

How E-Commerce and Digital Marketing Adoption Affect Marketing Performance in Moderation of Dynamic Marketing Capabilities on the Sustainability of Batik?

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ARTICLE INFO

Received: 29 Dec 2024

Revised: 12 Feb 2025

Accepted: 27 Feb 2025

ABSTRACT

Introduction: In today's era of globalization and technological advancement, Batik MSMEs face significant challenges to remain relevant and competitive. Digital transformation is one of the main strategies that must be adopted, with e-commerce and digital marketing as the main elements

Objectives: This paper seeks to investigate the effects of e-commerce adoption and digital marketing on the marketing effectiveness and sustainability of batik MSMEs mediated by dynamic marketing capabilities in Indonesia.

Methods: The design of this study is to distribute a Google Form that covers the adoption of e-commerce and digital marketing in Batik MSMEs in Indonesia. Of the 424 Batik MSMEs in Indonesia, only 326 have adopted digital marketing and e-commerce as a sample. Used a 5-point Likert scale to quantify exogenous factors. This paper uses SmartPLS Version 3 as its analysis method.

Results: E-commerce adaptation affects sustainability, marketing performance, and digital marketing adaption. Dynamic marketing capacities help control the link between marketing performance and MSME sustainability.

Conclusions: MSMEs who use e-commerce systems for delivery and sales of products have better financial performance. MSMEs should thus be advised to move from traditional physical stores to e-commerce platforms. By means of e-commerce in their regular operations, MSMEs must provide their staff with technological training programs supporting organizational success and sustainability.

Keywords: Adoption E-Commerce, Adoption Digital Marketing; Dynamic Marketing Capability; Sustainability; Marketing Performance.

INTRODUCTION

In today's era of globalization and technological advancement, Batik MSMEs face significant challenges to remain relevant and competitive [1]. Digital transformation is one of the main strategies that must be adopted, with e-commerce and digital marketing as the main elements [2]. The adoption of e-commerce allows Batik MSMEs to expand their market reach, overcome geographical limitations, and increase the accessibility of their products to global consumers [3], [4]. Meanwhile, digital marketing provides opportunities for Batik MSMEs to interact directly with consumers, build brands, and increase customer loyalty through various digital platforms [5]. However, success in adopting digital technology does not necessarily guarantee improved marketing performance [6]. Dynamic marketing capabilities are needed to adapt strategies to rapid changes in the market and consumer preferences [7]. Dynamic marketing capabilities include the ability to identify opportunities and threats, develop quick and appropriate responses, and effectively integrate technology into marketing strategies [8].

The most important foundation of the Indonesian economy is MSMEs. MSMEs help the Indonesian economy in two ways: they employ 97% of the entire workforce and collect up to 60.4% of all investments. With a GDP contribution of 61.07% or 8,573.89 trillion rupiah, the current number of MSMEs is 64.2 million. Of these 64.2 million MSMEs, 2.51 are batik MSMEs; only 34% of batik MSMEs are involved in e-commerce or use digital marketing [9]. Limited digitization capabilities, lack of product and marketing innovation, difficulty in adapting to environmental changes, and lack of responsiveness to dynamic market competition are all obstacles for MSMEs in Indonesia seeking to improve their marketing output or performance [10] [9]. Batik is seen to have several purposes in Indonesian society. Data from the Ministry of Industry's Center for Crafts and Batik (BBKB) shows that in 2022, there were more than 2,951 micro, small, and medium enterprises (MSMEs) in batik throughout Indonesia. However, only 34% participate in e-commerce [11]. This is due to human resource-human intellectual resource issues. Most micro, small, and medium enterprises (MSMEs) are not ready to use information technology [11]. However, there are still few MSMEs that can take advantage of networking. They are not even aware that networking with other MSMEs, professional bodies, the government, or behavioral issues (social capital) and digitization is very important [12]. These businesses utilize data science and online marketing strategies to increase product sales, introduce brands, and expand markets [13], [14]. Although digital marketing offers many benefits, understanding its application to small businesses is still limited, as most of the literature focuses on large companies [15]. Research that explores the impact of digital marketing adoption on the marketing performance and sustainability of MSMEs is still rare [16]. Most research on digital marketing emphasizes how adoption by large companies affects their consumer behavior [17]. In addition, consumer purchasing behavior has changed significantly as more and more people shop online [18], [19]. The epidemic has accelerated this trend by motivating MSMEs to use digital marketing and e-commerce technology [6]. As a result, in the first few months of 2020, e-commerce sales grew by 70-80% [9]. Marketing teams are under pressure in the midst of this scenario to get a high return on investment [20] and more important results with fewer resources. To target specific groups more precisely and get measurable results, many marketing teams are shifting their efforts to digital and online platforms [21]. Research examining how Batik MSMEs in Indonesia increase the effectiveness and sustainability of their marketing from the time of the epidemic to 2024 through the use of e-commerce and digital marketing has not been conducted [22]. Therefore, this study aims to investigate how the adoption of digital marketing and e-commerce can help improve the sustainability of MSMEs, moderated by dynamic marketing capabilities [23]. Dynamic marketing capabilities drive this research because of the lack of research on the effect of e-commerce and digital marketing adoption on the marketing performance and sustainability of MSMEs mediated by dynamic marketing capabilities where previous research has concentrated on corporate sustainability mediated by financial performance [22].

