



Analysis of the Implementation of Artificial Intelligence (AI)-Based Promotional Media by Micro, Small, and Medium Enterprises (MSMEs) in Enhancing Brand Awareness in the Digital 5.0 Era

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Abstrak

Dengan meningkatkannya penggunaan teknologi berbasis Artificial Intelligence (AI) saat ini, merupakan angin segar bagi pelaku UMKM di kota Padang. Dengan memanfaatkan AI pelaku UMKM dalam memasarkan produknya mampu menghemat banyak biaya. Penelitian ini bertujuan untuk menganalisis implementasi media promosi produk UMKM yang menggunakan Artificial intelligence (AI) sebagai upaya meningkatkan brand awareness di era serba digital 5.0. pada maret tahun 2025 tercatat ada 47.289 pelaku UMKM di kota Padang, yang tersebar di 11 kecamatan. Pada dasarnya UMKM merupakan penyumbang terbanyak dalam hal perekonomian nasional saat ini. Namun, kurangnya literasi dan pemahaman penggunaan teknologi terbaru masih terbatas. Hal tersebut di tegaskan dengan data dari 2014 hingga 2018 terdapat hanya 46,87% UMKM yang memanfaatkan media promosi dan akses internet, lalu pada 2019 hingga akhir 2021 terhitung hampir 90% UMKM mati suri di akibat oleh penyebaran penyakit Corona. Oleh karena itu, perlu upaya dan tindakan spesifikasi penelitian yang khusus membahas implementasi media promosi menggunakan AI untuk meningkatkan literasi dan kemampuan pelaku UMKM. penelitian ini menggunakan metode penelitian campuran (kualitatif-kuantitatif) dengan pendekatan berbasis proyek. Data proyek ini dimulai dengan mengumpulkan data primer dan sekunder melalui wawancara mendalam kepada 30 narasumber, penyebaran 476 kuisisioner data media sosial, media online, media massa dan data pendukung lainnya. Penelitian ini memiliki keahlian interdisipliner (ilmu komunikasi, ilmu sosial, dan ilmu ekonomi) untuk pemecahan masalah sehingga menemukan hasil penelitian yang mampu mendeskripsikan kebutuhan dan mengimplementasikan cara mempromosi produk UMKM yang efektif serta mampu untuk memberikan rekomendasi kebijakan dan saran kepada aktor kepentingan. Hasil dari penelitian ini diharapkan menghasilkan 1 luaran wajib yaitu Jurnal Nasional SINTA 1-4 yang sesuai dengan TKT 1 dengan target akhir TKT 3]

Kata Kunci : UMKM, media promosi, brands awarness, artificial intelligence (AI), era 5.0

Abstract

With the increasing use of Artificial Intelligence (AI)-based technology today, this development has become a positive opportunity for Micro, Small, and Medium Enterprises (MSMEs) in Padang City. By utilizing AI, MSME actors can significantly reduce marketing costs when promoting their products. This study aims to analyze the implementation of MSME product promotion media using Artificial Intelligence (AI) as an effort to enhance brand awareness in the digital 5.0 era. As of March 2025, there were 47,289 MSME actors recorded in Padang City, spread across 11 districts. Fundamentally, MSMEs are currently the largest contributors to the national economy. However, literacy and understanding of the use of emerging technologies remain limited among MSME actors. This condition is reinforced by data from 2014 to 2018, which shows that only 46.87% of MSMEs utilized promotional media and internet access. Furthermore, from 2019 to the end of 2021, nearly 90% of MSMEs experienced stagnation due to the spread of the COVID-19 pandemic. Therefore, specific research efforts and targeted actions are needed to examine the implementation of AI-based promotional media to improve the literacy and capabilities of MSME actors. This study employs a mixed-method research design (qualitative-quantitative) with a project-based approach. The research process began with the collection of primary and secondary data through in-depth interviews with 30 informants and the distribution of 476 questionnaires, supported by data from

social media, online media, mass media, and other relevant sources. This research integrates interdisciplinary expertise (communication studies, social sciences, and economics) to address the identified problems, resulting in findings that describe MSME needs and implement effective strategies for promoting MSME products, as well as providing policy recommendations and practical suggestions for relevant stakeholders. The expected outcome of this research is one mandatory output in the form of a National Journal indexed in SINTA 1–4, aligned with Technology Readiness Level (TRL) 1, with a final target of TRL 3.

