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## The Use of Artificial Intelligence to Improve Digital Marketing Strategies for MSMEs in Indonesia

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### Abstract

*This study explores the application of Artificial Intelligence (AI) in enhancing digital marketing strategies among Micro, Small, and Medium Enterprises (MSMEs) in Indonesia. As digital transformation accelerates globally, MSMEs face growing pressure to adopt innovative technologies to remain competitive. However, challenges such as limited financial resources, low digital literacy, and lack of strategic understanding often hinder effective adoption. Using a qualitative approach, this research conducted in-depth interviews with five MSME owners from various sectors—including food and beverage, fashion, creative design, handicrafts, and online education—who have integrated AI tools into their marketing operations. The findings reveal that AI technologies such as chatbots, predictive analytics, recommendation systems, and automated advertising significantly improve marketing efficiency, customer engagement, and data-driven decision-making. Nonetheless, barriers persist, including high implementation costs, limited technical expertise, and data privacy concerns that restrict broader utilization. The study concludes that successful AI integration among MSMEs depends on three key factors: technological accessibility, organizational readiness, and supportive policy environments. These findings emphasize the strategic role of AI as a catalyst for digital competitiveness and sustainable business growth. Therefore, continuous digital training, affordable AI tools, and strong government–industry collaboration are essential to empower MSMEs in Indonesia’s evolving digital economy.*

*Keywords: Artificial Intelligence, Digital Marketing, MSMEs, Indonesia, Qualitative Analysis.*

### 1. Introduction

The rapid advancement of digital technology has transformed the global business landscape, compelling enterprises of all sizes to adapt to the dynamics of digital marketing. In Indonesia, Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in driving economic growth, employment, and innovation, accounting for over 99% of business entities and contributing significantly to national GDP. However, despite their economic significance, many MSMEs still struggle to compete effectively in the digital era due to limited marketing knowledge, lack of access to advanced technologies, and low levels of digital literacy. Digital technology adoption, including social media marketing, e-commerce platforms, and digital payment systems, significantly boosts MSME growth by expanding market reach and improving operational efficiency [1]. For instance, e-commerce adoption has led to a 45% increase in revenue and a 30% reduction in operational costs for 76% of MSMEs, highlighting its potential to enhance competitiveness [2], [3]. Nevertheless, MSMEs continue to face challenges such as limited digital skills, infrastructure disparities, and algorithm changes that hinder optimal digital marketing results [4]. Limited resources, inadequate technical skills, and data security issues also emerge as significant barriers to digital transformation [5]. Despite these constraints, digital marketing presents vast opportunities for increased market access, brand visibility, and revenue generation [4], [6]. Therefore, strategic planning, enhancement of digital literacy, and sustained government support are essential for MSMEs to overcome these challenges and leverage digital tools effectively [5], [7].

In recent years, Artificial Intelligence (AI) has emerged as a transformative force in digital marketing, enabling businesses to analyze consumer behavior, predict market trends, and deliver personalized experiences that enhance customer engagement and loyalty. Tools such as chatbots, predictive analytics, and recommendation systems have revolutionized how brands interact with consumers, making AI integration a standard practice among large corporations. However, for Micro, Small, and Medium Enterprises (MSMEs), particularly in developing countries

like Indonesia, the adoption of AI remains limited and often experimental due to technological, infrastructural, and resource constraints, despite its substantial potential benefits. AI technologies such as chatbots, recommendation systems, and predictive analytics have revolutionized consumer interaction by providing personalized and efficient customer service [8], [9], and in developed countries, AI is extensively used for content personalization and marketing automation supported by advanced digital infrastructure [10], [11]. Conversely, MSMEs in developing regions like Indonesia face challenges such as low technology literacy, limited human resources, and high infrastructure costs [12], while data privacy concerns and the need for significant investment in technological infrastructure further hinder AI adoption [10], [13]. Despite these obstacles, AI offers vast opportunities for MSMEs to enhance operational efficiency, personalize consumer experiences, and expand market reach [12], as well as to facilitate data-driven product development and tap into the global digital market [12]. Nonetheless, the integration of AI in marketing must balance technological capabilities with ethical considerations such as data protection and algorithmic transparency [9], [14], and strategic frameworks like the AI-Augmented Marketing Framework (AAMF) can guide businesses in leveraging AI for value co-creation while addressing ethical concerns [14].

