The Impact of Artificial Intelligence on Digital Marketing: Leveraging Potential in a Competitive Business Landscape

Heny Hendrayati [1*] , Mochamad Achyarsyah [2] , Frederic Marimon [3] ,
Ulil Hartono [4] , Lennora Putit [5]

[1] *Universitas Pendidikan Indonesia, Bandung, West Java Province, 40154, Indonesia.*

[2] *Politeknik Manufaktur Bandung, Bandung, West Java Province, 40135, Indonesia.*

[3] *Universitat Politècnica de Catalunya, C. de la Immaculada, 22, Sarrià-Sant Gervasi, 08017 Barcelona, Spain.*

[4] *Universitas Negeri Surabaya, Surabaya, East Java Province, 60231, Indonesia.*

[5] *Universiti Teknologi Mara, Puncak Alam Campus, Puncak Alam 42300, Selangor, Malaysia.*

Abstract

This study aims to thoroughly investigate how Artificial Intelligence (AI) is strategically integrated into digital marketing practices and its consequential effects on Indonesia's fiercely competitive business environment. Employing a quantitative research approach, this study meticulously examines Indonesian enterprises' prevailing strategies for AI utilization. The research method employed in this study is quantitative, with the unit of analysis being Indonesian companies. The sample size comprises 100 companies selected through the stratified random sampling technique. Analysis of the data is conducted using the SPSS statistical package. Through detailed analysis of survey data and advanced statistical techniques, the research reveals a significant positive correlation between the integration of AI in digital marketing and improved marketing effectiveness. The study highlights a noticeable increase in customer engagement metrics and noteworthy enhancements in conversion rates among businesses proficient in leveraging AI technologies, further reinforcing this correlation. Additionally, the findings suggest that companies embracing AI demonstrate significantly heightened adaptability to the constantly evolving market dynamics, strengthening their competitive positioning. These insightful discoveries underscore the critical importance of harnessing AI's transformative capabilities within digital marketing strategies to sustain and bolster a competitive edge in the marketplace. Furthermore, the study discusses its contributions to existing knowledge and provides practical implications for marketers and business policymakers in Indonesia.

1- Introduction

In the dynamic arena of modern business, digital marketing stands as the bedrock of effective operations, orchestrating how companies connect with consumers and compete globally. Its multifaceted strategies, tools, and techniques are instrumental in maximizing brand visibility, engagement, and conversion rates within the vast expanse of the digital realm. Recognizing the pivotal role of digital marketing is paramount for companies striving to navigate the intricate web of fierce competition and rapidly evolving consumer preferences [1, 2]. Digital marketing serves as a gateway for

---

businesses to transcend geographical boundaries and establish a ubiquitous presence on the global stage. Unlike traditional marketing paradigms constrained by physical limitations, digital platforms offer unprecedented reach and accessibility [3]. Through targeted advertising, search engine optimization (SEO), and meticulously curated social media campaigns, companies can seamlessly engage with consumers worldwide, irrespective of their geographic location [4-6].

The advent of information technology and the ubiquitous adoption of internet-enabled devices have precipitated a seismic shift in consumer behavior. Today's consumers are discerning and digitally fluent, relying extensively on online channels to conduct product research, compare prices, and make well-informed purchasing decisions [2, 7]. Consequently, businesses must recalibrate their marketing strategies to resonate with these evolving preferences, accentuating their online presence and engagement strategies [8]. A hallmark of digital marketing lies in its capacity to facilitate direct and personalized interactions with consumers. Through immersive social media experiences, targeted email campaigns, and interactive websites, businesses can forge authentic connections with their target audience, nurturing long-term loyalty and trust [9-11]. Companies can tailor their messaging and offerings to cater to individual preferences, elevating customer satisfaction and fostering enduring relationships by harnessing the power of data analytics and consumer insights [12].

Furthermore, digital marketing empowers businesses with real-time monitoring and optimization capabilities, offering invaluable insights into campaign effectiveness and Return on Investment (ROI) [12]. Unlike traditional marketing channels, digital platforms furnish instantaneous feedback and granular performance metrics, enabling businesses to pivot their strategies swiftly, capitalize on emerging trends, and proactively mitigate challenges [4, 13]. In the ever-evolving landscape of digital transformation, technology, particularly Artificial Intelligence (AI), emerges as a transformative force reshaping the trajectory of digital marketing. AI revolutionizes the marketing landscape by empowering companies to refine their strategies, bolster operational efficiency, and deliver hyper-personalized consumer experiences [14-16].

