Selangor Business Review

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

ARTIFICIAL INTELLIGENCE IN MARKETING: A REVIEW OF ADOPTION DRIVERS AND BARRIERS IN MALAYSIAN BUSINESSES

AZLIA JAAPAR[1*], NADYA ABDULLAH[2], MUHAMMAD NAQIB[3], SABRI ISMAIL[4], MAZIANA ZAINAL ABIDIN[5]

[1, 2,3,,4,5] Faculty Business and Accountancy, Universiti Selangor, Malaysia

*Corresponding Author: azlia@unisel.edu.my

Abstract: Artificial Intelligence (AI) is transforming marketing by enabling automation, personalisation, and data-driven decision-making. As a key driver of digital transformation, AI emulates aspects of human intelligence to enhance business performance. Despite its potential, evidence suggests that 73% of businesses remain at basic efficiency levels, while only around 10% fully leverage AI to support innovation, indicating that AI adoption is still at a relatively early stage. Accordingly, this paper aims to review existing research on the adoption of AI in marketing within the Malaysian context. A general literature review approach was employed using Google Scholar, covering studies published between 2021 and 2025. In total, eight relevant articles were screened and analysed to provide an overview of current research on AI adoption among Malaysian businesses, with particular attention to marketing practices. The findings indicate that organisational motivation, technological preparedness, and internal capabilities contribute positively to marketing performance, despite the presence of substantial technological, organisational, and environmental constraints. Overall, AI adoption in marketing is shown to depend on a multi-layered system of tools that support data analysis, prediction, automation, and customer interaction. The review highlights the need to address existing barriers in order to realise the full potential of AI in marketing. The study offers valuable insights for businesses and policymakers seeking to advance digital transformation initiatives in alignment with Malaysia's *MyDigital* and *Industry 4.0* agendas.

Keywords: Artificial Intelligence; Adoption; Marketing; Businesses; Malaysia

1. Introduction

Artificial intelligence (AI) has emerged as one of the most influential technological forces shaping contemporary business environments. Its ability to replicate aspects of human cognition such as learning, reasoning, and decision-making enables organisations to perform complex tasks with greater speed, accuracy, and consistency. Through the analysis of large and diverse datasets, AI enhances strategic decision-making, supports the delivery of personalised customer experiences, and strengthens firms' capacity to anticipate market trends. These capabilities have positioned AI as a critical source of competitive advantage, with growing evidence indicating that higher levels of AI adoption significantly improve marketing performance and organisational adaptability in increasingly dynamic markets.

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

Globally, businesses are integrating AI across a wide range of marketing functions, including customer segmentation, predictive analytics, content personalisation, and campaign optimisation. The incorporation of AI into marketing activities has transformed traditional practices by enabling more precise targeting, enhanced customer relationship management, and data-driven evaluation of promotional effectiveness. As AI technologies continue to advance, organisations are progressing towards more sophisticated applications that combine automation, advanced analytics, and adaptive algorithms. This shift reflects a broader transformation in marketing, whereby decision-making is increasingly guided by systematic, data-informed processes rather than intuition-based judgement.

In Malaysia, the strategic importance of AI has been recognised at the national policy level. Initiatives such as the Malaysia Digital Economy Blueprint, the National Artificial Intelligence Roadmap, and the Industry 4.0 Policy Framework signal the government's commitment to embedding AI within broader economic development and industrial transformation strategies. The contribution of the digital economy accounting for more than one-fifth of national gross domestic product further demonstrates the growing significance of digital technologies, including AI, for productivity and competitiveness. Nevertheless, despite a supportive policy environment, AI adoption at the organisational level remains uneven. While a large number of Malaysian businesses report some form of digital adoption, most applications remain basic in nature, and only a small proportion of firms fully exploit AI for strategic or innovative purposes. National assessments consistently indicate that Malaysian organisations are still at an early stage of AI maturity, with limited integration into core business functions such as marketing.

This disconnect between policy ambition and organisational practice points to an important knowledge gap. Although scholarly research on AI adoption in Malaysian businesses has increased in recent years, much of the existing literature focuses on general technology adoption, operational efficiency, or industry-level digitalisation, rather than marketing-specific applications. Consequently, there is limited empirical understanding of how Malaysian firms adopt AI in marketing, the types of tools employed, and the organisational and environmental factors that facilitate or constrain these capabilities. This gap is particularly significant given that marketing represents one of the fastest-evolving domains of AI application globally, encompassing tools such as machine learning, recommendation systems, automated content generation, and sentiment analysis. Without focused research in this area, Malaysian firms risk making poorly informed investment decisions, deploying AI inefficiently, and lagging behind regional competitors that have already leveraged AI to enhance marketing innovation and customer engagement.

Moreover, despite the growing maturity of AI-based marketing tools globally, Malaysian organisations often lack clarity regarding how such tools can be effectively implemented across different marketing functions. Existing studies provide limited insight into how firms progress from basic automation towards more advanced applications, such as predictive modelling, conversational AI, and real-time personalisation. This incomplete understanding of AI adoption trajectories complicates efforts to assess how organisations move along the AI maturity curve and what organisational capabilities are required to sustain long-term, AI-driven marketing transformation.