The integration of Artificial Intelligence (AI) into digital marketing strategies offers substantial opportunities for Micro, Small, and Medium Enterprises (MSMEs) by enhancing competitiveness, operational efficiency, and decision-making capabilities. AI-driven tools can optimize advertising budgets, automate routine marketing tasks, and generate actionable insights from customer data, enabling more accurate market segmentation, personalized content delivery, and improved customer engagement that ultimately contribute to sales growth and business expansion. AI technologies significantly enhance advertising cost efficiency and market segmentation, allowing MSMEs to target audiences more effectively and reduce unnecessary expenditure [15], [16]. Furthermore, predictive analytics and machine learning models assist in sales forecasting and product development, providing MSMEs with a competitive edge in strategic decision-making [17]. Tools such as chatbots and automated copywriting also improve customer engagement by delivering personalized content and enhancing overall user experience [8], [18], while automation of repetitive marketing tasks frees up resources, allowing MSMEs to focus on innovation and long-term strategies [16]. Nevertheless, the successful implementation of AI in MSMEs remains challenged by high initial investment costs, limited access to technology, and a lack of skilled personnel capable of managing AI systems [15], [17]. Additionally, data privacy issues and the need for ethical AI implementation must be carefully addressed to ensure that digital transformation in MSMEs aligns with principles of transparency, accountability, and consumer trust [16].

Despite the substantial potential benefits offered by Artificial Intelligence (AI), several barriers continue to hinder its adoption among Indonesian Micro, Small, and Medium Enterprises (MSMEs). Financial constraints, lack of technical expertise, and concerns about data privacy often discourage smaller enterprises from investing in AI technologies. Moreover, there exists a notable gap between awareness and implementation, as many MSME owners remain unfamiliar with how AI can be effectively utilized to enhance marketing performance and competitiveness. This condition underscores the necessity for deeper exploration not only of the technological dimension but also of the human, organizational, and contextual factors that influence AI adoption within MSMEs. Understanding these barriers is essential to develop inclusive strategies that can support digital transformation and ensure that MSMEs are not left behind in the era of intelligent marketing systems.

This study aims to examine how Artificial Intelligence is applied to improve digital marketing strategies for MSMEs in Indonesia through a qualitative analysis. By conducting in-depth interviews with five MSME informants representing various sectors, this research investigates their experiences, challenges, and perceptions regarding AI-driven digital marketing. The qualitative approach allows for an in-depth understanding of real-world applications, revealing how AI contributes to enhancing marketing efficiency, strengthening customer relationships, and fostering business growth. The specific objectives of this study are threefold: (1) to understand the current level of AI adoption in digital marketing among MSMEs in Indonesia, (2) to identify the key benefits experienced by MSMEs that have implemented AI tools in their marketing strategies, and (3) to explore the challenges and limitations faced by MSMEs in adopting and utilizing AI effectively.

### **Artificial Intelligence in Business Context**

Artificial Intelligence (AI) has become a transformative force in marketing, offering significant enhancements in operational efficiency, customer engagement, and strategic decision-making. AI technologies such as machine learning, natural language processing, and data analytics are increasingly utilized to automate processes, personalize marketing efforts, and provide predictive insights that enable businesses to optimize marketing strategies, improve customer experiences, and gain a competitive edge. AI significantly boosts operational efficiency by automating routine tasks such as email responses, ad placements, and customer interactions, allowing

businesses to allocate resources more strategically [19]. Process automation, driven by AI, is identified as the most impactful component in enhancing efficiency, followed by personalization and data analytics [19]. Moreover, AI enables hyper-personalization of marketing content by tailoring messages to individual consumer preferences and behaviors, which enhances customer engagement and satisfaction [20], [21]. Companies like Amazon and Netflix utilize AI for recommendation systems, improving customer loyalty and engagement through personalized experiences [21]. In addition, AI provides marketers with predictive insights that facilitate better targeting and segmentation, leading to more effective marketing campaigns [22], [23]. The integration of AI in data analytics also allows for real-time processing of vast amounts of data, optimizing marketing strategies and improving scalability [23].