However, despite significant advancements, the literature indicates several gaps in understanding AI's specific applications and impact on digital marketing within distinct national contexts. Previous studies have largely focused on developed markets, leaving a noticeable gap in research about emerging economies, particularly in Southeast Asia [17-19].

AI's prowess lies in its capacity for deep and nuanced data analysis, furnishing businesses with profound insights into consumer behavior, product preferences, and market trends [20, 21]. Through sophisticated machine learning algorithms and predictive analytics, AI facilitates unparalleled levels of personalization in marketing efforts, engendering heightened consumer engagement, enhanced conversion rates, and fortified brand loyalty [22-24]. Furthermore, AI-driven automation streamlines marketing operations, liberating human resources to focus on strategic endeavors while routine tasks are executed seamlessly [25, 26].

As AI continues its ascent, it presents many opportunities for businesses worldwide to elevate performance, fortify consumer engagement, and deliver tangible value in an increasingly competitive market [27, 28]. Nonetheless, empirical research examining the Indonesian market's unique dynamics remains sparse. Studies underscore the nascent stage of AI adoption in Indonesian businesses [29, 30], highlighting the need for targeted research to address this contextual gap.

Moreover, the Indonesian market is a fertile ground teeming with opportunities and challenges amidst its economic vibrancy and technological innovation. With a burgeoning population and an exponential rise in digital adoption, Indonesian businesses find themselves at a critical juncture, poised to capitalize on emerging opportunities in digital marketing [31, 32].

According to a survey conducted by the Indonesian Internet Service Providers Association (APJII), by the year 2023, internet penetration in Indonesia had risen to 78.19%. This means that out of a total population of 275,773,901 people, approximately 215,626,156 individuals had access to the internet [33]. This high level of internet penetration underscores Indonesia's growing connectivity and digital adoption.

Regarding social media usage, Indonesia boasts a significant presence, with over 188.6 million active users logging in at least once a month as of 2022 [34]. This statistic highlights social media platforms' widespread use and influence in Indonesian society (Figure 1). On average, social media users in Indonesia spend about 3.28 hours daily on these platforms, indicating the substantial engagement and time spent by the population in digital spaces [34].

Moreover, from 2021 to 2022, there was a notable increase of 12.6% in the number of social media users in Indonesia. This rapid growth reflects the digital transformation and increasing reliance on online platforms for communication, information, and entertainment among Indonesian citizens [34].
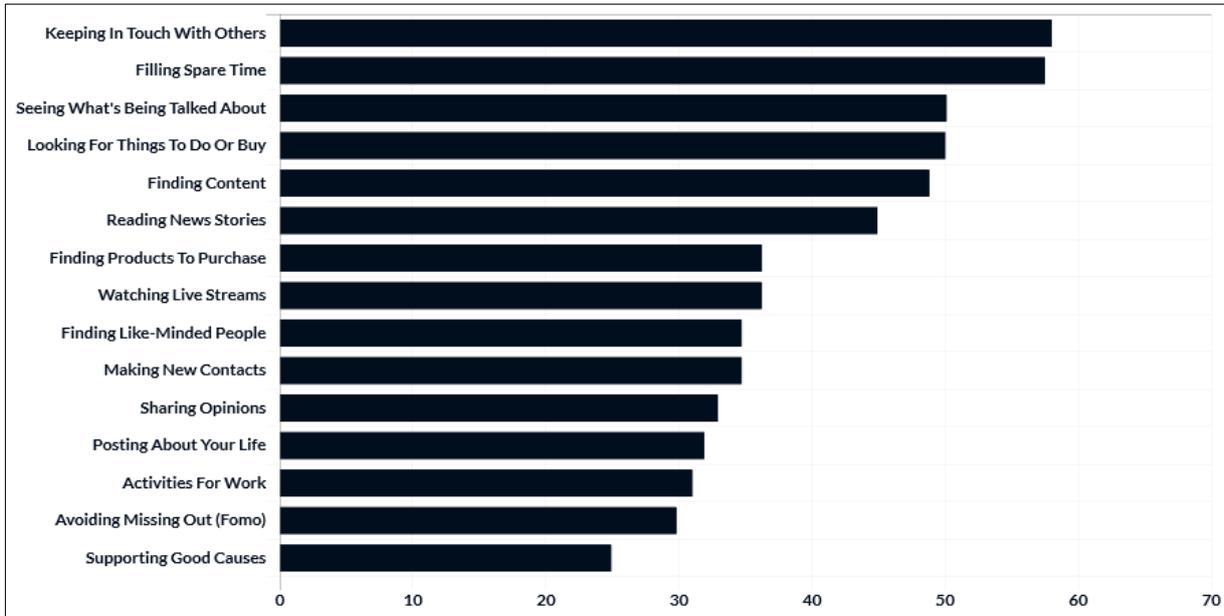
Figure 1. Key Drivers of Using Social Media in Indonesia [34]

