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Determinants of Adoption of Digital Marketing among Selected Small and Medium Scale Enterprises in Lagos State, Nigeria

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ABSTRACT

The benefits of the adoption of digital marketing cannot be over-emphasized in the context of developed countries. This is however not the case in developing country context which is characterized with numerous challenges. Such challenges are well stated in the framework of technology, organization and environment (TOE) where understanding these determinants is crucial to the survival, competitiveness and promotion of digital marketing technologies among SMEs in developing countries. Therefore, this study aimed to assess the effect of TOE on the adoption of digital marketing among SMEs in Lagos State, Nigeria. The study collected data from randomly selected 387 SME owners based on a structured questionnaire. Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS 4 software. The findings revealed that the availability of finance had the most substantial influence on the adoption of digital marketing (β= 0.255, t= 4.932, and $p>0.05$), highlighting the critical role of financial resources. Technological factors, including perceived ease of use (β= 0.156, t= 2.795, and $p<0.05$) and perceived usefulness (β= 0.153, t= 2.127, and $p<0.05$), significantly impacted adoption, emphasizing the importance of perceived benefits and ease associated with digital marketing technologies. The study concludes that adequate financial support, technological readiness, and organizational capabilities are crucial for fostering the adoption of digital marketing among SMEs in Lagos State. It recommends that policymakers should prioritize access to financial resources, digital literacy training, and improvement on infrastructure among others to support digital marketing initiatives.

Keywords: Adoption of digital marketing, SMEs, PLS-SEM, Technological Factors, Organizational Factors, Environmental Factors

INTRODUCTION

Digital marketing has become an essential tool for businesses worldwide, yet its adoption among Small and Medium Enterprises (SMEs) in developing countries like Nigeria remains insufficiently explored. Despite the recognized benefits of digital marketing, such as reaching broader markets, enhancing customer engagement, and reducing operational costs (Deran & Gebrekidan, 2019; Adeola *et al.*, 2022; Kaufman *et al.*, 2023; Kumar *et al.*, 2024), many SMEs in Nigeria operate inefficiently due to inadequate business knowledge and insufficient resources (Udegbunam *et al.*, 2024). The limited adoption of digital marketing strategies is concerning, given that SMEs play a critical role in economic development and job creation (Agbotoba & Adebambo, 2021). Without addressing this gap, SMEs in Nigeria risk falling behind their global counterparts, which could lead to stagnation or decline in their business performance and overall economic contribution.

The problem of low level of adoption of digital marketing significantly impacts SMEs, which are pivotal to Nigeria's economy (Eze *et al.*, 2023). These enterprises struggle with limited financial resources, lack of technical expertise, and insufficient infrastructure, thus, making it challenging to effectively leverage digital marketing (Akpuokwe *et al.*, 2024). If this issue is not addressed, SMEs in Nigeria may continue to underperform compared to their digitally adept competitors, potentially leading to reduced market share, slower growth, and even business failure (Adeola *et al.*, 2022). These adverse effects may extend beyond individual businesses to the broader economy, impacting employment rates and economic stability.

Recent studies show the importance of digital marketing for SMEs but also highlight the challenges they face. Bruce *et al.* (2023), and Jayadatta and Majeed (2024) point out that despite the advantages of digital marketing, its adoption remains low among SMEs in developing countries due to various barriers, including financial constraints and lack of expertise. Similarly, Suroso *et al.* (2021) emphasize that inadequate business knowledge among human resources hinders effective adoption of digital marketing. Syahmardi *et al.* (2021) note that many SMEs, especially in Africa, have not fully exploited the benefits of digital technologies due to these challenges. Ritz *et al.* (2022) report that the slow adoption and ineffective utilization of digital marketing tools are prevalent among SMEs, further impeding their performance.

Despite the rise in global internet penetration and the proven benefits of digital marketing, SMEs in developing countries like Nigeria still lag in adoption. (Eze *et al.*, 2023; Bruce *et al.*, 2023). While large enterprises have embraced digital marketing extensively, SMEs face unique challenges that require tailored strategies and support systems. The gap in literature suggests a need for more empirical studies focusing on the specific factors influencing adoption of digital marketing among SMEs in developing countries. Studies by Anderson (2021) and Chatterjee *et al.* (2022) have primarily focused on large firms, leaving a significant research gap regarding SMEs. Adoption of digital marketing among SMEs is crucial for their performance and survival, yet research in this area is limited, particularly in the context of Nigeria. Lagos State represents the economic hub of Nigeria, making it a prime location to study these dynamics. Previous studies have shown mixed results on the impact of digital marketing on SMEs' performance, indicating the need for further investigation into the factors influencing adoption. For instance, Eze *et al.* (2020) found that digital marketing adoption significantly enhanced market reach and customer engagement among SMEs, while Bruce *et al.* (2023) reported inconsistent effects on sales growth and overall business performance. This study aims to fill this gap by assessing the impact of technological, organizational, and environmental factors on the adoption of digital marketing among SMEs in Lagos State, Nigeria, using the TOE framework. The Technology-Organization-Environment (TOE) framework, developed by Tornatzky and Fleischer (1990), assesses how technological, organizational, and environmental factors influence IT application in services (DePietro *et al.*, 1990). This framework is essential for understanding digital marketing's impact on SME operations (Atanassova & Clark, 2015) and focuses on IT adoption from three perspectives: technological, organizational, and environmental (Abassi *et al.*, 2022). Widely used in studies on SMEs' technology adoption (Ahmad *et al.*, 2018; Chang *et al.*, 2020; Maroufkhani *et al.*, 2020), TOE has been applied in fields like cloud computing (Chang *et al.*, 2020; Gangwar *et al.*, 2015), e-

commerce (Rahayu & Day, 2015), e-tourism (Lama *et al.*, 2019), social media marketing (Ahmad *et al.*, 2018; Matikiti *et al.*, 2018), and mobile marketing (Maduku *et al.*, 2016).

