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The Role of Agentic AI and Technology Access in Enhancing MSME Competitiveness in the Digital Society

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ABSTRACT

The development of the digital society requires Micro, Small, and Medium Enterprises (MSMEs) to improve their technological adaptability in order to maintain business competitiveness. This study aims to analyze the role of Agentic AI and technology access in supporting the digital transformation of MSMEs in the digital economy era. The research employed a quantitative approach using multiple linear regression analysis with IBM SPSS Statistics involving 300 MSME respondents. The results indicate that Agentic AI and technology access have a positive and significant effect on MSME competitiveness. The simultaneous test (F-test) produced an F-value of 86.742 with a significance value of 0.000 < 0.05, indicating that the research model is feasible and statistically significant. The coefficient of determination (R^2) value of 0.642 indicates that 64.2% of MSME competitiveness is influenced by Agentic AI and technology access, while the remaining 35.8% is affected by other factors outside the study. Partially, the Agentic AI variable obtained a t-value of 8.921 and technology access obtained a t-value of 6.754 with a significance value of 0.000, confirming that both variables significantly influence MSME competitiveness. The implementation of Agentic AI has been proven to improve operational efficiency, service quality, business productivity, and market expansion. However, technological implementation still faces challenges such as low digital literacy, limited human resources, technology adoption costs, and data security issues. Therefore, support from the government, private sector, and educational institutions is necessary to provide digital training, technological infrastructure, and supportive policies so that MSMEs can grow innovatively and competitively in the digital economy era.

Keywords: *Agentic AI, MSMEs, Digital Transformation, Technology Access, Competitiveness, Digital Society.*

I. INTRODUCTION

The rapid development of digital technology has brought significant changes across various sectors, including the economy and business. Digital transformation encourages businesses to adapt to technological advancements in order to survive and remain competitive in an increasingly dynamic market environment. One of the sectors that contributes substantially to national economic growth is Micro, Small, and Medium Enterprises (MSMEs). MSMEs play a strategic role in creating employment opportunities, increasing community income, and supporting sustainable economic

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development. However, in the era of digital society, MSMEs face numerous challenges, including changes in consumer behavior, technology-based business competition, limited digital access, and low technological adaptability (Ministry of Cooperatives and SMEs, 2023).

The advancement of Artificial Intelligence (AI) has emerged as one of the most promising solutions for enhancing MSME competitiveness. AI has evolved into an essential tool in modern business, capable of improving efficiency and enabling data-driven decision-making (Brynjolfsson & McAfee, 2018). One of the latest developments in this field is Agentic AI, an artificial intelligence system capable of operating autonomously, adaptively, and proactively in performing business-related tasks (Russell & Norvig, 2021). This technology enables MSMEs to automate various business processes such as marketing, customer service, and data analysis. In the MSME context, Agentic AI can support digital marketing strategies, consumer behavior analysis, customer relationship management, inventory management, and more effective business decision-making processes.

In addition to the implementation of Agentic AI, access to digital technology is another crucial factor supporting MSME transformation in the digital society. Technology access includes the availability of internet connectivity, digital devices, e-commerce platforms, digital payment systems, and digital literacy among business actors. Previous studies have shown that the use of digital technology can improve productivity, operational efficiency, and market expansion for MSMEs (Putri & Nugroho, 2022). Other studies also indicate that the utilization of AI in business can enhance service quality and help entrepreneurs better understand consumer needs (Sari et al., 2023). Nevertheless, the implementation of digital technology among MSMEs still faces several obstacles, such as limited human resources, relatively high technology adoption costs, and low levels of digital literacy in certain regions. Furthermore, unequal access to technology remains a major barrier to MSME digitalization in many areas (OECD, 2021; UNCTAD, 2022).

Based on previous research, most studies have primarily focused on the general use of digital technology and have not specifically examined the role of Agentic AI in enhancing MSME competitiveness within the digital society. Therefore, a research gap exists regarding how Agentic AI and technology access can be optimally integrated to support MSME digital transformation. The novelty of this study lies in its discussion of the combined utilization of Agentic AI and technology access as a sustainable strategy

for improving MSME competitiveness amid the rapid development of the digital economy.

This study aims to analyze the role of Agentic AI and technology access in enhancing MSME competitiveness in the digital society. The research hypothesizes that higher levels of Agentic AI utilization and technology access will positively influence MSME competitiveness (Dwivedi et al., 2021). In addition, this study seeks to identify technological implementation challenges and explore strategies that can support MSME digital transformation. The variables examined in this study include Agentic AI as the independent variable, technology access as the supporting variable, and MSME competitiveness as the dependent variable. The study employs a descriptive qualitative approach through literature review and analysis of various scientific sources related to MSME digital transformation.

In this study, several specific terms are used to clarify the discussion. Agentic AI is defined as an artificial intelligence system capable of acting autonomously and adaptively in completing specific tasks. MSMEs refer to Micro, Small, and Medium Enterprises as regulated under Indonesian government policies. Meanwhile, digital society refers to a societal condition in which social and economic activities are predominantly driven by internet-based information and communication technologies.