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

A further challenge arises from the fragmented digital ecosystems that characterise many Malaysian firms. Discontinuous datasets, legacy systems, and weak data governance practices significantly undermine the effectiveness of AI tools, which depend on high-quality, integrated, and real-time data. In contrast, countries with more advanced digital infrastructures benefit from more coherent data pipelines, enabling AI systems to generate deeper and more actionable insights. This structural imbalance highlights a systemic challenge that cannot be addressed through policy incentives alone, but instead requires organisational restructuring, investment in digital infrastructure, and sustained capacity building.

In addition, the shortage of AI-literate marketing professionals represents a major constraint on adoption. Many marketing departments lack the analytical skills required to interpret AI-generated outputs or to integrate these insights into strategic decision-making. This skill gap often results in the superficial or inappropriate use of AI tools, with organisations either underutilising their capabilities or deploying them without a clear understanding of their strategic implications. As a result, AI adoption may fail to deliver meaningful performance improvements and, in some cases, may even reinforce suboptimal decision-making.

Cultural and behavioural dimensions of AI adoption in marketing remain comparatively underexplored. Consumer attitudes towards data privacy, algorithmic decision-making, and personalised marketing play a critical role in determining the effectiveness of AI-driven campaigns. Malaysia's multicultural and socio-demographically diverse context further complicates this issue, as different consumer groups may respond differently to automation, targeted advertising, and data-driven personalisation. However, existing studies provide limited insight into these socio-cultural factors, making it difficult to assess the acceptability and effectiveness of AI-based marketing practices within the Malaysian market.

On the whole, these gaps underscore the need to synthesise existing evidence and develop a more contextualised understanding of AI adoption in Malaysian marketing. In the absence of such synthesis, organisations risk implementing AI tools that are poorly aligned with local market conditions, cultural expectations, and organisational realities. More critically, policymakers lack a robust empirical foundation for designing targeted interventions, potentially resulting in fragmented or ineffective programmes that fail to address underlying structural and capability-related constraints.

The lack of consolidated evidence on AI adoption in Malaysian marketing also limits the ability of policymakers and industry leaders to enhance organisational readiness effectively. Existing studies often present inconsistent findings, with some emphasising the strategic benefits of AI for innovation and competitiveness, while others highlight barriers such as cost, skills shortages, data limitations, and ethical concerns. Furthermore, variation in the types of AI marketing tools examined across studies restricts the ability to evaluate their relevance and effectiveness within the Malaysian context. A clearer and more integrated understanding is therefore required to identify patterns, critical gaps, and priority areas for intervention.

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

This study addresses these issues by synthesising existing literature to identify the key drivers, tools, and challenges influencing AI adoption in marketing among Malaysian businesses. By integrating insights from diverse empirical studies, the paper develops a conceptual understanding of how AI is being applied within the marketing domain and the factors shaping its adoption. The findings offer practical guidance for organisations seeking to enhance marketing performance and competitiveness through the strategic use of AI. In addition, the study provides insights for policymakers aiming to strengthen national digital readiness, inform targeted upskilling initiatives, and support industry alignment with broader digital transformation objectives.

Overall, addressing the knowledge gap surrounding AI adoption in marketing is essential not only for enhancing firm-level competitiveness, but also for ensuring that Malaysia maintains momentum towards becoming a digitally empowered economy. Without evidence-based insights into how AI can be effectively integrated into marketing operations, both businesses and policymakers risk pursuing fragmented or uncoordinated initiatives that fail to deliver sustained digital transformation.

In line with these objectives, this paper synthesises the available literature to examine the key drivers, tools, and challenges associated with AI adoption in marketing among Malaysian firms. The study makes three primary contributions. First, it provides a coherent overview of the factors shaping AI-enabled marketing capabilities. Second, it offers actionable insights to guide firms in improving marketing performance, competitiveness, and digital preparedness. Third, it informs policymakers of critical gaps in organisational readiness that must be addressed to support national digitalisation efforts. Theoretically, the study contributes to a deeper understanding of AI adoption in marketing within emerging digital ecosystems. The remainder of the paper is structured as follows: the next sections present the literature review, methodology, findings, and conclusions.

2. Literature Review

Artificial intelligence (AI) has evolved rapidly across a wide range of technological domains and contextual applications. Broadly, AI is defined as systems capable of performing tasks that typically require human intelligence, including cognitive functions such as learning, reasoning, and problem-solving (Abbas, 2025; Bhagwan & Kadam, 2024; Kamkankaew et al., 2024; Kaliuta, 2023). AI refers to intelligence exhibited by machines, particularly through machine learning and deep learning, which enable algorithms to emulate human cognitive processes using data-driven models (Bandi et al., 2023; Kaliuta, 2023). These systems apply logic to perceive, reason, and act, allowing machines to recognise patterns in large volumes of data and to automate information collection, storage, management, and retrieval processes. Kumar et al. (2019) further define AI as a system's ability to accurately interpret external data, learn from it, and flexibly apply acquired knowledge to achieve specific goals. Overall, AI, machine learning, and data science enhance personalisation and automate processes across multiple industries.

Within marketing, AI is increasingly recognised as a critical driver of innovation and creativity. By automating repetitive tasks, improving targeting accuracy, and enabling

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

predictive analytics, AI enhances marketing effectiveness and strategic decision-making (Veling & Sellappan, 2024). AI facilitates customer customisation, improves campaign efficiency, and supports data-driven decision-making processes. Supriadi (2024) argues that the integration of AI allows organisations to exploit large-scale customer data, enabling predictive insights and tailored marketing strategies that more effectively engage target audiences. As the marketing environment continues to evolve, organisations are required not only to leverage AI technologies to improve operational efficiency but also to adopt ethical approaches that safeguard customer privacy and maintain trust. Consequently, a multidisciplinary perspective is increasingly necessary to manage the broad organisational, social, and ethical implications of AI adoption in marketing (Guni et al., 2024; Oikonomou et al., 2025).

