

Transforming Challenges into Opportunities: A Conceptual Exploration of AI's Impact on Women Entrepreneurs in Malaysia

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ABSTRACT

Integrating artificial intelligence (AI) into entrepreneurship has revolutionized the business landscape, offering unprecedented opportunities to enhance performance. AI has emerged as a transformative force and a potential enabler in entrepreneurship by improving decision-making, boosting performance, uncovering new opportunities, and positively influencing opportunity recognition and education. However, systematic research on AI's specific impact on women's entrepreneurship remains limited. Addressing gender-related barriers and fostering the development of managerial and technical skills is crucial for promoting women's entrepreneurship. This conceptual paper, therefore, aims to explore the conceptual impact of AI on women's entrepreneurship, emphasizing how AI-driven tools and technologies empower women entrepreneurs to overcome traditional barriers, streamline operations, and drive innovation. By leveraging AI, women entrepreneurs can make more informed decisions, optimize resource allocation, and accurately identify market opportunities. Furthermore, AI facilitates access to valuable data insights and automates routine tasks, enabling women to focus on strategic growth and creativity. The expected findings of this research are significant, as they provide insights into the role of women entrepreneurs in driving economic and social progress within society.

Keywords— Artificial Intelligence, Decision Making Process, Financial Management, Marketing Methods, Women Entrepreneurs

INTRODUCTION

Entrepreneurship is defined as the process of designing, launching, and managing new businesses or startups. Entrepreneurs are expected to focus on developing approaches that enable them to achieve their operational goals effectively. In this regard, innovation, risk-taking, and proactiveness should be prioritized as key aspects of entrepreneurship. When businesses adopt entrepreneurial practices, they can contribute significantly to job creation. Entrepreneurs play a crucial role in reducing unemployment and enhancing individuals' soft skills (Abu Bakar et al., 2020). Furthermore, entrepreneurship drives innovation by introducing new products and services, which in turn fosters profitability and business growth. Successful startups also contribute to economic growth by increasing output and revenue, thereby making a significant impact on the gross domestic product (GDP) of their respective economies (Ariffin et al., 2020). Entrepreneurs are essential drivers of economic growth, and in Malaysia, women constitute approximately 20 percent of the entrepreneurial population, translating to around 650,000 women entrepreneurs (CEDAR, 2022). However, the use of technology among women entrepreneurs in Malaysia remains limited, underscoring the need for them to adopt and learn the efficient use of artificial intelligence (AI) specifically. AI, defined as computer systems capable of managing complex tasks and making effective business decisions, has the potential to transform entrepreneurial practices (Au et al., 2021).

Artificial intelligence (AI) has emerged as a transformative force in entrepreneurship, offering significant opportunities for success. By leveraging AI technologies, entrepreneurs can enhance their ability to recognize opportunities, make informed decisions, improve performance, and access educational resources (Giuggioli & Pellegrini, 2022; Giuggioli et al., 2023). These capabilities are critical in today's rapidly changing business landscape, where agility and innovation are vital for staying competitive. AI's role in entrepreneurship is

multifaceted, encompassing various aspects of business operations, from market analysis to customer engagement, thereby providing entrepreneurs with a comprehensive toolkit to navigate complex market dynamics (Usman et al., 2024). One of the primary advantages of AI in entrepreneurship is its ability to enhance market analysis and product development. AI-driven tools can process large volumes of data to identify market trends, consumer preferences, and emerging opportunities (Usman et al., 2024). This capability allows entrepreneurs to make data-driven decisions, reducing uncertainty and increasing their likelihood of success. For instance, AI algorithms can analyze social media trends, customer reviews, and sales data to provide insights into product demand and potential areas for innovation. This level of analysis is particularly beneficial for novice entrepreneurs who may lack the experience or resources to conduct extensive market research independently (Morande et al., 2023).