The framework examines technology development, organizational conditions, business reconfiguration, and industry environment (Awa *et al.*, 2017; Angeles, 2014). Technology adoption is influenced by environmental factors, adopter characteristics, and innovation attributes (Johan, 2019). The technological dimension includes expertise and tools; the organizational dimension covers structures, resources, and business size; and the environmental dimension addresses business size, competitors, macroeconomic perspective, and regulatory background (Maclennan & Van Belle, 2014; Eze *et al.*, 2018; Newswire, 2019; Chang *et al.*, 2020). Key variables influencing technology adoption include perceived simplicity, compatibility, and performance expectancy (Huang *et al.*, 2008; Rogers, 2003; Awa *et al.*, 2015; Musawa & Wahab, 2012). Organizational context factors include size, scope, managerial structure, financial resources, and staff proficiency (Oliviera & Martins, 2011; Askarany, 2006; Damanpour & Schneider, 2006). Environmental context factors cover ownership, competition, government regulations, and technology support (Oliviera & Martins, 2011; Milliou & Petrakis, 2011).
This study adopts TOE framework variables, including technological (perceived relative advantage, complexity, cost), organizational (top management support, financial support, employee capability), and environmental (competitive pressure, customer pressure, vendor support) factors (Ali *et al.*, 2019; Iranmanesh *et al.*, 2019; Maduku *et al.*, 2016). It aims to understand the barriers and enablers of digital marketing adoption in SMEs, providing insights for policymakers and business owners to enhance digital literacy, improve financial access, and develop supportive infrastructure.

LITERATURE REVIEW

Digital Marketing

Digital marketing promotes businesses, services, or products via the internet and other digital channels, enabling regular interaction with clients (Hosseini *et al.*, 2016; Arghya *et al.*, 2020). Unlike traditional advertising, it utilizes metrics from online interactions to measure campaign effectiveness. The rise of company web presence in the 21st century has bolstered online marketing, with companies often displaying banner ads on websites. Customer relationship management (CRM) is integral to digital marketing, enhancing business-customer interactions (Kingsnorth, 2019). Websites are central to companies' digital marketing efforts, incorporating search engine optimization (SEO), pay-per-click (PPC) ads, social media marketing, and email marketing (Kingsnorth, 2019). Digital marketing is seen as the adaptation of traditional marketing methods to the digital realm (Otero & Rolan, 2016). Terms like "internet marketing," "web marketing," and "online marketing" are also used to describe it (Satya, 2015). It involves using digital channels such as the internet to promote and market products and services (Ali *et al.*, 2020; Rowley, 2011; Kalei, 2020). Over the past decade, digital marketing has gained significant attention in developed countries like the UK, while in the US, it's often called "online marketing," and in Italy, "web marketing." Globally, it includes promoting goods and services via digital technologies, notably the internet, but also mobile phones, display ads, and other digital channels. Social media has transformed consumer behaviour, facilitating the rise of digital marketing. Various channels, including SMS, search engines, email, websites, social media, and mobile devices, are used for advertising goods and services (Kingsnorth, 2016). The use of digital marketing depends on a company's marketing goals.

Determinants of adoption of digital marketing in SMEs

Several studies have identified perceived ease of use (PEOU) as a key factor influencing the adoption of digital marketing practices in SMEs. PEOU indicates the extent to which SME owners and managers perceive digital marketing as easy to use and understand in running their businesses (Tahir *et al.*, 2020; Ritz, Wolf, & McQuitty, 2018). Limited employee numbers in SMEs often create a limited skill set, making technical competency a barrier to successful digital marketing adoption (Alford & Page, 2015). Constant changes in digital marketing techniques further complicate skill acquisition (Chaffey, 2010). Studies confirm that perceived ease of use significantly influences digital marketing adoption in SMEs (Aryani *et al.*, 2018; Le *et al.*, 2020; Nguyen, 2020).

Perceived usefulness, such as obtaining customer insights for innovation, is another critical factor for digital marketing adoption in SMEs (Lacurci, 2021). The ability to interact with customers and gain competitive intelligence drives SMEs to adopt digital marketing (Alford & Page, 2015; Pérez-González *et al.*, 2017). Studies have established that perceived usefulness positively influences digital technology adoption (Rekayana, 2016; Zaidi *et al.*, 2017; Suroso & Rafinda, 2021; Hanfi & Toolib, 2020; El-Gohary, 2012).

Perceived compatibility measures the alignment of new technology with existing structures, values, and norms within SMEs (Khemthong & Roberts, 2006; Premkumar, 2003). Compatibility with social media and strategic marketing fit enhances digital marketing adoption (Jones *et al.*, 2014; Quinton *et al.*, 2018). Scholars emphasize the importance of strategic implementation for successful technology adoption in SMEs (Al-Qirim, 2007).

Subjective norms, or the influence of significant individuals or groups, affect SMEs' adoption of digital marketing (Jones *et al.*, 2014). Market structures, competitive strategies, and changing opportunities create external pressures influencing SMEs' decisions (Pérez-González *et al.*, 2017). Studies have found that subjective norms significantly predict technology adoption in various contexts (Hasbullah *et al.*, 2015; Saengchai *et al.*, 2019).

Perceived risk involves SME owners' or managers' uncertainty about digital marketing outcomes (Nawi, 2019). Despite its importance, few studies have incorporated perceived risks into technology adoption models. However, perceived risk is recognized as a significant factor influencing digital marketing adoption (Forsythe & Shi, 2003; Chen *et al.*, 2017; Hassan *et al.*, 2018; Feri *et al.*, 2021).

Time constraints significantly affect the adoption of digital marketing in SMEs. The amount of time required to integrate digital marketing into daily operations is a critical factor (Jones *et al.*, 2014; Lacurci, 2021). SMEs that adopt a "just doing" approach without formal planning may not benefit from digital marketing in the long term (Kumen *et al.*, 2017).

Perceived cost is a critical factor influencing SMEs' willingness to adopt digital marketing (Alam & Noor, 2009; Chatterjee & Kar, 2020; Ramayah *et al.*, 2016). Digital marketing is often viewed as a low-cost alternative to traditional marketing, making it attractive to SMEs with financial constraints (Derham *et al.*, 2011; Ainin *et al.*, 2015). Studies confirm that cost considerations significantly influence digital marketing adoption (Elrayah, 2021; Edelman, 2010; Kalaignanam *et al.*, 2008).

