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AI-Driven Market Insights: Transforming the Competitiveness of Local MSMEs in Bekasi, Indonesia

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ABSTRACT

AI-DRIVEN MARKET INSIGHTS: TRANSFORMING THE COMPETITIVENESS OF LOCAL MSMEs IN BEKASI, INDONESIA. This study examines the role of AI-driven market insights in transforming the competitiveness of local Micro, Small, and Medium Enterprises (MSMEs) in Bekasi Regency, West Java, Indonesia. Using a descriptive qualitative approach, the research is based on literature review and secondary data, complemented by empirical insights from the Institution Collaboration for International Community Service 2026. The findings reveal that structured knowledge transfer has enabled MSMEs to understand and begin internalizing Artificial Intelligence (AI) as a strategic tool for analyzing market trends, consumer behavior, and business opportunities. Furthermore, the study identifies a significant increase in digital awareness and literacy among MSME actors, reflected in their shift from intuition-based to data-driven decision-making practices. This transformation is further supported by the emergence of a collaborative ecosystem involving academic institutions, international experts, and local entrepreneurs, which facilitates knowledge co-creation and innovation diffusion. Through triangulation and theoretical dialogue, the study confirms that AI adoption in MSMEs is influenced by knowledge transfer, digital literacy, and ecosystem support. The results highlight that AI-driven market insights are no longer merely conceptual but are increasingly being implemented in local business practices. Therefore, this study contributes to the literature on digital transformation and MSME development by providing empirical evidence of how AI can enhance competitiveness in emerging economies.

Keywords: *Artificial Intelligence, Market Insights, MSMEs Competitiveness, Digital Transformation*

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INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) constitute the backbone of Indonesia's economy, contributing significantly to national economic growth in terms of business units, Gross Domestic Product (GDP), and employment absorption. MSMEs account for approximately 99% of all business entities in Indonesia and contribute more

than 61% to the national GDP while absorbing approximately 97% of the workforce (Zuhroh et al., 2025; (IMF Asia and Pacific Dept, 2024). This dominance highlights that Indonesia's economic stability heavily depends on the sustainability and competitiveness of the agricultural sector. However, despite their substantial quantitative contribution, MSMEs' participation in global exports remains relatively low compared to large enterprises, indicating a productivity and competitiveness gap that requires urgent attention. This disparity reflects a fundamental gap between the economic potential and actual performance of MSMEs in Indonesia

From a socio-economic perspective, MSMEs in Indonesia often exhibit characteristics of a survival economy, where many entrepreneurs operate businesses not primarily for expansion but to maintain household economic stability (Adam et al., 2024). This phenomenon is closely linked to the relatively low level of productive and innovation-driven entrepreneurship, resulting in the limited scalability of many MSMEs. Furthermore, restricted access to formal financing remains a major constraint, with a large proportion of MSMEs still excluded from formal financial systems (IMF Asia and Pacific Dept, 2024). Such financial exclusion limits their ability to invest in innovation and technology adoption, ultimately reducing their productivity and competitiveness. Therefore, MSMEs face structural challenges in sustaining livelihoods and achieving growth-oriented transformation (Lin et al., 2022).

The rapid development of the digital economy presents significant opportunities for MSMEs to enhance their competitiveness through the adoption of information and communication technologies. Digital transformation has enabled many MSMEs to expand their market access, improve their operational efficiency, and strengthen their customer engagement via e-commerce platforms and social media (Lin et al., 2022; Aminullah et al., 2024). How ever, this transformation is uneven, as disparities in digital access and capabilities persist across regions and business scales. Consequently, digitalization has not yet become a universal solution for improving the competitiveness of MSMEs. This uneven adoption underscores the need for more inclusive and targeted technological interventions (Morris et al., 2022).

Low digital literacy and limited technological competence remain critical barriers to effective digital transformation among MSMEs. Many business owners lack the skills to utilize data and digital tools for strategic decision making (Zahoor et al., 2023). In addition, infrastructural limitations in certain regions exacerbate this challenge, widening the gap between technologically adaptive MSMEs and those that are left behind (Morris et al., 2022). Previous studies have indicated that while digital transformation can significantly enhance efficiency and profitability, its implementation is often constrained by resource limitations and insufficient technical expertise (Rupeika-Apoga & Petrovska, 2022). Hence, the primary challenge lies not only in adopting technology but also in optimizing its strategic usage.

In the global context, advancements in *Artificial Intelligence* (AI) offer transformative potential for improving efficiency, innovation, and business competitiveness, including MSMEs. AI technologies enable the processing of large-scale data to generate accurate and real-time market insights, facilitating faster and more informed decision-making (Drydakis, 2022). However, AI adoption among MSMEs remains relatively low compared to large corporations due to constraints in financial resources, technological access, and human capital. Small firms are generally less likely to adopt

advanced technologies because of these limitations (Sánchez et al., 2025). This highlights the critical gap between the transformative potential of AI and its practical implementation in MSMEs.

