International Conference on Sustainable Economics, Management, and Accounting (ICSEMA 2025)
Proceedings
Vol. 01 No.01 Year 2025, Page 2527-2537

BRIDGING THE DIGITAL GAP: THE EFFECT OF DIGITAL TECHNOLOGY ADOPTION ON MSMES' PERFORMANCE WITH DIGITAL MARKETING CAPABILITY AS A MEDIATING VARIABLE

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Abstract

This study aims to examine the effect of digital technology adoption on MSMES business performance with digital marketing capability as mediating variable. This study contributes to the existing literature by providing empirical evidence of the relationship between digital technology adoption and its effect on MSME performance using Resource Advantage Theory of Competition perspective. Data were ollected through online questionnaires from creative industry MSMEs in Indonesia. The data were analyzed using the partial least squares-structural equation method technique with Smart PLS 3.0. The results show that digital technology adoption have significant effect on MSMEs performance in the creative industry sector. In addition, digital marketing capability were found to mediate the relationship between digital adoption and MSMEs performance. These findings highlight the critical role of distinctive competencies as a key factor in leveraging digital technology adoption to improve MSMEs performance.

Keywords: digital technology adoption, digital marketing capability, MSMES, business performance.

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in economic development in emerging markets, contributing significantly to job creation, which can reduce unemployment and boost economic growth [1]. The application of Digital Technology Adoption (DTA) among MSMEs has been identified as a driver that can influence their ability to compete in disruptive digital markets [2]. In particular, creative SMEs operating in the culinary, fashion, and handicraft sectors act as catalysts for economic diversification and resilience, which can encourage entrepreneurship and improve business performance through the DTA in the form of social media and government support policies [3]. The integration of DTA in MSMEs facilitates operational efficiency and enables them to leverage external knowledge for sustainable business innovation [4]. Additionally, knowledge sharing within SMEs has strengthened the importance of structural and spiritual capital in driving business success [5]. As MSME growth remains a priority in developing countries, building an ecosystem that supports the growth and sustainability of Creative Industry MSMEs will be key to ensuring economic progress.

The implementation of DTA among MSMEs faces various obstacles, including low digital literacy, limited financial resources, and resistance to change. MSMEs must receive DTA skills training, such as digital marketing, to empower them to face technological advances [6]. Rachmawati et al. [7] also emphasize that DTA plays a central role in investment decision-making and is a crucial factor in SME sustainability. Yuwono et al. [8] support MSMEs utilizing digital tools for innovative design integration and achieving competitive advantage. MSMEs need to overcome barriers to DTA to enhance business performance, for example, by exploring how their entrepreneurial commitment and digital innovation orientation can be explored [9]. MSMEs that can overcome DTA-related challenges, such

as social media marketing and digital capabilities, have been proven to increase market reach and operational efficiency [10].

Previous studies have documented important aspects of digital technology adoption on MSME performance, but an integrated understanding has yet to be achieved. Kurniasari and Lestari [11] focus on financial technology adoption along with financial literacy among women-led MSMEs in Indonesia, while Park et al. [12] and Remedi-Rumi and Arzuaga-Williams [13] highlight the role of market dynamics and dynamic capabilities in improving business performance. Suryantini et al. [14] emphasize how intellectual capital and strategic flexibility contribute to sustainable competitive advantage, while research by Vrontis et al. [15] and Soomro et al. [16] examine the impact of digital technology on sustainability and value creation from a local perspective in Pakistan. However, these studies primarily operate within specific geographical, demographic, or sectoral boundaries, limiting the generalizability of their findings. This highlights a research gap and the need for a more comprehensive understanding of how digital technology adoption affects the overall performance of SMEs. This integrated approach will provide academics and practitioners with deeper insights and more robust strategies to drive the overall performance of SMEs.