WhatsApp has emerged as the predominant chat platform in Indonesia, capturing the attention of nearly 90% of internet users. This high adoption rate underscores WhatsApp's role as a primary communication tool among Indonesians, facilitating messaging and group interactions across the country. Following closely behind WhatsApp, Meta-owned platforms like Facebook and Instagram also command substantial usage among Indonesia's internet population aged 16-64 years. Approximately 81-85% of users in this demographic engage with these platforms, highlighting their pervasive influence in social networking and content sharing within the Indonesian digital landscape. Over the past four years, TikTok has experienced remarkable growth in Indonesia, witnessing its user base surge from 35 million to encompass more than 44% of the population [34]. This rapid expansion underscores TikTok's emergence as a popular platform for short-form video content, entertainment, and influencer-driven marketing campaigns in Indonesia. The platform's ability to resonate with younger demographics and its dynamic content format has contributed significantly to its popularity and widespread adoption nationwide (Figure 2).
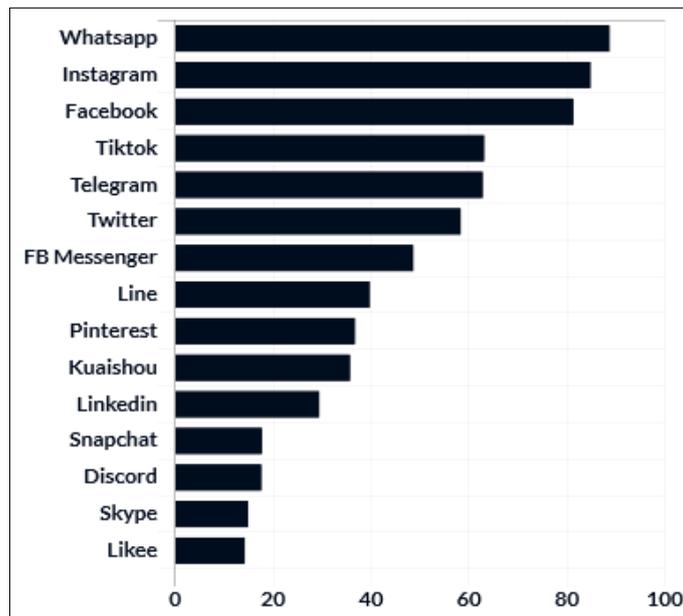

Figure 2. Most Used Platforms, 2022 [34]

