Vol. 16, No. 4, p.e0247320.

Fang, G.G., Qalati, S.A., Ostic, D., Shah, S.M.M. and Mirani, M.A. (2022) 'Effects of entrepreneurial orientation, social media, and innovation capabilities on SME performance in emerging countries: a mediated–moderated model', *Technology Analysis & Strategic Management*, Vol. 34, No. 11, pp.1326–1338.

Foltean, F.S., Trif, S.M. and Tuleu, D.L. (2019) 'Customer relationship management capabilities and social media technology use: consequences on firm performance', *Journal of Business Research*, Vol. 104, pp.563–575.

Franke, G. and Sarstedt, M. (2019) 'Heuristics versus statistics in discriminant validity testing: a comparison of four procedures', *Internet Research*, Vol. 29, No. 3, pp.430–447.

Gekombe, C., Tumsifu, E. and Jani, D. (2019) 'Social media use among small and medium enterprises: a case of fashion industry growth', *University of Dar Es Salaam Library Journal*, Vol. 14, No. 2, pp.3–18.

Gómez, M., Lopez, C. and Molina, A. (2019) 'An integrated model of social media brand engagement', *Computers in Human Behavior*, Vol. 96, pp.196–206.

Goodboy, A.K. and Kline, R.B. (2017) 'Statistical and practical concerns with published communication research featuring structural equation modeling', *Communication Research Reports*, Vol. 34, No. 1, pp.68–77.

Guesalaga, R. (2016) 'The use of social media in sales: individual and organizational antecedents, and the role of customer engagement in social media', *Industrial Marketing Management*, Vol. 54, pp.71–79.

Gutierrez Lopez, M., Porlezza, C., Cooper, G., Makri, S., MacFarlane, A. and Missaoui, S. (2022) 'A question of design: strategies for embedding AI-driven tools into journalistic work routines', *Digital Journalism*, pp.1–20.

Hahsmi, K.A. and Siddiqui, D.A. (2020) *Antecedents of Employees' Entrepreneurial Orientation: The Role of Organizational Culture and Enabling Environment*, Available at. https://ssrn.com/abstract=3681265

Hair, J.F., Hult, G.T.M., Ringle, C.M. and Sarstedt, M. (2014) *A Primer on Partial Least Squares Structural Equation Modeling*, Sage, Thousand Oaks, CA.

Hair, J.F., Ringle, C.M. and Sarstedt, M. (2011) 'PLS-SEM: indeed a silver bullet', *Journal of Marketing Theory and Practice*, Vol. 19, pp.139–152.

Handayani, S.F. and Mahendrawathi, E.R. (2019) 'Antecedent and business process management non-technical capabilities in social media implementation for micro, small and medium enterprises: a conceptual model', *Procedia Computer Science*, Vol. 161, pp.1114–1121.

Haque, M.G., Munawaroh, M., Sunarsi, D. and Baharuddin, A. (2021) 'Competitive advantage in cost leadership and differentiation of SMEs 'Bakoel Zee' marketing strategy in BSD', *PINISI Discretion Review*, Vol. 4, No. 2, pp.277–284.

Haseeb, M., Hussain, H.I., Slusarczyk, B. and Jermsittiparsert, K. (2019) 'Industry 4.0: a solution towards technology challenges of ´ sustainable business performance', *Social Science*, Vol. 8, p.154.

He, W., Wang, F.K. and Zha, S.H. (2014) 'Enhancing social media competitiveness of small businesses: insights from small pizzerias', *N rev Hypermed Multimed*, Vol. 20, No. 3, pp.225–250.

He, W., Wang, F.K., Chen, Y. and Zha, S. (2017) 'An exploratory investigation of social media adoption by small businesses', *Information Technology and Management*, Vol. 18, No. 2, pp.149–160.

Hiran, K.K. and Henten, A. (2020) 'An integrated TOE–DoI framework for cloud computing adoption in the higher education sector: case study of sub-saharan Africa, Ethiopia', *International Journal of System Assurance Engineering and Management*, Vol. 11, No. 2, pp.441–449.