### **Digital Marketing for MSMEs**

Digital marketing has become a crucial tool for Micro, Small, and Medium Enterprises (MSMEs) in Indonesia, particularly during and after the COVID-19 pandemic, as the crisis accelerated the transition toward online business operations and compelled MSMEs to adopt digital marketing strategies to overcome traditional market barriers and compete with larger corporations. MSMEs in Indonesia have increasingly utilized social media platforms such as Instagram, WhatsApp, and Facebook for digital marketing, which facilitate direct interaction with customers and support market expansion [24], [25]. However, a notable lack of adoption of e-commerce platforms persists due to unfamiliarity with their systems, limiting the potential reach and sales channels of these enterprises [25]. Challenges such as limited understanding of digital tools, insufficient technical skills, and budget constraints continue to hinder MSMEs' ability to invest in advanced digital marketing tools and training [24], [25]. Additionally, many MSMEs struggle with analyzing customer data and creating targeted marketing campaigns, both of which are essential for measuring marketing performance and improving customer acquisition [4]. To address these limitations, enhancing digital literacy through training programs can empower MSMEs to better utilize digital marketing tools and analytics to understand consumer behavior and improve content strategies for audience engagement [24], [26]. Furthermore, collaborations with local communities and the use of influencer marketing can strengthen business networks, increase brand visibility, and promote sustainable digital transformation among MSMEs [24], [26].

### **The Role of Artificial Intelligence in Digital Marketing**

AI has significantly transformed digital marketing by enhancing personalization, automation, and efficiency through key applications such as customer data analysis, content personalization, chatbots, and predictive marketing. These innovations not only streamline marketing operations but also empower small businesses to compete with larger enterprises by leveraging affordable, data-driven insights. AI processes large volumes of consumer data to identify patterns and preferences, enabling businesses to segment audiences and anticipate customer needs [27], [28], while predictive analytics and machine learning models serve as essential tools for developing more targeted marketing strategies [29]. AI algorithms further personalize marketing content based on user behavior, thereby increasing engagement rates [29], [30], as seen in platforms like Google Ads and Facebook that use AI to recommend content and optimize ad placements for more effective campaigns [27]. In addition, chatbots powered by natural language processing (NLP) provide instant customer responses, enhancing satisfaction and reducing operational costs [28], [30], while also maintaining consistent engagement with consumers [31]. Predictive marketing tools enable businesses to identify customers most likely to convert, ensuring more efficient ad spending and campaign management [31], and marketing automation platforms such as HubSpot and Salesforce leverage AI to schedule posts, monitor performance, and recommend improvements that optimize overall marketing efforts [29].

### **Conceptual Framework**

Based on the reviewed literature, this study conceptualizes Artificial Intelligence (AI) as a strategic enabler that improves the digital marketing performance of Micro, Small, and Medium Enterprises (MSMEs). The integration of AI technologies—such as data analytics, personalization systems, and chatbots—enhances marketing effectiveness by improving targeting accuracy, customer engagement, and operational efficiency. Nevertheless, the successful adoption of AI within MSMEs is influenced by factors such as available resources, the awareness and competence of business owners, and the external business environment. This conceptual framework underpins the main objective of this study, which is to explore how MSMEs in Indonesia utilize AI to strengthen their digital marketing strategies while identifying the associated benefits, challenges, and contextual factors that shape this transformation process.

## 2. Research Methods

This study employs a qualitative research design to explore the use of Artificial Intelligence (AI) in improving digital marketing strategies among Micro, Small, and Medium Enterprises (MSMEs) in Indonesia. A qualitative approach was chosen because it allows an in-depth understanding of participants' experiences, perceptions, and challenges related to AI adoption. Unlike quantitative studies that focus on numerical measurement, qualitative research emphasizes meaning, interpretation, and context [32], making it suitable for capturing the complex and contextual nature of AI application within the diverse operational realities of MSMEs. The study adopts a phenomenological approach, which seeks to understand how MSME owners perceive and experience the integration of AI into their digital marketing activities. Phenomenology is appropriate because it focuses on subjective meanings and lived experiences, enabling the researcher to uncover how AI technologies influence marketing decision-making, customer engagement, and business development from the practitioners' perspectives.