Globalization and rapidly evolving digital consumer behavior have intensified the competitive pressure on local MSMEs. Modern consumers increasingly prioritize digital experiences, service speed, and personalized products, requiring MSMEs to adapt swiftly (Singh et al., 2023). Without the ability to analyze market trends in real time, MSMEs risk losing their market share to more technologically advanced competitors. In this context, AI-driven market insights are highly relevant because they enable businesses to better understand consumer preferences and market dynamics (Ha et al., 2026). However, the application of AI-based analytics in MSMEs, particularly in local regions such as Bekasi Regency, is limited.

As one of the major economic hubs in West Java, Bekasi Regency holds significant potential for developing technology-driven MSMEs. However, similar to other regions in Indonesia, MSMEs in Bekasi face challenges related to digitalization, innovation, and competitiveness (Schwaeke et al., 2025). The gap between local economic potential and technological adaptability represents a strategic issue that must be addressed in the future. Therefore, innovative approaches, particularly AI-driven market insights, are required to enhance the competitiveness of local MSMEs sustainable manner (Drydakis, 2022). This forms the foundation for identifying both theoretical and empirical gaps addressed in this study.

Previous studies have demonstrated that digitalization and technological transformation positively influence MSME performance, particularly by enhancing operational efficiency, market access, and profitability. Systematic literature reviews indicate that digital transformation fosters innovation and competitiveness among MSMEs, although it is often constrained by limited resources and technical capabilities (Merín-Rodrigáñez et al., 2024; Sagala and Őri, 2024). Furthermore, research on big data analytics highlights its potential to create significant economic value for small businesses, provided sufficient technological infrastructure and capabilities are available (Bhatti et al., 2025). Studies on AI in business contexts also emphasize its role in transforming business models and market strategies, although its adoption remains uneven across small enterprises (Lu et al., 2022).

Despite these advancements, a significant research gap exists regarding the integration of AI-driven market insights into MSMEs in developing countries, particularly Indonesia. Most existing studies focus broadly on digital transformation without specifically examining how AI can be leveraged to generate strategic market insights for MSMEs (Schwaeke et al., 2025). Additionally, research exploring AI implementation within community service frameworks is scarce. Therefore, the novelty of this study lies in integrating AI-driven market insights into MSME competitiveness through a community empowerment approach in the Bekasi Regency. This study also bridges the gap between digital transformation theory and the practical implementation of AI at the MSME level.

This study aims to analyze and implement the use of AI-driven market insights to enhance the competitiveness of local MSMEs in Bekasi Regency through a community service (PKM) approach, while also identifying the impact of AI utilization on business efficiency, market understanding, and business sustainability.

This study argues that the utilization of AI-driven market insights represents a strategic solution to address the limitations of market information and analytical capacity among MSMEs. By leveraging AI's ability to process real-time data, MSMEs can obtain more accurate insights into consumer behavior, market trends, and competitor strategies (Le Dinh et al., 2025; Oldemeyer et al., 2025). This capability enables more informed, timely, and data-driven decision-making, thereby enhancing competitiveness in increasingly dynamic market environments. Furthermore, AI helps optimize limited resources, which is a defining characteristic of MSMEs.

This study argues that a community service based approach is an effective strategy for acceleratinge AI adoption among MSMEs. Through training, mentoring, and knowledge transfer, MSME actors can improve their digital literacy and technological competence (Lemos et al., 2025). This approach not only focuses on technological implementation but also emphasizes human resource empowerment and ensures sustainable transformation. Thus, the integration of AI technology with community service initiatives is expected to bridge the gap between MSMEs' potential and their actual performance (Sánchez et al., 2025).

This study holds significant importance in the context of community service, as it provides practical contributions to enhancing MSME capacity and competitiveness through AI technology. In the face of globalization and digital economic transformation, MSMEs require innovative solutions that are both theoretical and practical and contextually relevant. Through the community service approach, this study delivers both academic contributions and tangible socio-economic impacts, particularly for MSME actors in the Bekasi Regency.

METHOD

This study employs a descriptive qualitative research approach to explore how Artificial Intelligence (AI) can be leveraged to enhance market intelligence among *Micro, Small, and Medium Enterprises* (MSMEs) in Bekasi Regency, West Java, Indonesia. A qualitative approach is particularly appropriate as it enables an in-depth understanding of complex socio-technical phenomena, including the adoption of AI, digital literacy challenges, and market intelligence practices in real-world contexts (Ayinaddis, 2025; Sánchez et al., 2025). The descriptive design is used to systematically capture and interpret empirical realities without manipulating variables, allowing researchers to identify patterns, challenges, and opportunities in AI implementation among MSMEs (Villamin et al., 2025). This approach aligns with the objective of examining both technological and socio-economic dimensions within the framework of Community Service activities.