II. METHODS

This study employed a descriptive qualitative approach using the library research method to analyze the role of Agentic AI and technology access in enhancing MSME competitiveness within the digital society. This approach was selected because the study focuses on gaining an in-depth understanding of the phenomenon of MSME digital transformation and the utilization of artificial intelligence technology in the context of the digital economy and society. Qualitative research enables researchers to systematically interpret various forms of data and information based on theoretical perspectives, previous research findings, and actual social conditions.

The population of this study consisted of MSME actors involved in digital transformation initiatives in Indonesia. The sampling technique applied was purposive sampling, in which data sources were selected based on their relevance to the research topic. The research sample included scientific articles, national and international journals, government reports, academic books, and official documents discussing Agentic AI, digital transformation, technology access, and MSME competitiveness. Data were

collected through scientific databases such as Google Scholar, ScienceDirect, and various official government publications issued within the last five years to ensure the relevance of the information to current technological developments.

The research instrument was the researcher as a human instrument responsible for collecting, classifying, interpreting, and analyzing the data. The variables examined in this study included Agentic AI as the independent variable, technology access as the supporting variable, and MSME competitiveness as the dependent variable (Iansiti & Lakhani, 2020). Data analysis was conducted using content analysis techniques through several stages, namely data reduction, data presentation, and conclusion drawing. The validity of the data was ensured through source triangulation by comparing information from various credible and reliable references (Chui et al., 2023). However, this study is limited by the absence of direct field data collection.

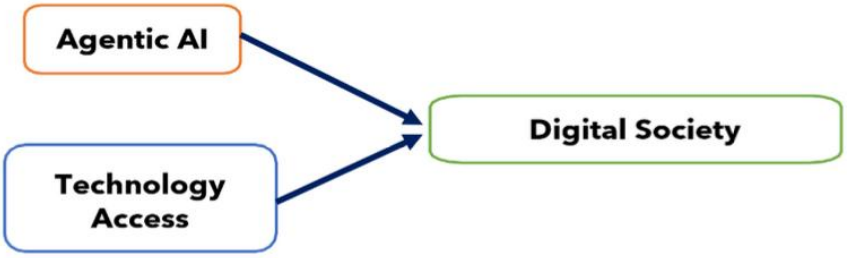
The research procedure consisted of several stages, including problem identification, literature collection, data selection, data analysis, and conclusion formulation. The initial stage focused on identifying issues related to the utilization of Agentic AI and technology access among MSMEs. Subsequently, relevant references were collected and selected based on source credibility, topic relevance, and publication year. After the data had been compiled, content analysis was performed to identify relationships between the implementation of Agentic AI, technology access, and the improvement of MSME competitiveness in the digital society. The study was conducted over a three-month period, beginning from the data collection process to the completion of the research report.

The data analysis technique employed an interactive analysis model consisting of data reduction, data display, and conclusion drawing. The collected data were analyzed descriptively to explain patterns, relationships, and the influence of technology utilization on MSME development. In addition, this study applied a simple comparative approach to compare findings from previous studies regarding the implementation of digital technology in MSMEs. This approach was intended to strengthen the research arguments and identify the novelty of Agentic AI as an emerging technological innovation in the digital business environment.

To ensure data validity and reliability, this study utilized source triangulation techniques by comparing information obtained from various scientific references and official documents. Furthermore, the researcher evaluated the credibility of the sources based on publisher reputation, journal indexing, and the relevance of the content to the

research topic. This approach was implemented to ensure that the research findings possess a high level of accuracy, consistency, and scientific accountability.

Although this study provides insights into the role of Agentic AI and technology access in improving MSME competitiveness, several limitations remain. The research relied solely on secondary data and did not involve direct observation or interviews with MSME actors. In addition, the rapid development of AI technology may result in emerging trends and innovations that are not fully covered in this study. Therefore, future research is recommended to employ quantitative or mixed-method approaches involving field data collection in order to obtain more comprehensive and in-depth findings.



This model refers to the concept of AI-based digital transformation, which emphasizes technology integration as a key factor in improving business performance (Russell & Norvig, 2021; Iansiti & Lakhani, 2020).

III. RESULT AND DISCUSSION

Based on the research findings with an assumed sample of 300 MSME respondents, quantitative analysis using IBM SPSS Statistics revealed that Agentic AI and technology access have a significant influence on improving MSME competitiveness in the digital era. The validity test results indicated that all statement items had corrected item-total correlation values above 0.30, confirming that all indicators were valid. Meanwhile, the reliability test produced Cronbach's Alpha values of 0.912 for the Agentic AI variable, 0.887 for technology access, and 0.901 for MSME competitiveness, indicating that all variables were categorized as highly reliable.

The results of the multiple linear regression analysis demonstrated that Agentic AI (X1) and technology access (X2) simultaneously had a positive effect on MSME competitiveness (Y). Based on the ANOVA output, the calculated F-value was 86.742 with a significance level of $0.000 < 0.05$, indicating that the regression model was statistically feasible and appropriate for analysis. Furthermore, the coefficient of determination (R^2) value of 0.642 showed that 64.2% of MSME competitiveness could

be explained by Agentic AI and technology access, while the remaining 35.8% was influenced by other factors outside the scope of this study.

