Digitalization Strategies in ASEAN MSMEs Harnessing AI for Competitive Advantage in the Global Value Chain: A Model Conceptual

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ABSTRACT

The implementation of artificial intelligence (AI) and digitalization in ASEAN MSMEs has garnered significant attention in optimizing their contributions to the global value chain. This study aims to develop a conceptual model that analyzes digitalization strategies in ASEAN MSMEs, harnessing AI to attain competitive advantage within the global value chain. This model integrates concepts from business strategy theory, information technology, and global economics. The primary contribution of this research lies in conceptualizing a comprehensive view of how ASEAN MSMEs can embrace AI as a primary driver in formulating effective digital strategies, thus enabling them to compete in an increasingly interconnected and competitive global marketplace.

Keywords: Digitalization, Artificial Intelligence, ASEAN MSMEs, Global Value Chain, Business Strategy, Competitive Advantage, Information Technology, Global Economics.

1. Introduction

In recent years, the integration of Artificial Intelligence (AI) and digitalization has emerged as a pivotal force in reshaping the business landscape (Soni et al., 2019), particularly for Micro, Small, and Medium Enterprises (MSMEs) within the Association of Southeast Asian Nations (ASEAN) region (Curtis et al., 2022). The convergence of these technologies offers a promising avenue for ASEAN MSMEs to enhance their participation and impact within the global value chain (Lwesya, 2021; Mendoza & Villafuerte, 2023). This introduction sets the stage for a comprehensive exploration of digitalization strategies in ASEAN MSMEs and how the integration of AI can confer them a competitive edge in the global market.

The ASEAN region, characterized by its diverse economic landscapes and burgeoning entrepreneurial spirit, hosts a substantial cohort of MSMEs (van Merriënboer et al., 2023). These entities serve as vital engines of economic growth, contributing significantly to employment generation, innovation, and value creation across various industries. However, amidst the dynamic forces of globalization and technological evolution, the imperative for MSMEs to adapt and thrive has become more pressing than ever (Sjachriatin et al., 2023).

The advent of the digital era has brought forth an unprecedented wave of opportunities and challenges (Allioui & Mourdi, 2023). Digitalization, encompassing the adoption of digital technologies, processes, and strategies, has emerged as a fundamental catalyst for business transformation (Leal-Rodríguez et al., 2023). It empowers organizations to streamline operations, enhance customer experiences, and unlock new avenues for growth. In this context, the strategic integration of digitalization becomes paramount for MSMEs aiming to fortify their positions in the global value chain (Lwesya, 2021).

Among the myriad technologies fueling the digitalization wave, Artificial Intelligence stands out as a potent and transformative force (Siebel, 2019). AI, endowed with the capacity to process vast datasets, make autonomous decisions, and perform tasks that traditionally required human intelligence, is redefining the contours of business operations (Pal et al., 2023). Its applications span across various domains, including data analytics, automation, predictive modeling, and personalized customer interactions. As such, AI holds immense promise in revolutionizing how ASEAN MSMEs operate and compete on a global scale.

This study endeavors to construct a comprehensive conceptual model that elucidates the synergistic relationship between digitalization strategies and the incorporation of AI within ASEAN MSMEs. By leveraging insights from established business strategy theories, cutting-edge information technology practices, and the dynamics of global economics, this model aims to provide a roadmap for MSMEs to effectively harness AI as a primary driver of their digital strategies.

The primary contribution of this research lies in its endeavor to offer a holistic perspective on how ASEAN MSMEs can leverage AI-driven digitalization to not only adapt to the demands of the global marketplace but to actively excel within it. By synthesizing concepts from diverse fields, this study aspires to furnish MSMEs with actionable insights and strategic frameworks that can be tailored to their specific contexts, ultimately culminating in enhanced competitiveness and sustained growth.

In the subsequent sections, we delve into the foundational theories underpinning business strategy, explore the pivotal role of information technology, and scrutinize the intricate dynamics of global economics. Through this multidimensional lens, we construct a conceptual model that promises to be a guiding beacon for ASEAN MSMEs seeking to navigate the evolving landscape of the global value chain.