Indonesia is a major player in the Southeast Asian internet market, with a population of over 275 million and a rapidly growing economy (Figure 3). This rapid digitalization has catalyzed the growth of e-commerce, with the Indonesian e-commerce market revenue projected to reach $41.45 billion in 2025 and $54.83 billion in 2029 [35].
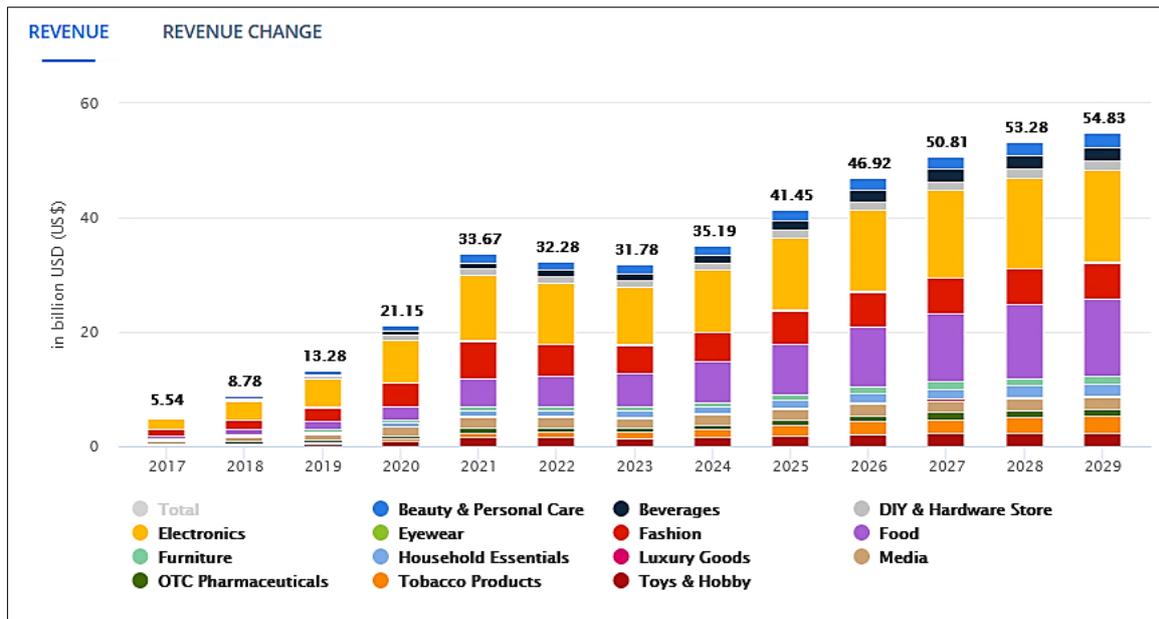
Figure 3. Revenue in the eCommerce Market [35]

However, despite this growth trajectory, only a fraction of Indonesian businesses have fully embraced AI in their digital marketing strategies, underscoring the immense potential for AI-driven marketing solutions to revolutionize the Indonesian business landscape. This study addresses these research gaps by focusing on how Indonesian companies leverage AI technology to enhance their digital marketing strategies, examining opportunities and challenges within this context.

The main objective of this research is to delve into how companies in Indonesia leverage AI technology to improve their digital marketing strategies. By examining the practices and experiences of companies in implementing AI-based marketing solutions, this research aims to provide in-depth insights into the opportunities and challenges faced in adopting and implementing AI technology amid the complexities of the Indonesian digital market. Furthermore, this research aims to provide practical recommendations and strategic insights for companies looking to harness the potential of AI technology in digital marketing in the Indonesian market. Thus, this research is expected to serve as a useful guide for marketing practitioners, business stakeholders, and other researchers interested in exploring the integration of AI further in the context of digital marketing in Indonesia. This research seeks to contribute to the broader body of knowledge by filling the contextual gap identified in previous studies.

Through a comprehensive and interdisciplinary approach, this research aims to fill existing knowledge gaps and sustainably contribute to developing digital marketing practices in Indonesia. Therefore, it is expected that the findings of this research will serve as a solid foundation for innovation, strategic thinking, and better decision-making in the future.

2- Literature Review

2-1- Evolution of Digital Marketing

In recent years, the landscape of digital marketing has undergone a profound transformation, propelled by a convergence of technological advancements, shifts in consumer preferences, and the dynamic nature of market trends [36]. At the forefront of this evolution is the widespread adoption of data analytics and artificial intelligence (AI), which have revolutionized how marketers understand and engage with their target audiences [37]. This paradigm shift extends beyond traditional marketing approaches, integrating sophisticated data analysis techniques and AI-driven algorithms to enable highly personalized and targeted marketing strategies [38].

The integration of data analytics allows marketers to gain deep insights into consumer behavior, preferences, and trends by analyzing vast amounts of data generated across various digital platforms [39-41]. This data-driven approach enables marketers to identify patterns, predict future trends, and tailor their marketing efforts to meet their target audience segments' needs and interests [42]. Furthermore, artificial intelligence has further augmented marketers' capabilities by empowering them with advanced predictive analytics, natural language processing, and machine learning algorithms [43].

