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DIGITAL ENTREPRENEURSHIP LEARNING TRAINING WITH AI: ENHANCING COMPETENCE AND PROFESSIONAL COMPETITIVENESS

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ABSTRACT

Technological advancements, particularly in Artificial Intelligence (AI), have brought significant transformations to the field of entrepreneurship. AI can be utilized across various business domains, including market analysis, customer service automation, trend prediction, and digital marketing strategies. Nevertheless, many entrepreneurs, MSME actors, and professionals still lack sufficient knowledge and skills in applying AI to enhance their business competitiveness.

Through a technology-driven approach, participants will gain insights into how AI can be employed to improve business efficiency, expand market reach, and foster more competitive innovations. This training program is designed for students, academics, and professionals seeking to develop digital competencies in business. The training materials cover AI applications in digital marketing, AI-based data analysis, smart business management strategies, and case studies on AI implementation in entrepreneurship.

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INTRODUCTION

The advancement of digital technology, particularly Artificial Intelligence (AI), has exerted a profound influence on business and entrepreneurship. AI has emerged as a transformative tool with considerable potential to reshape the educational landscape (Haroud & Saqri, 2025). In the era of Industry 4.0, integrating AI into digital entrepreneurship has become imperative for enhancing efficiency, productivity, and competitiveness in the global market. However, a substantial number of students and professionals still lack a comprehensive understanding of how to effectively harness AI to support their entrepreneurial activities.

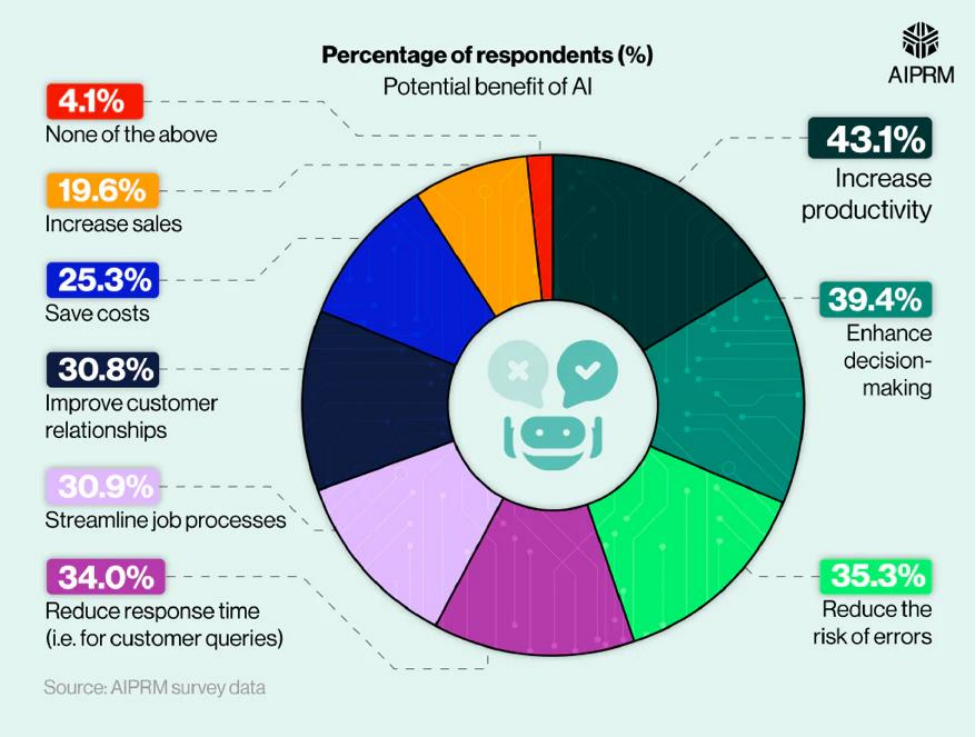

Figure 1. Percentage of Respondents (%)

Based on survey data from AIPRM, the majority of respondents perceived the greatest potential of Artificial Intelligence (AI) to lie in enhancing productivity (43.1%), followed by improving decision-making quality (39.4%), reducing the risk of errors (35.3%), accelerating response time (34.0%), and simplifying work processes (30.9%). In addition, AI was also considered beneficial in strengthening customer relationships (30.8%), reducing operational costs (25.3%), and increasing sales (19.6%). Only 4.1% of respondents indicated that they did not experience any benefits from AI. These findings suggest that AI plays a strategic role in supporting efficiency, accuracy, and work effectiveness across both business and educational contexts. In higher education, the integration of AI holds significant potential to enhance the

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quality of academic services, streamline administrative processes, and support data-driven learning, which aligns with Sustainable Development Goal (SDG) 4—ensuring inclusive and sustainable quality education.