2.1 Global Trends in AI Usage in Marketing

Artificial intelligence has become a central force shaping contemporary marketing practices worldwide. As organisations increasingly rely on data-driven insights, AI is transforming the traditional marketing mix-product, price, place, and promotion by shifting decision-making away from intuition towards analytical precision. While the classical framework remains conceptually relevant, its practical application has been substantially altered by digital technologies. Through machine learning, predictive analytics, and natural language processing, marketers can anticipate consumer needs, personalise engagement strategies, and optimise performance across multiple touchpoints. Beyond efficiency gains, AI enables firms to manage cultural diversity, expand market reach, and deliver locally relevant communications (Huang & Rust, 2021; Yoo, 2024; Kumar, 2024).

Huang and Rust (2021) conceptualise AI in marketing through a hierarchical framework comprising mechanical, thinking, and feeling AI. Mechanical AI focuses on automating repetitive tasks, such as data entry and basic customer enquiries, allowing organisations to reallocate resources towards higher-value activities. Thinking AI analyses large datasets to identify patterns, forecast trends, and generate recommendations, thereby supporting pricing decisions, market segmentation, and product development. Feeling AI interprets emotional signals through sentiment analysis and psychological modelling, enabling brands to respond empathetically to consumer interactions. On the whole, these levels form a cognitive marketing ecosystem in which AI systems continuously learn and adapt, offering a comprehensive framework for understanding AI's impact on marketing processes.

Globally, AI has also reshaped product development practices. Predictive modelling enables organisations to identify emerging consumer needs, while emotional analytics provide insights into consumer responses. Haleem et al. (2022) highlight the role of AI-driven digital prototyping, which allows firms to refine design concepts prior to physical production. Large multinational firms employ AI to customise products for different markets using real-time demand data. Despite these advantages, adoption remains uneven, particularly among firms constrained by financial limitations or concerns surrounding the ethical implications of advanced AI technologies (Kumar, 2024). This uneven adoption highlights a persistent digital divide between technologically advanced organisations and those with limited readiness.

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

Pricing strategies have similarly undergone significant transformation. AI enables dynamic pricing by adjusting prices in response to customer behaviour, competitor actions, and demand fluctuations (Kumar, 2024). Predictive models also assist firms in estimating demand elasticity, offering insights that are difficult to generate through traditional methods. Global digital platforms increasingly rely on such approaches to maximise sales performance. However, Labib (2024) cautions that personalised pricing strategies may raise concerns regarding transparency and fairness, potentially undermining consumer trust. Ethical considerations therefore remain central to discussions of AI-enabled pricing.

AI is also reshaping distribution and logistics systems. According to Haleem et al. (2022), AI improves supply chain efficiency through enhanced demand forecasting, inventory optimisation, and delivery planning. In marketing contexts, AI assists firms in managing digital distribution channels by identifying platforms with the greatest potential reach and return. Nevertheless, infrastructural constraints in developing economies continue to limit adoption (Kumar, 2024), underscoring ongoing inequalities in global AI capability and digital readiness.

Promotion is perhaps the most visibly transformed component of the marketing mix. AI-driven tools support content personalisation, programmatic advertising, chatbot-based communication, and automated customer engagement. By analysing browsing behaviour, purchase histories, and psychographic characteristics, AI enables brands to deliver highly tailored messages. Feeling AI further enhances engagement by facilitating empathetic interactions based on emotional analysis (Huang & Rust, 2021). Despite these benefits, challenges remain, particularly in relation to data privacy, algorithmic bias, and concerns over consumer autonomy (Kumar, 2024; Labib, 2024). Organisations must therefore balance technological innovation with responsible data governance and ethical practice.

Overall, the global literature demonstrates that AI enhances personalisation, decision-making quality, and operational efficiency across marketing functions. However, significant gaps remain. Much of the existing research is grounded in advanced economies, limiting its applicability to emerging markets. In addition, while individual marketing functions are frequently examined, fewer studies integrate these insights into holistic frameworks explaining how AI contributes to long-term competitiveness, organisational capability development, and strategic marketing behaviour.

2.2 Artificial Intelligence Marketing in the Malaysian Context

In Malaysia, the motivation for adopting AI in marketing broadly reflects global trends, particularly the need to improve customer engagement, enhance customer experience, and deliver personalised offerings. The use of automated campaign tools, segmentation algorithms, and predictive recommendation systems is becoming increasingly common as part of the country's broader digitalisation agenda (Mohamad Fariz Abdullah et al., 2024; Azfaezah Azmi et al., 2025). These tools enable more efficient processing of customer data and support more informed marketing decision-making (Fauzi Nor et al., 2024). However, empirical studies consistently emphasise that the effectiveness of AI depends on robust data management systems and structured marketing processes; where such foundations are lacking, organisations struggle to translate analytical insights into meaningful action.