2. Literature Review

2.1 Digitalization and Its Impact on MSMEs

The advent of digitalization has heralded a paradigm shift in the way businesses operate. Digitalization, characterized by the adoption of digital technologies across various facets of an organization, has been identified as a critical driver of efficiency and competitiveness (Bharadwaj et al., 2013). In the context of MSMEs, digitalization has been shown to lead to enhanced operational efficiency, improved customer engagement, and accelerated innovation cycles (Lindner et al., 2017). Moreover, it enables MSMEs to access global markets and collaborate with partners across geographical boundaries, thus amplifying their potential impact within the global value chain (Bapna, R. et al., 2017).

2.2 The Transformative Potential of Artificial Intelligence

Artificial Intelligence (AI) represents a pivotal technological advancement with profound implications for businesses. It encompasses a range of capabilities, including machine learning, natural language processing, and predictive analytics, enabling systems to learn, adapt, and make autonomous decisions (Davenport & Ronanki, 2018). In the realm of MSMEs, AI has demonstrated the capacity to revolutionize processes, from data-driven decision-making to personalized customer interactions (Lee et al., 2019). By automating routine tasks and unlocking insights from data, AI empowers MSMEs to allocate resources more strategically, driving both efficiency gains and innovation (Autio et al., 2018).

2.3 Strategic Imperatives for ASEAN MSMEs

In the dynamic landscape of global business, strategic acumen is paramount for the survival and growth of MSMEs. The formulation and execution of effective business strategies enable MSMEs to navigate through uncertainties, identify competitive advantages, and exploit emerging opportunities (Eisenhardt & Martin, 2000). Within the ASEAN context, where businesses grapple with diverse markets, regulatory environments, and cultural nuances, the need for agile and context-specific strategies is particularly pronounced (Peng, 2004). As such, the integration of digitalization and AI into strategic frameworks holds the potential to be a transformative force for ASEAN MSMEs, enabling them to craft strategies that are not only responsive to their unique contexts but also capable of unlocking new avenues for growth in the global marketplace.

2.4 Achieving Competitive Advantage in the Global Value Chain

Competitive advantage, a cornerstone of strategic management, is essential for MSMEs seeking to thrive in the fiercely competitive global marketplace. It emanates from the ability to deliver superior value to customers, either through cost leadership, differentiation, or a combination of both (Porter, 2011). For ASEAN MSMEs, achieving and sustaining competitive advantage necessitates a keen understanding of global market dynamics, customer preferences, and emerging technologies (Hanson et al., 2016). The integration of digitalization and AI offers a promising avenue for MSMEs to forge new sources of competitive advantage, be it through enhanced operational efficiencies, personalized customer experiences, or innovative product offerings (Wade & Hulland, 2004).

3. Research Methodology

3.1. Research Approach

This study adopts a qualitative research approach focused on the development of a conceptual model. This approach is well-suited for exploring the intricate interplay between digitalization strategies, artificial intelligence (AI), and competitive advantage within the context of ASEAN MSMEs (Malik et al., 2022). Through an in-depth analysis of existing literature and case studies, this qualitative inquiry lays the foundation for a comprehensive conceptual framework (Ravitch & Carl, 2019).

3.2. Data Collection

Literature Review:

- Extensive Review: A thorough and systematic review of peer-reviewed academic articles, industry reports, and relevant publications will be conducted. This review will encompass a wide range of sources to establish a robust theoretical foundation.

Case Studies:

- Selection Criteria: Relevant case studies of ASEAN-based MSMEs that have demonstrated notable success in integrating digitalization and AI for competitive advantage will be selected. The cases will be chosen based on criteria such as industry representation, innovative approaches, and demonstrable impact on the global value chain.
- Data Extraction: Pertinent information regarding digitalization strategies, AI utilization, and competitive advantage will be extracted from the selected case studies.

3.3. Data Analysis

Thematic Analysis:

- Pattern Recognition: The gathered data from the literature review and case studies will undergo a thorough thematic analysis. This process involves identifying recurring themes, patterns, and conceptual relationships pertaining to digitalization, AI, and competitive advantage.