This study aims to examine the Digital Marketing Capability (DMC) variables that act as mediators between DTA and the performance of Creative Industry MSMEs. DTA itself is not expected to improve MSME performance directly. The full potential of DTA can be realized when companies successfully transform the technology into solid marketing practices that can drive competitive advantage. Previous studies conducted by Nwoba et al. [17] used the mediating variable of inbound openness in their study on institutional stimuli and corporate innovation. Sudarnice et al. [18] also emphasized that innovation performance in SMEs is traditionally measured using mediators such as technological readiness and overall innovation capability rather than focusing on specific factors of digital marketing capability. Based on this, integrating DMC as a mediating variable in this study addresses the identified research gap and aligns with the recommendations

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

This study is based on the Resource-Based View (RBV) theory and its derivative, Dynamic Capabilities (DC), which provides a perspective for analyzing the ownership of strategic digital resources and a company's ability to adapt those resources. RBV argues that companies can achieve competitive advantage by utilizing valuable, rare, inimitable, and non-substitutable resources [19]. DC emphasizes a company's ability to detect emerging opportunities, capitalize on them, and reconfigure them, ensuring sustained relevance and agility in a dynamic business environment [20]. DMC in this study, is a mediating variable transforming DTA into superior MSME performance by effectively coordinating these digital resources to meet disruptive market demands.

Digital technology adoption and MSMEs performance

DTA is one of the key factors in improving the performance of MSMEs, especially in a rapidly evolving digital economy. Research conducted by Kurniasari and Lestari [21] shows the transformative impact of financial technology integration combined with increased financial literacy, which has driven significant progress in women-owned MSMEs in Indonesia. Nwoba et al. [17] also demonstrate that institutional stimuli combined with digital technology initiatives can enhance corporate innovation, which serves as a foundation for achieving superior performance. Park et al. [12] show that technology strategies and responsive service support can strengthen the adaptability and market dynamics of MSMEs, ultimately contributing to their competitive advantage. Sinha et al. [22] emphasize that digitalization not only builds corporate resilience during crises but also drives sustainable growth. Yuwono et al. [23] highlight that the strategic adoption of information and communication technology can empower MSMEs by enhancing their unique competencies to address digital challenges. Overall, these studies support the hypothesis that the adoption of digital

technology has a positive impact on MSME performance, offering a multidimensional perspective on how digital tools can drive resilience, innovation, and market competitiveness among MSMEs.
H1: DTA positively affects MSMEs performance

Digital technology adoption and digital marketing capability

DTA has emerged as an important catalyst for implementing digital marketing strategies. Recent studies show that integrating digital tools can simplify marketing, deepen customer engagement, and increase market insights. Masrianto et al. [24] show that strategic investment in digital technology positively impacts companies' digital marketing capabilities. Hokmabadi et al. [25] reveal that digital transformation is crucial in building resilient business models for SMEs and startups to maintain market competitiveness. Noor [26] explains that implementing digital marketing in the capital market context yields better market responses and marketing performance. Complementing these findings, Choruma et al. [27] found that digitalization in the agricultural sector can be a solution to overcome traditional constraints, thereby encouraging innovative marketing practices in rural areas. Xiang et al. [28] highlight the transformative impact of increased high-speed internet connectivity on rural communities, which consistently strengthens digital marketing initiatives by bridging geographical gaps and expanding market reach. Overall, this literature supports the hypothesis that DTA positively impacts DMC.

H2: DTA positively affects DMC

Digital marketing capability and MSMEs performance

DMC is the ability to effectively integrate and apply various digital tools and channels into business strategies, enabling companies to leverage digital platforms. Apasrawirote et al. [29] propose a conceptual model that links digital marketing efforts with business performance, emphasizing that companies that are able to leverage digital resources achieve significant improvements in business performance. Liu [30] reinforces this perspective by demonstrating that advanced digital marketing practices can drive organizational performance, strengthen consumer trust, and enhance brand loyalty. Complementing these insights, Sihotang [31] highlights the critical role of digital competencies among entrepreneurs in Indonesia, which have been proven to enhance online business performance among SMEs. Zahara et al. [32] also provide strong empirical evidence from the post-pandemic recovery context, showing that entrepreneurship marketing integrated with DMC can enhance marketing performance in small and medium-sized enterprises. Overall, these studies support the hypothesis that DMC can have a positive impact on the performance of MSMEs.