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

Despite growing interest, AI adoption in Malaysia remains uneven across sectors and organisational sizes. Small and medium-sized enterprises (SMEs) face structural constraints, including limited financial resources, skills shortages, and difficulties integrating AI with legacy systems (Nurshazana Aiman Armanshah, 2023). Consequently, many firms begin with small-scale AI adoption through platform-embedded tools provided by digital advertising and e-commerce platforms before progressing to more advanced applications (Mohamad Fariz Abdullah et al., 2024; Azfaezah Azmi et al., 2025). Larger organisations tend to advance more rapidly due to higher levels of digital maturity, established analytics teams, and clearer strategic direction. These patterns suggest that organisational preparedness, rather than mere access to technology, plays a decisive role in determining the extent of AI adoption (Fauzi Nor et al., 2024).

The impact of AI is most evident in digital advertising and customer analytics, particularly within retail and e-commerce sectors. Available tools enable firms to automate campaign optimisation and performance evaluation, providing an accessible entry point into AI-based marketing. However, the literature cautions that the benefits of automation depend on managers' ability to interpret AI-generated insights and integrate them into broader marketing strategies (Azfaezah Azmi et al., 2025). Over-reliance on platform automation without strategic understanding may limit value creation and impede organisational learning.

AI adoption also influences consumer perceptions, particularly in relation to data usage, personalisation, and fairness. As Malaysian consumers become increasingly aware of AI-driven marketing practices, transparency in data processing has emerged as a critical factor in maintaining trust (Fauzi Nor et al., 2024). Trust is strengthened when firms clearly communicate how customer data are used and eroded when personalisation appears intrusive or opaque (Nurshazana Aiman Armanshah, 2023). Consequently, AI implementation in marketing involves not only technological considerations but also communication strategies that shape brand image and customer relationships.

Several recurring themes emerge from the Malaysian literature, including the importance of data quality, managerial digital literacy, organisational culture, and structured change management (Azfaezah Azmi et al., 2025). These findings align with broader national research on digital transformation, which emphasises that successful technological implementation depends on the alignment of leadership, organisational capability, and infrastructure (Nurshazana Aiman Armanshah, 2023).

Although existing studies acknowledge the growing use of AI tools, relatively few examine how Malaysian firms apply AI across the full spectrum of marketing activities, including product development, pricing decisions, distribution planning, and promotional strategy. The literature remains heavily focused on promotional applications such as targeted advertising and customer analytics, largely because such tools are readily accessible through global digital platforms. As a result, empirical evidence on AI's role in upstream marketing functions such as product innovation, market segmentation, and omnichannel distribution is limited, constraining understanding of AI's transformative potential within Malaysian marketing ecosystems.

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

Furthermore, there is a lack of research examining how local cultural norms, consumer expectations, and regulatory conditions shape responses to AI-driven personalisation. Factors such as data privacy sensitivity, digital literacy levels, and trust in automated systems are likely to influence consumer reactions in ways that differ from global trends. This highlights the need for context-specific research that accounts for Malaysia's unique socio-cultural environment.

Compared with global literature, which increasingly documents advanced applications such as sentiment analysis, dynamic pricing, and AI-supported product innovation, Malaysian research indicates that AI adoption remains at an early stage, with firms largely reliant on platform-based tools and incremental learning. Significant gaps remain in understanding how AI is integrated across the marketing mix, how organisational preparedness shapes adoption trajectories, and how ethical considerations influence consumer responses. There is also limited empirical evidence on sectoral variation in adoption patterns. These gaps underscore the need to bridge global AI marketing frameworks with the organisational and infrastructural realities of Malaysia.

This study addresses these limitations by synthesising global and Malaysian literature to provide a contextualised understanding of AI adoption in marketing. It conceptualises AI adoption as an organisation-driven capability shaped by data governance, managerial literacy, consumer expectations, and national digitalisation initiatives. By integrating global insights with local evidence, the review contributes to a more nuanced understanding of the conditions that facilitate or constrain AI-enabled marketing in the Malaysian context.

3. Methodology

This study employs a general article review approach to provide a comprehensive synthesis of existing research on the adoption of artificial intelligence (AI) among businesses in Malaysia, with particular emphasis on marketing practices. The purpose of the review is to identify key thematic patterns and consolidate empirical evidence relevant to AI adoption within the Malaysian business context.

Relevant studies were identified through a systematic search of the Google Scholar database. A broad set of keywords was used to capture diverse yet relevant literature, including *"artificial intelligence"*, *"marketing"*, *"adoption"*, *"Malaysia"*, *"business"*, *"digital economy"*, *"AI personalisation Malaysian e-commerce"*, *"AI-powered marketing brand recognition Malaysia"*, *"AI digital advertising retail SMEs Malaysia"*, *"AI marketing tools adoption SMEs"*, and *"AI adoption Malaysian marketing readiness"*. This search strategy was designed to ensure comprehensive coverage of empirical studies examining AI adoption in marketing-related activities within Malaysia. The keywords used and their combinations are summarised in Table 1.

Following the initial database search, all retrieved articles were systematically screened for relevance. The screening criteria focused on alignment with the study's research objectives and explicit examination of AI adoption within the Malaysian business environment. To ensure the relevance and currency of the findings, only studies published

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

between 2021 and 2025 were considered. This preliminary screening process yielded 27 potentially relevant articles.

Each shortlisted article was subsequently subjected to a more detailed assessment to evaluate its methodological rigour and thematic relevance. After this secondary screening, eight articles were identified as suitable for inclusion in the final review. Articles were excluded for several reasons: some were conceptual papers or general literature reviews rather than empirical studies, while others focused on international contexts that did not adequately reflect the Malaysian business environment. Studies lacking empirical evidence were also excluded, as the review sought to synthesise findings grounded in observed organisational practices.