Hoffman, D.L. and Fodor, M. (2010) 'Can you measure the ROI of your social media marketing?', *MIT Sloan Management Review*, Vol. 52, No. 1, p.41.

Hu, L.t. and Bentler, P.M. (1999) 'Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria vs. new alternatives, structural equation model', *Multidisciplinary Journal*, Vol. 6, pp.1–55.

Idota, H., Bunno, T. and Tsuji, M. (2015) 'How social media enhances product innovation in Japanese firms', *International Conference on Multidisciplinary Social Networks Research,* September, Springer, Berlin, Heidelberg, pp.236–248.

Ilona, D., Melmusi, Z. and Pratiwi, H. (2019) 'Technology context and social media adoption among small and medium enterprises', *Journal of Physics: Conference Series,* Vol. 1339, No. 1, p.012101, December, IOP Publishing.

Iranmanesh, M., Zailani, S., Moeinzadeh, S. and Nikbin, D. (2017) 'Effect of green innovation on job satisfaction of electronic and electrical manufacturers' employees through job intensity: personal innovativeness as moderator. *Review of Managerial Science*, Vol. 11, No. 2, pp.299–313.

Jagongo, A. and Kinyua, C. (2013) 'The social media and entrepreneurship growth', *International Journal of Humanities and Social Science*, Vol. 3, No. 10, pp.213–227.

Janavi, E., Soleimani, M., Gholampour, A., Friedrichsen, M. and Ebrahimi, P. (2021) 'Effect of social media adoption and media needs on online purchase behavior: the moderator roles of media type, gender, age', *Journal of Information Technology Management*, Vol. 13, No. 2, pp.1–24.

Kalnins, A. and Williams, M. (2014) 'When do female-owned businesses out-survive male-owned businesses? A disaggregated approach by industry and geography', *Journal of Business Venturing*, Vol. 29, No. 6, pp.822–835.

Kankam-Kwarteng, C., Donkor, J. and Acheampong, S. (2019) 'Measuring performance of SMEs service firms: customer orientation and service innovation approach', *Journal of Management Research*, Vol. 19, No. 2, pp.103–119.

Kaplan, A.M. and Haenlein, M. (2010) 'Users of the world, unite! the challenges and opportunities of social media', *Business Horizons*, Vol. 53, No. 1, pp.59–68.

Kumar, A., Singh, R.K. and Swain, S. (2022) 'Adoption of technology applications in organized retail outlets in India: a TOE model', *Global Business Review*, p.09721509211072382.

Levenburg, N., Magal, S.R. and Kosalge, P. (2006) 'An exploratory investigation of organizational factors and e□business motivations among SMFOEs in U.S.', *The Electronic Markets*, Vol. 16, No. 1, pp.70–84.

Li, X., He, X. and Zhang, Y. (2020) 'The impact of social media on the business performance of small firms in China', *Information Technology for Development*, Vol. 26, No. 2, pp.346–368.

Lin, H.F. (2014) 'Understanding the determinants of electronic supply chain management system adoption: using the technology-organization-environment framework', *Technological Forecasting and Social Change*, Vol. 86, pp.80–92.

Liu, W. and Atuahene-Gima, K. (2018) 'Enhancing product innovation performance in a dysfunctional competitive environment: the roles of competitive strategies and market-based assets', *Industrial Marketing Management*, Vol. 73, pp.7–20.

Lovett, S., Rasheed, A.A. and Hou, W. (2022) 'Stock options, restricted stock, salary, or bonus? Managing CEO compensation to maximize organizational performance', *Business Horizons*, Vol. 65, No. 2, pp.115–123.

Luo, X. and Zhang, J. (2013) 'How do consumer buzz and traffic in social media marketing predict the value of the firm?', *Journal of Management Information Systems*, Vol. 30, No. 2, pp.213–238.