The research was conducted in Indonesia, focusing on MSMEs operating within various sectors such as retail, food and beverage, fashion, and creative industries—sectors where digital marketing plays a crucial role in reaching consumers and maintaining competitiveness in the digital economy. The study involved five MSME owners or managers who have utilized AI-based tools or technologies in their digital marketing practices. The sample size aligns with qualitative research principles that emphasize depth over breadth, with data collection continuing until data saturation—when no new themes emerge [33]. A purposive sampling technique was employed to select informants who met specific criteria: (1) MSMEs operating for at least two years, (2) owners or managers directly involved in marketing decision-making, and (3) businesses that have adopted or experimented with AI-based tools such as chatbots, predictive analytics, automated advertising, or social media analytics. These informants were selected from different industries to ensure data diversity and represent multiple perspectives on AI utilization.

Data were collected through semi-structured in-depth interviews, each lasting approximately 45–60 minutes, conducted either face-to-face or via online platforms, depending on participant availability. The interview guide covered three main themes: AI implementation and usage (types of tools used, motivations, and integration into operations), perceived benefits (marketing efficiency, customer targeting, and engagement), and challenges and limitations (technical, financial, and organizational barriers). All interviews were audio-recorded with participant consent, transcribed verbatim, and supplemented with field notes to capture non-verbal cues and contextual details. Thematic analysis was used to analyze the data following [33] six-step framework: familiarization, coding, theme identification, theme review, defining and naming themes, and reporting. This systematic process ensured that findings authentically represented participants' experiences while maintaining analytical rigor and interpretive depth.

## 3. Results and Discussions

### 3.1 Profile of Informants

The study involved five MSMEs from different sectors, each representing varying levels of digital maturity and AI utilization. Informant I1, operating in the food and beverage sector in Jakarta, has been in business for five years and uses chatbots for customer service and order management. Informant I2, from the fashion retail industry in Bandung, has operated for four years and employs predictive analytics for sales forecasting and ad targeting. Informant I3, engaged in creative design in Yogyakarta, has six years of experience and utilizes AI-based content generation and social media analytics. Informant I4, from the handicrafts sector in Surabaya, has been running the business for three years and applies automated advertising and personalized email marketing. Lastly, Informant I5, from the online education sector in Medan, has been operating for seven years and uses AI-driven recommendation systems and customer segmentation tools. All informants confirmed that their adoption of AI technologies began within the last three years, aligning with the rapid digital transformation occurring across Indonesia's MSME sector.

### 3.2 Motivation and Implementation of AI in Digital Marketing

The first theme explores the reasons and processes behind MSMEs' integration of Artificial Intelligence (AI) into their marketing practices. Most informants expressed that their primary motivation was to enhance marketing efficiency and competitiveness in an increasingly digital marketplace. Informant I1 stated, "Before using AI, we handled customer inquiries manually through WhatsApp. Once we implemented chatbots, we could respond faster and process more orders, especially during busy hours." This illustrates a technological motivation rooted in the perceived usefulness of AI for automating repetitive marketing tasks. Informants I2 and I3 also emphasized the

importance of data-driven decision-making, explaining that AI tools enabled them to analyze customer preferences and tailor promotional strategies accordingly, thus improving engagement and conversion rates.

In terms of implementation, all MSMEs relied on cost-effective and user-friendly AI-based platforms such as Google Analytics, Meta Ads Manager, and ChatGPT-based content creation tools. These technologies required little to no coding expertise, making them accessible for smaller enterprises with limited technical capacity. However, as noted by Informant I4, the initial stages of AI integration involved significant “trial and error,” reflecting the necessity of organizational learning and adaptive management. This finding aligns with the Technology-Organization-Environment (TOE) framework, which suggests that successful adoption depends not only on technological readiness—characterized by ease of use, accessibility, and perceived benefits—but also on organizational factors such as leadership commitment and a culture of continuous learning that supports innovation.

### 3.3 Perceived Benefits of AI Adoption

All five informants reported positive outcomes following the implementation of Artificial Intelligence (AI) in their marketing activities, with three major benefits emerging from the analysis. First, improved marketing efficiency was a consistent theme among participants. AI automation tools enabled MSMEs to manage campaigns more effectively and reduce manual workload. Informant I4 shared that automated advertising tools minimized the time spent on manual ad placement, while I2 observed a 20–30% increase in ad engagement rates after adopting predictive analytics for more precise customer targeting. Second, enhanced customer engagement and personalization emerged as a critical advantage. AI-powered chatbots and recommendation systems improved customer interactions through faster responses and personalized content delivery. As I5 explained, “The recommendation system on our website suggests relevant courses for each visitor based on their browsing behavior. It helps increase conversions and customer satisfaction.” This finding is consistent with [4], [26], who assert that AI-driven personalization strengthens brand relationships and fosters customer loyalty.