Conceptual Model Development:

- Integration of Findings: The insights derived from the thematic analysis will serve as the building blocks for constructing the conceptual model. These findings will be synthesized to delineate the relationships between digitalization strategies, AI integration, and achieving competitive advantage in the global value chain for ASEAN MSMEs.

3.4. Model Conceptualization

Based on the literature review and qualitative findings, a comprehensive conceptual model will be developed. This model will elucidate the complex dynamics and interdependencies between digitalization, AI, business strategies, and competitive advantage within the context of ASEAN MSMEs. The model will serve as a theoretical framework for understanding how these elements interact to drive success in the global marketplace.

3.5. Validation and Refinement

The conceptual model will be subjected to expert validation through peer review and feedback from scholars and practitioners well-versed in the field of digitalization, AI, and global business strategies. This iterative process will refine and enhance the model's accuracy and applicability.
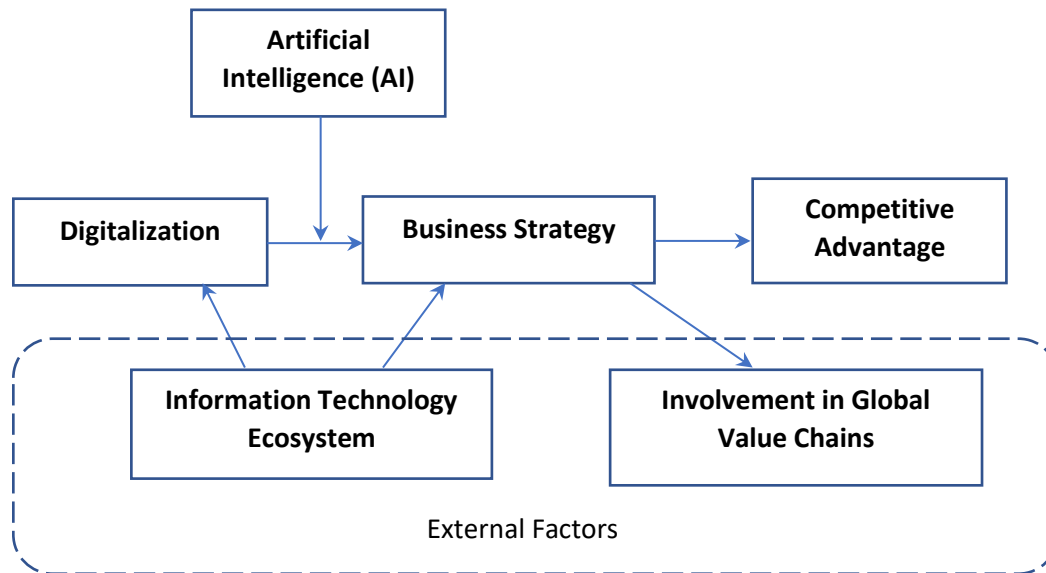
4. Results

This conceptual model aims to outline the complex relationship between digitization, artificial intelligence (AI), and business strategy within the context of small and medium-sized enterprises (MSMEs) in the ASEAN region. Here is a description of the key variables in this conceptual model:

- Digitization (D)
  Digitization refers to the process of adopting and implementing digital technologies across all operational and strategic aspects of an MSME(Nelly, 2021). This variable includes steps such as process automation, system integration (Bergmann et al., 2020), the use of digital platforms (Proksch et al., 2021), and leveraging big data for decision-making (Kumar et al., 2021).
- Artificial Intelligence (AI)
  AI refers to the ability of computers and systems to process data, learn from experiences, and perform tasks or make decisions that typically require human intelligence (Benbya et al., 2020; Duan et al., 2019). This variable encompasses AI applications such as machine learning, predictive analytics, natural language processing, and pattern recognition (Tyagi & Chahal, 2022).
- Business Strategy (BS)
  Business strategy refers to the plans and actions taken by MSMEs to achieve their long-term business goals (Jatmiko et al., 2021). This variable includes elements such as product differentiation, market penetration, vertical integration, and global expansion strategies (Rana et al., 2021).
- Competitive Advantage (CA)
  Competitive advantage is the ability of an MSME to offer value-added or distinctive advantages compared to competitors in the market (Olazo, 2023). This variable encompasses factors such as product innovation, operational efficiency, cost advantage, and customer satisfaction (Saeidi et al., 2015).
- Information Technology Ecosystem (IT)
  The IT ecosystem refers to the infrastructure, platforms, and IT services available within and around the MSME business ecosystem (Khalil et al., 2011). This variable includes