Artificial Intelligence (AI) is redefining traditional educational paradigms (Chen, 2020; Luckin et al., 2019). Shifts in long-established teaching and learning practices may generate resistance from both educators and students. The reliance on conventional pedagogical approaches in entrepreneurship education—perceived as safe and proven—often discourages them from adopting new technologies, despite their potential to enhance efficiency and effectiveness. Entrepreneurship education has thus emerged as a strategic pedagogical approach for fostering such competencies (Park et al., 2025). Nevertheless, topics such as artificial intelligence or data analytics are still rarely incorporated into standard curricula, resulting in students' limited exposure to and practical experience with AI from an early stage. Research on the application of AI in business education remains scarce (Desai, 2023) , with even fewer studies specifically addressing entrepreneurship courses kewirausahaan (Park et al., 2025);(Vecchiarini & Somià, 2023) .

Based on preliminary observations, several key challenges encountered at the community service site include: (1) insufficient AI literacy in digital entrepreneurship, (2) limited digital skills in utilizing AI, (3) inadequate resources for AI implementation in business, and (4) lack of confidence in adopting new technologies.

The advancement of Artificial Intelligence (AI) offers significant opportunities in the realm of digital entrepreneurship, ranging from market analysis and service automation to marketing strategies. However, amid this rapid technological acceleration, many educators and students continue to face difficulties in understanding and fully harnessing AI. The major challenges identified in the field are as follows:

1. Limited AI Literacy in Digital Entrepreneurship

   Most educators and students still lack a comprehensive understanding of the role and potential of AI in digital entrepreneurship. Knowledge of the fundamental concepts of AI and its applications across various industries, including entrepreneurship, is essential for promoting optimal technology adoption (Russell S, 2021). Low levels of AI literacy hinder the effective use of technology to improve efficiency and foster business innovation.

2. Digital Skills in Using AI

   Technical skills in operating AI-based tools remain limited among participants. One of the major challenges in digital transformation is the skills gap, particularly in

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understanding and using AI-powered tools (McKinsey & Company., 2023; Park et al., 2025). This gap prevents them from effectively applying AI technologies in their entrepreneurial practices.

3. Resource Constraints in AI Implementation

   Restricted access to AI-based resources, such as paid tools or premium services, poses barriers for educators and students seeking to adopt these technologies. The high costs associated with AI tools often represent a significant obstacle to adoption, particularly for small-scale entrepreneurs (Davenport T, 2016).

4. Lack of Confidence in Using New Technologies

   Some participants express hesitation or a lack of confidence in experimenting with new technologies, including AI. Users' confidence in technology is strongly shaped by direct experience and the support provided during the learning process. This hesitation hinders the optimal adoption of technology in digital entrepreneur (Smith A, 2014).

These four challenges underscore the urgent need to strengthen AI literacy and skills among educators and students in order to effectively understand and leverage artificial intelligence technologies. Such efforts are critical in the context of digital entrepreneurship, enabling them to optimize innovation, enhance efficiency, and remain competitive in an increasingly dynamic digital era.

LITERATURE REVIEW

The rapid advancement of artificial intelligence (AI) in recent years has further strengthened the transformation of digital entrepreneurship, both in learning processes and business practices. AI is considered a key technology that drives the emergence of innovative business models, enhances operational efficiency, and optimizes data-driven marketing strategies (Vecchiarini & Somia, 2023; Desai, 2023). In the context of entrepreneurship education, AI-based training programs create more personalized, adaptive, and practical learning experiences, thereby supporting the development of entrepreneurial competencies in the digital era (Park et al., 2025)..