In addition to market analysis, AI plays a crucial role in customer engagement by enabling personalized experiences. Through machine learning algorithms and predictive analytics, AI can tailor marketing efforts to individual customer preferences, enhancing customer satisfaction and loyalty (Usman et al., 2024). For example, AI can recommend products based on past purchases or browsing history, send personalized marketing messages, and predict future buying behavior. These personalized interactions not only improve customer experience but also drive sales and revenue growth. By leveraging AI for customer engagement, entrepreneurs can build stronger relationships with their target audience and differentiate themselves in a competitive market. Operational efficiency is another area where AI significantly impacts entrepreneurship. AI-driven automation can streamline various business processes, such as inventory management and customer service, thereby reducing operational costs and increasing efficiency (Usman et al., 2024). For example, AI-powered chatbots can handle customer inquiries 24/7, freeing up human resources for more complex tasks. Additionally, AI can optimize supply chain operations by predicting demand and managing inventory levels, ensuring that products are available when and where they are needed. These efficiencies enable entrepreneurs to focus on strategic initiatives and drive business growth.

To further enhance entrepreneurial capabilities, integrating AI tools such as the SECURE II framework can be invaluable. This framework aims to improve predictive abilities and assist novice entrepreneurs in evaluating business model designs and their impact on performance (Morande et al., 2023). By providing a structured approach to business model evaluation, the SECURE II framework helps entrepreneurs identify potential risks and opportunities, enabling them to make more informed decisions. This systematic approach to business planning is particularly beneficial for new entrepreneurs who may lack the experience or resources to develop comprehensive business models independently. Despite the numerous benefits of AI in entrepreneurship, several challenges must be addressed to foster an inclusive entrepreneurial ecosystem. Ethical concerns, such as biases in AI algorithms and data privacy issues, must be carefully managed to ensure fair and transparent AI applications (Usman et al., 2024). Additionally, job displacement resulting from AI-driven automation poses a significant challenge, requiring strategies to reskill and upskill the workforce. Furthermore, the digital divide, referring to disparities in access to technology and digital literacy, must be addressed to ensure that all entrepreneurs can benefit from AI technologies (Rashid & Ratten, 2020; Usman et al., 2024). By addressing these challenges, policymakers and stakeholders can create an inclusive environment where AI can drive entrepreneurial success across diverse groups.

In Malaysia, there is a growing trend of women engaging in entrepreneurship. However, a significant gap remains in understanding how AI can address the obstacles they face. Women entrepreneurs often encounter traditional challenges, such as limited access to financial resources, professional networks, and mentorship opportunities (World Bank, 2020). AI technology can help bridge these gaps by providing essential data insights, automating routine processes, and facilitating informed decision-making (McKinsey, 2019). The limited research on the intersection of AI and women's entrepreneurship highlights the need for focused studies to explore how AI can enhance business performance and advance gender equality in the entrepreneurial sphere (Forbes, 2021). Overall, AI has profound implications for entrepreneurship, offering a framework to interpret its impact and systematize research on the topic (Giuggioli & Pellegrini, 2022; Giuggioli et al., 2023). As AI continues to evolve, its role in entrepreneurship will likely expand, creating even more opportunities for innovation and growth. By understanding and leveraging the potential of AI, entrepreneurs can navigate the complexities of the modern business landscape, drive economic growth, and contribute to a more inclusive and dynamic entrepreneurial ecosystem. Therefore, this conceptual study aims

to explore and discuss the impact of AI on women's entrepreneurship in Malaysia.

LITERATURE REVIEW

Women Entrepreneurship

In Malaysia, women's involvement in business has significantly increased due to proactive efforts by the government aimed at encouraging female entrepreneurship. The government has implemented various programs and initiatives to support and involve women in entrepreneurial activities (Noor Hanim et al., 2020). Research conducted by Bağış et al. (2022) and Rosca et al. (2020) highlights the concept of women entrepreneurship as a process in which women initiate, organize, and manage business ventures. Women entrepreneurs are expected to adopt entrepreneurial practices while facing unique challenges and opportunities in the business world. Different aspects of women entrepreneurship have been identified in research, with innovation and management consistently recognized as fundamental and significant topics. Analysis has shown that women entrepreneurs are initiators who can identify business opportunities and create business plans to manage operations effectively (Chipfunde et al., 2021). Women entrepreneurs in various case studies have demonstrated their ability to operate across multiple business sectors. This is supported by the notion that women are inherently risk-takers, capable of understanding potential threats and developing contingency plans to address them (Noor Hanim et al., 2020).