Competitive pressure is a significant factor in the technology adoption process. SMEs adopt digital marketing to maintain competitive advantage and respond to industry pressures (Oliveiral *et al.*, 2014; Haller & Siedschlag, 2011; El-Gohary, 2012). Studies show that competitive pressure significantly influences technology adoption intentions in SMEs (Gangwar *et al.*, 2015; Rahayu & Day, 2015).

The business environment, including external events and changes, plays a significant role in technology adoption. SMEs adopt technology to respond to political, economic, or social changes and to remain competitive (Ghobakloo *et al.*, 2013; Pearson & Grandon, 2006). The presence of external IT vendors also facilitates technology adoption by providing necessary expertise (Ismail, 2013).

Perceived relative advantage refers to the benefits that digital marketing brings to SMEs, motivating their adoption decisions (Ahmad *et al.*, 2019; Ramayah *et al.*, 2016). Studies indicate that perceived relative advantage positively influences digital marketing adoption in SMEs (Li *et al.*, 2008).

Finally, the availability of financial resources is crucial for the adoption of digital marketing in SMEs (Kim & Garrison, 2010; Maduku *et al.*, 2016; To & Ngai, 2006). Financial resources, often termed "organizational slack," are fundamental to the adoption process, providing the necessary support for implementation (Karjaluoto & Huhtamäki, 2010; Ismail, 2013).

METHODOLOGY

The data analysis for this study was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) through the SmartPLS 4 software. The study employed a descriptive survey design, targeting small and medium enterprises (SMEs) in Lagos State, Nigeria. A structured questionnaire was utilized to collect data from a sample of 387 SME owners, selected from a

population of 11,636 SMEs as reported by Olubiyi (2022), using stratified random sampling to ensure a representative sample. Participants were drawn from various sectors, including the trade sector (wholesale and retail), through simple random sampling. Specifically, 163 samples were allocated from the wholesale and retail sector, 81 samples were drawn from the agriculture sector, 35 respondents were chosen from the manufacturing sector, 22 SMEs were selected from the hospitality, tourism, and catering sector, and 87 respondents were sampled from other unspecified services, all through the simple random sampling technique. The questionnaire was designed to capture responses on a 5-point Likert scale, ranging from strongly disagree to strongly agree, covering various technological, organizational, and environmental factors influencing adoption of digital marketing. PLS-SEM was chosen due to its robustness in handling complex models and its suitability for exploratory research where theory is still developing (Hair *et al.*, 2019). This method allowed for the assessment of the relationships between multiple independent variables (technological, organizational, and environmental factors) and the dependent variable (adoption of digital marketing) simultaneously by first conducting the measurement model assessment which aims at ascertaining the qualities of the indicators, and thereafter conducting the structural path analysis (see more details on the PLS-SEM approach in section 4.2 and 4.3 of the study). The adoption variables employed in this study are indicators relating to adoption of digital marketing for the company's marketing activities, human resources activities, sales activities, logistic function, research and development, financial activities, and communications. The analysis involved evaluating the measurement model for reliability and validity, followed by the structural model to test the hypothesized relationships. The use of PLS-SEM enabled the identification of significant predictors and the strength of their impact on adoption of digital marketing among SMEs in the study area, providing comprehensive insights into the determinants of adoption of digital marketing. According to the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), an SME is defined as a business with a labour force of 11 to 200 employees and an asset base (excluding land and buildings) of between 5 million to 500 million Naira. These enterprises play a vital role in driving economic growth, innovation, and job creation within Nigeria. Specifically, SMEDAN categorizes enterprises as follows: Micro Enterprises have 1 to 10 employees, Small Enterprises have 11 to 50 employees, and Medium Enterprises have 51 to 200 employees.

RESULTS AND DISCUSSION

Demographic Characteristics of Respondents

To achieve the study's objective, 387 questionnaires were administered over six months, with 386 retrieved and 373 usable, resulting in a 93.3% response rate. Moser and Kalton (2017) consider a response rate above 30-40% significant, validating this rate as adequate. This high response rate indicates strong engagement and provides a reliable dataset. Table 1 shows the demographic characteristics of respondents, who are primarily mid-career SME owners and managers aged 46-55 in Lagos State, Nigeria. The sample is male-dominated (68.9% male, 31.1% female) with high educational attainment: 61.9% have HND/Bachelor's degrees and 12.6% have postgraduate qualifications, indicating a well-informed group likely to adopt digital marketing.

Firm sizes varied, with 41.8% having 1-10 employees, 42.6% having 11-50 employees, and 15.5% having 51-200 employees. Most firms are sole proprietorships (74.3%) and mainly engaged in wholesale trade (75.1%). The majority of respondents (61.1%) are business owners, and 96% have adopted digital marketing, underscoring its importance for competitiveness.

The high response rate and diverse demographics suggest that digital marketing strategies should be tailored to various business sizes and experiences. The sector's focus on trade highlights specific needs in online sales and distribution, while gender disparity suggests areas for policy intervention to encourage balanced participation.

Measurement Model for Determinants Factors and Adoption of Digital Marketing among the SMEs in the Study Area

To study the factors influencing the adoption of digital marketing among SMEs, path analysis was used. This included assessing data quality via the measurement model, using the reflective construct algorithm. Construct reliability, validity, and discriminant validity were evaluated per guidelines by Hair *et al.* (2019). The exogenous constructs

Table 1: Characteristics of Respondents

Item	Description	Frequency	Percentage
Age	less than 25 years	8	2.1
	26 - 35 years	94	25.2
	36 - 45 years	107	28.7
	46 - 55 years	120	32.2
	above 55 years	44	11.8
	Total	**373**	**100**
Gender	Male	257	68.9
	Female	116	31.1
	Total	**373**	**100**
Level of Education	O'Level	12	3.2
	Diploma/NCE	83	22.3
	HND/Bachelor Degree	231	61.9
	Postgraduate (Master/PhD.)	47	12.6
	Total	**373**	**100**
Number of Employees	1 - 10 Employees	156	41.8
	11 - 50 Employees	159	42.6
	51 - 200 Employees	58	15.5
	Total	**373**	**100**
Business Ownership	Sole proprietorship	277	74.3
	Partnership	96	25.7
	Total	**373**	**100**
Position	Owner	228	61.1
	Manager	145	38.9
	Total	**373**	**100**
Trade	Wholesale	280	75.1
	Retail	93	24.9
	Total	**373**	**100**
Agriculture	Yes	122	32.7
	No	251	67.3
	Total	**373**	**100**
Manufacturing	Yes	142	38.1
	No	231	61.9
	Total	**373**	**100**
Hospitality, Tourism and Catering	Yes	18	4.8
	No	355	95.2
	Total	**373**	**100**
Year of establishment	less than 5 years	107	28.7
	5 - 10 years	149	39.9
	11 - 15 hyears	59	15.8
	16 - 20 years	26	7
	above 20 years	32	8.6
	Total	**373**	**100**
Have you adopted Digital Marketing for your business operations?	Yes	373	96
	No	0	0
	Total	**373**	**100**

examined were technological, organizational, and environmental factors, initially consisting of 11 constructs and 48 items.