Lutfi, A., Alsyouf, A., Almaiah, M.A., Alrawad, M., Abdo, A.A.K., Al-Khasawneh, A.L. and Saad, M. (2022) 'Factors influencing the adoption of big data analytics in the digital transformation era: case study of Jordanian SMEs', *Sustainability*, Vol. 14, No. 3, p.1802.

Madukua, D.K., Mpinganjirab, M. and Duhca, H. (2016) 'Understanding mobile marketing adoption intention by South African SMEs: A multi-perspective framework', *International Journal of Information Management*, Vol. 36, No. 5, pp.711–723.

Mathur, S. and Vijayvargy, L. (2022) 'The study of blockchain technology to enhance the organizational performance: theoretical perception', *Proceedings of First International Conference on Computational Electronics for Wireless Communications,* Springer, Singapore, pp.227–240.

Matikiti, R., Mpinganjira, M. and Roberts-Lombard, M. (2018) 'Application of the technology acceptance model and the technology–Organisation–environment model to examine social media marketing use in the South African tourism industry', *South African Journal of Information Management*, Vol. 20, No. 1, pp.1–12.

McCann, M. and Barlow, A. (2015) 'Use and measurement of social media for SMEs', *Journal of Small Business and Enterprise Development*, Vol. 22, No. 2, pp.273–287 http://dx.doi/abs/10.1108/JSBED-08-2012-0096

NBS (2021) (2020) *Nigerian SME and Nigeria's GDP in 2020*, Retrieved from https://nigerianstat.gov.ng/elibrary?queries=SMEs%20and%20GDP# 27/10/2021'

Nigeria SME Survey (2021) *Assessing Current Market Conditions and Business Growth Prospects,* Retrieved from https://www. pwc.com/ng/en/events/nigeria-sme-survey.html

Nurfarida, I.N., Sarwoko, E. and Arief, M. (2021) 'The impact of social media adoption on customer orientation and SME performance: an empirical study in Indonesia', *The Journal of Asian Finance, Economics and Business*, Vol. 8, No. 6, pp.357–365.

Oliveira, T. and M.F., Martins (2010) 'Understanding E□Business adoption across industries in European countries', *Industrial Management and Data Systems*, Vol. 110, No. 9, pp.1337–54.

Onyinyechukwu (2020) *Nigerian SME Contribution to the GDP in 2019*, Retrieved from: https://www.sme360.ng/2020/08/28/nigerian-sme-contribution-to-the-gdp-in-2019/27/10/2021

Palladan, A.A. (2019) 'Effects of strategic planning dimensions on performance of small and medium scale enterprises', *Education*, 2019.

Palladan, A.A. (2021) 'Personality traits, entrepreneurship education and opportunity recognition. A moderating relationship', *Advances in Accounting, Management, Business and Economics Journal*, Vol. 1, No. 1, pp.1–14.

Palladan, A.A. and Ahmad, M.A. (2021) 'Does personality traits kindles opportunity recognition?: an empirical analysis', *IANNA Journal of Interdisciplinary Studies*, Vol. 3, No. 2, pp.1–14.

Parthasarthy, S. (2007) *Enterprise Resource Planning: A Managerial and Technical Perspective*, New Age International.

Parveen, F. (2012) 'Impact of social media usage on organizations', *Conference Proceedings of the 16th Pacific Asia Conference on Information Systems (PACIS)*, Ho Chi Minh City, 11–15 July, Available at. www.pacis-net.org/file/2012/PACIS2012-128.pdf

Pentina, I. and Koh, A.C. (2012) 'Exploring social media marketing strategies in SMEs', *International Journal of Internet Marketing and Advertising*, Vol. 7, No. 4, pp.292–310.

Porter, M.E. and Millar, V.E. (1985) 'How information gives you competitive advantage', *Harvard Business Review*, Vol. 5, pp.149–152.

Powell, G.N. and Eddleston, K.A. (2013) 'Linking family-to-business enrichment and support to entrepreneurial success: do female and male entrepreneurs experience different outcomes?', *Journal of Business Venturing*, Vol. 28, No. 2, pp.261–280.