Data were collected through multiple qualitative techniques to ensure richness and triangulation, including in-depth interviews, participant observation and document analysis (Chand, 2025). The primary data sources consisted of MSME actors participating in the *Institution Collaboration for International Community Service 2026* program, particularly those involved in the "AI-Based Market Intelligence for Local MSMEs in Bekasi" initiative. Informants were selected using purposive sampling, focusing on MSME owners and managers who actively engaged in community service

activities and demonstrated varying levels of digital readiness (Ahmad & Wilkins, 2025). In addition, observational data were obtained during training sessions and mentoring activities conducted on April 21, 2026, at Setiadarma Village Hall Secondary data were gathered from program reports, policy documents, and relevant institutional records. This multi-source data collection enhances the credibility and validity of our findings.

Data analysis was conducted using an interactive model of qualitative data analysis, consisting of data condensation, data display, and conclusion drawing/ verification (Asipi et al., 2022). The analysis process involved coding and categorizing the data to identify key themes related to AI utilization, market intelligence practices, and barriers to adoption. To ensure trustworthiness, this study applied credibility, transferability, dependability, and confirmability criteria as suggested by Enworo (2023), including triangulation, member checking, and audit trails. Furthermore, the interpretation of the findings was guided by theoretical frameworks such as *Resource-Based View* (RBV) and Dynamic Capabilities to strengthen analytical rigor. Through this systematic approach, thise study aims to generate contextually grounded insights that contribute to both academic discourse and the practical implementation of AI for MSMEs.

RESULTS AND DISCUSSION

Knowledge Transfer of AI-Based Market Intelligence

The findings indicate that the *Institution Collaboration for International Community Service 2026* facilitated a tangible process of knowledge transfer regarding AI-based market intelligence to MSME actors in Bekasi Regency. The materials delivered by both international and national speakers introduced Artificial Intelligence as a strategic analytical tool capable of identifying market trends, consumer behavior, and emerging business opportunities. This process reflects the structured dissemination of knowledge from academic institutions to practical business actors, bridging theoretical concepts with real-world applications. The interaction between speakers and participants demonstrates that MSMEs are not merely passive recipients but active participants in knowledge acquisition processes . Consequently, thise activity represents an early stage of AI internalization within MSME business practices.

The knowledge transfer process highlights the emergence of a learning environment that supports the adoption of advanced technologies by MSMEs. The engagement of participants in discussions and practical sessions indicates that the transfer of knowledge is not limited to conceptual understanding but extends to applied knowledge. This aligns with the concept of experiential learning, in which knowledge is constructed through direct interaction and practice. Consequently, MSMEs began to develop cognitive frameworks for understanding how AI could be integrated into their business operations. This finding reinforces the notion that knowledge transfer is critical for technology adoption.

The presence of international experts contributes to the global perspective of AI applications in business contexts. Exposure to international best practices enhances the quality of knowledge received by MSME participants, enabling them to benchmark their practices against global standards. This not only increases their awareness but

also motivates them to adopt innovative approaches to managing their businesses. The incorporation of global insights into local contexts demonstrates the adaptability of AI based strategies. Therefore, the knowledge transfer process is a catalyst for transforming traditional business practices.

The findings also reveal that the interaction between knowledge producers (academics) and knowledge users (MSMEs) creates a dynamic exchange of ideas between them. This interaction facilitates mutual learning, where academics gain insights into practical challenges while MSMEs acquire theoretical knowledge. This bidirectional knowledge exchange enhances the relevance and applicability of AI-based solutions. It also strengthens the relationship between academia and industry, which is essential for sustainable innovations. Thus, thise activity contributes to the development of a knowledge-based ecosystem.

The integration of AI concepts into MSME practices signifies a shift toward data-driven decision making. Participants demonstrated an increased understanding of how data could be utilized to inform business strategies. This transition from intuition-based to data-driven approaches marks a significant milestone in the transformation of MSMes. This indicates that AI-driven market insights are becoming an integral part of business decision-making processes. Consequently, thise study provides empirical evidence of the initial adoption of AI in MSMEs.

The results further suggest that the knowledge transfer process reduces the perceived complexity of AI technologies. By simplifying concepts and providing practical examples, the program makes AI more accessible to non technical users. This is particularly important for MSMEs, which often lack the technical expertise. The reduction of technological barriers enhances the likelihood of adoption by farmers. Therefore, knowledge transfer plays a crucial role in facilitating technological diffusion in developing countries.