H3: DMC positively affects MSMEs performance

The mediating role of digital marketing capability

Research shows that DTA is essential for improving the performance of MSMEs, but its positive impact often depends on the company's ability to maximize the benefits of DMC. Hashim, Taleb, and Faudzi (2024) argue that entrepreneurial bricolage supported by DMC significantly improves the performance of MSMEs, indicating that technology investment requires a practical understanding of marketing. Hat et al. (2024) highlight the mediating role of digital marketing practices in influencing customer relationship management to improve hospitality business performance. Jung and Shegai (2023) also show that implementing advanced digital practices can strengthen company performance through improved marketing capabilities. A systematic review by Samsuden et al. (2024) and empirical evidence from Tongdhamachart and Niyomsilpa (2022) confirm that DMC acts as a critical channel, translating DTA into measurable performance improvements. Overall, these insights support the development of the hypothesis that DMC acts as a mediator in the relationship between DTA and SME performance, as this capability enables companies to integrate digital tools into their marketing processes, optimize customer engagement, and drive overall business success.

H4: DMC mediate the relationship between DTA and MSMEs performance

RESEARCH METHODS

This study uses a quantitative approach with an online survey method. The questionnaire was distributed to owners of Creative Industry MSMEs (Fashion, Culinary, Handicrafts) in Central Java, Indonesia. The questionnaire was divided into three questions based on the observed variables. These groups include DTA, DMC, and MSME Performance. A total of 15 indicators were used. Approximately six indicators measure DTA [23]: Integration with customers, communication, and strategy integration. Next, 5 DMC indicators include technology, organizational, and environmental skills. Finally, 4 SME performance indicators include sales growth and profit. The sample size used in this study was 155 samples. This sample size was sufficient because it was more than 10 times the number of indicators in this study [33]. The samples were obtained through an online questionnaire using a Likert scale from one to five. Data analysis was performed using Structural Equation Modeling (SEM) with Smart Partial Least Squares (PLS) statistical software. Figure 1 shows the analytical framework for this study. This framework assumes that DTA in Creative Industry MSMEs mediated by DMC can produce superior MSMEs performance (MP).

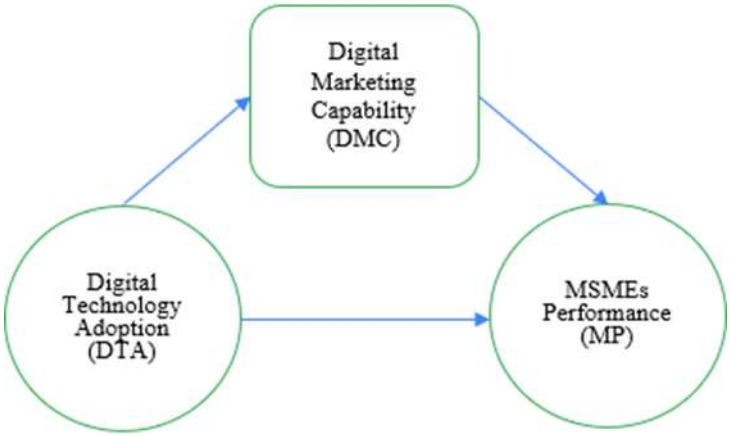

Figure 1. Analytical framework

RESULTS AND DISCUSSION

Validity and reliability test

The validity test results for DTA, DMC, and MSMEs performance show that all factor loadings are above 0.70. The reliability test results show that the composite reliability (CR) value of all variables exceeds the threshold of 0.70 [34]. Based on the data shown in Table 1, it can be concluded that this instrument is valid and reliable.