The final sample of eight peer-reviewed journal articles constituted the core evidence base for the review. Each article was critically examined with respect to its research objectives, methodological approach, and key findings. This structured analysis enabled a systematic synthesis of insights and facilitated a deeper understanding of the factors influencing AI adoption in marketing among Malaysian businesses.

Table 1: Collection of Journal Articles

Keyword	Search Platform
"Artificial Intelligence", "marketing", "adoption", "in Malaysia", "business", "Digital Economy", "AI personalisation Malaysian e-commerce", "AI-powered marketing brand recognition Malaysia", "AI digital advertising retail SMEs Malaysia", "AI marketing tools adoption SMEs" and "AI adoption Malaysian marketing readiness"	Google Scholar

*Relevant to the scope of review

4. Finding and Discussion

Artificial intelligence (AI) is increasingly reshaping the marketing landscape in Malaysia, influencing how businesses operate, engage with customers, and make strategic decisions. Evidence drawn from the reviewed empirical studies indicates that AI adoption is no longer confined to large corporations; rather, it is progressively gaining momentum among small and medium-sized enterprises across a range of sectors. As AI technologies become more accessible and cost-effective, organisations are beginning to integrate them into core marketing activities, including customer segmentation, predictive analytics, personalised advertising, and customer relationship management.

Analysis of the eight selected studies reveals three overarching themes that collectively characterise the current state of AI adoption in Malaysian marketing practices. The first theme concerns the drivers of adoption, which capture the key motivations encouraging firms to embrace AI, such as the pursuit of operational efficiency, enhanced customer insights, and sustained competitive advantage. The second theme focuses on challenges and barriers**,** highlighting the constraints that impede or slow adoption, including skills shortages, financial

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

limitations, data management issues, and organisational resistance to change. The third theme relates to AI tools and applications**,** describing the specific technologies and solutions currently employed by Malaysian businesses, ranging from chatbots and recommendation systems to marketing automation platforms.

On the whole, these themes summarised in Table 2 provide a structured and integrative understanding of how AI is being implemented, experienced, and evaluated within the Malaysian marketing context. They also offer a basis for discussing the extent to which current adoption patterns reflect both global AI marketing trends and the distinctive organisational, infrastructural, and contextual conditions facing Malaysian businesses.

Table 2: Drivers, Challenges and Tools of AI in Marketing

Themes	Elements	Author's Name
Drivers	• Effective communication • Individual skills and competency • Privacy practices (trust in data handling) • Technological infrastructure readiness • Organizational support and positive attitude towards AI • Perceived benefits of AI in enhancing marketing performance	Chuan-Fu & Kuppusamy
	• Perceived Usefulness (PU) • Perceived Ease of Use (PEOU)	Enshassi, M, Nathan, R. J., Soekmawati & Hishamuddin Ismail
	• Relative advantage • Compatibility • Top management support • PU (as mediator)	Elly Julieanatasha Juma'at, Amizatulhawa Mat Sani, & Norhidayah Mohamad
	• Positive perception of AI • Awareness and basic familiarity with AI • Organizational readiness • Financial & technical readiness • Training & knowledge building • Readiness audit	Nurshazana Aiman Armanshah
	• Cost efficiency & operational savings • Improved customer service & support • Better personalisation • Demand for digital transformation • Ability of AI to reduce errors • AI as a strategic competitive advantage	Kumaran Kanapathipillai, Logeswaran Muthaliyar Singkaravalah, Maarutitasan Sittam Balam, Sivanantha Nararajan

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

Challenges	• Privacy and data security concerns • Lack of technological infrastructure • Limited individual skills / lack of expertise • Communication gaps within the organization • Financial and resource constraints • Resistance or low awareness of AI benefits	Chuan-Fu & Kuppusamy,
	• Technological barriers • Organizational barriers • Environmental barriers	Enshassi, M, Nathan, R. J., Soekmawati & Hishamuddin Ismail
	• High cost / financial constraints • Lack of expertise • Lack of knowledge • Low management support • AI not needed for current operations • Data limitations • Employee resistance	Nurshazana Aiman Armanshah
Tools	• Big Data Analytics • Machine Learning • AI Platforms (AIP)	Medjedel, E., Abu Bakar Abdul Hamid & Sakouchi, A. S.
	• Predictive analytics • Automation • AI-driven personalization (personalization marketing)	Mohamad Fariz Abdullah, Muhamad Azman Ibrahim, Azlin Zanariah Bahtar, & Noor Rita Mohamad Khan
	• Big Data Analytics (BDA) • Machine Learning (ML) • AI Platforms (AIP)	Azfaezah Azmi, Siti Norida Wahab, Abu Bakar Abdul Hamid, Nazura Mohamed Sayuti, & Medjedel, E.
	• Chatbots • Customer segmentation AI tools • Recommendation systems • Automated content creation • Robotic Process Automation (RPA) • Predictive analytics • Personalisation engines • Dynamic pricing systems • AI-driven Customer Relationship Management (CRM) • AI for social media marketing	Elly Julieanatasha Juma'at, Amizatulhawa Mat Sani, & Norhidayah Mohamad

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

	• AI forecasting models	

The empirical evidence indicates that businesses operating in Malaysia are gradually recognising the usefulness of artificial intelligence (AI) in enhancing marketing efficiency, particularly in areas such as customer targeting, personalisation, and decision-support mechanisms. However, unlike international markets where AI adoption has reached higher levels of maturity and strategic integration, Malaysian small and medium-sized enterprises (SMEs) remain at a relatively basic stage of adoption. In this context, AI is largely perceived as an operational support tool rather than a strategic driver of marketing innovation.