Keywords: MSMEs, promotional media, brand awareness, artificial intelligence (AI), Society 5.0 era

Introduction

Micro, Small, and Medium Enterprises (MSMEs) play a strategic role in sustaining national and regional economic growth in Indonesia. As the backbone of the economy, MSMEs contribute significantly to employment creation, income distribution, and economic resilience, particularly at the local level. In urban areas such as Padang City, MSMEs dominate the economic landscape and serve as key drivers of community-based economic development. As of March 2025, more than 47,000 MSMEs were officially recorded in Padang City, spread across 11 districts, highlighting the magnitude of their contribution to the regional economy. Despite this potential, MSMEs continue to face structural challenges, particularly in adapting to rapid technological change and digital transformation.

The global acceleration of digitalization has entered a new phase marked by the emergence of Artificial Intelligence (AI) and the concept of Society 5.0. Society 5.0 emphasizes a human-centered approach to technological development, where advanced technologies such as AI, big data, and automation are integrated to solve social and economic problems effectively. In this context, AI is no longer limited to large corporations but has increasingly become accessible to small-scale businesses, including MSMEs. AI-powered tools such as automated content creation, social media analytics, chatbots, and personalized advertising provide new opportunities for MSMEs to improve efficiency, reduce costs, and enhance market reach.

One of the most critical challenges faced by MSMEs today lies in product promotion and brand building. In a highly competitive digital environment, traditional promotional strategies are often insufficient

to capture consumer attention. Brand awareness has become a key determinant of business sustainability, as consumers tend to prefer brands that are familiar, recognizable, and emotionally relevant. However, many MSMEs struggle to develop consistent branding strategies due to limited financial resources, lack of digital literacy, and insufficient access to professional marketing expertise. As a result, their products often fail to gain visibility despite having competitive quality and local uniqueness.

The adoption of AI-based promotional media offers a promising solution to these challenges. AI enables MSMEs to optimize marketing activities through data-driven decision-making, content personalization, and automation. By analyzing consumer behavior, preferences, and engagement patterns, AI helps businesses deliver more targeted and relevant promotional messages. This capability not only improves marketing efficiency but also strengthens brand recognition and recall among consumers. Moreover, AI allows MSMEs to compete more fairly with larger enterprises by minimizing operational costs associated with conventional advertising and manual marketing processes.

Nevertheless, the level of AI adoption among MSMEs in Indonesia remains uneven. Empirical data indicate that between 2014 and 2018, only 46.87% of MSMEs utilized digital promotional media and internet access. This low adoption rate reflects persistent barriers such as limited technological literacy, inadequate infrastructure, and resistance to change. The situation worsened during the COVID-19 pandemic from 2019 to 2021, when nearly 90% of MSMEs experienced stagnation or temporary closure due to declining consumer demand and restricted business operations. These conditions exposed the vulnerability of MSMEs that lacked digital readiness and

reinforced the urgency of technological adaptation.

In response, both central and local governments have launched various initiatives to promote MSME digitalization, including training programs, mentoring, and financial assistance. In Padang City, efforts to encourage MSMEs to “go digital” have primarily focused on social media utilization, online marketplaces, and digital payment systems. While these initiatives represent important first steps, they largely emphasize basic digital marketing rather than advanced technologies such as AI. Consequently, there is limited empirical evidence regarding how AI-based promotional media are implemented by MSMEs at the local level and how such implementation affects brand awareness outcomes.