Recent studies also highlight AI's significant contribution to developing the 21st-century skills required by young entrepreneurs, found that the integration of AI in education improves the quality of data-driven decision-making and accelerates the resolution of complex problems. This finding aligns with the McKinsey & Company (2023) report, which emphasizes that AI adoption across industries directly contributes to productivity growth,

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business resilience, and global competitiveness.

In the realm of digital entrepreneurship education, AI serves as a bridge between theory and practice. that the application of AI tools, such as social media analytics and automated content planning, can support students and business practitioners in designing more effective and measurable marketing strategies (Chen, 2020; Luckin et al., 2019). Furthermore, stress that AI not only enhances technical skills but also fosters creativity, collaboration, and innovation, which are central to digital entrepreneurship (Park et al., 2025).

Taken together, recent literature suggests that AI-based digital entrepreneurship training plays a strategic role in enhancing individual competence while strengthening professional competitiveness in an increasingly globalized and competitive market. The integration of AI in entrepreneurship learning is not merely a trend but an urgent necessity that determines the sustainability and relevance of entrepreneurial competencies in the era of technological disruption.

MATERIAL AND METHOD

The implementation of this community service program began with an action planning process between Universitas Negeri Jakarta (UNJ) and Universiti Kebangsaan Malaysia (UKM), which was participatory and collaborative in nature. The target subjects of the program consisted of active UNJ and UKM students, as well as economics teachers within the JABODETABEK area. The activities were primarily conducted at the Faculty of Economics and Business, Universitas Negeri Jakarta, and extended to partner communities in the field. In the initial stage, the implementing team conducted a needs assessment through surveys and Focus Group Discussions (FGDs) to identify the potentials and challenges faced by the community in developing digital entrepreneurship. The target beneficiaries were actively involved in designing relevant training materials, particularly those integrating the use of artificial intelligence (AI) in business development. The community organization method employed was based on the Community-Based Participatory Research (CBPR) approach, which emphasizes active community participation in every stage of the process. The implementation consisted of five stages: (1) problem and potential identification, (2) needs-based training design, (3) AI training in digital entrepreneurship, (4) mentoring and simulation of AI tool utilization, and (5) evaluation and follow-up development. This approach aims to enhance community competence and professional competitiveness through inclusive and sustainable digital transformation.

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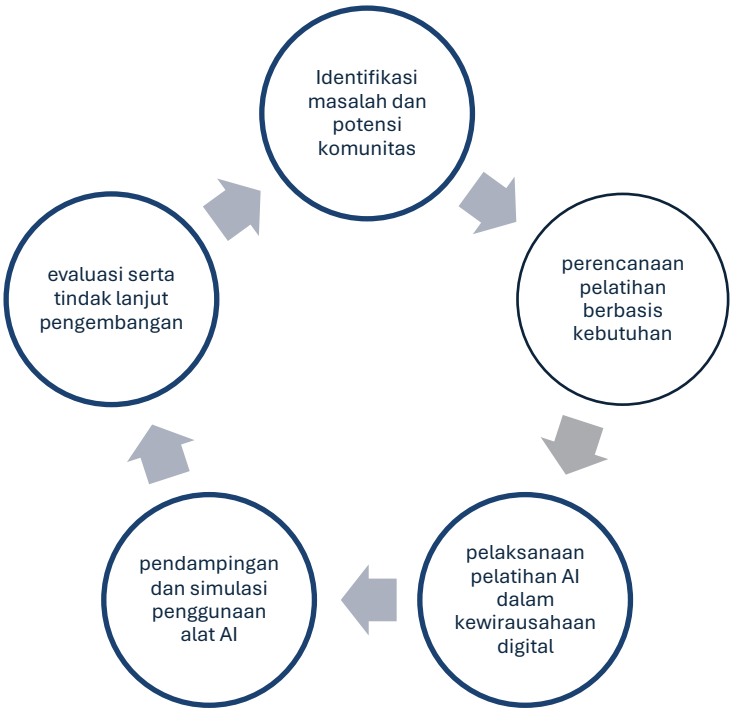

Figure 2. Process

The figure above illustrates the implementation process of the community service program, which is structured as a continuous cycle consisting of five main stages. This cycle reflects a participatory and transformative approach in efforts to enhance technology-based professional competencies and competitiveness. The process demonstrates that each stage is interconnected and forms a capacity-building cycle that is adaptive to the dynamics of change, particularly in addressing the challenges of the digital era.