Evaluation of structural model (inner model)

The hypothesis testing process in Figure 3 shows bootstrapping results using 500 resamples with SmartPLS. Based on the data in Figure 3, this study consists of several hypotheses that will be tested using empirical data collected from Creative MSME. The direct application of DTA has an impact on the performance of SMEs.

The performance of MSME has been demonstrated to be significantly and favourably impacted by the direct use of DTA. MSMEs can increase operational efficiency, optimize internal procedures, and boost customer engagement by incorporating digital technologies into their business operations. Examples of these technologies include digital communication tools, customer relationship management systems, and data-driven decision-making platforms. Through this usage, SMEs can lower operating expenses, reach new markets, and react to market developments more quickly—all of which help to improve quantifiable performance metrics like sales growth, profitability, and customer retention. Additionally, MSMEs may become more resilient and agile through the strategic use of digital technologies, which puts them in a better position to compete in fast-paced, technologically advanced business environments.

Table 1. Results validity and reliability test

Variable	Item	Loading Factor	Result	CR	AVE	Result
Digital technology adoption	DTA1	0.802	Valid	0.928	0.685	Reliable
	DTA2	0.727				
	DTA3	0.809				
	DTA4	0.918				
	DTA5	0.831				
	DTA6	0.881				
Digital marketing capability	DMC1	0.923	Valid	0.966	0.876	Reliable
	DMC2	0.936				
	DMC3	0.934				
	DMC4	0.951				
	DMC5	0.923				
MSMEs Permormance	MP1	0.954	Valid	0.976	0.911	Reliable
	MP2	0.972				
	MP3	0.937				
	MP4	0.960				

Source: data analyzed

DMC mediates the effect of DTA on SME performance. The findings of this study are presented in Tables 2 and 3. The results indicate that DTA statistically affects MSMEs performance (t = 2.323 > 1.975). DTA on DMC is also statistically significant (t = 12.471 > 1.975). DMC also directly and statistically significantly affects MSMEs performance (t = 3.712 > 1.974). The data in Table 3 prove that the impact of the mediating variable (DMC) on the relationship between DTA and MSMEs performance is significant (t = 3.3470 > 1.975). Based on these findings, it is concluded that all research hypotheses are supported.