Technological factors included perceived ease of use (3 items), perceived usefulness (5 items), perceived compatibility (4 items), perceived cost (5 items), perceived time (4 items), and perceived relative advantage (4 items). Organizational factors included perceived risks (7 items), availability of finance (4 items), and subjective norms (3 items). Environmental factors included competitive pressure (4 items) and business environment (5 items). Constructs perceived cost, perceived time, perceived risks, and business environment were removed due to lateral collinearity in the structural model, which can distort path coefficient estimation (de Andrade & Tedesco-Silva, 2020).

The endogenous construct was the adoption of digital marketing (dADM) with 7 items. Retained constructs included perceived usefulness (cTPU), perceived ease of use (cTPEU), perceived relative advantage (cTPRA), perceived compatibility (cTPCM), availability of finance (cOAF), subjective norms (cOSN), and competitive pressure (cECP), as well as dADM. All variables followed the reflective model assessment due to high indicator correlation (Hair *et al.*, 2019).

Table 2 showed construct reliability and validity, with Cronbach's Alpha (CA) surpassing the 0.7 threshold, except for subjective norms (cOSN) at 0.620, which met other quality criteria and was retained. Composite reliability values ranged from 0.729 to 0.876, within the satisfactory range for exploratory research. Average variance extracted (AVE) values ranged from 0.504 to 0.826, indicating satisfactory convergent validity, as values above 0.50 are desirable (Hair *et al.*, 2019).

The study conducted a comprehensive assessment of discriminant validity to confirm the distinctiveness of each construct within the model. Three primary methods were utilized: Cross-Loadings, the Fornell-Larcker criterion, and the heterotrait-monotrait ratio (HTMT) of correlations. Firstly, the Cross-Loadings method required that each indicator's outer loading on its associated construct surpass any cross-loading on other constructs within the model. The results, presented in Table 3, confirmed that this criterion was met, indicating the distinctiveness of each construct. Secondly, the Fornell-Larcker criterion compared the square root of each construct's Average Variance Extracted (AVE) to its highest correlation with any other construct. As demonstrated in Table 4, this criterion was also satisfied, further supporting the uniqueness of the constructs. Lastly, the HTMT ratio, recognized as a superior method for assessing discriminant validity, was employed. This ratio measures the correlations between traits of different constructs. According to Henseler *et al.* (2015), values exceeding 0.90 indicate a lack of discriminant validity, with a more conservative threshold of 0.85 recommended for constructs that are conceptually more distinct. The results in Table 5 revealed that none of the construct values surpassed 0.90, thereby meeting the quality criteria for outer measurements and confirming the distinctiveness of the constructs.

Table 2: Construct Reliability and Validity for Determinants Factors and Adoption of Digital Marketing

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
cECP	0.716	0.729	0.840	0.638
cOAF	0.790	0.807	0.904	0.826
cOSN	0.620	0.749	0.780	0.556
cTPCM	0.782	0.790	0.860	0.606
cTPEU	0.772	0.772	0.868	0.687
cTPRA	0.702	0.773	0.799	0.504
cTPU	0.847	0.854	0.898	0.687
dADM	0.871	0.876	0.901	0.565

Table 3: Cross Loadings for Determinants Factors and Adoption of Digital Marketing

	cECP	cOAF	cOSN	cTPCM	cTPEU	cTPRA	cTPU	dADM	VIF
cECP1	0.828	0.542	0.601	0.543	0.485	0.535	0.567	0.620	1.460
cECP3	0.725	0.439	0.364	0.382	0.436	0.295	0.435	0.480	1.297
cECP4	0.838	0.535	0.516	0.417	0.429	0.393	0.474	0.583	1.555
cOAF3	0.524	0.892	0.479	0.506	0.536	0.333	0.492	0.583	1.745
cOAF4	0.624	0.925	0.508	0.493	0.611	0.360	0.529	0.693	1.745
cOSN1	0.442	0.424	0.798	0.435	0.425	0.338	0.509	0.451	1.308
cOSN2	0.282	0.031	0.482	0.303	0.143	0.388	0.278	0.158	1.140
cOSN3	0.612	0.555	0.894	0.563	0.548	0.520	0.561	0.600	1.395
cTPCM1	0.359	0.367	0.367	0.683	0.403	0.453	0.408	0.463	1.321
cTPCM2	0.469	0.424	0.459	0.813	0.453	0.482	0.519	0.546	1.709
cTPCM3	0.422	0.431	0.505	0.808	0.452	0.434	0.528	0.538	1.719
cTPCM4	0.497	0.476	0.518	0.802	0.559	0.432	0.547	0.591	1.590
cTPEU1	0.455	0.578	0.473	0.531	0.848	0.335	0.489	0.561	1.739
cTPEU2	0.498	0.496	0.506	0.528	0.835	0.390	0.547	0.580	1.636
cTPEU3	0.446	0.503	0.407	0.442	0.802	0.410	0.551	0.566	1.460
cTPRA1	0.434	0.341	0.421	0.370	0.414	0.730	0.459	0.470	1.223
cTPRA2	0.245	0.031	0.363	0.361	0.212	0.617	0.303	0.240	1.502
cTPRA3	0.211	0.006	0.240	0.285	0.115	0.599	0.228	0.186	1.467
cTPRA4	0.468	0.434	0.460	0.554	0.408	0.862	0.545	0.589	1.452
cTPU1	0.436	0.462	0.456	0.482	0.526	0.397	0.747	0.517	1.523
cTPU2	0.494	0.454	0.501	0.543	0.559	0.541	0.847	0.573	2.087
cTPU3	0.551	0.476	0.564	0.551	0.519	0.448	0.855	0.596	2.133
cTPU4	0.563	0.477	0.552	0.565	0.520	0.551	0.862	0.638	2.160
dADM1	0.521	0.495	0.450	0.487	0.407	0.507	0.523	0.699	1.664
dADM2	0.462	0.451	0.427	0.498	0.517	0.516	0.502	0.724	1.879
dADM3	0.623	0.713	0.555	0.572	0.670	0.404	0.579	0.803	2.071
dADM4	0.502	0.476	0.374	0.433	0.439	0.388	0.519	0.705	1.676
dADM5	0.498	0.465	0.422	0.494	0.518	0.445	0.478	0.762	1.975
dADM6	0.523	0.532	0.447	0.529	0.507	0.431	0.514	0.772	1.936
dADM7	0.575	0.546	0.484	0.599	0.526	0.451	0.577	0.792	2.030