The novelty of this research is that it contributes to MSMEs by focusing on MSME sustainability mediated by marketing performance and moderated by dynamic marketing capabilities. With marketing performance moderated by dynamic marketing capabilities towards sustainability, this study aims to find a direct relationship between e-commerce adoption and MSME performance, e-commerce adoption and sustainability, and digital marketing adoption and marketing performance.

METHODS

This study is designed to employ a Likert scale quantitative research technique. External elements are measured on a 5-point Likert scale. Created before the previous one, the poll tool follows the suggested approach given by [24]. Where five is "Strongly Agree" and one is "Strongly Disagree".

The main emphasis of this study is Batik MSMEs from Indonesia. Data from the Indonesian Central Statistics Agency reveals 424 Batik MSMEs. The main emphasis of this research is on Batik MSMEs using e-commerce and digital marketing. This was limited via a purposeful sampling approach to MSMEs who have embraced digital marketing and e-commerce. Just 326 MSMEs have embraced it following observation. For precise results—that is, from June to December 2024—six months of sampling was undertaken. This paper employs the Structural Equation Model with SmartPLS version 3 as its analytical approach. This is why the choice of this approach and analysis tool is suitable as the chosen constructions are somewhat complicated and interconnected and demand sophisticated analysis tools.

This study refers to research [25] related to the E-Commerce Adoption indicators, which are as follows:

The following are the indicators of each variable used in this study:

Table 1. Indicator

Variable	Indicator
E-Commerce Adoption [22]	Ease of Use
	Perceived Benefits
	Technology Support
	Support from the Business Ecosystem
	Trust
Digital Marketing Adoption [22]	Obstacles
	Utilization of Digital Media
	Understanding of Digital Marketing Strategy
	Effectiveness of Digital Marketing
	Support and Resources
Dynamic Marketing Capability [22]	Obstacles in Digital Marketing
	Ability to Adapt to Market Changes
	Innovation in Marketing
	Utilization of Data and Analytics
	Speed of Response to Customers
Sustainability [22]	Ability to Manage Technological Change
	Use of Environmentally Friendly Materials
	Production Waste Management
	Economic Sustainability
	Social Responsibility
Marketing Performance [26]	Innovation for Sustainability
	Increased Sales
	Increase in Number of Customers
	Brand Awareness
	Customer Loyalty
	Competitive Advantage

Source: Authors' own work

RESULTS

Measuring the outside of the model will help one ascertain the dependability and validity of the indicators. The loading factor value has to be more than 0.7 [27]; if the correlation value is less than 0.7, the indicator is deleted [28]. Should presumptions be satisfied, the model is deemed excellent, as illustrated in Table 2 below:

Table 2. Data quality test

Variables	Indicators	Loading Running	Factors	Cronbach's Alpha	AVE	Composite Reliability
ECA	ECA1	0,852		0,921	0,938	0,717
	ECA2	0,865				
	ECA3	0,878				
	ECA4	0,845				
	ECA5	0,786				
	ECA6	0,852				
DMA	DMA1	0,761		0,877	0,911	0,672
	DMA2	0,857				
	DMA3	0,846				
	DMA4	0,856				
	DMA5	0,773				
MP	MP1	0,841		0,886	0,917	0,688
	MP2	0,855				
	MP3	0,856				
	MP4	0,806				

Variables	Indicators	Loading Running	Factors	Cronbach's Alpha	AVE	Composite Reliability
DMC	MP5	0,786		0,886	0,916	0,687
	DMC1	0,856				
	DMC2	0,846				
	DMC3	0,819				
	DMC4	0,816				
S	DMC5	0,806		0,887	0,917	0,688
	S1	0,812				
	S2	0,827				
	S3	0,865				
	S4	0,846				
	S5	0,799				

Source: Authors' own work

Based on the data table above, one can see that all components of the loading factor are more than 0.7 [29], all components of Cronbach's alpha are more than 0.7, and all components of AVE are more than 0.6. Every aspect of composite dependability exceeds 0.7. Thus, one may say that this model is really excellent.

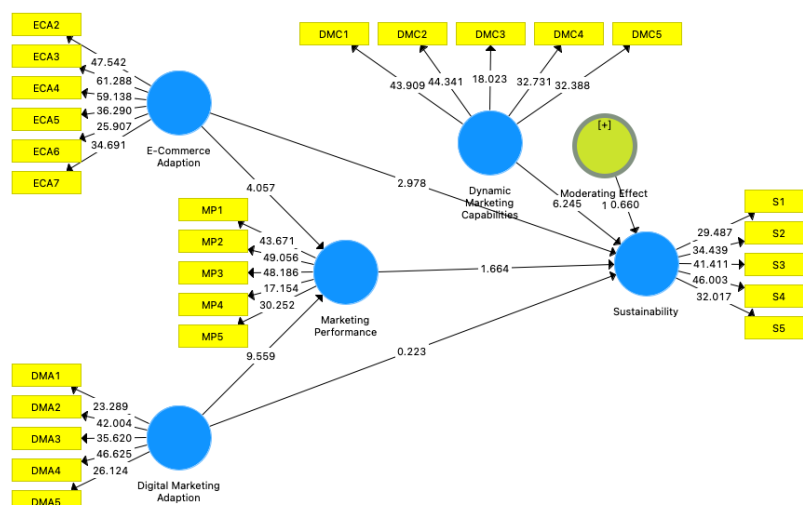
Examining the R-square can let one assess the expected link between the structural models or hidden variables. Table 5 exhibits the R-square value; Figure 2 displays the structural model. Table 3 has R Square values listed below:

Table 3. Value of R Square

	R Square	Adjusted R Square
Marketing Performance	0,749	0,747
Sustainability	0,748	0,744

Source: Authors' own work

Table 3 above helps one see that the R Square value for marketing performance is 0.749, or 74.9%. This implies that 74.9% of the elements of digital marketing adoption and e-commerce adoption can affect marketing performance. The R Square value for sustainability, then, is 0.748, or 74.8%. This implies that by 74.8%, the variable capabilities of e-commerce adoption, digital marketing adoption, marketing performance, and dynamic marketing capabilities affect sustainability.



Source: Authors' own creation

Figure 2. Structural Equation Model

Testing the hypothesis of all the above varying correlations in Table 6 comes next. The P-value serves as the yardstick for this hypothesis test. It is said to be linked if the computed P-value is less than the alpha value, 0.05. It is said to be unrelated, however, if the computed P-value exceeds the alpha value (0.05). The outcome of the hypothesis test is as shown:

Table 4. Hypothesis Test

Hypothesis	Relationships	Original Sample	T-Statistics	P-Value	Result
1	E-Commerce Adaption -> Sustainability	0,183	2,978	0,003	Accepted
2	E-Commerce Adaption -> Marketing Performance	0,282	4,057	0,000	Accepted
3	Digital Marketing Adaption -> Marketing Performance	0,622	9,559	0,000	Accepted
4	Digital Marketing Adaption -> Sustainability	0,015	0,223	0,823	Reject
5	Marketing Performance -> Sustainability	0,155	1,664	0,097	Reject
6	Moderating Effect 1 -> Sustainability	0,019	0,660	0,048	Accepted