Combining data analytics and AI has transformed digital marketing from a static, one-size-fits-all approach to a dynamic, highly personalized consumer experience [44, 45]. Marketers can deliver targeted content, personalized recommendations, and customized experiences across multiple touchpoints, enhancing engagement and driving conversions.

Integrating data analytics and AI in digital marketing represents a significant paradigm shift, empowering marketers to create more effective, efficient, and engaging campaigns [46, 47]. However, it also presents challenges such as data privacy concerns, ethical considerations, and the need for continuous innovation [48, 49]. Nevertheless, the potential benefits of harnessing these technologies far outweigh the challenges, offering marketers unprecedented opportunities to connect with consumers in meaningful and impactful ways [50].

2-2- Utilizing Data Analytics and AI in Digital Marketing

In today's dynamic digital landscape, integrating data analytics and artificial intelligence (AI) has become advantageous and essential for marketers aiming to stay competitive. These innovative technologies offer marketers invaluable insights into consumer behavior, preferences, and emerging market trends, providing a solid foundation for informed decision-making [51, 52]. Marketers can precisely refine their strategies, ensuring maximum efficacy and return on investment (ROI) by harnessing AI-powered predictive analytics and machine learning algorithms.

One of the primary advantages of this data-driven approach is its capacity to facilitate personalized marketing campaigns tailored to individual consumers' unique needs and preferences [53]. Through sophisticated data analysis techniques, marketers can segment their audience more effectively, gaining a deeper understanding of their interests, behaviors, and purchase intentions [54]. This level of insight empowers marketers to deliver targeted content, promotions and offers that resonate with each segment, fostering deeper engagement and increasing the likelihood of conversion [55].

Moreover, integrating AI technologies enables marketers to optimize various facets of their campaigns in real-time. By continuously monitoring and analyzing data streams from various touchpoints, AI-powered systems can identify patterns, trends, and anomalies, providing marketers with actionable insights to adapt their strategies swiftly and capitalize on emerging opportunities [56, 57]. This agility and responsiveness are critical in an era where market conditions can shift rapidly, demanding rapid adjustments to maintain competitiveness.

However, despite the undeniable benefits, adopting data analytics and AI in marketing presents challenges and considerations [58]. Data privacy, security, and ethical use concerns loom large, requiring marketers to navigate these issues carefully to maintain consumer trust and comply with regulatory frameworks [59]. Additionally, there is a pressing need for ongoing investment in training and upskilling initiatives to ensure marketing teams possess the requisite expertise to leverage these technologies effectively [60].

Integrating data analytics and AI has fundamentally transformed the digital marketing landscape, offering marketers unprecedented opportunities to create more personalized, targeted, and impactful campaigns [61]. Marketers can gain deeper insights into consumer behavior, optimize their strategies in real-time, and drive meaningful engagement and conversions by harnessing the power of these technologies [62]. However, to fully capitalize on the potential of data analytics and AI, marketers must address challenges related to data privacy, security, and ethical considerations while investing in the continuous development of their teams [63].

2-3- The Rising Influence of Social Media in Marketing

Social media platforms have evolved from their origins as simple networking sites to become essential marketing tools that reshape the digital marketing landscape [64, 65]. This transformation is driven by the widespread recognition of social media's vast reach and impact. Brands increasingly utilize these platforms to engage directly with consumers in creative ways.

One prominent trend is the surge in influencer marketing, where brands collaborate with popular individuals on social media to promote their products or services [66]. Brands can connect with their target audience more authentically and relatably by partnering with influencers with large followings and credibility in specific niche communities [67]. This strategy leverages influencers' trust and connection with their followers, boosting brand visibility and credibility [68].

Moreover, social media platforms have become integral to e-commerce, with brands seamlessly integrating shopping features into their social media profiles. This merging of social media and e-commerce blurs the lines between marketing and sales, offering consumers a seamless shopping experience while opening up new brand revenue streams [69, 70]. Brands can capitalize on the impulsive buying behavior and drive conversions more effectively by enabling consumers to discover, browse, and purchase products without leaving the social media platform.