Table 4: Fornell-Larcker Criterion for Determinants Factors and DMA

	cECP	**cOAF**	**cOSN**	**cTPCM**	**cTPEU**	**cTPRA**	**cTPU**	**dADM**
cECP	0.799							
cOAF	0.636	0.909						
cOSN	0.628	0.544	0.746					
cTPCM	0.565	0.548	0.598	0.778				
cTPEU	0.563	0.634	0.558	0.604	0.829			
cTPRA	0.520	0.382	0.541	0.576	0.457	0.710		
cTPU	0.620	0.563	0.627	0.647	0.638	0.587	0.829	
dADM	0.707	0.706	0.605	0.690	0.687	0.594	0.703	0.752

Table 5: Heterotrait-monotrait Ratio (HTMT) for Determinants Factors and DMA

	cECP	cOAF	cOSN	cTPCM	cTPEU	cTPRA	cTPU	dADM
cECP								
cOAF	0.836							
cOSN	0.872	0.637						
cTPCM	0.744	0.697	0.823					
cTPEU	0.758	0.808	0.712	0.773				
cTPRA	0.647	0.390	0.833	0.734	0.537			
cTPU	0.788	0.688	0.819	0.790	0.792	0.682		
dADM	0.886	0.837	0.723	0.830	0.830	0.659	0.815	

Structural Model for Determinants Factors and Adoption of Digital Marketing among the SMEs in the Study Area

The analysis of the determinants of adoption of digital marketing among SMEs in Lagos State, Nigeria, was conducted using structural model in PLS-SEM approach. This involved examining the relationships between various technological, organizational, and environmental factors and the adoption of digital marketing (dADM). The findings are presented through path coefficients in Table 6 and 7, Figure 1 and Figure 2 along with their respective R-square and effect size (f-square) values. The procedure for structural model after the measurement quality had been ascertained were followed. This involves the collinearity, path coefficients (β), the coefficient of determination (R2), and effect size (F2). In assessing collinearity, a key consideration was the Variance Inflation Factor (VIF). According to the guidelines by Hair *et al.* (2017), VIF values are ideally expected to be below 3.0 for conservative measures and not exceeding 0.5 for more stringent criteria. Table 6 presented findings indicating that the highest VIF value observed was 2.525, while the lowest was 1.810. These results affirm that collinearity was not a concern for all constructs retained in the model, as all VIF values were within the acceptable range, confirming the robustness of the structural model. Other constructs with lateral collinearity issue were removed as stated above. In Table 6, the path coefficients reveal the strength and direction of relationships between disaggregated determinant factors and adoption of digital marketing. Six significant relationships were identified based on the Beta value, T-statistics, and P values, following the guideline that T-values exceeding 1.96 indicate significance at a 95% confidence level (Hair *et al.*, 2017). The significant paths include: competitive pressure (cECP) with a Beta value of 0.208, T-statistics of 2.890, and P value of 0.004, indicating a positive and significant effect on adoption of digital marketing; availability of finance (cOAF) with a Beta value of 0.255, T-statistics of 4.932, and P value of 0.000, showing the strongest positive and significant effect; perceived compatibility (cTPCM) with a Beta value of 0.175, T-statistics of 2.288, and P value of 0.022, also positively significant; perceived ease of use (cTPEU) with a Beta value of 0.156, T-statistics of 2.795, and P value of 0.005, indicating a significant positive relationship; perceived relative advantage (cTPRA) with a Beta value of 0.143, T-statistics of 2.166, and P value of 0.030, and perceived usefulness (cTPU) with a Beta value of 0.153, T-statistics of 2.127, and P value of 0.033, both showing significant positive effect. The path for subjective norms (cOSN) was not significant, with a Beta value of -0.029, T-statistics of 0.478, and P value of 0.633. The R-square value for the model was 0.729, with an adjusted R-square of 0.724. According to Cohen's (1992) guidelines as reported by Tehseen *et al.* (2019) and Adepoju *et al.* (2023), this R-square value indicates a substantial level of variance explained by the model. The high R-square suggests that the combined technological, organizational, and environmental factors accounted for a large portion of the variance in adoption of digital marketing among SMEs in Lagos State. The effect sizes (f-square) for the significant paths are also notable. The f-square values indicate the magnitude of the impact of each exogenous construct on adoption of digital marketing. Availability of finance (cOAF) has an f-square of 0.111, which is considered a medium effect size, signifying its substantial impact on adoption of digital marketing. Competitive pressure (cECP) has an f-square of 0.069, indicating a small to medium effect.

