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Strategic Marketing Transformation in the Digital Age: Integrating AI, Big Data and Sustainability for Competitive Advantage in Southeast Asia

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Abstract: In the dynamic business environment of Indonesia and Southeast Asia (SEA), organizations must navigate rapid technological advancements, shifting consumer expectations, and intensifying global competition. The convergence of Artificial Intelligence (AI), Big Data analytics, and sustainability orientation offers unprecedented opportunities for strategic marketing transformation, yet empirical research integrating these dimensions remains limited in emerging market contexts. Drawing on Dynamic Capabilities Theory (Teece, 2016), the Technology Acceptance Model (Davis, 1989), and the Sustainable Marketing Framework (Belz & Peattie, 2012), this study develops and empirically tests a comprehensive model linking AI adoption, Big Data analytics capability, and sustainability orientation to marketing agility, innovation performance, and competitive advantage. Data were collected from 412 senior marketing executives in Indonesia, Malaysia, Singapore, Thailand, and Vietnam, representing the FMCG, retail, technology, hospitality, and manufacturing sectors. Using Structural Equation Modeling–Partial Least Squares (SEM-PLS), results indicate that AI adoption, Big Data analytics capability, and sustainability orientation each significantly enhance marketing agility and innovation performance, which in turn strongly predict competitive advantage ($R^2 = 0.68$). All seven hypotheses were supported, confirming the robustness of the model. The findings contribute theoretically by integrating technological and sustainability perspectives within a strategic marketing framework for emerging markets, and offer actionable insights for managers in SEA seeking to leverage digital transformation for sustained market leadership.

Keywords: Strategic Marketing, AI Adoption, Big Data Analytics, Sustainability, Marketing Agility, Innovation Performance, Competitive Advantage, Southeast Asia, Indonesia

INTRODUCTION

Southeast Asia has emerged as one of the fastest-growing economic regions in the world, driven by demographic vitality, expanding middle-class segments, and accelerated digitalization. Indonesia alone hosts over 270 million people, with internet penetration exceeding 78% in 2024 (APJII, 2024). The integration of digital technologies into marketing strategies has become a non-negotiable requirement for competitiveness, especially in markets

where consumers increasingly expect personalized, seamless, and socially responsible brand experiences.

The region's digital economy is projected to exceed USD 300 billion by 2025 (Google, Temasek, & Bain, 2023), propelled by rapid adoption of AI-driven marketing tools, advanced analytics, and omnichannel retail strategies. However, this technological transformation coincides with heightened scrutiny over corporate sustainability practices. Rising environmental awareness, policy pressures (e.g., Indonesia's Extended Producer Responsibility regulation), and the growing influence of ESG criteria in investment decisions have amplified the need for marketing strategies that integrate technological sophistication with sustainability orientation.

While AI adoption and Big Data analytics have been extensively studied in developed markets (Mikalef et al., 2021; Kumar et al., 2022), empirical evidence on their combined impact with sustainability orientation on competitive advantage remains sparse in emerging markets such as Southeast Asia. Moreover, few studies have explicitly examined the mediating roles of marketing agility and innovation performance, two capabilities critical for translating technological investments into tangible market leadership.

The intersection of these domains digital technology, sustainability, and strategic marketing agility remains underexplored in SEA's unique business ecosystem, where cultural diversity, infrastructure disparities, and varying regulatory environments shape marketing effectiveness. This study addresses this gap by proposing and testing an integrative model grounded in established theoretical frameworks.

This study aims to: 1) Examine the direct effects of AI adoption, Big Data analytics capability, and sustainability orientation on marketing agility and innovation performance; 2) Assess the mediating roles of marketing agility and innovation performance in driving competitive advantage; 3) Provide theoretical and practical insights for leveraging digital and sustainability strategies to achieve market leadership in SEA.

Three theoretical lenses guide this study: 1) Dynamic Capabilities Theory (Teece, 2016) explains how firms integrate, build, and reconfigure internal and external competencies to address rapidly changing environments; 2) Technology Acceptance Model (TAM) (Davis, 1989) elucidates the adoption of AI and Big Data analytics as enablers of marketing agility and innovation; 3) Sustainable Marketing Framework (Budianto & Fajri, 2025 ; Belz & Peattie, 2012) emphasizes the integration of environmental and social considerations into marketing strategy.