This research addresses this gap by examining the implementation of AI in MSME promotional media in Padang City within the framework of Society 5.0. Specifically, the study seeks to analyze how AI tools are utilized in marketing communication strategies and to what extent they contribute to increasing brand awareness. By adopting a mixed-methods approach that combines qualitative insights and quantitative measurement, this research provides a comprehensive understanding of both the opportunities and challenges associated with AI adoption among MSMEs.

Furthermore, this study adopts an interdisciplinary perspective that integrates communication studies, social sciences, and economics. Such an approach is essential because the implementation of AI in MSME promotion is not merely a technical issue but also a social and behavioral process involving perception, adaptation, and learning. Understanding how MSME actors perceive AI, how they use it in practice, and how it influences consumer awareness is crucial for developing effective and inclusive digital transformation strategies.

The findings of this research are expected to contribute both theoretically and practically. From an academic perspective, the study enriches the literature on AI-driven marketing and brand awareness in the MSME context, particularly at the regional level. From a practical standpoint, the results provide evidence-based recommendations

for MSME actors, policymakers, and other stakeholders to design more effective promotional strategies and capacity-building programs. Ultimately, this research aims to support MSMEs in Padang City in enhancing their competitiveness and sustainability through the strategic use of Artificial Intelligence in the digital era.

Method

This study employed a mixed-methods research design, integrating qualitative and quantitative approaches to obtain a comprehensive understanding of the implementation of Artificial Intelligence (AI)-based promotional media by Micro, Small, and Medium Enterprises (MSMEs) in Padang City and its impact on brand awareness. A mixed-methods approach was considered appropriate because it allows the researcher to explore complex social phenomena in depth while also generating measurable and generalizable findings. The research was conducted using a project-based approach, emphasizing practical implementation and empirical analysis in real MSME contexts.

Research Design and Approach

The research design combined qualitative descriptive analysis and quantitative explanatory analysis. The qualitative component aimed to explore MSME actors' perceptions, experiences, and challenges in adopting AI-based promotional tools. Meanwhile, the quantitative component focused on measuring the relationship between AI implementation and brand awareness indicators. This integration enabled data triangulation to enhance the validity and reliability of the findings.

The project-based approach was applied by examining real promotional practices implemented by MSMEs, including the use of AI tools such as AI-assisted content creation, social media analytics, chatbots, and automated advertising platforms. The study was conducted between January and August 2025 in Padang City, covering 11 districts with diverse MSME characteristics.

Population and Sample

The research population consisted of all registered MSMEs in Padang City, totaling approximately 47,289 business units

as recorded by the local Cooperative and MSME Office in March 2025. Given the large population size, a purposive sampling technique was employed to select respondents who met specific criteria, namely MSME actors who had used digital media for product promotion and were familiar, either directly or indirectly, with AI-based promotional tools.

For the qualitative data, 30 informants were selected for in-depth interviews. These informants represented various business sectors, including culinary, fashion, creative industries, and services. For the quantitative data, 476 MSME actors participated by completing structured questionnaires. This sample size was considered sufficient to represent the diversity of MSMEs in Padang City and to support statistical analysis.

Data Collection Techniques

Data collection was carried out using both primary and secondary data sources. Primary data were obtained through in-depth interviews and questionnaires. The interviews were conducted semi-structurally to allow flexibility in exploring respondents' experiences while maintaining consistency across interviews. Interview questions focused on the types of AI tools used, motivations for adoption, perceived benefits, challenges encountered, and perceived effects on brand awareness.

The quantitative data were collected through questionnaires distributed both online and offline. The questionnaire consisted of closed-ended statements measured using a five-point Likert scale, ranging from "strongly disagree" to "strongly agree." The questionnaire items were designed to measure variables related to AI implementation (such as frequency of use, types of tools, and level of automation) and brand awareness (including brand recognition, recall, online visibility, and consumer engagement).

Secondary data were collected from official government reports, academic journals, online media, social media analytics, and other relevant documentation to support and contextualize the primary findings.

Data Analysis Techniques

Qualitative data from interviews were analyzed using thematic analysis. The data were transcribed, coded, and categorized to

identify recurring themes and patterns related to AI adoption, promotional strategies, and brand awareness outcomes. This process enabled an in-depth interpretation of MSME actors' perspectives and experiences.