Table 6 Path Coefficients for Disaggregated Determinants Factors and Adoption of Digital Marketing

Path	Beta	STDEV	T statistics	P values	VIF	f-square
cECP -> dADM	0.208	0.072	2.890	0.004	2.303	0.069
cOAF -> dADM	0.255	0.052	4.932	0.000	2.154	0.111
cOSN -> dADM	-0.029	0.060	0.478	0.633	2.161	0.001
cTPCM -> dADM	0.175	0.076	2.288	0.022	2.245	0.050
cTPEU -> dADM	0.156	0.056	2.795	0.005	2.219	0.041
cTPRA -> dADM	0.143	0.066	2.166	0.030	1.810	0.042
cTPU -> dADM	0.153	0.072	2.127	0.033	2.525	0.034
R-square	0.729					
R-square adjusted	0.724					

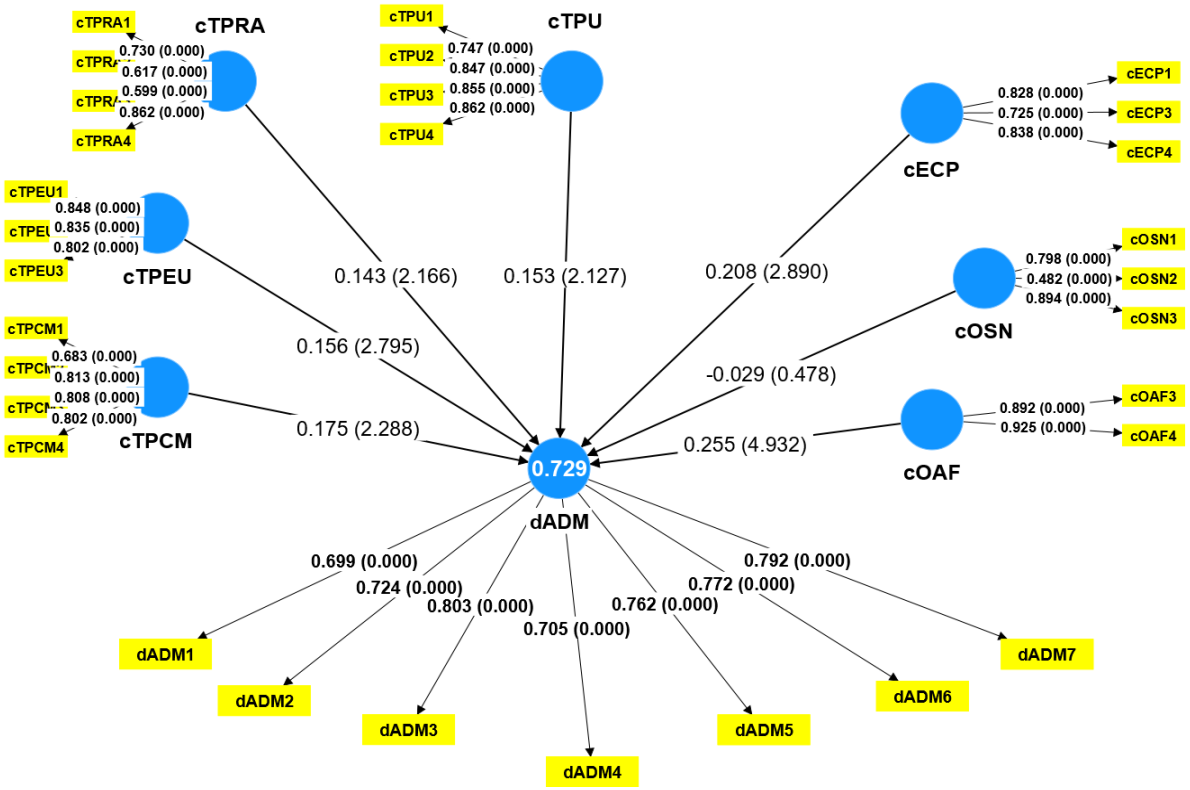

Figure 1: Algorithm for Disaggregated Determinants Factors and Adoption of Digital Marketing

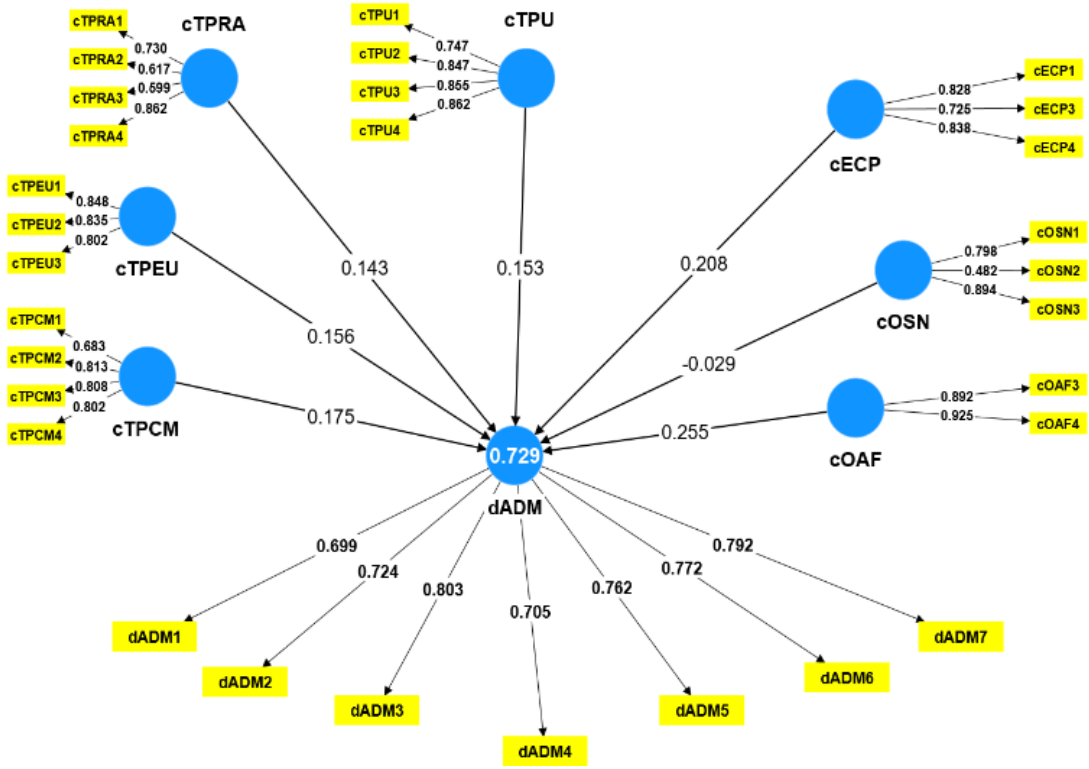

Figure 2: Bootstrap for disaggregated Determinants Factors and Adoption of Digital Marketing

Perceived compatibility (cTPCM) has an f-square of 0.050, while perceived ease of use (cTPEU) has an f-square of 0.041, both indicating small effect sizes. Perceived relative advantage (cTPRA) and perceived usefulness (cTPU) have f-square values of 0.042 and 0.034, respectively, both representing small effect sizes. The non-significant path for subjective norms (cOSN) has an f-square of 0.001, indicating a negligible effect.