Entrepreneurs are widely recognized as crucial contributors to economic prosperity, and women entrepreneurs emphasize innovation, creativity, and effective management. Women entrepreneurs drive innovation by developing products or services that meet consumer needs. By leveraging creativity, they design products that align with changing consumer preferences (Keling et al., 2022). Additionally, women entrepreneurs contribute to making a social impact. Isa et al. (2021) noted that women entrepreneurs address social issues through their businesses, focusing on areas such as education, healthcare, the environment, and community development. This focus on social values leads to positive social change and helps improve living standards.

The importance of women entrepreneurship is further emphasized in research by Mivehchi (2019), which highlights that most women-owned businesses have the potential to contribute significantly to GDP and economic growth. The active participation of women entrepreneurs drives economies toward dynamic and inclusive growth. When women entrepreneurs understand consumer needs, they can design products or provide services that significantly increase profitability and operational efficiency. Women entrepreneurship also brings unique perspectives and approaches to businesses, fostering diversity, innovation, and problem-solving. These diverse perspectives enable businesses to develop holistic and inclusive solutions for consumers, effectively achieving growth and success (Noor et al., 2022).

For economic development, it is essential to properly manage the factor of empowerment to ensure societal progress. Entrepreneurship provides empowerment by fostering financial independence and increasing women's self-confidence. This empowerment also positively impacts the status of women in society. Furthermore, it is closely linked to gender equality, addressing societal barriers and challenges effectively. When women are empowered, there is a more equitable distribution of economic power and opportunities, which contributes to societal development (Ong et al., 2021).

The element of social and cultural change is also closely related to women entrepreneurship, as highlighted by Poggesi et al. (2019). Successful women entrepreneurs act as role models in society, inspiring other women and contributing to community development. Cultural shifts encourage greater participation of women in economic activities, ultimately benefiting the economy. Social change is also connected to community development, as women entrepreneurs often invest in their communities. Women entrepreneurship supports local initiatives related to economic development, enabling people to maintain and improve their standard of living (Rashid & Ratten, 2020).

Impact of AI on the Performance of Women Entrepreneurship

Automating Repetitive and Time-Consuming Tasks

The use of modern technology is increasingly recognized as essential in the context of women's entrepreneurship. Shukla et al. (2021) highlighted that artificial intelligence (AI) is expected to significantly impact the performance of women entrepreneurs. AI's potential to automate repetitive and time-consuming tasks can free up valuable time for women entrepreneurs, enabling them to focus on strategic activities that drive business growth. For instance, AI systems can efficiently manage routine tasks such as data entry and inventory management, reducing errors and increasing productivity (Shukla et al., 2021).

Automating these regular tasks leads to substantial improvements in operational efficiency. By implementing AI systems, women entrepreneurs can ensure that their businesses operate more smoothly, with streamlined processes and optimized resource allocation. This operational efficiency is particularly crucial for small and medium-sized enterprises (SMEs), where resources are often limited, and every efficiency gain can have a significant impact on overall performance (Shukla et al., 2021). Additionally, AI can assist in maintaining accurate inventory levels, predicting stock shortages, and managing supply chains, thereby reducing the risk of overstocking or stock outs.

Furthermore, Rosca et al. (2020) verified that AI can enhance women's entrepreneurial abilities, particularly in decision-making. AI-powered analytics tools can process large amounts of data quickly and accurately, providing women entrepreneurs with actionable insights that inform their business strategies. These tools can analyze market trends, customer behaviors, and competitive landscapes, enabling women entrepreneurs to make data-driven decisions that optimize economic outcomes (Rosca et al., 2020). For example, AI can help identify emerging market opportunities or potential threats, allowing entrepreneurs to adapt their strategies proactively. The ability of AI to review and interpret complex data sets further enhances informed decision-making. Women entrepreneurs can leverage AI to gain a better understanding of market trends, consumer preferences, and industry dynamics. This comprehensive analysis enables them to tailor their products and services to meet the specific needs and expectations of their target audience (Rosca et al., 2020). By focusing on these critical details, women entrepreneurs can differentiate their offerings, improve customer satisfaction, and build a loyal customer base.