Source: Authors' own work

DISCUSSION

Batik is an Indonesian cultural heritage that needs to be introduced to the world; however, marketing efforts have not been maximized. The author chooses Indonesia as the context of the empirical study for various reasons [22]. As a developing country, Indonesia has made significant progress in the application of technology that contributes to the growth of various industries, including MSMEs. This study aims to address the various adaptation mechanisms adopted by Batik MSMEs to sustain their businesses during the pandemic. For example, many brick-and-mortar businesses have adopted various e-commerce platforms to sell and deliver goods. In addition, many MSMEs have also adopted customer-centric digital marketing strategies to maintain their business continuity. Therefore, this study surveyed 326 batik MSMEs in Indonesia to assess the effect of e-commerce adoption and digital marketing on MSME sustainability through superior marketing performance and dynamic marketing capabilities.

First, this study observed the adoption of e-commerce on sustainability. From the results, it can be stated that the adoption of e-commerce has a tangible impact on the sustainability of batik MSMEs. This research is in line with research conducted by [25], which mentions the influence of e-commerce adoption on sustainability. Phenomenologically, it can be explained that e-commerce adoption enables batik MSMEs to reach global markets, increase product visibility, and reduce dependence on local sales, which in turn supports the sustainability of their business. With an e-commerce platform, batik MSMEs can reduce waste and production costs with a more efficient business model, as well as expand access to raw materials and potential markets, overall increasing competitiveness and local economic growth. It also helps preserve the cultural heritage of batik by promoting and maintaining traditional art through digital market penetration, expanding global appreciation of Indonesia's cultural heritage. Second, this study observes the adoption of e-commerce on marketing performance. From the results that have been obtained, it can be stated that the adoption of e-commerce has a real impact on marketing performance. This research is in line with research conducted by [25]. Phenomenally, it can be explained that the adoption of e-commerce expands the marketing reach of Batik MSMEs, enabling them to reach potential consumers worldwide through online platforms. With the analytics and data available on e-commerce platforms, Batik MSMEs can understand customer preferences, improve marketing strategies, and respond to market trends more quickly and effectively. In addition,

an online presence also enables Batik MSMEs to build a strong brand, attract consumer attention with creative content and unique stories, and increase customer interaction and engagement through social media and other features.

Third, this study observes the adoption of digital marketing on marketing performance. From the results that have been obtained, it can be stated that the adoption of digital marketing has a real impact on marketing performance. This is in line with research conducted by [25]. As a phenomenon, it can be explained that the adoption of digital marketing allows companies to target audiences more precisely and efficiently, increasing marketing ROI (Return on Investment) through cost and result optimization. Through digital analytics, companies can understand consumer behavior in depth, respond quickly to market trends, and adjust marketing strategies to achieve business goals more effectively. With a digital platform, companies can build strong brands, increase customer interaction, and create closer relationships with consumers through relevant and engaging content. These four studies observe the adoption of digital marketing towards sustainability. From the results that have been carried out, it can be stated that the adoption of digital marketing does not have a tangible impact on sustainability. This research is not in line with research conducted by [25]. In terms of the phenomenon, it can be explained that the adoption of digital marketing can cause Batik MSMEs to ignore aspects of sustainability, such as the excessive use of energy and digital resources, as well as the potential negative impact on the environment if not managed properly. Focusing too much on digital strategies without considering the holistic impact can obscure awareness of sustainable business practices and the need to preserve local cultural heritage and the environment. In addition, over-reliance on specific digital platforms also increases the risk of Batik MSMEs' changes in platform algorithms or policies that can disrupt their overall marketing performance.