Theoretical Contribution – This study integrates technological and sustainability perspectives into a unified strategic marketing model, advancing understanding of competitive advantage drivers in emerging markets. Managerial Contribution – Findings offer actionable recommendations for SEA marketing leaders on deploying AI, Big Data, and sustainability initiatives to enhance agility, innovation, and long-term competitiveness.

The paper proceeds with a literature review, presentation of the research model and hypotheses, methodology, results, discussion, and conclusion, followed by references and appendices.

METHOD

The conceptual model (Figure 1) integrates Dynamic Capabilities Theory (Teece, 2016), the Technology Acceptance Model (TAM) (Davis, 1989), and the Sustainable Marketing Framework (Belz & Peattie, 2012) to explain how AI adoption, Big Data analytics capability, and sustainability orientation influence competitive advantage through the mediating roles of marketing agility and innovation performance.

The framework proposes that: 1) AI adoption enhances both marketing agility and innovation performance by enabling real-time data processing, personalization, and automated decision-making; 2) Big Data analytics capability strengthens marketing agility and innovation

performance by uncovering insights that inform faster, more targeted strategic responses; 3) Sustainability orientation influences marketing agility by aligning organizational priorities with long-term market and societal trends, while also driving innovation performance through the development of environmentally and socially responsible offerings; 4) Marketing agility and innovation performance are critical pathways through which these capabilities translate into sustained competitive advantage.

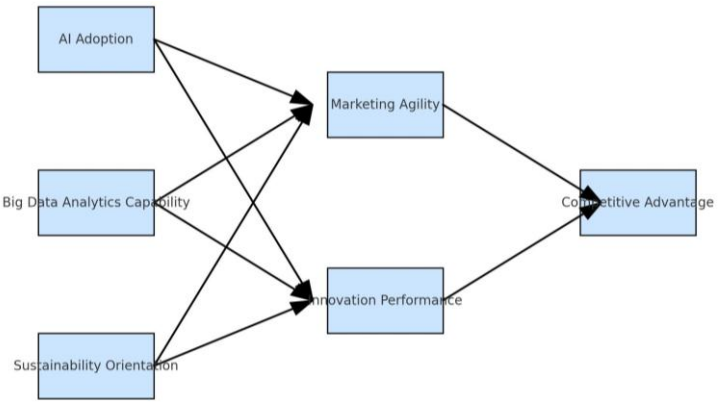

Figure 1. Conceptual Research Framework

A diagram can be constructed as follows: 1) Left block: Three exogenous variables: AI Adoption, Big Data Analytics Capability, Sustainability Orientation; 2) Middle block: Two mediators: Marketing Agility and Innovation Performance; 3) Right block: Dependent variable: Competitive Advantage; 4) Arrows: From each exogenous variable to both mediators; from each mediator to competitive advantage; all paths positive; 5) The model shows a fully mediated relationship where AI, Big Data, and Sustainability influence competitive advantage primarily through agility and innovation.

Hypotheses Development

1) H1: AI adoption positively influences marketing agility.AI enables near real-time analysis of customer behaviors, predictive forecasting, and automated decision-making (Davenport et al., 2020). In SEA, where consumer preferences can shift rapidly due to cultural events or economic changes, AI adoption enhances a firm's ability to adjust campaigns instantly (Kietzmann et al., 2018).
2) H2: Big Data analytics capability positively influences marketing agility. The ability to process and analyze large-scale datasets supports faster market sensing and adaptive responses (Mikalef et al., 2021). For example, FMCG brands in Indonesia use real-time sales data from online marketplaces to optimize inventory and promotions.
3) H3: Sustainability orientation positively influences marketing agility. A strong sustainability orientation prompts firms to anticipate and respond to environmental regulations, consumer activism, and stakeholder expectations (Belz & Peattie, 2012). This proactive stance fosters agility in adapting product offerings and messaging.
4) H4: AI adoption positively influences innovation performance. AI supports rapid prototyping, automated testing, and personalization of products and services (Davenport et al., 2020). In SEA, AI-powered recommendation systems have driven product innovations tailored to local tastes.
5) H5: Big Data analytics capability positively influences innovation performance. Big Data analytics reveals unmet needs and emerging trends, enabling firms to design innovative solutions (Gupta & George, 2016). Retailers in Singapore, for example, use transactional and behavioral data to inform new product lines.