Moreover, AI's role in strategic decision-making extends to financial management. AI-driven financial tools can provide women entrepreneurs with real-time insights into their financial health, helping them manage cash flow, forecast revenue, and plan for future investments. These tools can also identify cost-saving opportunities and optimize pricing strategies, contributing to improved profitability and sustainable growth (Shukla et al., 2021). By integrating AI into their financial planning processes, women entrepreneurs can ensure their businesses remain financially stable and resilient in the face of market fluctuations.

The integration of AI into women's entrepreneurship holds significant promise for enhancing business performance and achieving sustainable growth. By automating routine tasks, providing deep data insights, and enabling informed decision-making, AI empowers women entrepreneurs to navigate the complexities of the modern business landscape effectively. However, it is essential to address challenges such as digital literacy, access to technology, and ethical considerations to ensure that all women entrepreneurs can benefit from AI's transformative potential (Shukla et al., 2021; Rosca et al., 2020). By fostering an inclusive entrepreneurial ecosystem, the full potential of AI can be unlocked, supporting the success of women entrepreneurs globally.

Personalizing Marketing Methods

Suseno and Abbott (2021) have emphasized the critical importance of marketing and customer engagement for women entrepreneurs. Personalized marketing methods are becoming increasingly essential in today's competitive business environment. Women entrepreneurs are expected to adopt these approaches to better connect with their target audience and enhance customer satisfaction. Artificial intelligence (AI) plays a pivotal role in this context by analyzing vast amounts of customer data, enabling women entrepreneurs to make data-driven decisions that align with consumer preferences and expectations (Suseno & Abbott, 2021).

AI's ability to process and analyze customer data allows women entrepreneurs to gain deep insights into consumer behavior. These insights can be used to tailor marketing campaigns, create personalized product recommendations, and develop targeted promotional strategies. By understanding individual customer

preferences, purchase histories, and interaction patterns, women entrepreneurs can craft marketing messages that resonate more effectively with their audience, thereby increasing engagement and loyalty (Suseno & Abbott, 2021). Personalized marketing not only enhances customer satisfaction but also drives higher conversion rates and boosts sales.

One specific AI application that is particularly beneficial for women entrepreneurs is the use of chatbots. Powered by AI, chatbots can interact with customers in real time, responding instantly to inquiries and gathering valuable information about customer needs and preferences. Women entrepreneurs can leverage chatbots to enhance customer service, streamline communication, and collect relevant data on consumer expectations (Suseno & Abbott, 2021). For example, chatbots can ask customers about their preferences, provide personalized product recommendations, and even assist with order placements. This level of personalized interaction helps build stronger relationships with customers and fosters a sense of trust and loyalty.

The data collected by chatbots can also be analyzed to identify trends and patterns in customer behavior. This information can inform strategic decisions about product development, marketing strategies, and customer engagement initiatives. For instance, if a chatbot frequently receives inquiries about a specific product feature, women entrepreneurs can use this feedback to enhance their offerings or develop new products that better meet customer needs. By continuously analyzing and responding to customer data, women entrepreneurs can remain agile and responsive in a dynamic market environment (Suseno & Abbott, 2021).

Moreover, AI-driven customer engagement tools can help women entrepreneurs optimize their marketing budgets. By identifying the most effective marketing channels and strategies, AI ensures that resources are allocated efficiently, maximizing the return on investment. For example, AI can analyze the performance of different marketing campaigns and recommend adjustments to improve their effectiveness. This data-driven approach enables women entrepreneurs to make informed decisions about where to invest their marketing efforts, ensuring they achieve the best possible outcomes with their available resources (Suseno & Abbott, 2021).