Additionally, the interactive nature of social media facilitates genuine interactions between brands and consumers, fostering stronger relationships and brand loyalty. Through features like live streaming, user-generated content, and interactive storytelling, brands can humanize their presence on social media and create engaging experiences that resonate with their audience.

2-4- Creating Immersive Experiences with AR and VR Technologies

In addition to social media, the emergence of cutting-edge technologies like augmented reality (AR) and virtual reality (VR) has sparked a revolution in marketing, ushering in a new era of immersive brand experiences [71, 72]. These technologies enable brands to transport consumers into virtual worlds where they can interact with products, explore environments, and engage with content in unimaginable ways.

One of the key strengths of AR and VR lies in their ability to create immersive storytelling experiences that captivate and resonate with audiences on a deeper level [73]. Brands can craft narratives that transcend traditional advertising, immersing consumers in captivating narratives and brand worlds by integrating AR and VR into their marketing strategies [10]. This level of engagement fosters emotional connections and memorable experiences that leave a lasting impression on consumers.

Moreover, AR and VR technologies allow brands to provide consumers with interactive and personalized experiences [74]. Whether through virtual try-on experiences for fashion and beauty products or immersive tours of real estate properties, these technologies allow consumers to engage with products and services more meaningfully and experientially. This enhances the shopping experience and builds trust and confidence in the brand.

Furthermore, AR and VR can help brands differentiate themselves in a crowded marketplace [75]. Brands can create unique and memorable experiences that set them apart from competitors and capture consumers' attention by embracing these innovative technologies. This differentiation is crucial in industries where fierce competition and brand loyalty are hard-won.

2-5- Transforming Consumer Interaction with Voice Search

Furthermore, the pervasive use of voice search and smart assistants has fundamentally reshaped the dynamics of consumer-brand engagement [76, 77]. With voice-enabled devices becoming omnipresent daily, businesses are compelled to adapt their strategies by optimizing content for voice search and developing conversational interfaces that resonate with users [78]. This shift towards voice technology represents more than a technological advancement; it signifies a fundamental change in how consumers seek information and interact with brands.

One of the key implications of this transformation is the need for businesses to rethink their content strategies. Unlike traditional text-based search, voice search queries are more conversational and natural language-based. Businesses must ensure their content is structured to align with how people speak and ask questions. This may involve rephrasing content to match common voice search queries or incorporating long-tail keywords that mimic conversational language. By doing so, businesses can increase their visibility in voice search results and better meet the needs of voice-enabled device users [79].

Moreover, the rise of voice technology presents opportunities for businesses to deliver consumers more personalized and contextually relevant experiences. Businesses can gain insights into user preferences and behaviors using data analytics and machine learning, allowing them to tailor their responses and recommendations accordingly [80]. For example, a retail brand may use voice technology to offer personalized product recommendations based on a user's past purchase history or browsing behavior. By delivering relevant and timely information, businesses can enhance customer satisfaction and build stronger relationships with their audience.

Furthermore, embracing voice technology can also affect brand identity and customer loyalty. By providing seamless and intuitive voice interactions, businesses can reinforce their brand image as innovative, customer-centric, and forward-thinking [81, 82]. Additionally, the convenience and efficiency of voice search can lead to higher customer satisfaction and loyalty as users develop habits and preferences for brands that offer a superior voice experience [83].

3- Research Methods

The research method employed in this study aims to comprehensively investigate the strategic incorporation of Artificial Intelligence (AI) within digital marketing practices and its consequential impact on Indonesia's competitive business landscape. A quantitative research approach is utilized to achieve this objective, allowing for the systematic data collection and analysis from a representative sample of Indonesian enterprises.

3-1- Theoretical Approach

This study is grounded in the Rogers' Diffusion of Innovation Theory (2003) [81] and the resource-based view (RBV) framework [52]. The diffusion of innovations theory helps explain how AI technologies are adopted and implemented within organizations. At the same time, the RBV framework provides insights into how AI as a resource contributes to a firm's competitive advantage. These theoretical foundations guide the investigation of AI integration's strategic implications for digital marketing and overall business performance.

3-2- Sampling Technique

The sample for this study consists of 100 companies from Indonesia, selected through stratified random sampling. This technique ensures that companies from various sectors and sizes (small, medium, and large) are adequately represented, reflecting the diverse spectrum of Indonesia's business economy. The selection process includes:

1) Stratification based on industry sectors (manufacturing, retail, and finance).