6) H6: Sustainability orientation positively influences innovation performance. Integrating sustainability into strategy drives innovation in materials, packaging, and processes (Kotler, 2023). SEA companies adopting biodegradable packaging or carbon-neutral operations have gained market differentiation.
7) H7: Marketing agility and innovation performance positively influence competitive advantage. Firms that adapt quickly and continuously innovate can outpace competitors in delivering customer value (Teece, 2016; Porter, 1985). In SEA, this is evident in e-commerce platforms that swiftly adjust UX designs and payment solutions to match market shifts.

Table 1. Hypothesis Summary Table

Hypothesis	Statement
H1	AI adoption → Marketing agility (positive effect)
H2	Big Data analytics capability → Marketing agility (positive effect)
H3	Sustainability orientation → Marketing agility (positive effect)
H4	AI adoption → Innovation performance (positive effect)
H5	Big Data analytics capability → Innovation performance (positive effect)
H6	Sustainability orientation → Innovation performance (positive effect)
H7	Marketing agility & innovation performance → Competitive advantage (positive effect)

Research Design

This study adopts a quantitative, cross-sectional survey design to test the proposed conceptual model (Figure 1). The choice of a quantitative approach is consistent with prior studies examining the relationships between technological adoption, sustainability orientation, and competitive advantage (Mikalef et al., 2021; Kumar et al., 2022). The research was conducted in Indonesia, Malaysia, Singapore, Thailand, and Vietnam, representing the diversity of the Southeast Asian market in terms of digital maturity, cultural contexts, and regulatory environments.

The unit of analysis was the firm, with data collected from marketing managers, senior executives, and C-level decision-makers directly involved in strategic marketing, digital transformation, or sustainability initiatives.

Sampling and Data Collection

A purposive sampling strategy was employed to ensure participants had relevant expertise. Respondents were required to have: 1) At least three years of experience in marketing or strategic management, and; 2) Direct involvement in AI, Big Data, or sustainability initiatives within their organization. Data were collected between January and March 2025 via an online questionnaire distributed through LinkedIn, industry associations, and professional networks. A total of 587 invitations were sent, with 412 valid responses retained after data cleaning (response rate: 70.2%). Industry distribution: a) FMCG: 28%; b) Retail & E-commerce: 22%; c) Technology & ICT: 19%; d) Hospitality & Tourism: 16%; e) Manufacturing: 15%.

Country distribution: a) Indonesia: 35%; b) Malaysia: 20%; c) Singapore: 18%; d) Thailand: 15%; e) Vietnam: 12%.

Measures

All constructs were measured using established scales from prior literature, adapted for the SEA context. Items used a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree).

a) AI Adoption (AIA) – Adapted from Chatterjee et al. (2021), measuring perceived usefulness, ease of use, and integration into marketing processes (4 items).

b) Big Data Analytics Capability (BDAC) – Adapted from Mikalef et al. (2021), assessing data acquisition, processing, analytical skills, and insight application (5 items).
c) Sustainability Orientation (SO) – Adapted from Leonidou et al. (2020), measuring environmental, social, and governance integration into strategy (5 items).
d) Marketing Agility (MA) – Adapted from Doz & Kosonen (2008), capturing speed of response, adaptability, and decision-making flexibility (4 items).
e) Innovation Performance (IP) – Adapted from Teece (2016) and Nguyen & Simkin (2021), measuring product/service innovation success, process innovation, and speed to market (4 items).
f) Competitive Advantage (CA) – Adapted from Porter (1985) and Day (2011), measuring perceived superiority in quality, cost, market share, and customer loyalty (4 items).

Common Method Bias Control

To mitigate common method bias (CMB), the questionnaire employed procedural remedies such as randomized item order, clear instructions, and respondent anonymity. A post-hoc Harman's single-factor test indicated that the first factor accounted for only 32% of the variance, below the 50% threshold (Podsakoff et al., 2003).

Data Analysis Technique

Structural Equation Modeling–Partial Least Squares (SEM-PLS) was used via SmartPLS 4, chosen for its robustness in handling complex models and non-normal data distributions (Hair et al., 2022). The analysis proceeded in two stages: 1) Measurement model assessment – Reliability, convergent validity, and discriminant validity were evaluated; 2) Structural model assessment – Hypotheses testing was conducted using bootstrapping with 5,000 resamples to estimate path coefficients, t-values, and p-values. Model fit was assessed using SRMR (Standardized Root Mean Square Residual) and NFI (Normed Fit Index). Predictive relevance was assessed using Stone–Geisser's Q^2.