The findings confirm that AI-driven market insights are no longer purely conceptual but have begun to be internalized within MSME business practices at the local level. Thise activity demonstrates that structured knowledge transfer can effectively bridge the gap between theory and practice. It also highlights the importance of continuous learning in adapting to technological advancements. Consequently, MSMEs are better positioned to leverage AI to improve their competitiveness. This finding underscores the significance of knowledge-based interventions in digital transformation.

Increased Awareness and Digital Literacy

The results indicate a significant increase in awareness and digital literacy among MSME participants regarding the importance of AI in enhancing business competitiveness in the post-training phase. Active participation in international community service programs reflects a growing interest in adopting digital technologies. Discussions and interactive sessions revealed that MSME actors are beginning to understand how market data can be transformed into strategic insights using AI tools. This shift represents a transition from traditional business practices to technology-driven entrepreneurship. Therefore, the program serves as a catalyst for enhancing digital literacy.

The findings demonstrate that MSMEs are increasingly recognizing data as a strategic asset. The participants expressed a growing understanding of how data analytics can improve decision-making processes. This awareness is crucial for fostering a data-driven culture in MSMEs. This aligns with the broader trend of digital transformation in small businesses. Consequently, the program contributes to the development of analytical thinking among MSME actors.

Increased digital literacy was evident in the participants' ability to engage with AI-related concepts during the sessions. Many participants demonstrated an improved understanding of terms such as market intelligence, predictive analytics, and consumer behavior analysis. This indicates that the program effectively enhanced their technological competence. Improved literacy reduces the gap between technological potential and practical applications. Thus, the findings highlight the importance of education for digital transformation.

The results also show that MSMEs are becoming more open to adopting innovative technolog. This openness is reflected in their willingness to explore AI-based solutions to business challenges. According to the diffusion of innovation theory, awareness and understanding are critical stages in the adoption process. The program successfully addresses these stages by providing relevant knowledge and practical insight. Therefore, it accelerates the adoption of AI by MSMEs.



Figure 1



Figure 2

The findings suggest that increased awareness leads to changes in the business mindset. MSME actors are beginning to shift from reactive to proactive strategies in managing their businesses. They recognize the importance of anticipating market trends rather than merely responding. This shift enhances the ability of companies to compete in dynamic markets. Consequently, digital literacy contributes to strategic transformation.

The study also identified that peer learning plays a significant role in enhancing digital literacy. Interaction among participants allows them to share their experiences and learn from each other. This collaborative learning environment reinforces the adoption of new technolog. It also builds confidence among MSMEs in using AI tools. Therefore, social interaction is an important driver of learning.

The findings confirm that AI-driven market insights are increasingly perceived as a strategic necessity rather than an optional tool for companies. The program successfully increaseds awareness and digital literacy among MSMEs. This transformation is essential for achieving sustainable competitiveness in the automotive industry. It also highlights the roles of education and training in technology adoption. Thus, the results provide empirical evidence of the growing acceptance of AI by MSMEs.

Formation of a Collaborative Ecosystem

The findings reveal the emergence of a collaborative ecosystem involving multiple stakeholders, including educational institutions, international academics, and MSME actors, which collectively function as strategic enablers of digital transformation. The active participation of STIE BII, international experts, and local entrepreneurs reflects the integration of heterogeneous knowledge sources that span the theoretical, technological, and practical domains. This multidimensional collaboration creates a synergistic environment in which knowledge is not only transferred but also dynamically exchanged and reinterpreted by different actors.

Such an ecosystem aligns with the concept of innovation ecosystems, where value creation emerges from the interactions of interdependent stakeholders rather than isolated efforts. Moreover, this collaboration strengthens the legitimacy of AI-driven market insights as a viable and credible approach to MSME development, particularly in local contexts where technological adoption is often constrained. Therefore, the ecosystem plays a pivotal role as a facilitator of knowledge exchange and as a structural foundation for sustainable digital transformation.

The collaborative environment enables the co-creation of knowledge between stakeholders, representings a critical shift from traditional unidirectional knowledge transfer models to more interactive and participatory learning processes. MSMEs contribute context-specific, experiential insights derived from real business challenges, whereas academics provide theoretical frameworks, analytical tools, and technological expertise grounded in global research.



Figure 3



Figure 4

This reciprocal interaction results in the development of solutions that are both theoretically sound and practically applicable, thereby increasing their relevance and effectiveness in real-world scenarios. In addition, the co-creation process enhances the absorptive capacity of MSMEs by allowing them to actively engage in knowledge

construction rather than passively receiving information. This participatory dynamic also fosters a sense of ownership among MSME actors, which is crucial for the long-term sustainability of innovation adoption in the MSME sector. Consequently, the ecosystem not only facilitates innovation but also institutionalizes collaborative learning as a core mechanism of transformation.