2) Random selection of companies within each sector.

3) Allocation of 30 companies from the manufacturing sector, 40 from retail, and 30 from finance to ensure balanced representation (Table 1).

Table 1. Characteristics of Companies

No.	Industry Sector	Number of Companies
1	Manufacturing	30
2	Retail	40
3	Finance	30

3-3- Data Collection Technique

The research instrument consists of structured questionnaires to gather information on AI integration, key marketing performance metrics, and organizational adaptability to technological advancements. The targeted respondents are individuals in managerial or decision-making positions within their respective companies who possess insights into the organization's marketing strategies and technological capabilities. These questionnaires are electronically distributed to ensure efficient data collection.

3-4- Validation and Reliability

To ensure the reliability and accuracy of the survey instruments, the questionnaires undergo a pilot test with a small subset of the sample before the main data collection. Feedback from this pilot test is used to refine and adjust the questions for clarity and relevance. Additionally, Cronbach's alpha is calculated to assess the internal consistency of the survey items, ensuring reliable measurement of the constructs.

3-5- Data Analysis

Upon collection, the responses are meticulously recorded and organized for subsequent analysis using the Statistical Package for the Social Sciences (SPSS). The data analysis process includes:

- Descriptive Statistics: Providing a comprehensive profile of the sample demographics and the level of AI integration across different company categories.

- Inferential Statistics: Employing correlation analysis to unveil relationships between AI integration and marketing performance indicators (Cohen, 1988).

- Regression Modeling: Utilizing regression techniques to construct predictive models, elucidating the impact of AI integration on marketing efficacy and organizational adaptability. These models help identify specific AI-driven strategies or practices that significantly contributing to favorable marketing outcomes and organizational flexibility.

3-6- Controlling Confounding Variables

Potential confounding variables are controlled through several measures:

- Control variables such as company size, industry type, and market scope are included in the regression models.

- Conducting robustness checks to ensure the validity of the observed correlations.

- Implementing statistical controls to account for potential biases and external influences that could affect the results.

3-7- Ethical Considerations

Throughout the research process, ethical considerations are paramount. Measures are implemented to ensure participant confidentiality, informed consent, and adherence to ethical guidelines. The integrity of the study is upheld through strict adherence to ethical principles and standards, safeguarding the rights and privacy of all participants involved in the research endeavor. Figure 4, shows the flowchart of the research methodology through which the objectives of this study were achieved.
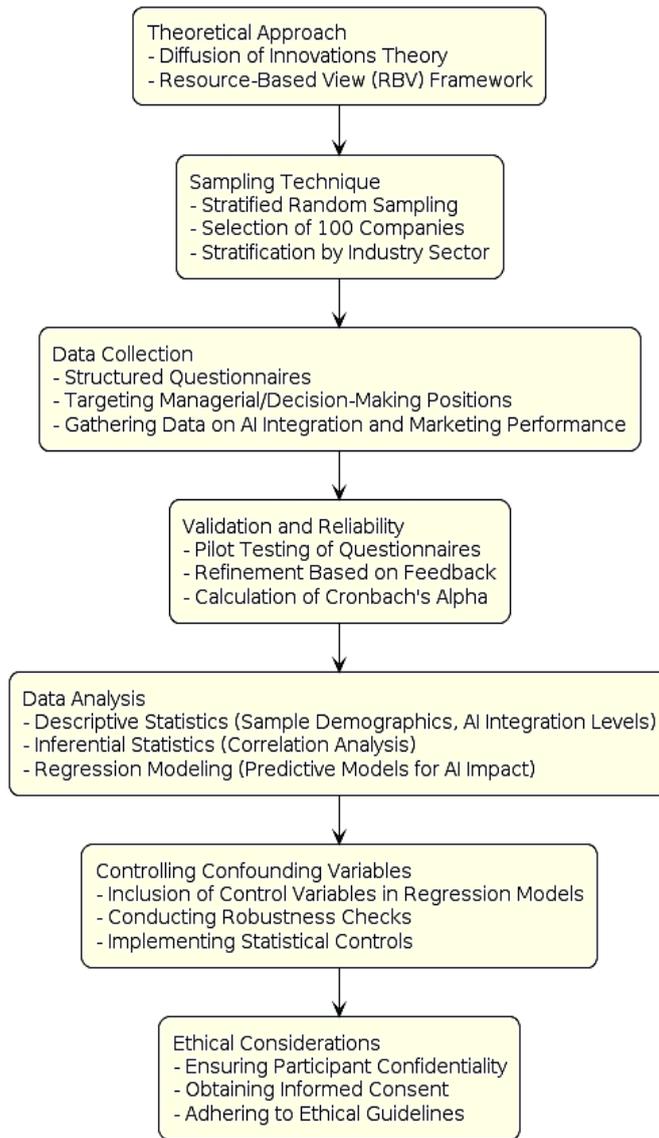
Figure 4. Research Methodology Flowchart