In Table 7, the path coefficients for the aggregated determinant factors which are technology, organization, and environment, are presented. All three factors show significant relationships with adoption of digital marketing. The technological factor (cTF) has the highest Beta value of 0.494, with T-statistics of 5.765 and P value of 0.000, indicating a strong positive impact and the largest structural weight among the aggregated factors. The organizational factor (cOF) has a Beta value of 0.222, T-statistics of 3.011, and P value of 0.003, showing a significant positive relationship. The environmental factor (cEF) has a Beta value of 0.210, T-statistics of 2.813, and P value of 0.005, also indicating a significant positive impact. The R-square value for this aggregated model is 0.714, with an adjusted R-square of 0.711. This substantial R-square value demonstrates that the aggregated technological, organizational, and environmental factors collectively explain a significant portion of the variance in adoption of digital marketing among the SMEs.

Table 7: Path Coefficients Aggregated Determinants Factors and Adoption of Digital Marketing

	Beta	STDEV	T statistics	P values	VIF	f-square
cEF -> dADM	0.210	0.074	2.813	0.005	2.278	0.067
cOF -> dADM	0.222	0.074	3.011	0.003	2.902	0.060
cTF -> dADM	0.494	0.086	5.765	0.000	2.634	0.324
R-square	0.714					
R-square adjusted	0.711					

The effect sizes for the aggregated factors further elucidates their impacts. The technological factor (cTF) has an f-square of 0.324, representing a large effect size, underscoring its critical role in driving adoption of digital marketing. The organizational factor (cOF) has an f-square of 0.060, indicating a small to medium effect size, while the environmental factor (cEF) has an f-square of 0.067, also representing a small to medium effect size.

The results showed that availability of finance (cOAF -> dADM) has the largest structural weight (being the most impactful variable) with item cOAF4 ('Our firm would take social medial marketing more seriously because of the adequate financial support we receive from local banks') being the most impactful indicator on adoption of digital marketing in the study area. This shows that the respondents have identified that adequate financial support received from local banks is highly important to their adoption of digital marketing in the study area.

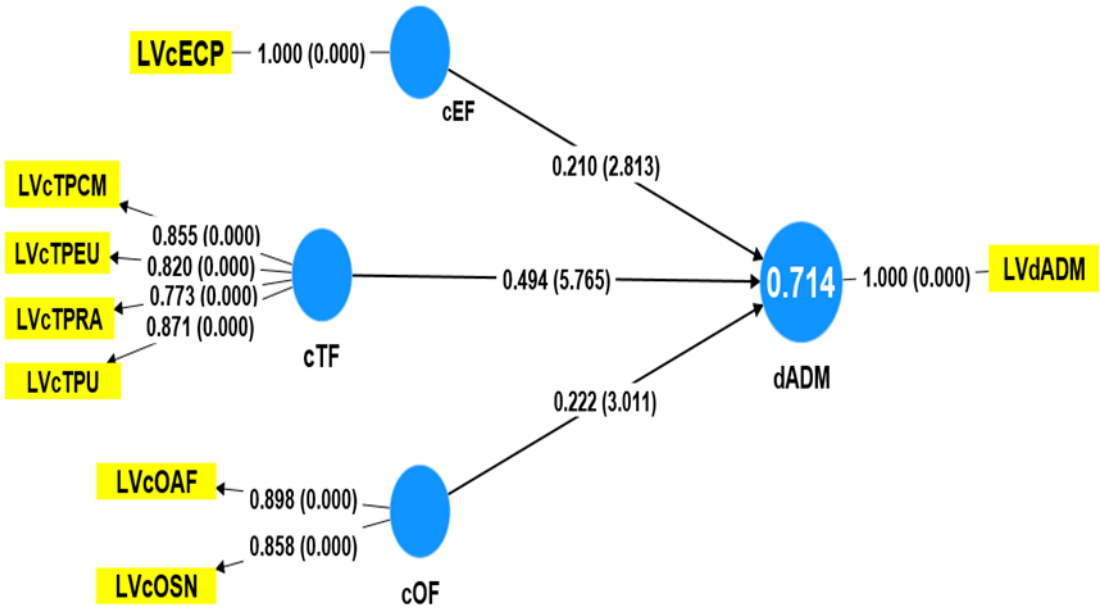

Figure 3: Algorithm for Aggregated Determinants Factors and Adoption of Digital Marketing

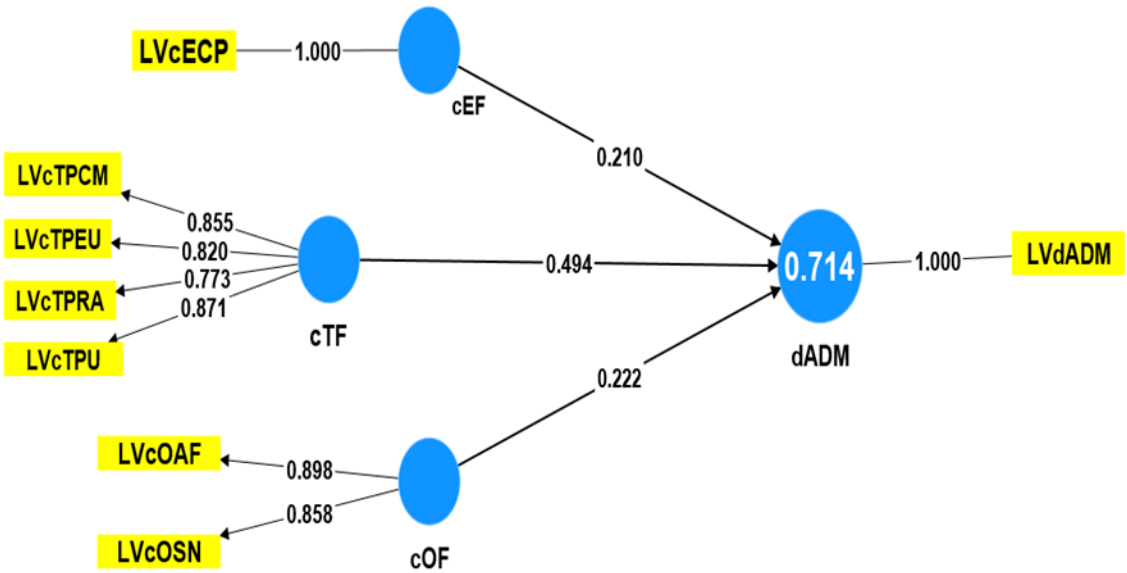

Figure 4: Bootstrap for aggregated determinants factors and Adoption of digital marketing