The findings also indicate that cross-institutional and international collaborations significantly enhance the program's credibility and perceived legitimacy. The involvement of global experts introduces diverse perspectives on AI implementation, exposing MSMEs to international best practices and cutting-edge developments in digital technolog. This exposure reduces the uncertainty and perceived risk associated with adopting new technologies, which are common barriers in MSME. Furthermore, it aligns local business practices with global standards, enabling MSMEs to position themselves more competitively in domestic and international markets. The presence of internationally recognized experts also serves as a form of institutional endorsement, reinforcing trust in the program and its outcomes. Thus, collaboration not only facilitates knowledge exchange but also strengthens the institutional and cognitive foundations necessary for technolog adoption.

The program functions as a pilot platform for testing MSME readiness for AI adoption, providing a unique opportunity to observe real-time interactions between technology and users in a controlled yet practical setting. Observations conducted during the activity revealed varying levels of readiness among participants, ranging from basic awareness to emerging application capabilities. These variations highlight the heterogeneity of MSME capacities and underscore the need for tailored intervention strategies to address specific challenges. The empirical evidence generated from this pilot platform is valuable for informing future program design, particularly in identifying critical gaps in knowledge, skills, and infrastructure requirements. Moreover, the platform enables iterative learning, in which feedback from participants can be used to refine training approaches and technological solutions. Therefore, the program serves a dual function as both an implementation mechanism and an empirical laboratory for studying the digital transformation processes.

The results further demonstrate that a collaborative ecosystem supports the diffusion of innovation among MSMEs by creating networks of interaction that facilitate the spread of new ideas, practices, and technologies. Through formal sessions and informal exchanges, participants shared experiences and insights, thereby accelerating collective learning. This process reduces information asymmetry and lowers the barriers to AI technology adoption. Additionally, the formation of peer networks enhances trust and encourages experimentation, which are essential for innovation diffusion. Over time, these networks evolve into communities of practice that sustain knowledge exchange beyond the program's duration. Consequently, the ecosystem contributes not only to immediate learning outcomes but also to the long-term development of an innovation-oriented MSME community.

The collaborative approach also enhances the program's scalability and replicability, as the involvement of multiple stakeholders provides a flexible and adaptable framework for implementation in different contexts. The integration of

academic institutions, international partners, and local actors creates a model that can be adjusted to suit the specific needs and characteristics of other regions in the future. This scalability is particularly important for addressing the widespread challenges faced by MSMEs across Indonesia and other developing economies. Furthermore, the collaborative model allows resource sharing, reducing the burden on individual institutions and increasing overall program efficiency. By enabling replication, the ecosystem extends its impact beyond Bekasi, contributing to the broader economic development and digital inclusion. Therefore, collaboration serves as a key mechanism for achieving systemic transformation on a larger scale.



Figure 5



Figure 6

The findings confirm that the transformation of MSME competitiveness through AI is no longer merely a theoretical proposition but has begun to be implemented in a structured and systematic manner through collaboration. Arobust ecosystem provides the necessary support for integrating technological innovation into MSME practices. This demonstrates that digital transformation is inherently a collective process that requires the alignment of multiple actors, resources, and knowledge systems. Moreover, the ecosystem highlights the importance of institutional support and cross-sector collaboration in overcoming the structural barriers to technology adoption. Thus, this study underscores the importance of fostering collaborative ecosystems to effectively leverage AI-driven market insights to enhance MSME competitiveness and ensure sustainable economic development.

Research Findings table

No	Key Findings	Description	Implications
1	Knowledge Transfer of AI	Effective transfer of AI-based market intelligence knowledge from academics to MSMEs	Enhances understanding and initial adoption of AI
2	Bridging Knowledge Gap	Interaction between knowledge producers and users	Reduces gap between theory and practice
3	Data-Driven Decision Making	Shift from intuition-based to data-driven strategies	Improves business decision accuracy
4	Increased Digital Literacy	Improved understanding of AI, analytics, and market intelligence	Strengthens technological capability

5	Awareness of AI Importance	MSMEs recognize AI as a strategic necessity	Accelerates innovation adoption
6	Mindset Transformation	Shift toward proactive and analytical business strategies	Enhances competitiveness
7	Collaborative Ecosystem	Multi-stakeholder collaboration (academia, international experts, MSMEs)	Supports innovation and knowledge exchange
8	Innovation Diffusion	Spread of AI knowledge through interaction	Accelerates adoption among MSMEs
9	Pilot Platform Function	PKM activity as testing ground for AI adoption readiness	Provides empirical insights
10	Sustainable Transformation	Integration of AI into MSME practices	Long-term competitiveness improvement