Qalati, S.A., Vela, E.G., Li, W., Dakhan, S.A., Hong Thuy, T.T. and Merani, S.H. (2021) 'Effects of perceived service quality, website quality, and reputation on purchase intention: the mediating and moderating roles of trust and perceived risk in online shopping', *Cogent Business and Management*, Vol. 8, No. 1, p.1869363.

Qalati, S.A., Yuan, L.W., Khan, M.A.S. and Anwar, F. (2021) 'A mediated model on the adoption of social media and SME.s' *Performance in Developing Countries. Technology in Society*, Vol. 64, p.101513.

Rahman, N.A., Yaacob, Z. and Radzi, R.M. (2016) 'An overview of technological innovation on SME survival: a conceptual paper', *Procedia-Social Behav. Sci.*, Vol. 224, pp.508–515, https://doi.org/10.1016/j.sbspro.2016.05.427

Reid-Griffin, A. and Carter, G. (2004) 'Technology as a tool: applying an instructional model to teach middle school students to use technology as a mediator of learning', *Journal of Science Education Technology*, Vol. 13, pp.495–504.

Rhee, S-Y., Park, J. and Shin, H-D. (2020) 'High-performance work practices and organizational innovativeness: the roles of relational coordination competencies and market turbulence as a mediator or moderator', *Journal of. Open Innovation. Technol. Mark. Complex*, Vol. 6, p.8.

Rogers, E.M. (1995) *Diffusion of Innovations*, 4th ed., New York: Free Press.

Rogers, E.M. (2003) *Diffusion of Innovations*, 5th ed., NY Free Press, New York, NY.

Ross, P.K. and Blumenstein, M. (2015) 'Cloud computing as a facilitator of SME entrepreneurship', *Technology Analysis and Strategic Management*, Vol. 27, No. 1, pp.87–101.

Rossmann, A., Wilke, T. and Stei, G. (2017,).'Usage of social media systems in customer service strategies', *Proceedings of the 50th Hawaii International Conference on System Sciences* January, http://hdl.handle.net/10125/41637

Sainidis, E., Gill, R. and White, A. (2001) 'Emergent strategies in SMEs', *Proceedings of 4th SMESME Int. Conf*., 14–16 May, Aarlborg, Denmark, pp.242–247.

Satar, M.S. and Alarifi, G. (2022) 'Factors of E-business adoption in small and medium enterprises: evidence from Saudi Arabia', *Human Behavior and Emerging Technologies*, Article ID 2445624, pp.1–13, https://doi.org/10.1155/2022/2445624

Schlagwein, D. and Hu, M. (2017) 'How and why organisations use social media: five use types and their relation to absorptive capacity', *Journal of Information Technology*, Vol. 32, No. 2, pp.194–209.

Singla, M.L. and Durga, A. (2015) 'How social media gives you competitive advantage', *Indian Journal of Science and Technology*, Vol. 8, p.90.

Sirmon, D.G., Hitt, M.A., Ireland R.D. and Gilbert, B.A. (2011) 'Resource orchestration to create competitive advantage: breadth, depth, and life cycle effects', *Journal of Management*, Vol. 37, No. 5, pp.1390–1412.

Small, and Medium Enterprise Development Agency of Nigeria (SMEDAN) (2007) *National Policy on Micro, Small and Medium Enterprises*, Retrieved from https://www.smedan.gov.ng/images/PDF/MSME-National-Policy.pdf

Smutkupt, P., Krairit, D. and Esichaiku, V. (2010) 'Mobile marketing: implications for marketing strategies', *Mobile Marketing Association*, Vol. 5, No. 10, pp.126–139.

Spillan, J.E., Parnell, J.A., Panibratov, A. and Yukhanaev, A. (2021) 'Strategy and performance of Russian firms: an organisational capabilities perspective', *European Journal of International Management*, Vol. 15, No. 1, pp.1–26.

Statista (2021) *Most Popular Social Networks Worldwide as of July 2021 Ranked by Number of Active Users*, Retrieved from https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/ (18 September, 2021).