The third major benefit identified was data-driven insights and decision-making, which allowed MSMEs to make more informed marketing choices. Informants highlighted that AI tools offered valuable analytics capabilities to identify emerging market trends and evolving customer preferences. For instance, I3 utilized social media analytics to determine optimal posting times and trending content, resulting in significant improvements in reach and engagement metrics. Collectively, these findings indicate that AI adoption has led to tangible advancements in marketing efficiency, customer engagement, and strategic decision-making. Despite limited financial and technical resources, MSMEs were able to leverage AI technologies to enhance competitiveness and marketing performance in an increasingly digital business environment.

### 3.4 Challenges and Barriers to AI Integration

Despite recognizing the substantial benefits of Artificial Intelligence (AI), all participants encountered significant challenges in its implementation and long-term utilization. The first major barrier was limited technical knowledge and skills, as many MSME owners lacked formal training in AI and digital marketing analytics. Informant I1 admitted, “I had to learn most of it from YouTube and online tutorials. Understanding how AI works took time and patience.” This aligns with [25], who identified limited digital literacy as a primary obstacle to AI adoption among small enterprises. The second barrier involved financial constraints, as several informants noted that the cost of AI-based marketing tools and premium automation software often exceeded their budgets. I2 remarked that “some AI-based marketing tools are too expensive for small businesses,” emphasizing the urgent need for affordable, scalable AI solutions designed specifically for MSMEs.

The third and fourth challenges pertained to data privacy and integration issues. Informants expressed apprehension about sharing customer data with third-party AI platforms due to concerns over privacy and data misuse. I5 underscored the importance of government-backed regulations to safeguard data security when MSMEs deploy AI-driven systems. Furthermore, MSMEs struggled with integration and maintenance, as AI tools were often incompatible with existing business systems, requiring extra time and resources for adjustment. I3 noted that “different platforms don’t always work well together,” highlighting the complexity of aligning diverse digital tools within limited technical infrastructures. Collectively, these barriers reflect the organizational and environmental constraints within the Technology-Organization-Environment (TOE) framework, indicating that successful AI adoption among MSMEs requires not only technological readiness but also institutional support in the form of training programs, financial assistance, and clear data governance policies.

### 3.5 Strategic Implications for MSME Development

The findings indicate that Artificial Intelligence (AI) has emerged as a strategic enabler of digital transformation among Micro, Small, and Medium Enterprises (MSMEs). However, its successful implementation relies on several critical factors that collectively determine the sustainability and effectiveness of AI adoption. The first is capacity building and digital literacy, as continuous education and training are essential for MSME owners to maximize the use of AI tools. Government agencies, universities, and technology providers need to collaborate in creating accessible digital literacy programs focused specifically on AI applications in marketing. The second factor is collaboration and ecosystem support, where partnerships with digital platforms, start-ups, and marketing agencies can help MSMEs gain access to AI technologies at lower costs. Building a collaborative ecosystem that encourages knowledge-sharing, resource pooling, and mentorship will accelerate AI diffusion and strengthen innovation capabilities across MSME sectors.

Another determinant is policy and regulatory support, as government intervention is vital to ensure ethical AI usage, particularly regarding data privacy and consumer protection. Establishing clear policies that balance innovation with accountability will build trust among MSME users and customers alike. Lastly, customized AI solutions for MSMEs are needed to make adoption more feasible and impactful. Technology developers should design affordable, user-friendly systems with intuitive analytics dashboards that allow MSMEs to harness data-driven insights without requiring advanced technical expertise. These implications are consistent with Indonesia's broader digital transformation agenda, which emphasizes technology-driven innovation, inclusivity, and the empowerment of MSMEs as a cornerstone of sustainable economic development.

### Discussion

The results of this study reaffirm previous findings that Artificial Intelligence (AI) adoption significantly enhances marketing performance among Micro, Small, and Medium Enterprises (MSMEs). Empirical evidence shows that AI tools such as chatbots and data analytics substantially improve operational efficiency and sales, with 70% of MSMEs reporting increased revenue following AI implementation [34]. Furthermore, AI contributes positively to marketing outcomes, as indicated by a regression coefficient of 0.75, demonstrating a strong relationship between AI usage and sales growth [18]. Applications such as personalized content, predictive analytics, and customer segmentation have also been proven to strengthen customer engagement and market reach [12], [16]. These benefits collectively affirm that AI serves not only as a technological tool but also as a catalyst for digital competitiveness and strategic marketing transformation among MSMEs.