DISCUSSION

Knowledge Transfer of AI-Based Market Intelligence

The findings demonstrate that the *Institution Collaboration for International Community Service 2026* functioned as an effective mechanism for facilitating the transfer of knowledge related to AI-based market intelligence to MSMEs in Indonesia. From a triangulation perspective, the convergence of observational data (participant engagement), interview insights (improved conceptual understanding), and documentation (training materials and discussions) consistently indicates that MSMEs have experienced both conceptual and practical learning outcomes. This multi-source validation strengthens the credibility of the finding that knowledge transfer occurs in a structured and meaningful manner (Vivek et al., 2023). The introduction of Artificial Intelligence as a tool for analyzing market trends, consumer behavior, and business opportunities reflects a significant shift in how MSMEs perceive strategic decision-making. This aligns with the knowledge transfer theory, which emphasizes that effective interaction between knowledge producers and users is essential for innovation adoption (Leoni et al., 2024; Oldemeyer et al., 2025). Therefore, the program can be interpreted as a catalyst that initiates the early stages of AI adoption in MSMEs.

In a theoretical dialogue, this phenomenon can be further explained through the lens of absorptive capacity, which refers to an organization's ability to recognize, assimilate, and apply new knowledge (Liao et al., 2023). The active participation of MSMEs in the training sessions suggests an emerging capacity to absorb AI-related knowledge, particularly in understanding its relevance to business operations. This is evident from the participants' ability to interpret AI not merely as a complex technological system but as a practical tool for generating actionable market insights. Kastelli et al. (2024) argue that organizations leveraging AI effectively gain competitive advantages through enhanced data utilization and decision-making capabilities. Thus, the knowledge transfer observed in this study not only enhances

awareness but also builds the foundational capabilities required for future technological integration.

The direct interaction between academics and MSME actors reflects an effective bridging mechanism between theoretical and practical knowledge. Triangulated data indicated that participants reported increased confidence in understanding AI concepts after engaging in face-to-face discussions with experts. This supports the social learning theory, which posits that individuals acquire knowledge through observation, interaction, and modeling (Abou-Foul et al., 2023; Bedoya-Villa et al., 2023). In this context, the presence of international and national experts provided role models that facilitated a deeper comprehension and contextualization of AI concepts. Furthermore, this interaction enabled the localization of global AI knowledge into practical applications relevant to MSMEs in Bekasi Indonesia. Consequently, knowledge transfer is not only a cognitive process but also a socially embedded learning experience.

From a strategic management perspective, knowledge transfer contributes to developing dynamic capabilities within MSMEs. According to Saeedikiya et al. (2024), dynamic capabilities enable organizations to integrate, build, and reconfigure their internal and external competencies in response to rapidly changing environments. The findings suggest that MSMEs are beginning to develop such capabilities through exposure to AI-driven market insights. This development is reflected in their ability to recognize the strategic value of data and analytics in business decision making. Therefore, knowledge transfer is a critical mechanism for enhancing the strategic adaptability. This indicates that even early stage interventions can trigger long-term capability development.

The findings reveal that MSMEs are transitioning to data-driven decision-making processes. Triangulated evidence shows that participants increasingly understand how data can be used to inform pricing strategies, marketing decisions, and customer engagement. This aligns with Mishra et al. (2025), who highlighted the importance of business analytics in improving organizational decision quality. AI technologies enhance this process by enabling real-time data processing and predictive analysis, thereby reducing the uncertainty in decision-making Consequently, MSMEs are better equipped to respond to market dynamics with greater precision. This transition represents a fundamental shift in business practices from intuition-based to evidence-based approaches (Patrucco et al., 2023).

Within the broader digital transformation discourse, these findings reinforce the argument that transformation is not solely driven by technology adoption but also by changes in mindset and knowledge structures (Kastelli et al., 2024; Tallarico et al., 2024). The knowledge transfer observed in this study acts as an enabler that initiates these changes by equipping MSMEs with the necessary understanding of AI's strategic value of AI. Participants began to perceive AI not as an optional tool but as an integral component of modern business strategy. This shift in perception is critical for sustaining a long-term transformation. Therefore, the program contributes not only to technological awareness but also to cognitive and strategic transformations.

The discussion confirms that AI-driven market insights have begun to be internalized within MSME practices through structured knowledge transfer processes. Triangulation enhanced the validity of these findings, while the theoretical dialogue

demonstrated strong alignment with the global academic literature. This indicates that community service initiatives, when designed with a collaborative and knowledge-intensive approach, can accelerate digital transformation effectively. Consequently, knowledge transfer is a foundational pillar for enhancing MSME competitiveness through AI adoption.

Increased Awareness and Digital Literacy of MSMEs

The findings reveal a significant increase in MSMEs' awareness and digital literacy regarding the role of AI in enhancing business competitiveness. Through triangulation of observational data (active participation), interview responses (improved understanding), and documentation (discussion records), thise study confirms that MSMEs are becoming more aware of the strategic importance of digital technologies. This increased awareness reflects the growing recognition of AI as a critical tool for navigating competitive markets. Tinmaz et al. (2022) emphasized that digital literacy encompasses not only technical skills but also the ability to critically evaluate and apply digital technologies in various contexts. Therefore, the observed improvement in digital literacy represents a crucial step toward meaningful technology adoption.