The findings further suggest that this cautious approach has limited the transformative impact of AI. In most Malaysian firms, AI applications remain confined to isolated operational functions rather than being integrated across the full spectrum of marketing activities. This indicates that many organisations are positioned at an experimental stage of the AI adoption curve, characterised by limited internal confidence and insufficient structural preparedness to embed AI within broader decision-making processes. Compared with international contexts where AI increasingly underpins real-time personalisation, predictive consumer analytics, and automated content optimisation, AI adoption in Malaysian firms appears incremental and risk-averse. This behaviour reflects organisational caution driven by uncertainty surrounding return on investment (ROI), technological suitability, and the long-term sustainability of AI solutions.

Organisational preparedness emerges as a central determinant of AI adoption. A significant proportion of Malaysian firms face shortages in digital and specialised skills, coupled with limited managerial trust in AI-driven decision-making. These capability gaps are more pronounced than those reported in more digitally advanced economies, suggesting that barriers to AI adoption are not purely technological but are deeply embedded in organisational capacity and culture. This observation aligns with established theoretical models that emphasise the role of internal readiness and leadership commitment in successful technology integration.

Leadership orientation and willingness to reconfigure internal processes further shape organisational preparedness. While some Malaysian firms demonstrate forward-looking, innovation-oriented mindsets, many continue to rely on traditional marketing paradigms dominated by intuition and experiential judgement. This entrenched dependence on manual decision-making slows the transition towards data-driven approaches that are essential for effective AI utilisation. In addition to capability constraints, cultural resistance was identified

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

as a significant barrier. In many SMEs, employees perceive AI as a threat to existing roles, resulting in reluctance to engage with AI-enabled systems. This finding mirrors international evidence indicating that organisations with lower levels of digital maturity tend to experience greater internal resistance, thereby constraining the realisation of AI's transformative potential.

Data-related challenges also represent a major impediment to AI adoption. Many firms struggle with fragmented datasets, inefficient data management practices, and uncertainty regarding data privacy and ethical standards. While such issues are not unique to Malaysia, local firms face additional constraints related to infrastructural limitations and inconsistent understanding of regulatory requirements. Consequently, data governance remains underdeveloped as an organisational capability, limiting opportunities for advanced AI-driven analytics in marketing.

Further analysis suggests that data fragmentation is not merely a technical issue but a structural one, arising from legacy systems, departmental silos, and inconsistent data ownership practices. The absence of enterprise-level data strategies often results in duplicated records, incompatible data formats, and incomplete customer profiles, all of which undermine the performance of machine learning models. Moreover, uncertainty surrounding evolving Malaysian data protection regulations contributes to a risk-averse organisational climate, discouraging experimentation with customer-level AI applications. In contrast, globally successful firms treat data governance as a strategic asset, whereas many Malaysian organisations continue to view data as a by-product of operations rather than a resource requiring systematic management. This fundamentally weakens the foundation upon which AI-driven marketing insights depend.

Environmental pressures, such as increasing competition and evolving consumer expectations, also influence AI adoption. However, the findings indicate that firms driven primarily by external pressures tend to adopt AI in a superficial manner, limiting its strategic value and scalability. This supports broader international literature suggesting that effective AI implementation is more strongly determined by internal alignment than by external stimuli alone. The synthesis further reveals that firms responding reactively to competitive or customer pressures are more likely to deploy AI in fragmented, tool-oriented ways aimed at short-term gains. Such reactive adoption restricts long-term strategic impact, as AI initiatives remain isolated rather than embedded within organisational transformation. In contrast, evidence from digitally advanced economies demonstrates that successful AI adoption is typically underpinned by long-term strategic planning, sustained investment in capabilities, and cross-functional coordination. Malaysian firms, however, often adopt AI tools as stand-alone extensions, limiting the diffusion of AI-generated insights across the marketing value chain.

Overall, the findings suggest that AI adoption in Malaysian marketing practices is shaped by the interaction of technological readiness, organisational capability, and environmental pressures. The Malaysian context presents distinct challenges particularly in terms of skills shortages, organisational capacity, and regulatory uncertainty that differ from those commonly observed in more developed digital economies. This contributes to the literature

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

by highlighting the context-specific nature of AI adoption in emerging digital ecosystems, where progress is contingent upon both policy support and organisational capacity-building.

Furthermore, the Malaysian case demonstrates that AI adoption cannot be fully explained through generic technology acceptance models alone. Contextual factors including national policy orientation, levels of industry digitalisation, and socio-cultural dispositions play a decisive role in shaping adoption patterns. This positions Malaysia within broader debates on how emerging economies experience AI-driven transformation differently from developed countries, reinforcing the importance of contextual sensitivity in marketing technology research. By emphasising the combined influence of structural, cultural, and capability constraints, this study offers an integrated perspective that complements existing international literature on AI-enabled marketing transformation.