Integrating AI into marketing and customer engagement offers significant advantages for women entrepreneurs. By adopting personalized marketing methods and utilizing AI-powered tools such as chatbots, women entrepreneurs can enhance their ability to connect with customers, gather valuable insights, and make informed decisions. These capabilities not only improve customer satisfaction and loyalty but also drive business growth and competitiveness. As AI technology continues to evolve, supporting women entrepreneurs will become increasingly important, offering new opportunities for innovation and success (Suseno & Abbott, 2021).

Better Managing of Finance

Venkatesh et al. (2017) emphasized the importance of utilizing AI technology for financial management among female entrepreneurs, highlighting that women often excel in this area. AI has emerged as a powerful tool for gaining a comprehensive understanding of the financial resources available within a business. Women entrepreneurs are known for their ability to provide detailed information about cash flow, expenses, and revenue trends. By integrating AI into their financial processes, they can enhance their focus on financial planning and resource allocation, making these tasks more convenient and efficient (Venkatesh et al., 2017).

The efficiency gains from AI in financial planning are substantial. Traditionally, women entrepreneurs relied on manual methods for pre-planning, which were time-consuming and prone to errors. AI technology automates these processes, offering real-time insights and predictive analytics that enable more accurate and timely financial decisions. For instance, AI tools can analyze historical financial data to forecast future cash flows, identify potential financial risks, and suggest optimal strategies for resource allocation. This level of automation and intelligence allows women entrepreneurs to manage their finances more effectively, ensuring they can meet their operational and financial goals (Venkatesh et al., 2017).

In terms of financial performance, access to funding remains a critical issue for entrepreneurs in Malaysia, and

women entrepreneurs face similar challenges (Yap et al., 2022). Securing financing at feasible rates is essential for business growth and sustainability. AI plays a pivotal role in addressing this challenge by enhancing the ability of women entrepreneurs to access financing. AI-driven credit assessment tools provide a more accurate evaluation of a business's creditworthiness, which can lead to better loan terms and interest rates. These tools analyze various data points, such as financial statements, transaction histories, and market conditions, to assess the business's risk profile (Yap et al., 2022).

Additionally, AI can help women entrepreneurs maintain a healthy credit score by providing insights into their financial health. AI systems can monitor cash flows, predict future financial needs, and suggest strategies to ensure timely debt payments. By offering a clear overview of expected cash flows and potential financial shortfalls, AI enables women entrepreneurs to take proactive measures to avoid defaulting on loans. This proactive approach not only helps maintain a good credit score but also enhances the business's financial stability (Noor et al., 2022).

AI's role in financial management extends beyond securing loans. It also optimizes day-to-day financial operations. For example, AI can automate invoicing, payroll processing, and expense tracking, thereby reducing the administrative burden on women entrepreneurs. This automation ensures that financial records are accurate and up to date, facilitating better financial decision-making. Furthermore, AI can identify cost-saving opportunities and recommend budget adjustments, which contribute to improved profitability (Venkatesh et al., 2017).

AI technology offers substantial benefits for women entrepreneurs in financial management. By automating routine tasks, providing predictive analytics, and enhancing access to financing, AI empowers women entrepreneurs to manage their businesses more effectively. The ability to make informed financial decisions, secure favorable loan terms, and maintain a healthy credit score contributes significantly to the success and sustainability of women-led businesses. As AI technology continues to evolve, its impact on women's entrepreneurship is expected to grow, providing new opportunities for innovation and financial empowerment (Venkatesh et al., 2017; Yap et al., 2022; Noor et al., 2022).

Innovation and Product Development

For entrepreneurs, a strong focus on innovation and product development is essential. This is particularly true in today's fast-paced business environment, where adopting modern technologies such as artificial intelligence (AI) can provide a significant competitive advantage. In Malaysia, consumer demands are evolving rapidly, driven in part by increased tourism. This dynamic market requires women entrepreneurs to prioritize innovation in order to meet high consumer expectations. AI accelerates research and development (R&D) efforts by providing women entrepreneurs with critical market data, trends, and insights into market gaps, enabling more informed decision-making (Isa et al., 2021).