The use of artificial intelligence (AI) in digital entrepreneurship learning is designed to support both instructors and students in understanding more effective, data-driven business strategies that are adaptive to the dynamics of the digital market. Through this technology, participants can optimize various aspects of business activities, ranging from market research and marketing strategy management to automated financial recording.

Stages of AI Implementation in Learning

1. Processing Market Data and Business Ideas

   The process begins with collecting market data and formulating potential business ideas. Participants analyze emerging trends and design data-driven business models.

2. Business Strategy with ChatGPT

   ChatGPT is utilized to develop business strategies by providing recommendations based on industry trends and consumer behavior. This AI tool can also simulate

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customer interactions, assist in business decision-making, and optimize marketing communications.

3. Data Analysis Using Google Analytics

   After implementing marketing strategies, Google Analytics is employed to measure the effectiveness of marketing campaigns. The AI-powered features of Google Analytics help analyze website traffic, identify potential target markets, and provide data-driven insights to enhance marketing strategies.

4. Automated Financial Recording with BukuKas

   The AI features in BukuKas assist students in managing their business finances more easily and accurately. This application records income and expenses and generates automatic financial reports, enabling participants to better understand the financial condition of their businesses.

Benefits of Implementing AI in Entrepreneurship Learning

1. Efficiency and Innovation in Learning

   Instructors can leverage AI to create more interactive and applicable teaching methods, while students can directly apply the technology within real business contexts.

2. Enhancing Digital Competitiveness

   With a deeper understanding of AI, students will be better prepared to face business competition in the digital era by utilizing technology for product innovation, marketing, and business management.

3. Broad Accessibility and Scalability

   All AI tools used in this program are digitally based and can be accessed through mobile devices or laptops, making it easier for participants to learn anytime and anywhere.

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Figure 3. Implementation of AI Training in Digital Entrepreneurship

RESULT AND DISCUSSION

The implementation of AI in digital entrepreneurship learning provides opportunities for teachers and students to better understand and utilize technology in the business domain. By leveraging ChatGPT for business strategy, Canva AI for digital marketing, Google Analytics for data analysis, and BukuKas for financial record-keeping, participants gain a more practical, innovative, and industry-relevant learning experience. Through this approach, the community engagement program is expected to foster the development of digital entrepreneurs who are better prepared to compete and thrive in a technology-driven economy. The community engagement activities were conducted in a hybrid format across two locations: the partner institution, Universiti Kebangsaan Malaysia (UKM), serving as the resource person, while participants and the implementation team engaged in offline sessions in Jakarta. Target beneficiaries of this program include teachers and students in the Special Capital Region of Jakarta.

The implementation of this community service program demonstrates that a digital entrepreneurship training approach integrating Artificial Intelligence (AI) can enhance participants' adaptive and innovative entrepreneurial competencies. Field findings reveal notable changes in participants' ability to design business models, utilize technology, and

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formulate digital marketing strategies. Prior to the intervention, participants largely understood entrepreneurship in conventional terms and had limited awareness of AI applications in business. Following the training and simulations, however, most participants successfully applied basic AI tools such as chatbots, social media analytics, and automated content planning. These outcomes reinforce Digital Entrepreneurship Theory (Nambisan, 2017), which emphasizes that digital entrepreneurship represents a new form of interaction among technology, opportunities, and innovation. They are also aligned with the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006), as the training bridged technology and entrepreneurial practice, fostering the development of digitally grounded professional competencies.