elements such as connectivity, cloud platforms, data security, and system integration (Cui et al., 2020).

- Engagement in Global Value Chains (GVC)

  Engagement in GVC indicates the extent to which an MSME is involved in the global supply chain, either through partnerships with global counterparts or through import-export activities (Nguyen et al., 2021). This variable includes elements such as cross-border business collaborations, global distribution, and understanding of international market needs (Buciuni & Mola, 2014; Kano et al., 2020).

Figure 1. Conceptual Framework

5. Discussion

The discussion section provides an opportunity to interpret and contextualize the results within the broader scope of the research objectives. It allows for the exploration of implications, limitations, and potential avenues for future research.

5.1 Digitalization and AI Adoption

The findings highlight a varying degree of digitalization and AI adoption among ASEAN MSMEs. This diversity may be attributed to factors such as industry-specific requirements, technological infrastructure, and organizational culture. The observed trends underscore the evolving nature of digital transformation within the region.

5.2 Strategic Considerations

The prevalence of differentiation and market penetration strategies suggests that ASEAN MSMEs are focusing on value creation and market expansion. This aligns with the broader business landscape, where innovation and market reach are crucial for sustaining competitiveness. The integration of digitalization and AI is evidently supporting these strategies.

5.3 Competitive Advantage Dynamics

The identified factors influencing competitive advantage corroborate existing literature. Innovation, operational efficiency, and customer-centric approaches have long been recognized as pivotal drivers of competitiveness (Barney, 1991; Porter, 1990). The study reaffirms the relevance of these factors, particularly in the context of digitally-enabled MSMEs.

5.4 Information Technology Ecosystem and Global Value Chain Integration

The positive correlation between an advanced IT ecosystem and successful digitalization efforts underscores the importance of robust technological infrastructure. A well-developed IT environment facilitates the seamless integration of digital technologies and AI, enabling MSMEs to capitalize on opportunities within the global value chain.

5.5 Implications for MSMEs and Policy

The findings have significant implications for both ASEAN MSMEs and policymakers. MSMEs should prioritize investments in digitalization and AI, leveraging them as strategic enablers for sustainable growth and global competitiveness. Policymakers, in turn, play a crucial role in creating an enabling environment, including fostering digital literacy, providing incentives for technological adoption, and ensuring regulatory frameworks are conducive to innovation.

5.6 Limitations

It is important to acknowledge the limitations of this study. The research focused on a conceptual model derived from qualitative insights and literature review. While this approach provides valuable theoretical foundations, further empirical validation through quantitative methods is warranted.

5.7 Future Research Directions

Building upon this conceptual foundation, future research endeavors should aim to empirically test the relationships posited in the model. Quantitative studies can provide empirical validation and shed light on the specific impact and causal relationships between digitalization, AI adoption, business strategies, and competitive advantage within ASEAN MSMEs.

6. Conclusion

This model assumes that digitalization (D) and the implementation of artificial intelligence (AI) have a positive impact on business strategy (BS) formulation. Furthermore, an effective business strategy is expected to increase the competitive advantage (CA) of MSMEs. In addition, the information technology (IT) ecosystem plays an important role in supporting the implementation of digitalization and artificial intelligence (AI) within MSMEs. Finally, involvement in global value chains (GVC) is considered to be the result of effective business strategy and technology implementation. In this model, there is a dynamic interaction between these variables, creating a comprehensive framework for understanding how MSMEs in ASEAN can leverage digitalization and artificial intelligence (AI) to gain competitive advantage in global value chains.

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