Integrating AI into business operations has been transformative, especially for women entrepreneurs who are often inclined toward exclusivity and long-term strategic decisions. AI supports these goals by offering advanced analytics and predictive capabilities, which highlight emerging market opportunities and potential risks. For instance, AI can analyze consumer behavior patterns and predict future trends, enabling women entrepreneurs to develop products that are more likely to succeed in the market. This data-driven approach to innovation ensures that new products align more effectively with consumer needs (Isa et al., 2021).

One critical aspect of product development is prototyping and testing. Women entrepreneurs in Malaysia are particularly focused on this component, understanding that thorough testing is crucial for market success. Introducing products without adequate testing and prototyping significantly increases the risk of failure, given Malaysia's diverse and demanding consumer base (Keling et al., 2022). AI facilitates this process by enabling virtual prototyping and testing, which reduces the need for extensive fieldwork. AI simulations can model various scenarios and predict how products will perform under different conditions, providing valuable insights that guide product refinement and optimization (Keling et al., 2022).

AI-driven simulations offer several advantages. They allow women entrepreneurs to experiment with different

product features and configurations in a virtual environment, identifying the most promising versions before committing to physical prototypes. This not only saves time and resources but also accelerates the product development cycle. Furthermore, AI can analyze feedback from these simulations to identify potential issues and areas for improvement. This iterative process ensures that the final product is well-aligned with consumer preferences and market demands (Noor et al., 2022).

In addition to prototyping and testing, AI plays a crucial role in gathering and analyzing consumer feedback. Traditional feedback collection methods, such as surveys and focus groups, can be time-consuming and may not always provide comprehensive insights. On the other hand, AI systems can process vast amounts of data from various sources, including social media, online reviews, and customer interactions, to generate real-time feedback. This feedback is invaluable for product development, helping women entrepreneurs fine-tune their offerings to better meet consumer expectations (Noor et al., 2022).

Moreover, AI helps women entrepreneurs in Malaysia navigate the complexities of a diverse market. By using AI to conduct market segmentation and identify distinct consumer groups, entrepreneurs can effectively tailor their products and marketing strategies to different segments. This targeted approach increases the likelihood of product acceptance and success in the market. AI's ability to provide actionable insights and predictive analytics empowers women entrepreneurs to make data-driven decisions, enhancing their competitiveness and performance (Isa et al., 2021; Keling et al., 2022; Noor et al., 2022).

AI is a powerful tool that supports women entrepreneurs in Malaysia by enhancing innovation, product development, and market responsiveness. By leveraging AI for R&D, prototyping, testing, and consumer feedback analysis, women entrepreneurs can develop products that are better aligned with market demands and consumer preferences. This reduces the risk of product failure and ensures that performance targets are achieved efficiently. As AI technology advances, supporting women entrepreneurs will become even more critical, driving innovation and business success (Isa et al., 2021; Keling et al., 2022; Noor et al., 2022).

Enhancing the Decision-Making Process

In Malaysia, women entrepreneurs are challenging traditional stereotypes and making decisions that transcend conventional gender roles. The adoption of artificial intelligence (AI) has played a crucial role in empowering these women to establish and maintain their positions in the Malaysian market. By leveraging AI, women entrepreneurs demonstrate their knowledge of technological advancements and use these tools to achieve their goals of sustainability and business success. The technical competence of Malaysian women entrepreneurs has been a significant factor in their local and international success. According to Rosca et al. (2020), the integration of AI has led to a substantial increase in the performance of women entrepreneurs. The use of AI by women entrepreneurs ex

tends beyond operational efficiency; it also facilitates the development of robust social networks within Malaysia. These networks are instrumental in helping women entrepreneurs achieve their performance targets. AI-powered platforms enable women entrepreneurs to connect, collaborate, and share knowledge, fostering a supportive entrepreneurial ecosystem. Such platforms provide valuable mentorship opportunities, allowing women to learn from the experiences of other successful entrepreneurs. This exchange of knowledge and support is crucial for the continuous improvement and success of women-led businesses (Rosca et al., 2020).

AI-driven platforms offer several advantages for women entrepreneurs. They provide access to real-time data and analytics, which are essential for making informed business decisions. These platforms can analyze market trends, consumer behavior, and competitive landscapes, offering insights that help women entrepreneurs strategize effectively. Furthermore, AI can automate routine tasks, freeing up time for women entrepreneurs to focus on strategic initiatives and innovation. This not only enhances operational efficiency but also contributes to the overall growth and sustainability of their businesses (Rosca et al., 2020).