Despite its advantages, MSMEs continue to face numerous challenges in adopting AI technologies. High implementation costs and limited technological literacy remain significant barriers to integration [12], [34]. A notable gap persists between AI awareness and practical application, with only 44% of MSMEs having successfully embedded AI into their marketing operations [18]. Other constraints include data privacy concerns, insufficient infrastructure, and the lack of specialized expertise required to maintain AI systems [16]. These challenges underscore that while AI offers tremendous potential, its benefits cannot be fully realized without addressing the financial, technical, and human resource limitations that many MSMEs face. Therefore, government support, digital training programs, and collaborative ecosystems are crucial to overcoming these structural obstacles and enabling more inclusive AI adoption [5], [34].

This study extends the existing literature by providing qualitative insights into the lived experiences of Indonesian MSMEs navigating AI integration, thereby validating the applicability of the Technology-Organization-Environment (TOE) framework in this context. The findings reveal that successful AI adoption occurs when technological accessibility, organizational readiness, and environmental support are aligned. While technological factors—such as ease of use and perceived benefits—encourage adoption, organizational and contextual constraints often impede sustained use. Furthermore, this research emphasizes that AI adoption is not merely a technical transition but a strategic process involving continuous learning, experimentation, and adaptation. For MSMEs, AI represents an evolving journey toward marketing efficiency, personalization, and competitiveness, one that must be reinforced through innovation, institutional backing, and long-term policy commitment.

### 4. Conclusion

The findings of this study demonstrate that Artificial Intelligence (AI) plays a transformative role in reshaping the digital marketing practices of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia. Through automation, personalization, and data-driven insights, AI empowers small businesses to improve marketing performance, enhance customer engagement, and strengthen their competitiveness in the digital marketplace. The MSME informants revealed that AI technologies such as chatbots, predictive analytics, and automated advertising

streamlined their marketing operations, reduced manual workloads, and enabled more accurate decision-making using real-time data. Nevertheless, the study also identified several barriers that hinder full-scale AI adoption, including limited technical expertise, financial constraints, and concerns regarding data security. Many MSME owners continue to rely on self-learning and low-cost online tools, indicating that AI adoption among small enterprises remains at an early developmental stage. These findings highlight the need for continuous digital literacy enhancement and greater access to affordable, scalable AI tools that suit the unique operational needs of MSMEs. From a strategic standpoint, successful AI adoption within MSMEs is determined by three interconnected factors: technological capability, organizational readiness, and environmental support. Technological capability refers to the perceived usefulness and ease of use of AI tools, which influence adoption decisions. Organizational readiness involves managerial commitment, openness to innovation, and the ability to allocate resources toward digital transformation. Environmental support encompasses external elements such as regulatory frameworks, competitive pressures, and collaborative networks that facilitate digital integration. This study contributes to a deeper understanding of how AI can be effectively embedded into MSME marketing strategies in developing economies, positioning AI not just as a technological innovation but as a strategic enabler for sustainable business growth. For policymakers and stakeholders, the findings underscore three key implications: (1) strengthening capacity building through AI-oriented training and education programs, (2) fostering collaboration between MSMEs, technology developers, and academic institutions to build innovation ecosystems, and (3) enacting inclusive policies that ensure affordable AI access, data protection, and equitable digital transformation. Ultimately, while AI offers immense opportunities for Indonesia's MSME sector, its successful implementation hinges on coordinated efforts across business, technological, and policy domains to enhance digital resilience, competitiveness, and long-term sustainability.