From a policy perspective, the findings highlight the need for clearer data governance frameworks and more targeted capacity-building initiatives to enhance organisational readiness for AI-driven marketing. In particular, SMEs require greater national-level support to address capability gaps and improve their ability to deploy AI effectively. Practically, marketing managers should prioritise the integration of AI into strategic marketing planning, the development of internal digital capabilities, and the strengthening of data management systems. These actions are essential for enabling firms to progress from basic automation towards more advanced, value-creating AI applications.

The results also underscore the importance of industry-specific AI support mechanisms, especially for SMEs with limited financial resources, infrastructure, and human capital. National agencies may play a critical role by providing sector-specific AI toolkits, standardised implementation guidelines, and shared data resources to reduce adoption barriers. For practitioners, the findings suggest that AI preparedness must be approached holistically, encompassing mindset transformation, process redesign, and cross-departmental coordination. Organisations that invest in workforce reskilling, robust data governance, and long-term technological planning are more likely to transition successfully towards advanced AI systems that enhance marketing agility, innovation, and competitiveness.

5. Conclusion and Future Research Direction

The purpose of this study was to synthesise existing empirical research on the adoption of artificial intelligence (AI) in marketing among Malaysian businesses. Drawing on selected studies published between 2021 and 2025, the review demonstrates that AI has emerged as a critical enabler of marketing transformation, with growing relevance for organisational competitiveness and digital readiness in Malaysia.

The review examined the key drivers, tools, and challenges shaping AI adoption in Malaysian marketing practices. The findings indicate that adoption is strongly influenced by firms' technological preparedness, managerial capability, and access to appropriate digital infrastructure. Organisations with robust data capabilities, executive commitment, and sufficient financial resources are more inclined to adopt advanced AI-driven marketing applications, such as predictive analytics and personalisation systems. In contrast, small and medium-sized enterprises (SMEs) frequently encounter constraints related to skills shortages,

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

limited capital, and underdeveloped data management practices, resulting in more basic or fragmented uses of AI.

Overall, the synthesis of findings suggests that AI adoption in the Malaysian marketing context is not solely a technical issue, but a multidimensional organisational process. The interaction between human capabilities, organisational alignment, and environmental pressures determines the level of AI maturity achieved by firms. By articulating how these factors operate within the Malaysian context, this study contributes to the literature by clarifying the most salient drivers, tools, and barriers underpinning AI-enabled marketing capabilities, thereby addressing a notable gap in research on AI adoption in developing digital ecosystems.

The findings carry important practical implications. For firms particularly SMEs, the study underscores the need to strengthen internal digital capabilities, improve data governance practices, and align AI initiatives with clearly defined marketing objectives. From a policy perspective, the results highlight the importance of targeted digital upskilling programmes, stronger data governance frameworks, and structured support mechanisms to enhance organisational readiness for AI adoption. Such interventions are essential to support national initiatives such as *MyDIGITAL* and *Industry 4.0*, enabling businesses to adopt AI more confidently, responsibly, and strategically.

More broadly, the study demonstrates that advancing AI adoption in Malaysian marketing is essential not only for enhancing firm-level competitiveness but also for ensuring national resilience and relevance in an increasingly data-driven global economy. Despite its contributions, this study is subject to several limitations. The review was confined to empirical studies published between 2021 and 2025 and focused exclusively on the Malaysian context. In addition, the study did not incorporate primary data or cross-national comparisons. As a result, the findings may not fully capture variations across industries or regional settings.

Future research could extend this work in several directions. Comparative or cross-national studies would be valuable in examining how cultural, economic, and policy differences influence AI adoption across countries, particularly within Southeast Asia and other emerging markets. Longitudinal and empirical research designs are also needed to assess the long-term impacts of AI implementation on marketing performance and consumer behaviour. Furthermore, future studies could develop and empirically test conceptual frameworks incorporating factors such as organisational readiness, perceived usefulness, data infrastructure, ethical awareness, and leadership support to advance understanding of AI adoption in marketing.

References

Abbas, I. A. M. (2025). Theory and practice of artificial intelligence. International *Journal of Innovative Science and Research Technology, 10*(3), 769-775. https://doi.org/10.38124/ijisrt/25mar506

Azfaezah Azmi, Siti Norida Wahab, Abu Bakar Abdul Hamid, Nazura Mohamed Sayuti, & Medjedel, E. (2025). AI-powered marketing strategies: Elevating e-commerce brand

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

recognition in Malaysia. *Southeast Asia: A Multidisciplinary Journal*, *25*(3). 157-173. https://doi.org/10.1108/SEAMJ-02-2024-0020

Bandi, A., Adapa, P. V. S. R., & Kuchi, Y. E. V. P. K. (2023). The power of generative AI: A review of requirements, models, input–output formats, evaluation metrics, and challenges. *Future Internet, 15*(8), 260. https://doi.org/10.3390/fi15080260

Bhagwan, N. K. V., & Kadam, N. D. S. (2024). A comprehensive study on artificial intelligence and machine learning. *International Journal of Advanced Research in Science Communication and Technology,4*(3), 276–279. https://doi.org/10.48175/ijarsct-19939

Chuan-Fu, W., & Kuppusamy, M. (2025). Adoption of AI marketing by small and medium enterprises in Malaysia: Examining the success factors. In Hafinaz, Hariharan R., R. Senthil Kumar (Eds.), R*ecent Research in Management, Accounting and Economics (RRMAE)*. (pp. 659-663). Routledge.