Stockdale, R., Ahmed, A. and Scheepers, H. (2012) 'Identifying business value from the use of social media: an SME perspective', *Proceedings of 'IS innovation in pacific Asia' the 16th Pacific Asia Conference on Information Systems (PACIS 2012)*, 11–15 July, Ho Chi Minh City, Vietnam.

Tajudeen, F.P., Jaafar, N.I. and Ainin, S. (2018) 'Understanding the impact of social media usage among organizations', *Information and Management*, Vol. 55, No. 3, pp.308–321.

Tajvidi, R. and Karami, A. (2021) 'The effect of social media on firm performance', *Computers in Human Behavior*, Vol. 115, p.105174.

Taneja, S. and Toombs, L. (2014) 'Putting a face on small businesses: visibility, viability, and sustainability the impact of social media on small business marketing', *Academy of Marketing Studies Journal*, Vol. 18, No. 1, p.249.

Teeratansirikool, L., Siengthai, S., Badir, Y. and Charoenngam, C. (2013) 'Competitive strategies and firm performance: the mediating role of performance measurement', *International Journal of Productivity and Performance Management*, Vol. 62, No. 2, pp.168–184.

Thompson, S.K. (2012) *Sampling*. John Wiley, https://www.wiley.com/en-hu/Sampling%2C+3rd+Edition-p-9780470402313

Tiwasing, P. (2021) 'Social media business networks and SME performance: a rural–urban comparative analysis', *Growth and Change*, Vol. 52, No. 3, pp.1892–1913.

Tornatzky, L.G. and Fleischer, M. (1990) *The Processes of Technological Innovation*, Lexington Books, Lexington, MA.

Tripopsakul, S. (2018) 'Social media adoption as a business platform: an integrated TAM-TOE framework', *Polish Journal of Management Studies,* p.18.

Ur Rahman, R., Ali Shah, S.M., El-Gohary, H., Abbas, M., Haider Khalil, S., Al Altheeb, S. and Sultan, F. (2020) 'Social media adoption and financial sustainability: learned lessons from developing countries', *Sustainability*, Vol. 12, No. 24, p.10616.

van Asperen, M., de Rooij, P. and Dijkmans, C. (2018) 'Engagement-based loyalty: the effects of social media engagement on customer loyalty in the travel industry', *International Journal of Hospitality and Tourism Administration*, Vol. 19, No. 1, pp.78–94.

Wang, Y., Zhang, J.S., Han, X. and Lv, Q. (2020) 'Jump on the bandwagon?–characterizing bandwagon phenomenon in online NBA fan communities', *International Conference on Social Informatics*, October, Springer, Cham, pp.410–426.

Williams, J.R. (2019) The use of online social networking sites to nurture and cultivate bonding social capital: a systematic review of the literature from 1997 to 2018', *New Media & Society*, Vol. 21, Nos. 11–12, pp.2710–2729, doi. org/10.1177/1461444819858749

World Bank (2020) *Small and Medium Enterprises (SMEs) Finance*, https://www.worldbank.org/en/topic/smefinance (Accessed 2 November, 2021).

Zanjani, S.S., Gholamali, A. and Abbasi, D. (2013) 'Social networks and the success of SMEs in media industries', *Journal of Entrepreneurship, Business and Economics*, Vol. 1, Nos. 1–2, pp.125–139.

Zhang, C. (2022) 'Robot process automation on enterprise human resource management', *Innovative Computing*, Springer, Singapore, pp.503–508.

Zhu, K. and Kraemer, K.L. (2016) 'Post-adoption variations in usage and value of e-business by organizations: cross-country evidence from the retail industry', *Information Systems Research*, Vol. 16, No. 1, pp.61–84, http://doi.org/10.1287/isre.l050.004

Zolkepli, I.A. and Kamarulzaman, Y. (2011) 'Understanding social media adoption: the role of perceived media needs and technology characteristics', *World Journal of Social Sciences*, Vol. 1, No. 1, pp.188–199.