The role of AI in facilitating mentorship and guidance cannot be overstated. AI-powered platforms connect women entrepreneurs with mentors who can provide valuable advice and support. These mentors, often experienced entrepreneurs, offer insights into best practices, risk management, and growth strategies. The

guidance provided through these platforms helps women entrepreneurs navigate the complexities of the business world, enhancing their confidence and decision-making capabilities. Suseno and Abbott (2021) highlight that such valuable support and guidance are critical factors contributing to the efficient performance of women entrepreneurs in the market.

Moreover, AI enables women entrepreneurs to build and maintain strong social networks, which are essential for business success. These networks provide access to resources, information, and opportunities that might otherwise be inaccessible. By leveraging AI to facilitate networking, women entrepreneurs can collaborate on projects, share resources, and support each other's growth. This collaborative approach not only strengthens individual businesses but also contributes to the overall development of the entrepreneurial ecosystem in Malaysia (Suseno & Abbott, 2021).

The impact of AI on the performance of women entrepreneurs is evident in various aspects of their businesses. For instance, AI can optimize supply chain management, enhance customer relationship management, and improve marketing strategies. By automating these critical functions, AI allows women entrepreneurs to focus on core business activities and strategic growth. Additionally, AI-driven insights enable them to identify new market opportunities and adapt to changing consumer demands more effectively. This agility and responsiveness are critical factors in achieving long-term business success (Rosca et al., 2020).

AI has been a transformative force for women entrepreneurs in Malaysia, enabling them to break stereotypes and excel in the business world. By leveraging AI for operational efficiency, strategic decision-making, and network building, women entrepreneurs can achieve their goals of sustainability and success. The technical competence demonstrated by these entrepreneurs, supported by AI, has been instrumental in their local and international achievements. As AI technology continues to evolve, its role in empowering women entrepreneurs will become even more significant, driving innovation, collaboration, and business growth (Rosca et al., 2020; Suseno & Abbott, 2021).

CONCLUSIONS

The impact of AI on the performance of women entrepreneurs in Malaysia is profound and multifaceted. AI has empowered women entrepreneurs to break traditional stereotypes and excel in business by providing advanced tools for innovation, financial management, and strategic decision-making. The integration of AI has significantly enhanced their technical competence, contributing to both local and international success. AI facilitates efficient financial planning and resource allocation, enabling women entrepreneurs to manage their businesses more effectively. It also supports innovation by accelerating research and development, allowing for virtual prototyping and testing, which reduces risks and enhances product quality. Furthermore, AI-powered platforms foster robust social networks and mentorship opportunities, providing valuable support and guidance that improve business performance.

In addition to the role played by the government, the private sector also plays a pivotal role in facilitating the adoption of AI technologies. It provides essential support through mentorship programs, funding opportunities, and AI training workshops, thereby bridging the gap in digital literacy and technology access. Training is crucial for equipping women entrepreneurs with the skills necessary to fully harness AI's potential, enabling them to innovate, streamline processes, and make data-driven decisions that align with market demands. AI technologies also facilitate the expansion of market reach by allowing women entrepreneurs to tap into new markets and consumer segments through advanced analytics and personalized marketing strategies. The broader social and economic impact of empowering women entrepreneurs through AI is significant, as it advances gender equality and societal development. It serves as an inspiration for future generations and promotes a culture of innovation and inclusivity. While the benefits of AI are substantial, challenges such as ethical considerations, data privacy, and the digital divide must be addressed to ensure equitable access and application.

In conclusion, the integration of AI into women's entrepreneurship in Malaysia offers a pathway to enhanced business performance and societal progress. By leveraging private sector support, focusing on comprehensive training, and expanding market reach, women entrepreneurs can harness AI's transformative potential. This

will drive innovation, collaboration, and economic development while solidifying the pivotal role of women entrepreneurs in Malaysia's economic landscape.

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