From a community engagement perspective, the initiative resonates with the principles of Community-Based Participatory Research (CBPR), wherein community members actively contribute to planning, implementation, and evaluation. Such involvement generated a sense of ownership and strengthened participants' intrinsic motivation to continue independent learning and development. Beyond individual skill improvement, the program facilitated the emergence of a technology-driven entrepreneurial ecosystem, evidenced by the formation of digital learning groups, collaborative business initiatives, and sustained adoption of AI in entrepreneurial activities. This transformation underscores Diffusion of Innovation Theory (Rogers, 2003), which highlights that successful technology adoption occurs when innovations are perceived as useful, user-friendly, and socially relevant to community needs.

CONCLUSION AND RECOMMENDATION

This training program has made a significant contribution to enhancing participants' knowledge, skills, and preparedness in addressing the challenges of the digital entrepreneurship landscape in the era of technological transformation. Through an Artificial Intelligence (AI)-based approach, participants not only gained an understanding of the fundamental concepts of digital entrepreneurship but also developed the ability to integrate AI technologies, such as generative AI (ChatGPT), into the processes of business idea planning, development, and presentation. The outcomes of the training indicate an improvement in participants' competencies in formulating innovative and data-driven digital business plans, while simultaneously strengthening their professional competitiveness in the labor market and the broader digital ecosystem. Supported by interactive learning methods, applied projects, and an empowering dialogical approach, this program successfully fostered a collaborative and relevant learning environment oriented toward the development of

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practical skills and critical thinking. Overall, the training represents a strategic step in advancing entrepreneurship education that is adaptive to technological developments.

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REFERENCES

Alwisol. (2011). *Psikologi Kepri-badian*. Malang: UMM Press.

Anggraini, Nenny. (2008). "Industri Kreatif." *Jurnal Ekonomi* Desember 2008 Volume XIII No. 3 pp. 144-151.

Arlina Sephana & Dwi Endah Kusrini. (2010). *Pengaruh pola asuh orang tua terhadap kecenderungan Jiwa wirau-saha mahasiswa ITS dengan menggunakan Model persa-maan struktural.* Surabaya: ITS.

Basrowi. (2011). *Kewirausahaan untuk Perguruan Tinggi*. Bogor: Ghalia Indonesia.

Buchari Alma. (2010). *Kewira-usahaan*. Edisi Revisi. Bandung: Alfabeta.

Caecilia Vemmy Susanti. (2012). Faktor-faktor yang Mempe-ngaruhi Intensi Berwirausaha Siswa SMK Program Studi Keahlian Teknik Otomotif di Kabupaten Tabalong-Kali-mantan Selatan. *Jurnal Pendidikan Vokasi* (Vol. 2, No. 2). pp. 117-126.

Chabib Thoha. (1996). *Kapita Selekta Pendidikan Islam.* Yogyakarta: Pustaka Pelajar.

Dawn Lighter. (1999). *50 Cara Efektif: Menanamkan Tingkah Laku positif Pada Anak*. Yogyakarta: Kanisius.

Elizabeth B. Hurlock. (1987). *Per-kembangan Anak,* Terjema-han Mcd Meitasari. Jakarta: Erlangga.

Friedman & Schustack. (2008). *Kepribadian: Teori Klasik & Riset Modern*. (Alih Bahasa: Fransiska Dian Ekarini, S.Psi., Maria Hani dan Andrea Provita Prima). Jakarta: Erlangga.

King, Laura A. (2010). *Psikologi Umum*. (Alih Bahasa: Brian Marwendys). Jakarta: Salem-ba Humanika.

Lambing, Peggy A. & Kuehl, Charles R. (2003). *Entre-preneurship 3rd edition*. New Jersey: Pearson Education.

ISSN 2580-4332 (online)
DOI: https://doi.org/10.21009/JPMM.009.2.04

Linan, F. (2004). *Intention-based models of entrepreneurship education*. Piccolla Impresa/Small Business, Iss. 3: 11-35.

Vecchiarini, M., & Somia, T. (2023). Artificial Intelligence for Digital Entrepreneurship: Opportunities, Challenges, and Business Implications. *Technological Forecasting and Social Change*, 194, 122678. https://doi.org/10.1016/j.techfore.2023.122678

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2580-4332 (online)
DOI: https://doi.org/10.21009/JPMM.009.2.04