Fifth, this study observes marketing performance against sustainability. From the results that have been carried out, it can be stated that marketing performance has no real impact on sustainability. This research is not in line with research conducted by [25]. Phenomenally, it can be explained that if marketing performance is not integrated with sustainability principles, Batik MSMEs may miss opportunities to strengthen their brand image as pioneers in socially and environmentally responsible business practices. A lack of awareness of sustainability can also hinder Batik MSMEs' access to more sustainable and ethical markets, reducing their competitiveness in the long term. By ignoring the sustainability aspect of marketing performance, Batik MSMEs may damage their reputation in the eyes of consumers who increasingly prioritize social and environmental values. Finally, this study observes dynamic marketing capabilities moderating marketing performance towards sustainability. From the results, it can be stated that dynamic marketing capabilities moderate marketing performance towards sustainability. Phenomenally, it can be explained that dynamic marketing capabilities enable Batik MSMEs to be more responsive to market demands and take sustainability aspects into account in their marketing strategies, moderating the positive impact on sustainability. With the ability to quickly adapt marketing strategies to market changes and sustainability values, Batik MSMEs can minimize the risk of unsustainable marketing practices and strengthen their contribution to the environment and local communities. Dynamic marketing capabilities also enable Batik MSMEs to build strategic partnerships with parties that have a shared vision of sustainability, broadening the positive impact of their marketing on sustainability.

Statistical findings reveal that e-commerce acceptance strongly influences the sustainability of batik MSMEs and marketing success. Furthermore, what strongly influences marketing success is the acceptance of digital marketing. No significant correlation was found between marketing performance and sustainability or between acceptance of digital marketing and sustainability. On the contrary, dynamic marketing skills are shown to moderate the relationship between marketing performance and sustainability. We discuss at length the theoretical and policy consequences, constraints, and directions for further study in this subject.

The need for e-commerce platforms and digital marketing technologies to improve performance, the possibility of dynamic marketing, and the sustainability of MSMEs are underlined in this paper. Several obstacles in this research create opportunities for further investigation. First of all, the exploratory nature of this study means that its findings cannot be applied to other sectors, businesses, or geographical areas. Second, this study examines a sample of Batik MSME entrepreneurs. Batik MSMEs may be more relevant in the use of digital marketing and e-commerce compared to other MSMEs. Therefore, future research can extend this observation to MSMEs in the service or industrial sectors

with a lower level of technology adoption to investigate the similarities and differences in results. Finally, Batik was chosen as an empirical environment considering the relevance of entrepreneurship to the digitalization of MSMEs. However, this disease can affect the results achieved. Therefore, the function of the e-commerce platform and digital marketing capabilities can change depending on the level of digitalization and sustainable business practices of other MSMEs in Indonesia or abroad. Cross-country comparisons of possible differences of this kind may require further investigation.

Implications and recommendations for further research

E-commerce and digital marketing help corporations adopt new technology. This study shows how these technologies help batik MSMEs adopt sustainability programs to improve performance. This study examines how digital technology affects organizational sustainability through better marketing results. The benefits of e-commerce and digital marketing for batik MSMEs in developing nations are little understood because most studies are done in affluent countries and large firms. This study contributes to small company literature by suggesting ways that MSMEs might sell utilizing current technologies. Finally, this study advances RBV literature by recognizing e-commerce and digital marketing as organizational instruments that require dynamic skills to affect marketing performance, capacities, and batik MSMEs' sustainability.

This research affects the management of batik MSME owners. MSMEs that employ e-commerce for product delivery and sales perform better financially. Therefore, MSMEs should transition to e-commerce platforms from physical businesses. MSMEs must train their workforce in technology to succeed and survive by leveraging e-commerce. Second, digital marketing techniques and approaches offer numerous benefits for MSMEs. Therefore, they should investigate and utilize them to maintain business sustainability. Small companies must prioritize internet platforms and technology to impact their performance directly. Because an online presence alone will not enhance income, they should view digital marketing channels as an effective business tool that requires constant investment and monitoring.

These digital marketing tools will help MSMEs predict customer demand and suit their demands. Although digital marketing has increased business performance in wealthier nations, it has not assisted smaller MSMEs. Batik MSMEs require digital marketing training to fulfill customer demand. Technology and innovation will decide long-term sustainability, but MSMEs need more work to attain sustainability. E-commerce and digital marketing may boost sustainability performance and dynamic marketing skills. Thus, the government must incentivize MSMEs based on their sustainable practices to encourage their use of technology.

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