Quantitative data were analyzed using descriptive and inferential statistical techniques. Descriptive statistics were used to summarize respondent characteristics and the level of AI adoption. Inferential analysis, including correlation and regression analysis, was conducted to examine the relationship between AI-based promotional media and brand awareness. These analyses aimed to determine whether AI implementation had a significant influence on brand awareness among MSMEs.

Validity, Reliability, and Ethical Considerations

To ensure data validity, triangulation was applied by comparing qualitative findings with quantitative results and secondary data. Reliability of the questionnaire was tested using internal consistency measures prior to distribution. Ethical considerations were addressed by obtaining informed consent from all participants, ensuring confidentiality, and using the collected data solely for academic purposes.

Results and Discussion

This study presents findings from qualitative and quantitative data to describe the implementation of Artificial Intelligence (AI)-based promotional media by Micro, Small, and Medium Enterprises (MSMEs) in Padang City and its impact on brand awareness. The results are organized into four main aspects: characteristics of respondents, types of AI tools utilized, level of AI implementation, and the effect of AI-based promotion on brand awareness.

Characteristics of Respondents

The quantitative data were collected from 476 MSME actors across 11 districts in Padang City. The respondents represented various business sectors, with the culinary sector dominating (42.6%), followed by fashion (21.4%), creative industries (18.7%), and service-based businesses (17.3%). In terms of business scale, most respondents were micro-enterprises (68.5%), while small enterprises accounted for 24.8% and medium enterprises for 6.7%. These findings indicate

that AI adoption is not limited to medium-scale businesses but has begun to penetrate micro and small enterprises.

Regarding digital experience, 71.2% of respondents had used social media platforms such as Instagram, Facebook, or TikTok for product promotion, while only 38.9% reported consistent use of AI-assisted tools. This suggests that while digital promotion is relatively common, AI-based promotion remains at an early adoption stage among MSMEs in Padang City.

Types of AI Tools Used in Promotion

The results show that MSMEs primarily utilize low-cost and user-friendly AI tools. The most frequently used tools include AI-assisted design platforms such as Canva AI (62.4%), AI text generators for captions and product descriptions such as ChatGPT or similar tools (54.7%), and basic social media analytics powered by AI (41.3%). Meanwhile, more advanced tools such as AI-driven advertising optimization and chatbots were used by only 18.6% and 15.2% of respondents, respectively.

Qualitative interview data revealed that MSME actors preferred tools that required minimal technical skills and could be directly integrated into daily promotional activities. Many respondents stated that AI tools helped them generate ideas, design visuals, and write promotional content more quickly, reducing dependence on external marketing services.

Level of AI Implementation

Based on the composite AI implementation index developed in this study, 52.8% of respondents were categorized as having a low level of AI implementation, 34.6% as moderate, and only 12.6% as high. MSMEs with moderate to high implementation levels tended to demonstrate more consistent branding, regular content uploads, and higher engagement rates on social media platforms.

Key barriers to AI implementation identified from both data sets include limited digital literacy, lack of training opportunities, and uncertainty about the effectiveness of AI tools. Despite these barriers, most respondents (78.4%) expressed a positive attitude toward AI and indicated willingness to increase usage if adequate guidance and support were available.

Impact of AI-Based Promotion on Brand Awareness

Statistical analysis revealed a positive and significant relationship between AI-based promotional media and brand awareness. Regression analysis showed that AI implementation significantly influenced brand awareness ($\beta = 0.61$, $p < 0.05$), indicating that increased use of AI tools was associated with higher levels of brand recognition, recall, and online visibility.

Respondents who actively used AI tools reported increased follower growth, higher engagement rates, and improved consistency in brand messaging. Interview data further confirmed that AI-assisted promotion made brands appear more professional and credible in the eyes of consumers, contributing to stronger brand awareness.