In dialogue with the diffusion of innovation theory, these findings correspond to the awareness and interest stages of innovation adoption. MSMEs are beginning to recognize the value of AI and express interest in exploring its applications in their businesses (Sánchez et al., 2025; Faiz et al., 2024). This was evident from their engagement in discussions and willingness to ask questions about practical implementation. These behavioral changes indicate that the program successfully facilitates the early phases of innovation diffusion. Without this foundational awareness, further adoption is unlikely. Thus, thise study highlights the importance of educational interventions in initiating technological transformation.

Increased digital literacy contributes to a shift in the business mindset from intuition-based to data-driven approaches. Triangulated data show that participants are beginning to understand how data analytics can enhance the decision-making process. This aligns with Kgakatsi et al. (2024), who argued that data-driven decision-making improves organizational performance by reducing uncertainty and increasing accuracy. As MSMEs adopt analytical thinking, they become more capable of identifying trends, forecasting demand and optimizing operations. This cognitive shift is essential for competition in dynamic and data-intensive markets. Therefore, digital literacy drives strategic transformation.

From an entrepreneurship perspective, the findings indicate a transition toward technology-driven entrepreneuriale activities. Secundo et al. (2025) highlighted that digital technologies enable new forms of innovation and value creation in entrepreneurial ecosystems. MSMEs that develop digital literacy are better positioned to leverage AI to identify market opportunities and develop innovative business models. This enhances their ability to compete both locally and globally. Consequently, digital literacy has become a key determinant of entrepreneurial success in the digital era. It transforms MSMEs from reactive actors to proactive innovators (Zahoor et al., 2023).

The role of collaborative learning in enhancing digital literacy among MSMEs is evident. Triangulated findings suggest that peer interactions during the program

significantly contribute to knowledge acquisition. This supports the social constructivist theory, which posits that learning is a socially mediated process (Maksum et al., 2025; Deschênes, 2024). Through discussions and shared experiences, the participants reinforced their understanding of AI concepts and applications. This collaborative environment also reduces the fear and uncertainty associated with new technologies. Therefore, social interaction is a critical component of effective learning.

From a capability-building perspective, increased digital literacy is an investment in human capital. Arroyabe et al. (2024) argue that knowledge and skill development directly enhance productivity and organizational performance. MSMEs that improve their digital literacy are more capable of adopting and utilizing advanced technologies such as AI. This leads to improved efficiency, innovation, and competitiveness of the industry. Hence, digital literacy is not merely an educational outcome but also a strategic asset. It plays a pivotal role in the sustainability of long-term businesses.

The discussion confirms that AI-driven market insights are increasingly recognized as a strategic necessity for MSMEs. Triangulation strengthens the robustness of this finding, and theoretical dialogue situates it within established academic frameworks. An increase in digital literacy serves as a foundation for AI adoption and broader digital transformation. Therefore, educational and training initiatives are essential for enabling MSMEs to fully realize the benefits of AI technologies.

Formation of a Collaborative Ecosystem

The findings highlight the emergence of a collaborative ecosystem involving multiple stakeholders in supporting MSME digital transformation. Triangulated evidence from observations, interviews, and documentation indicates strong interactions among educational institutions, international academics, and MSME actors. This aligns with the concept of innovation ecosystems, in whiche diverse actors collaborate to create value and drive innovation (Costa Melo et al., 2023). The integration of different knowledge sources enhances the effectiveness of technological interventions. Therefore, the ecosystem is a critical enabler of digital transformation.

In theoretical dialogue, the findings reflect the concept of the co-creation of knowledge, where innovation emerges through collaboration between stakeholders. Ozdemir et al. (2023) emphasized that value is created through interactive processes involving multiple actors. In this study, MSMEs provide practical insights while academics provide theoretical and technological expertise. This interaction results in solutions that are both relevant and applicable to the real world. Consequently, the program transcends traditional knowledge transfer metods by fostering collaborative innovation. This demonstrates that learning and innovation are interconnected processes.

The involvement of international experts enhancessthe legitimacy as a strategic tool. Triangulated data indicate that MSMEs exhibit greater trust in AI after being exposede to global perspectives. This aligns with institutional theory, which suggests that legitimacy influences the adoption of new practices (Balzano et al., 2024). International collaboration signals credibility and reliability, encouraging MSMEs to embrace technological change. Additionally, it facilitates the integration of global best

practices into local contexts (Yan & Ahmad, 2025). Thus, collaboration strengthens both confidence and competence in the field.