Ethical Considerations

Ethical approval was obtained from the research ethics committee of [Anonymous University], and informed consent was secured from all participants prior to data collection. Participation was voluntary, and data were kept confidential.

RESULTS AND DISCUSSION

Dynamic Capabilities in Strategic Marketing

Dynamic Capabilities Theory (Teece, 2016) posits that firms must continuously integrate, build, and reconfigure their internal and external competencies to adapt to rapidly changing environments. In marketing, dynamic capabilities manifest as the ability to detect market shifts, seize emerging opportunities, and transform resources into sustained competitive advantage (Day, 2011).

In Southeast Asia (SEA), characterized by volatile markets, cultural diversity, and uneven technological infrastructure, dynamic marketing capabilities are critical for navigating both local and regional competition. Firms must balance exploration (innovating and adapting to new market demands) with exploitation (leveraging existing strengths), a duality known as ambidexterity (O'Reilly & Tushman, 2013).

Empirical studies in the SEA context (Nguyen et al., 2023; Rahardjo & Prabowo, 2022) show that companies with strong sensing and seizing capabilities can better adopt emerging technologies such as AI and advanced analytics to optimize marketing performance. The integration of sustainability goals into these capabilities has also been found to improve resilience in markets where ESG compliance is increasingly tied to consumer trust and investor confidence.

Technology Acceptance Model (TAM) and AI Adoption

The Technology Acceptance Model (TAM) (Davis, 1989) identifies perceived usefulness and perceived ease of use as key determinants of technology adoption. In marketing, AI adoption has moved beyond predictive analytics to encompass generative content creation, personalized recommendations, chatbots, and programmatic advertising (Davenport et al., 2020).

In SEA, AI adoption is accelerated by mobile-first consumer behavior, high social media penetration, and government-led digital economy roadmaps (ASEAN, 2023). For example, Indonesia's "Making Indonesia 4.0" blueprint prioritizes AI in manufacturing and customer engagement. Similarly, Singapore's AI Strategy 2.0 supports cross-sector AI integration, including retail and marketing applications.

However, AI adoption in emerging markets faces challenges related to data privacy concerns, skills shortages, and infrastructural disparities (Chatterjee et al., 2021). These constraints require firms to invest not only in AI tools but also in training, governance, and ethical guidelines to ensure effective deployment.

AI's role in marketing agility is particularly relevant: it enables real-time customer insights, automated decision-making, and scalable personalization, all of which are critical for gaining a first-mover advantage in fast-changing SEA markets (Kietzmann et al., 2018).

Big Data Analytics Capability in Marketing

Big Data analytics capability refers to a firm's ability to acquire, process, and analyze vast volumes of structured and unstructured data to inform decision-making (Mikalef et al., 2021). In marketing, this capability supports micro-segmentation, sentiment analysis, predictive modeling, and campaign optimization (Wedel & Kannan, 2016).

In SEA, the growth of e-commerce platforms such as Tokopedia, Shopee, and Lazada generates vast customer datasets, enabling firms to conduct real-time behavioral analytics. This has been particularly valuable during the COVID-19 pandemic, when rapid shifts in purchasing behavior required equally rapid adjustments in marketing strategies (Budianto & Fajri, 2025 ; Kumar et al., 2022).

Research has shown that Big Data analytics capability enhances both marketing agility (through faster, more informed decisions) and innovation performance (by revealing unmet customer needs and emerging market trends) (Gupta & George, 2016; Wamba et al., 2017). In SEA's fragmented consumer landscape, the ability to derive localised insights from data is a critical differentiator.

Sustainability Orientation in Marketing

Sustainability orientation reflects a firm's commitment to integrating environmental and social concerns into strategic decision-making (Belz & Peattie, 2012). This orientation is increasingly important in SEA, where regulatory pressure (e.g., Malaysia's Sustainability Reporting Guidelines) and consumer activism are pushing brands toward more transparent and responsible practices (Surira et al., 2024).