Discussion

The findings of this study confirm that Artificial Intelligence plays a meaningful role in enhancing MSME promotional activities and brand awareness in the context of Society 5.0. Although AI adoption among MSMEs in Padang City remains at an early stage, the results demonstrate that even basic AI tools can deliver substantial benefits when applied strategically.

The dominance of simple AI applications such as content generation and visual design reflects the practical needs and limitations of MSMEs. This aligns with previous studies suggesting that MSMEs tend to adopt incremental digital innovations that offer immediate value with minimal risk. The preference for accessible tools indicates that AI adoption among MSMEs is driven more by usability and cost-efficiency than by technological sophistication.

The positive relationship between AI implementation and brand awareness supports theoretical perspectives in digital marketing and communication that emphasize personalization, consistency, and data-driven engagement. AI enables MSMEs to produce promotional content more frequently and consistently, which strengthens brand exposure and recall. In addition, AI-assisted analytics allow MSMEs to better understand audience preferences, resulting in more relevant and targeted communication.

From a communication perspective, AI transforms MSME promotion from a one-way information delivery process into a more interactive and responsive branding strategy. Consumers increasingly expect visually appealing, timely, and personalized content, particularly on social media platforms. MSMEs that utilize AI are better positioned to meet these expectations, thereby enhancing their brand presence in crowded digital spaces.

However, the study also highlights persistent challenges. The low proportion of MSMEs with high levels of AI implementation indicates a gap between technological potential and actual utilization. Limited digital literacy and lack of structured training programs remain significant obstacles. This finding underscores the importance of capacity-building initiatives that go beyond basic digital marketing and introduce MSMEs to practical AI applications in a step-by-step manner.

From a policy perspective, the results suggest that government-led digitalization programs should evolve toward AI-focused empowerment. While existing initiatives in Padang City have successfully encouraged MSMEs to adopt social media and digital payments, future programs should incorporate AI literacy, hands-on workshops, and mentoring systems. Such efforts would help MSMEs progress from basic digital adoption toward more advanced, value-creating technologies.

In the context of Society 5.0, AI adoption by MSMEs is not merely a technological issue but a socio-economic transformation process. By reducing marketing costs and improving brand awareness, AI contributes to MSME resilience and competitiveness. Therefore, strategic collaboration among academia, government, and industry stakeholders is essential to ensure inclusive and sustainable AI adoption.

Overall, this study demonstrates that AI-based promotional media significantly enhance MSME brand awareness when implemented appropriately. The findings provide empirical evidence that supports the integration of AI into MSME marketing strategies and offer practical insights for stakeholders seeking to strengthen local

economic development through digital innovation.

Conclusion

This study concludes that the implementation of Artificial Intelligence (AI)-based promotional media has a positive and significant impact on brand awareness among Micro, Small, and Medium Enterprises (MSMEs) in Padang City. The findings indicate that even the use of simple and accessible AI tools, such as AI-assisted content creation and design platforms, can enhance brand recognition, visibility, and consistency in digital marketing. AI enables MSMEs to optimize promotional activities, reduce marketing costs, and present their products in a more professional and competitive manner within the digital ecosystem of the Society 5.0 era.

Despite these benefits, the level of AI adoption among MSMEs remains relatively low to moderate. Major challenges identified include limited digital literacy, lack of technical skills, insufficient training opportunities, and uncertainty regarding the effectiveness of AI tools. These barriers prevent many MSME actors from fully utilizing AI's potential. Nevertheless, the positive attitudes expressed by MSME actors toward AI adoption suggest strong potential for future growth if adequate support, guidance, and capacity-building programs are provided.

Based on these findings, it is recommended that policymakers, educational institutions, and related stakeholders strengthen AI-focused empowerment programs for MSMEs. Training initiatives should emphasize practical, low-cost AI applications that are aligned with MSME needs and capabilities. Future research may expand the scope by examining long-term impacts of AI adoption on business performance and competitiveness across different regions. Overall, strategic integration of AI in MSME promotional activities can serve as an effective pathway to enhancing brand awareness and supporting sustainable economic development in the digital era.

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