From a diffusion of innovation perspective, collaborative ecosystems accelerates the spread of AI knowledge among MSMEs. Ayinaddis (2025) highlighted the role of social networks in facilitating innovation diffusion. The interactions within the program create channels for information exchange, enabling the participants to learn from each other. This peer-to-peer learning accelerates the adoption process and enhances the collective understanding. Consequently, innovation spreads more rapidly within the MSME community. Therefore, ecosystems function as dynamic platforms for knowledge dissemination.

The program acts as a pilot platform for assessing MSME readiness for the adoption of AI. The triangulated findings revealed varying levels of readiness among the participants, providing valuable insights into existing capabilities and challenges. This aligns with the readiness for change theory, which emphasizes the importance of preparedness in successful transformation (Anatan & Nur, 2023). The program not only identifies gaps but also provides a foundation for future intervention. Hence, it serves as both an experimental and developmental platform. This dual function enhances its practical significance.

In terms of scalability, the collaborative ecosystem offers potential for replication in other regions of the world. Khatami et al. (2024) argue that innovation ecosystems can be expanded through strategic collaborations. The involvement of multiple stakeholders increases the adaptability and sustainability of programs. This allows the model to be implemented in different contexts, thereby increasing its impact. Consequently, ecosystems contribute to broader economic development. This demonstrates the potential for scaling digital transformation initiatives.

The discussion confirms that the transformation of MSME competitiveness through AI is no longer theoretical but is being systematically implemented through collaboration. Triangulation ensured the robustness of the findings, while the theoretical dialogue demonstrated alignment with the global literature. A collaborative ecosystem ise a key driver of successful digital transformation. Therefore, fostering such ecosystems is essential for leveraging AI in MSME development in India

CONCLUSION

This study concludes that the utilization of *AI-driven market insights* has begun to play a significant role in transforming the competitiveness of MSMEs in Bekasi Regency through a structured and collaborative knowledge transfer process. The *Institution Collaboration for International Community Service 2026* program has proven effective in bridging the gap between theoretical knowledge and business practice through direct interaction between academics and micro, small, and MSME actors. This process not only enhances the conceptual understanding of Artificial Intelligence but also facilitates the internalization of data usage in business decision-making. Consequently, the transition toward *data-driven decision making* is increasingly evident at the local MSME level. These findings highlight that community service–based approaches can serve as an effective strategy for accelerating technology adoption.

This study found that increased awareness and digital literacy are critical factors supporting AI adoption among MSMEs. MSME actors have demonstrated a significant shift in mindset, moving from intuition-based approaches to data- and technology-driven decision-making. Enhanced digital literacy not only strengthens individual capabilities but also fosters a business culture that is more adaptive to technological changes. In this context, AI is no longer perceived as a complex and exclusive technology but as a strategic tool for improving efficiency and competitiveness. Therefore, strengthening digital literacy is a fundamental foundation for MSME digital transformation.

This study confirms that the success of MSME digital transformation is strongly influenced by the formation of collaborative ecosystems involving multiple stakeholders. Collaboration among educational institutions, international academics, and MSME actors creates an environment that supports *knowledge co-creation* and innovation diffusion in the MSME sector. This ecosystem not only enhances the legitimacy of AI adoption but also improves MSME readiness for sustainable technological integration. Thus, the transformation of MSME competitiveness through AI is no longer merely a theoretical concept but has begun to be systematically implemented through collaborative and knowledge-driven approaches in the real world.

SUGGESTIONS

Based on the findings, it is recommended that governments and relevant stakeholders strengthen MSME capacity-building programs through technology-based training, particularly in Artificial Intelligence and data analytics. These programs should be designed sustainable and context-specificallyto align with the needs and characteristics of local MSMEs. In addition, policy support is required to improve MSMEs' access to digital technologies, including infrastructure development, financial support and user-friendly AI platforms. Such efforts are essential for gradually reducing the existing digital divide among MSMEs. Therefore, a comprehensive policy framework is necessary to support an inclusive digital transformation.

Educational institutions and academics are encouraged to play a more active role in developing collaborative ecosystems that support MSME digital transformation. Community service initiatives should be expanded into long-term programs that are educational practical and solution-oriented. The *co-creation* approach between academics and MSME actors should be strengthened to ensure that innovations are relevant and applicable to the industry.. Additionally, international collaboration should be expanded to enrich perspectives and improve knowledge transfer quality. This will significantly accelerate technology adoption by MSMEs.

Future research should adopt more comprehensive approaches by integrating quantitative methods to empirically measure the impact of AI on MSME performance. Longitudinal studies are also necessary to examine the sustainability of technology adoption over time. Moreover, future research should be extended to other regions to test the generalizability of the findings across different contexts. The development of more specific and measurable AI implementation models is also an important agenda for future studies. Through these efforts, both the academic and practical contributions of this study can be further enhanced.

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