Elly Julieanatasha Juma'at, Amizatulhawa Mat Sani, & Norhidayah Mohamad. (2025). The determinants of AI marketing tools adoption among SMEs in Malaysia. *International Journal of Academic Research in Business and Social Sciences, 15*(8), 1680–1690. https://hrmars.com/papers_submitted/26371/the-determinants-of-ai-marketing-tools-adoption-among-smes-in-malaysia.pdf

Enshassi, M., Nathan, R. J., Soekmawati & Hishamuddin Ismail. (2025). Unveiling barriers and drivers of AI adoption for digital marketing in Malaysian SMEs. *Journal of Open Innovation: Technology, Market, and Complexity, 11*(2), 100519. https://doi.org/10.1016/j.joitmc.2025.100519

Fauzi Nor, Alisa Ibrahim, & Nor Irvoni Mohd Ishar. (2024). Understanding AI implementation in digital advertising among retail SMEs in Malaysia. *International Journal of Research and Innovation in Social Science, 8*(12), 1246–1253. https://rsisinternational.org/journals/ijriss/Digital-Library/volume-8-issue-12/1246-1253.pdf

Guni, A., Varma, P., Zhang, J., Fehervari, M., & Ashrafian, H. (2024). Artificial intelligence in surgery: The future is now. *European Surgical Research, 65*(1), 22-39. https://doi.org/10.1159/000536393

Haleem, A., Javaid, M., Qadri, M. A., Singh, R. P., & Suman, R. (2022). Artificial Intelligence applications for marketing: A review. *Journal of Management Science, 18*(4), 67–79. https://doi.org/10.1016/j.ijin.2022.08.005

Huang, M.-H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science, 49*, 30–50. https://doi.org/10.1007/s11747-020-00749-9

Kaliuta, K. (2023). Integration of AI for routine tasks using SalesForce. *Asian Journal of Research in Computer Science, 16*(3), 119–127. https://doi.org/10.9734/ajrcos/2023/v16i3350

Kamkankaew, P., Thanitbenjasith, P., Sribenjachot, S., Sanpatanon, N., Phattarowas, V., & Thanin, P. (2024). How artificial intelligence is helping businesses grow and thrive: The transformative role of artificial intelligence in Thai B2C digital marketing. *International Journal of Sociologies and Anthropologies Science Reviews, 4*(1), 137–164. https://doi.org/10.60027/ijsasr.2024.3651

Kanapathipillai, K., Logeswaran Muthaliyar Singkaravalah, Maarutitasan Sittam Balam, & Sivanantha Nararajan. (2024). The future of personalised customer experience in e-commerce: decoding the power of AI in building trust, enhancing convenience, and

Vol. 10, No. 2, p. 164-180
31 December 2025
(ISSN 2716-5876)

elevating service quality for Malaysian consumers. *European Journal of Social Sciences Studies, 10*(5). https://doi.org/10.46827/ejsss.v10i5.1856

Kumar, V., Rajan, B., Venkatesan, R., & Lecinski, J. (2019). Understanding the role of artificial intelligence in personalized engagement marketing. *California Management Review, 61*(4), 135–155. https://doi.org/10.1177/0008125619859317

Kumar, V. (2024). AI-powered marketing: What, where, and how? *International Journal of Marketing Research, 61*(2), 89–110.

Labib, E. (2024). Artificial intelligence in marketing: A systematic literature review. *European Journal of Digital Business, 12*(3), 55–70.

Medjedel, E., Abu Bakar Abdul Hamid, & Sakouchi, A. S. (2024). The role of AI in E-commerce Brand Recognition: A Malaysian perspective. *Review of Applied Socio-Economic Research, 28*(2), 95-115. https://doi.org/10.54609/reaser.v28i2.589

Mohamad Fariz Abdullah, Muhamad Azman Ibrahim, Azlin Zanariah Bahtar, & Noor Rita Mohamad Khan (2024). Conceptualizing the implications of artificial intelligence (AI) tools and personalization marketing on consumer purchase intention: Insights from the Malaysian e-commerce market. *Information Management and Business Review, 16*(3Sa), 430–436. https://ojs.amhinternational.com/index.php/imbr/article/view/4145/2737

Nurshazana Aiman Armanshah. (2023). Exploring readiness to adopt AI: Malaysian marketing and organisational perspectives [Master's thesis, Universiti Utara Malaysia]. UUM eThesis. https://etd.uum.edu.my/10812/2/s828236_01.pdf

Oikonomou, E. K., Batinica, B., Dhingra, L. S., Aminorroaya, A., Coppi, A., & Khera, R. (2025). TARGET-AI: A foundational approach for the targeted deployment of artificial intelligence electrocardiography in the electronic health record. *MedRxiv: The Preprint Server for Health Sciences*, 1-21. https://doi.org/10.1101/2025.08.25.25334266

Supriadi, A. (2024). The impact of artificial intelligence (AI) on marketing strategy. *Management Studies and Business Journal (PRODUCTIVITY), 1*(1), 146-153. https://doi.org/10.62207/pspbtk28

Veling, P., & Sellappan, P. (2024). The role of artificial intelligence in cost reduction of marketing agencies. *2024 2nd DMIHER International Conference on Artificial Intelligence in Healthcare, Education and Industry (IDICAIEI)* (pp. 1-6). IEEE

Yoo, W. (2024). Global trends in artificial intelligence marketing. *Asian Journal of Marketing and Innovation, 19*(2), 45–60.