## Reference

- [1] A. Arridho, B. O. Sinaga, H. Hartono, and D. H. Syahchari, "Digital Technology Adoption and Business Growth in Indonesian MSMEs Using PLS-SEM," in *2025 4th International Conference on Creative Communication and Innovative Technology (ICCIIT)*, IEEE, 2025, pp. 1–6.
- [2] S. Fatmah and M. Atnang, "Digital Transformation in Entrepreneurship: Analysis of E-Commerce Utilization by MSMEs in Indonesia to Enhance Competitiveness," *International Journal of Science Technology and Health*, vol. 3, no. 1, pp. 35–43, 2025.
- [3] H. Ashari and T. P. Nugrahanti, "Household economy challenges in fulfilling life needs during the Covid-19 pandemic," *Global Business and Economics Review*, vol. 25, no. 1, pp. 21–39, 2021.
- [4] R. P. A. Zukari and R. Aryanto, "The Influence of Digital Marketing Strategy in the Development of MSMEs on Economic Growth 2018–2022 (Case Study of Digital Advertising MSMEs in Jakarta)," *Journal of World Science*, vol. 4, no. 1, pp. 125–134, 2025.
- [5] S. Purnomo, N. Nurmalitasari, and N. Nurchim, "Digital transformation of MSMEs in Indonesia: A systematic literature review," *Journal of Management and Digital Business*, vol. 4, no. 2, pp. 301–312, 2024.
- [6] T. P. Nugrahanti and A. S. Jahja, "Audit judgment performance: The effect of performance incentives, obedience pressures and ethical perceptions," *Journal of Environmental Accounting and Management*, vol. 6, no. 3, pp. 225–234, 2018.
- [7] S. Evanita and Z. Fahmi, "Analysis of Challenges and Opportunities for Micro, Small, and Medium Enterprises (MSMEs) in the Digital Era in a Systematic Literature Review," *JMK (Jurnal Manajemen dan Kewirausahaan)*, vol. 8, no. 3, pp. 227–239, 2023.
- [8] P. Szewski, "Sztuczna inteligencja w digital marketingu," *Media i Społeczeństwo*, vol. 20, no. 1, pp. 169–185, 2024.
- [9] A. Tadimarri, S. Jangoan, K. K. Sharma, and A. Gurusamy, "AI-powered marketing: Transforming consumer engagement and brand growth," *Int. J. Multidiscip. Res.*, vol. 6, pp. 1–11, 2024.
- [10] S. Mubarak and M. Wibowo, "Comparative Study of Artificial Intelligence (AI) Utilization in Digital Marketing Strategies Between Developed and Developing Countries: A Systematic Literature Review," *Ilomata International Journal of Management*, vol. 6, no. 1, pp. 156–173, 2025.
- [11] H. Ashari, T. P. Nugrahanti, and B. J. Santoso, "The role of microfinance institutions during the COVID-19 pandemic," *Global Business and Economics Review*, vol. 30, no. 2, pp. 210–233, 2024.
- [12] F. Faridatul and M. B. Purwanto, "Pemanfaatan artificial intelligence (AI) dalam pemasaran digital: Tantangan dan peluang," *OPTIMAL Jurnal Ekonomi Dan Manajemen*, vol. 5, no. 3, pp. 607–622, 2025.
- [13] I. Agustina, H. Khuan, B. Aditi, S. A. Sitorus, and T. P. Nugrahanti, "Renewable energy mix enhancement: the power of foreign investment and green policies," *International Journal of Energy Economics and Policy*, vol. 13, no. 6, pp. 370–380, 2023.
- [14] D. Sundari, P. Rajeshkumar, D. Santhanalakshmi, and H. K.N., "Artificial Intelligence in Digital Marketing: A Systematic Review and Strategic Framework for AI-Augmented Marketing," *International Research Journal on Advanced Engineering and Management (IRJAEM)*, vol. 3, pp. 2595–2611, Aug. 2025, doi: 10.47392/IRJAEM.2025.0410.
- [15] D. Selasi and C. Vidiati, "PENGEMBANGAN STRATEGI DIGITAL MARKETING BERBASIS AI UNTUK UMKM DI ERA EKONOMI DIGITAL," *Bakti Mulya: Jurnal Pengabdian dan Pendampingan Masyarakat*, vol. 3, no. 1, pp. 64–74, 2025.
- [16] Y. Yeni, M. K. Darmaputera, and S. K. Hildayanti, "Mengeksplorasi kecerdasan buatan pada manajemen pemasaran digital era 5.0 di dunia UMKM," *Transekonomika: Akuntansi, Bisnis dan Keuangan*, vol. 4, no. 3, pp. 343–358, 2024.
- [17] M. Mladenović, K. J. Jocić, T. Đukić, O. Momčilović, and S. Maričić, "Reshaping digital landscapes: analyzing the impact of ai in digital marketing strategies on local smes," *SCIENCE International journal*, vol. 3, no. 4, pp. 99–104, 2024.
- [18] S. Juriah and D. Susilastuty, "Artificial Intelligence and the Future of Digital Marketing," *Devotion: Journal of Research and Community Service*, vol. 5, no. 12, pp. 1569–1576, 2024.
- [19] A. M. Ngabalin, "The Impact of Artificial Intelligence on Operational Efficiency in Marketing Management," *Asian Journal of Applied Business and Management*, vol. 4, no. 2, pp. 545–554, 2025.
- [20] K. L. Gaikwad and R. Gautam, "Artificial Intelligence and its Application in Today's Marketing Context," *International Journal for Multidisciplinary Research*, vol. 5, no. 5, 2023.