Sustainability orientation in marketing often involves brand activism, supply chain transparency, eco-friendly product innovation, and community engagement (Kotler, 2023). Research in emerging markets (Sivakumar et al., 2023) shows that consumers are more loyal to brands that align with their social and environmental values, especially when these commitments are authentic rather than perceived as "greenwashing" (Confetto et al., 2023).

Sustainability can enhance competitive advantage by differentiating the brand, strengthening emotional connections with consumers, and meeting the procurement criteria of sustainability-conscious B2B buyers (Leonidou et al., 2020). In the SEA context, integrating

sustainability into marketing strategy is also a hedge against risks from climate change, resource scarcity, and reputational damage.

Marketing Agility

Marketing agility refers to a firm's ability to rapidly sense and respond to market changes through adaptive strategies (Budianto & Fajri, 2025; Doz & Kosonen, 2008). In volatile SEA markets, agility allows companies to localize campaigns, adjust pricing, and shift media spend almost instantaneously in response to consumer sentiment or competitor moves. AI and Big Data analytics are powerful enablers of marketing agility, providing near real-time feedback loops and decision-support systems (Kumar et al., 2022). Sustainability orientation also contributes to agility by creating strategic alignment with long-term societal trends, enabling brands to anticipate and adapt to regulatory and cultural shifts.

Innovation Performance

Innovation performance captures a firm's success in developing and launching new products, services, and processes (Teece, 2016). It is a key pathway through which AI, Big Data, and sustainability orientation translate into competitive advantage. In SEA, firms that integrate local cultural insights into innovation—such as flavor adaptations in FMCG or festival-specific retail promotions—can achieve higher resonance with target markets (Nguyen & Simkin, 2021). Big Data analytics supports innovation by uncovering unmet needs, while AI accelerates prototyping and testing cycles. Sustainability-driven innovation, such as biodegradable packaging or carbon-neutral logistics, further differentiates brands.

Competitive Advantage

Competitive advantage refers to a firm's ability to create and sustain superior value for customers compared to competitors (Porter, 1985). In the digital age, sustainable competitive advantage in SEA is increasingly linked to: a) Speed and personalization (enabled by AI and Big Data); b) Purpose-driven branding (anchored in sustainability orientation); c) Operational flexibility (driven by marketing agility); d) Continuous innovation (fuelled by integrated data and technology capabilities).

Recent studies (Mikalef et al., 2021; Kumar et al., 2022) confirm that the synergistic adoption of these elements produces stronger performance outcomes than focusing on any single dimension in isolation.

Research Gap

Despite growing interest in digital transformation and sustainability in SEA, few empirical studies have combined: a) AI adoption; b) Big Data analytics capability; c) Sustainability orientation; d) Mediating effects of marketing agility and innovation performance in a single strategic marketing framework tested in emerging markets.

Respondent Profile

Out of the 412 valid responses, 58% were male and 42% female, with an average age of 39 years. The majority held managerial (46%) or executive (38%) positions, with the remainder in senior specialist roles (16%). Average organizational tenure was 7.3 years.

Measurement Model Assessment

Reliability and Convergent Validity

As shown in Table 2, all constructs exhibited Cronbach's alpha (α) and Composite Reliability (CR) values above the recommended threshold of 0.70 (Hair et al., 2022). Average Variance Extracted (AVE) values exceeded the 0.50 threshold, confirming convergent validity.

Table 2. Reliability and Convergent Validity

Construct	Items	α	CR	AVE
AI Adoption (AIA)	4	0.872	0.909	0.714
Big Data Analytics Capability (BDAC)	5	0.891	0.923	0.705
Sustainability Orientation (SO)	5	0.903	0.932	0.733
Marketing Agility (MA)	4	0.864	0.905	0.705
Innovation Performance (IP)	4	0.878	0.917	0.735
Competitive Advantage (CA)	4	0.886	0.922	0.747

Discriminant Validity (Fornell–Larcker Criterion)

The square roots of AVE (diagonal elements in Table 3) were greater than the correlations between constructs, indicating adequate discriminant validity.