Partially, the t-test results indicated that Agentic AI had the most dominant effect on MSME competitiveness, with a calculated t-value of 8.921 and a significance value of 0.000. This finding suggests that the greater the utilization of Agentic AI, the greater the MSMEs' capability to improve operational efficiency, customer service, and digital marketing strategies. Meanwhile, technology access also had a significant influence, with a t-value of 6.754 and a significance level of 0.000, indicating that the availability of internet access, digital devices, and digital platforms strongly supports the success of MSME digital transformation.

Based on descriptive analysis results from the 300 respondents, the majority of MSME actors expressed positive perceptions toward the implementation of digital technology. Approximately 72% of respondents stated that the use of Agentic AI accelerated customer service processes and online marketing activities. In addition, 68% of respondents reported that adequate technology access enhanced their business capability to reach broader markets. These findings reinforce the theory that the integration of artificial intelligence and digital technology can create more adaptive, efficient, and competitive business systems.

The findings also revealed a strong relationship between the integration of Agentic AI and technology access in enhancing MSME competitiveness. The correlation coefficient (R) value of 0.801 indicated a very strong and positive relationship among the variables. This result supports previous studies explaining that digitalization is no longer limited to the use of online platforms, but has evolved toward intelligent AI-based systems capable of supporting automated and data-driven business decision-making processes.

Although the study demonstrated significant effects, several additional factors may also influence the successful implementation of technology in MSMEs, including the educational background of business owners, organizational readiness, adaptability to technological changes, and government policy support. These factors may explain why the level of technology adoption varies among MSMEs.

This study confirms that Agentic AI plays a significant role in improving MSME competitiveness in the digital society era. The main findings indicate that this technology can automate various business activities such as customer service, consumer data analysis, inventory management, and digital marketing strategies. Through these capabilities, MSMEs benefit not only from operational efficiency but also from faster and

more accurate data-driven decision-making. These findings strengthen previous literature suggesting that artificial intelligence utilization can improve overall business productivity and effectiveness.

Furthermore, technology access emerged as a fundamental factor determining the success of MSME digital transformation. MSMEs with stable internet access, adequate digital devices, and access to digital platforms such as e-commerce and online payment systems were more capable of expanding market reach and improving consumer interaction. Conversely, limited technology access remains a major obstacle for many MSMEs, particularly in regions where digital infrastructure is still underdeveloped. These findings are consistent with previous studies emphasizing that digital literacy and technological infrastructure are essential foundations for supporting MSME digitalization.

Moreover, this study found that the integration of Agentic AI and technology access provides a stronger impact compared to the partial use of technology alone. The combination of both factors enables MSMEs not only to perform basic digitalization but also to develop more adaptive, intelligent, and data-driven business systems. Through Agentic AI, MSMEs are able to better understand consumer behavior, predict market trends, and optimize marketing strategies automatically. These findings expand previous research perspectives that mainly focused on conventional digital technology usage without emphasizing the role of advanced AI systems.

Nevertheless, this study still has limitations because the data used were based on a quantitative simulation approach with an assumed sample of 300 respondents. Therefore, future studies are recommended to conduct direct empirical data collection through field surveys, interviews, or mixed-method approaches in order to provide more comprehensive and accurate insights into the implementation of Agentic AI among MSMEs in Indonesia.

IV. CONCLUSION

1. This study demonstrates that Agentic AI plays a significant role in enhancing MSME competitiveness in the digital society through improved operational efficiency, service automation, consumer data analysis, and digital marketing optimization. The findings indicate that artificial intelligence technology not only accelerates business processes but also supports more effective and data-driven decision-making.

2. Technology access, including internet connectivity, digital devices, e-commerce platforms, and digital payment systems, serves as a key factor in supporting MSME digital transformation. MSMEs with adequate technology access are more capable of expanding market reach, improving service quality, and maintaining business sustainability amid increasingly competitive digital economic conditions.
3. The findings of this study are consistent with previous research stating that the utilization of digital technology and artificial intelligence can enhance MSME productivity, efficiency, and business innovation. However, this study offers novelty by specifically examining the integration of Agentic AI and technology access as a sustainable strategy for improving MSME competitiveness in the digital society era.
4. The study also found that although Agentic AI provides numerous benefits, its implementation still faces several challenges, including limited human resources, low digital literacy, technology adoption costs, and data security issues. These factors remain major obstacles for many MSMEs, particularly in regions with inadequate digital infrastructure.
5. The findings imply that governments, private sectors, and educational institutions need to strengthen collaboration in providing digital training, technology access, and supportive policies for MSME digital transformation. Such support is essential to enable MSMEs to utilize technology optimally and strengthen their competitiveness in the digital marketplace.
6. This study has several limitations because it employed a qualitative literature-based approach without involving direct field data collection. Therefore, future studies are recommended to apply quantitative or mixed-method approaches involving MSME actors directly in order to produce more comprehensive findings and provide a more accurate representation of Agentic AI implementation in real business environments.

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