Discussion of Findings

The study highlights the critical need for targeted policy interventions to foster digital marketing adoption among SMEs in Lagos State, Nigeria. The findings emphasize that financial availability is the most impactful determinant, suggesting that firms would invest more in digital marketing with adequate financial support from local banks. Policies should focus on improving financial accessibility for SMEs by enhancing credit access, providing financial incentives, and encouraging banks to develop specialized financial products. Additionally, improving digital literacy through training programs and awareness campaigns, alongside developing robust technological infrastructure, is crucial. Ensuring widespread and affordable internet access, supporting tech adoption, and fostering a competitive business environment are also essential. Establishing a supportive regulatory framework with digital marketing guidelines and data protection laws can further encourage adoption. Collaboration with financial institutions to design SME-friendly financial products and implementing risk mitigation strategies will bolster financial support. Continuous monitoring and evaluation of these policies through feedback mechanisms and data analysis will ensure they effectively meet the needs of SMEs, enhancing their competitiveness and contributing to economic growth.

The study's results, using the TOE framework, reveal significant insights into how technological, organizational, and environmental factors influence digital marketing adoption among SMEs in Lagos State, Nigeria. These findings align with recent literature, offering a nuanced understanding of the determinants impacting digital marketing uptake. Financial availability, identified as the most impactful factor, significantly influences SMEs' adoption of digital marketing. This underscores the importance of financial accessibility, as highlighted by Bresciani and Eppler (2010), who argue that financial resources are crucial for adopting innovative practices in small firms. Similarly, Awa, Ukoha, and Emecheta (2016) emphasize that adequate financial support enables SMEs to invest in necessary technologies and marketing strategies, enhancing their competitive edge.

Technological factors, particularly perceived ease of use and perceived usefulness, also play a critical role. This aligns with the Technology Acceptance Model (TAM) proposed by Davis (1989), which posits that these factors are primary drivers of technology adoption. Studies by Wamba and Carter (2014) and Hameed, Counsell, and Swift (2012) further corroborate this, demonstrating that SMEs are more likely to adopt user-friendly and beneficial digital marketing tools. Perceived compatibility and perceived relative advantage are other significant technological factors. Studies by Oliveira and Martins (2011) and Ifinedo (2011) suggest that technologies aligning well with existing systems and offering clear advantages over current practices are more likely to be adopted.

Environmental factors, such as competitive pressure, also significantly influence digital marketing adoption. Literature by Zhu and Kraemer (2005) and Molla and Licker (2005) document the role of competitive pressure in driving innovation, motivating firms to adopt new technologies to maintain or enhance their market position. In Lagos State, this implies that SMEs are likely to adopt digital marketing strategies to stay competitive in a rapidly evolving business environment. Organizational factors, particularly the perceived availability of financial resources, emerged as the most impactful, consistent with findings by Arendt (2008) and Chau and Hui (2001), who note that financial readiness is a critical determinant of technology adoption in small businesses.

High R-square values in the study indicate that the model explains a substantial portion of the variance in digital marketing adoption, suggesting robust predictors. This is supported by recent meta-analyses such as Dwivedi *et al.* (2019), which highlight the importance of considering multiple dimensions (technological, organizational, and environmental) in understanding technology adoption.

In sum, the study's results align with recent literature, emphasizing the critical role of financial support, user-friendly and beneficial technologies, competitive pressures, and organizational readiness in driving digital marketing adoption among SMEs. These findings suggest that policies aimed at improving financial accessibility, enhancing digital literacy, and fostering a competitive business environment could significantly boost digital marketing adoption in Lagos State.

CONCLUSION

The study investigated the determinants of adoption of digital marketing among SMEs in Lagos State,

Nigeria, utilizing Partial Least Squares Structural Equation Modelling (PLS-SEM) for analysis. The findings reveal that technological, organizational, and environmental factors significantly influence adoption of digital marketing among SMEs. Specifically, the availability of finance emerged as the most impactful factor, highlighting the critical role of access to financial support in enabling SMEs to embrace digital marketing. Perceived ease of use, perceived usefulness, perceived compatibility, and perceived relative advantage also significantly contributed to the adoption, emphasizing the importance of the perceived benefits and ease associated with digital marketing technologies.

The path coefficients demonstrated that the availability of finance had the highest structural weight, underscoring the necessity for adequate financial resources to support digital marketing initiatives. The results indicated that organizational factors, particularly financial support, had the largest effect size, followed by technological factors, suggesting that internal capabilities and external technological advancements are crucial for adoption. Environmental factors, while significant, had a lesser impact compared to the other two categories.

Based on these findings, it is recommended that Policymakers should focus on focus on improving financial accessibility for SMEs by enhancing access to credit, providing financial incentives, and encouraging banks to develop specialized financial products in the study area. Future research should explore the long-term impact of adoption of digital marketing on the performance and survival of SMEs, considering both service and product-oriented sectors. Investigating the role of specific digital marketing strategies and their effectiveness across different industries could provide more tailored insights. Additionally, comparative studies between SMEs in different regions or countries could offer a broader understanding of the contextual factors influencing adoption of digital marketing. Finally, examining the moderating effects of demographic factors such as age, education, and experience on adoption of digital marketing and performance could further enrich the findings and contribute to a more nuanced understanding of the dynamics at play.

In essence, this study provides valuable insights into the determinants of adoption of digital marketing among SMEs in Lagos State, Nigeria, and highlights the importance of financial support, technological readiness, and organizational capabilities in fostering digital marketing initiatives. Implementing the recommendations and exploring suggested avenues for future research could significantly enhance the digital marketing landscape for SMEs, promoting their growth and competitiveness in an increasingly digital world.

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