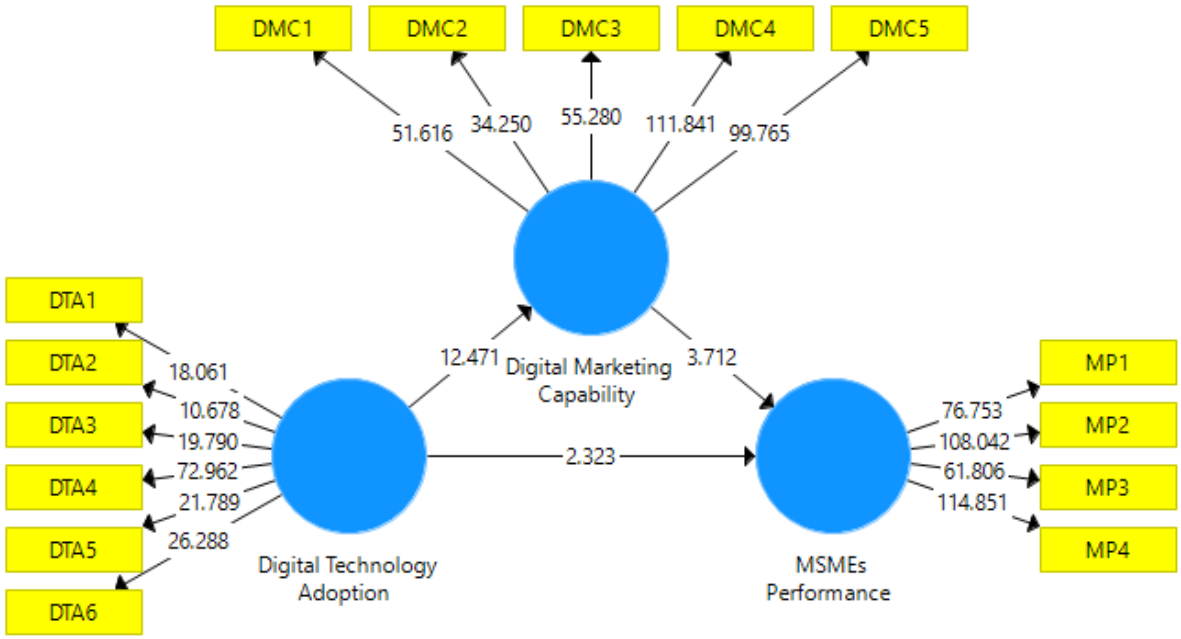

Figure 2. Structural equation modeling results

Based on the results of the Smart PLS data analysis above, all hypotheses in this study are accepted. The findings indicate that DTA (integration with customers, communication, and strategy integration) and DMC (include technology, organizational, and environmental skills) have a direct positive impact on the performance of MSMEs (sales growth and profit). The impact of DTA on DMC is in line with the results of previous research [24], which found that DTA greatly influences the DMC of MSMEs. The impact of DTA on MSMEs performance is consistent with previous research [15], [16], [21], which found that DTA significantly influences SME sales growth and profit.

Small and MSMEs profitability and sales growth are greatly impacted by their DMC. SMEs are better able to pinpoint particular market groups, recognize client demands, and customize marketing messages as they gain proficiency with digital tools including social media platforms, digital advertising, content production, and data analytics. The intensity of consumer interactions rises in tandem with the level of client involvement with digital technology. SMEs may better understand customer behaviour, predict trends, and modify their marketing plans in real time thanks to this increased contact. As a result, client experiences enhance, transaction processes become smoother, and market reach grows. Because SMEs are better positioned to turn digital engagement into results that generate income, these variables not only increase sales growth but also boost profit margins.

In the context of MSME effective TI research ensures that technological investments made are beneficial in enhancing digital marketing effectiveness, service expansion, and business process efficiency. This is also in line with the principles of DC Theory [20], which states that competitiveness is not solely based on technological proficiency or digital capabilities, but also on an organization's ability to effectively identify resources, integrate day-to-day data, and adjust process and strategy in accordance with changes in the business environment. For this reason, the combination of DTA, DMC, are essential for MSME to increase business productivity and profitability in the constantly changing digital economy.

Therefore, in order to improve their competitiveness in the digital age, MSMEs need to develop and manage their digital capabilities in a comprehensive way, including organizational readiness and governance in addition to technical skills linked to digital marketing. This strategy will enable MSMEs to leverage digital technology as a source of DC that promote efficiency, innovation, and long-term company performance, as described in the DC Theory, in addition to using it as a marketing tool.

Table 2. Direct Effect

Direct Effect		Sample Mean	T-Statistic	T-Critical	Result
H1	DTA → MSMEs Performance	-0.222	2.323	1.975	Supported
H2	DTA → DMC	0.644	12.471		
H3	DMC → MSMEs Performance	0.350	3.712		

Source: data analyzed

The impact of DMC on MSMEs performance is consistent with previous research [35], which found that DMC significantly influences SME sales growth and profit. DMC plays a vital role as a facilitator of MSMEs performance through DTA's positive and significant influence on MSMEs performance mediated by DMC. This mediation result aligns with previous research [23]. This study's implications are adding empirical evidence to strengthen the DC Theory [20]. This study also provides a new perspective that creative industry SMEs in developing countries can succeed in leveraging digital technology when equipped with adequate capabilities.