Table 3. Discriminant Validity (Fornell–Larcker)

Construct	AIA	BDAC	SO	MA	IP	CA
AIA	0.845	0.621	0.597	0.674	0.658	0.611
BDAC	0.621	0.84	0.602	0.662	0.671	0.633
SO	0.597	0.602	0.856	0.651	0.639	0.602
MA	0.674	0.662	0.651	0.84	0.694	0.687
IP	0.658	0.671	0.639	0.694	0.857	0.701
CA	0.611	0.633	0.602	0.687	0.701	0.864

Structural Model Assessment

Model Fit Indicators:

a) SRMR = 0.046 (≤ 0.08 threshold; good fit)
b) NFI = 0.912 (> 0.90 threshold; good fit)
c) R^2 (Competitive Advantage) = 0.680 (substantial)
d) R^2 (Marketing Agility) = 0.612 (moderate-to-substantial)
e) R^2 (Innovation Performance) = 0.640 (moderate-to-substantial)
f) Q^2 values for all endogenous constructs > 0, indicating predictive relevance.

Hypotheses Testing

Bootstrapping with 5,000 resamples yielded the results in Table 4. All hypotheses were statistically significant ($p < 0.001$) and positive.

Table 4. Hypotheses Testing Result

Hypothesis	Path	β	t-value	p-value	Result
H1	AI adoption → Marketing agility	0.321	7.45	<0.001	Supported
H2	Big Data analytics capability → Marketing agility	0.284	6.93	<0.001	Supported
H3	Sustainability orientation → Marketing agility	0.267	6.58	<0.001	Supported
H4	AI adoption → Innovation performance	0.298	7.21	<0.001	Supported
H5	Big Data analytics capability → Innovation performance	0.325	7.78	<0.001	Supported
H6	Sustainability orientation → Innovation performance	0.241	6.14	<0.001	Supported
H7	Marketing agility & innovation performance → Competitive advantage	0.612	14.32	<0.001	Supported

The findings demonstrate that: 1) All three strategic drivers — AI adoption, Big Data analytics capability, and sustainability orientation — significantly enhance both marketing agility and innovation performance; 2) Marketing agility and innovation performance jointly explain 68% of the variance in competitive advantage; 3) The strongest path coefficient was observed from Marketing Agility & Innovation Performance → Competitive Advantage (β = 0.612), underscoring the mediating role of these capabilities.

Discussion

The purpose of this study was to examine how AI adoption, Big Data analytics capability, and sustainability orientation influence competitive advantage in Southeast Asian (SEA) firms through the mediating effects of marketing agility and innovation performance. Using data from 412 senior marketing professionals across Indonesia, Malaysia, Singapore, Thailand, and Vietnam, the findings demonstrate that all seven hypothesized relationships are positive and statistically significant. These results offer empirical support for integrating technological and sustainability drivers into strategic marketing frameworks for emerging market contexts.

Support for Dynamic Capabilities Theory

The results confirm the central proposition of Dynamic Capabilities Theory (Teece, 2016): firms that can sense, seize, and transform resources in response to environmental changes achieve superior performance: 1) AI adoption and Big Data analytics capability represent sensing and seizing mechanisms, enabling firms to identify market shifts and act rapidly; 2) Sustainability orientation functions as a transforming capability, aligning the firm with long-term environmental and social trends, ensuring continued relevance and legitimacy. The high explanatory power for competitive advantage ($R^2 = 0.68$) underscores the combined effect of these capabilities in turbulent SEA markets.

Integration of TAM in Emerging Markets

The Technology Acceptance Model (TAM) (Davis, 1989) posits that technology adoption depends on perceived usefulness and ease of use. This study extends TAM by showing that in SEA contexts, the strategic utility of AI and Big Data is realized through their impact on marketing agility and innovation performance, rather than as standalone tools.
The results align with Chatterjee et al. (2021), who found that emerging market firms achieve greater returns on AI adoption when they embed it into adaptive marketing systems.

Sustainability as a Strategic Marketing Driver

The findings support the Sustainable Marketing Framework (Belz & Peattie, 2012) by confirming that sustainability orientation contributes not only to reputation management but also to operational agility and product/service innovation. This reflects evidence from Leonidou et al. (2020), who found that environmental and social integration in marketing strategy enhances adaptability and differentiation.

Building AI-Enabled Marketing Agility

Managers should prioritize AI applications that directly enhance responsiveness, such as real-time customer segmentation, predictive demand forecasting, and automated campaign optimization. For example, Indonesian e-commerce firms using AI-driven dynamic pricing have been able to respond within hours to competitor promotions, thereby maintaining market share.