- [21] S. H. Mirwan, P. L. Ginny, D. Darwin, R. Ghazali, and M. N. J. Lenas, "Using artificial intelligence (AI) in developing marketing strategies," *International Journal of Applied Research and Sustainable Sciences*, vol. 1, no. 3, pp. 225–238, 2023.
- [22] J. Cannella, "Artificial Intelligence in marketing," *Unpublished Honors Thesis for Barrett, Arizona: The Honors College at Arizona State University*, 2018.
- [23] A. Metta, "EXPLORING THE IMPACT OF ARTIFICIAL INTELLIGENCE IN MARKETING," *Naveen International Journal of Multidisciplinary Sciences (NIJMS)*, vol. 1, no. 5, pp. 1–8, 2025.
- [24] E. Wanda and M. Hijriatin, "Analysis of Digital Marketing Strategies in MSMEs in Banda Aceh to Increase Competitiveness in the Post-Pandemic Era," *Indonesian Journal Economic Review (IJER)*, vol. 4, no. 2, pp. 42–49, 2024.
- [25] M. Purnamasari, A. M. Herdina, R. D. Kumalasari, P. A. Purnama, and N. J. Siregar, "Implementation of digital marketing in micro, small, and medium Enterprises (MSMEs) in Indonesia during the COVID-19 pandemic," in *2023 International Conference On Cyber Management And Engineering (CyMaEn)*, IEEE, 2023, pp. 88–91.
- [26] D. Aprilianti, A. Agustian, and U. Narimawati, "Adoption and Use of Digital Marketing Tools Among Food and Beverage MSMEs in Gen Z," *Jurnal Ilmiah Manajemen Kesatuan*, vol. 13, no. 4, pp. 2899–2908, 2025.
- [27] A. Mittal and R. Tandon, "AI Revolutionizing Digital Marketing: Current Tools, Key Aspects, and Future Directions," in *2023 3rd International Conference on Innovative Sustainable Computational Technologies (CISCT)*, IEEE, 2023, pp. 1–6.
- [28] R. Abbasi and M. Esmaili, "Identifying the applications of artificial intelligence in online marketing," in *Smart and sustainable interactive marketing*, IGI Global Scientific Publishing, 2024, pp. 32–54.
- [29] M. Cogoljević, K. Njegić, and V. Cogoljević, "Current state and perspectives of digital marketing in the era of artificial intelligence," *Employment, Education and Entrepreneurship 2024*, no. Papers, pp. 396–403, 2024.
- [30] T. Paletko, "Sztuczna inteligencja w marketingu cyfrowym—przykłady badań, zastosowań i perspektywy rozwoju," *Culture Management*, vol. 26, no. 2, 2025.
- [31] K. Priya, S. K. James, A. A. Babu, S. Sharanyaa, and S. V. S. Prasad, "Artificial Intelligence and Machine Learning: Revolutionizing Data-Driven Decisions," in *2024 5th IEEE Global Conference for Advancement in Technology (GCAT)*, IEEE, 2024, pp. 1–6.
- [32] J. W. Creswell and C. N. Poth, *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications, 2016.
- [33] G. Guest, E. Namey, and M. Chen, "A simple method to assess and report thematic saturation in qualitative research," *PLoS One*, vol. 15, no. 5, p. e0232076, 2020.
- [34] Z. D. Khaq, V. K. Subroto, and E. Susanto, "AI-driven strategies for enhancing MSME sales and business sustainability in the digital era," *Journal of Management Innovation*, vol. 3, no. 2, pp. 180–194, 2024.