Table 3. Indirect Effect

Hypotheses	Mediation
Indirect Effect (T-Statistic)	DMC
DTA and MSMEs Performance	3.3470

Source: data analyzed

One of the main elements assisting MSMEs in effectively reaching larger markets is anticipated to be DMC. MSMEs can engage with customers from different places without being restricted by geography by utilizing digital platforms like social media, e-commerce, and digital analytics tools. This allows them to more effectively and directly communicate the value of their goods and services. This is in line with the viewpoint of DC Theory, which highlights that digital capabilities, particularly marketing capabilities, are strategic assets that help businesses take advantage of market opportunities, adjust to shifting business environments, and generate value in a sustainable way [36]

However, the organization's IT resource management preparedness and quality are inextricably linked to the success of DMC implementation. This calls for the existence of sufficient information technology (IT) governance in the context of MSMEs [36], which entails organizing, observing, and managing IT use to guarantee alignment with the business's strategic goals. DMC's promise to increase market visibility and cultivate client relationships would not be completely achieved in the absence of robust IT governance, which might potentially lead to operational risks and resource inefficiencies.

Therefore, MSMEs must develop and manage their digital capabilities holistically—not just in terms of technical skills connected to digital marketing, but also in terms of governance and organizational readiness—in order to increase competitiveness in the digital age. According to the DC Theory, MSMEs will be able to use digital technology as a source of dynamic capabilities that promote efficiency, innovation, and long-term business resilience in addition to using it as a marketing tool.

CONCLUSION

This study shows that DTA, which includes customer integration, communication, and strategic integration, directly improves sales growth and profit margins of creative industry MSMEs in Central Java. The findings also show that DMC, including technological, organizational, and environmental skills, directly impacts SME performance and mediates DTA on SME performance. The influence of DTA on SME performance can be strengthened when combined with strong DMC. For practitioners and creative industry SMEs, these results highlight the importance of adopting integrated strategies that combine DTA with DMC development.

Investing in promoting efficient customer integration, clear communication, and strategic internal alignment can encourage MSMEs to increase their sales and profits. At the same time, focusing on building technological competencies, simplifying organizational processes, and increasing responsiveness to environmental changes can create a solid foundation for creative industry MSMEs to sustain these benefits in the long term. Policymakers and stakeholders related to MSMEs can use these insights as a reference in designing programs that can facilitate the development of digital transformation and digital marketing capabilities, thereby further promoting the growth and innovation of the creative industry in Central Java.

Additionally, by showing how MSMEs' capacity to integrate, adapt, and reconfigure their digital resources—particularly through DTA and DMC—contributes considerably to sustained competitive advantage, this study supports the theoretical underpinnings of Dynamic Capability Theory (DCT). Technology adoption and marketing capabilities work in tandem to show that performance is driven by the purposeful and coordinated use of digital technologies in response to environmental and market demands, not just the availability of these resources. MSMEs can not only endure but also prosper in quickly changing digital environments thanks to this dynamic alignment, especially in the highly innovative and creative industries

Furthermore, the function of MSME in guaranteeing the successful implementation of digital strategy. The potential advantages of DTA and DMC might not be completely realized in the absence of proper management and alignment between digital activities and business objectives. As a result, MSMEs are urged to set up fundamental governance structures that facilitate decision-making, track performance, and guarantee responsibility when utilizing digital technology. In the end, this methodical approach can improve MSMEs' agility and resilience in the creative sector by bridging the gap between strategic intent and operational outcomes.

This study has several limitations that need to be addressed in future research. First, this study is limited to the creative industry in Central Java, which may limit the generalizability of the results to other regions and industrial sectors. Further research is recommended to utilize longitudinal designs and more diverse samples to capture the dynamic evolution of digital strategies over time. Further exploration of other moderating or mediating factors, such as green dynamic capabilities [36], could provide a more comprehensive understanding of how digital initiatives influence SME performance.

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