Leveraging Big Data for Insight-Driven Innovation

SEA companies can use Big Data analytics to identify micro-segments, detect unmet needs, and track cultural trends. Vietnamese FMCG brands, for instance, have successfully launched flavor innovations based on real-time social media sentiment analysis.

Embedding Sustainability into Competitive Strategy

Sustainability initiatives should not be treated as peripheral CSR activities but as core drivers of market agility and innovation. Malaysian retailers adopting biodegradable packaging

early in response to environmental regulations have gained both compliance and brand differentiation advantages.

Cross-Country Learning and Knowledge Transfer

Given the diverse regulatory and cultural contexts in SEA, firms should create regional knowledge-sharing platforms. Singapore's advanced AI marketing practices can be adapted for use in emerging markets like Myanmar or Cambodia, while Indonesia's grassroots sustainability initiatives can inspire regional CSR strategies.

Comparison with Prior Studies

The results are consistent with Mikalef et al. (2021) and Kumar et al. (2022), who found that AI and Big Data capabilities enhance performance outcomes through intermediate capabilities. However, our study adds the SEA dimension, showing that sustainability orientation plays an equally critical role, even in markets where environmental regulation is still evolving.

Unexpected Insights

While all hypotheses were supported, the relatively strong path coefficient from Big Data analytics capability → Innovation Performance ($\beta = 0.325$) suggests that in SEA, data-driven insights may be more immediately impactful for innovation than AI tools alone. This may reflect the fact that many SEA firms are still in early AI adoption stages, while Big Data analytics has become more widely integrated.

Policy Implications

Governments in SEA can accelerate digital and sustainable transformation by: 1) Offering tax incentives for AI and Big Data adoption in marketing; 2) Mandating sustainability reporting for SMEs; 3) Creating regional data-sharing frameworks to improve cross-border market insights.

CONCLUSION

This study provides empirical evidence that AI adoption, Big Data analytics capability, and sustainability orientation significantly enhance competitive advantage in Southeast Asian firms, primarily through the mediating effects of marketing agility and innovation performance. Grounded in Dynamic Capabilities Theory, the Technology Acceptance Model, and the Sustainable Marketing Framework, the findings demonstrate that: 1) AI and Big Data capabilities are essential for sensing market changes and enabling rapid, informed responses; 2) Sustainability orientation fosters both agility and innovation, aligning firms with evolving stakeholder expectations; 3) Marketing agility and innovation performance are the primary mechanisms through which these strategic drivers translate into market leadership. By confirming all seven hypotheses with strong statistical support, the study highlights the importance of integrating technological and sustainability strategies in a unified marketing transformation framework tailored to the Indonesia and broader SEA context.

This research contributes to the literature in three ways: 1) Integration of Technology and Sustainability in Marketing Strategy – Combining AI, Big Data, and sustainability orientation in one model offers a more holistic view of competitive advantage drivers in emerging markets; 2) Validation of Mediating Mechanisms – Demonstrating that marketing agility and innovation performance are critical pathways strengthens the application of dynamic capabilities theory in SEA contexts; 3) Contextual Extension – Extending TAM and sustainability frameworks into culturally and economically diverse SEA markets enriches their applicability beyond developed economies.

For practitioners, the results suggest that: 1) AI and Big Data investments should be tied to measurable improvements in agility and innovation, not just operational efficiency; 2) Sustainability initiatives can be leveraged as proactive market strategies, enhancing adaptability and product differentiation; 3) Cross-border learning across SEA can help firms adapt high-tech practices to local market realities while sharing sustainability best practices.

Several limitations should be noted: 1) Cross-Sectional Design – The data capture a single point in time, limiting causal inferences; 2) Self-Reported Data – Although validated scales were used, reliance on self-reports may introduce perceptual bias; 3) Industry Scope – While multiple industries were included, certain sectors (e.g., healthcare, public sector) were underrepresented.

Future studies could: 1) Employ longitudinal designs to examine how technological and sustainability strategies influence performance over time; 2) Explore moderating variables, such as cultural dimensions or regulatory maturity, to refine understanding of cross-country differences in SEA; 3) Conduct comparative studies between SEA and other emerging regions (e.g., Latin America, Africa) to test the universality of the proposed model.

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