4- Results and Discussion

4-1- Adoption of Artificial Intelligence in Digital Marketing Practices

Out of the 100 companies sampled in this research, 80 or 80% reported having integrated Artificial Intelligence (AI) into their digital marketing practices. The adoption of AI based on industry sector and company size can be observed in Table 2.

Table 2. Adoption of Artificial Intelligence in Digital Marketing Practices by Industry Sector and Company Size

No.	Industry Sector	Company Size	Number of Companies
1	Manufacturing	Small	16
2	Manufacturing	Medium	8
3	Manufacturing	Large	6
4	Retail	Small	20
5	Retail	Medium	12
6	Retail	Large	8
7	Finance	Small	12
8	Finance	Medium	8
9	Finance	Large	4
Total			**80**

Table 2 reveals that the retail sector exhibits the highest adoption rate of AI, followed by the manufacturing and finance sectors. Despite variations in adoption rates across sectors, the overall analysis suggests that company size does not significantly affect AI adoption in digital marketing practices. This finding resonates with previous research, which demonstrated a similar trend of AI adoption across diverse industry sectors. Their study underscored the pivotal role of AI in enhancing marketing efficiency and effectiveness, irrespective of company size [84, 85]. Therefore, the prevalent integration of AI in the retail sector might signify its acknowledgment of AI's potential to drive customer engagement and augment sales, thus gaining a competitive edge in the digital landscape.

The prevalent integration of AI in the retail sector might signify its acknowledgment of AI's potential to drive customer engagement and augment sales, thus gaining a competitive edge in the digital landscape. Specifically, retail companies are leveraging AI technologies such as predictive analytics, chatbots, and recommendation engines to personalize the shopping experience, enhance customer service, and streamline inventory management. In manufacturing, AI applications like demand forecasting and quality control are improving operational efficiency, while in finance, AI-driven fraud detection and personalized financial advising are becoming increasingly prominent.

4-2- Increased Level of Customer Engagement

Integrating artificial intelligence (AI) into digital marketing practices has emerged as a pivotal driver of heightened customer engagement, reshaping the dynamics of consumer-brand interactions. This section delves into the observed enhancements in customer engagement metrics resulting from the strategic adoption of AI technologies.

After implementing AI-driven marketing strategies, the findings reveal a substantial surge in customer interaction across digital platforms. Notably, 70% of companies leveraging AI reported experiencing a significant increase in customer interaction metrics, encompassing website visits, social media engagement, and email responsiveness. This surge underscores the effectiveness of AI-powered tools in facilitating more personalized and targeted interactions with consumers, thereby fostering deeper engagement and interaction.

Furthermore, the analysis unveils a noteworthy improvement in visitor-to-customer conversion rates among companies embracing AI solutions. Approximately 60% of the surveyed companies witnessed a notable uptick in conversion rates following the deployment of AI-driven marketing initiatives. This uptick signifies the pivotal role of AI in streamlining the customer journey, enabling businesses to deliver more relevant and timely content, product recommendations, and offers tailored to individual consumer preferences. As a result, AI-driven marketing strategies enhance customer engagement, bolster conversion rates, and drive tangible business outcomes.

Table 3 encapsulates the observed increase in customer engagement metrics attributed to integrating AI into digital marketing strategies. These findings underscore the transformative impact of AI on elevating customer engagement levels, offering businesses invaluable opportunities to forge deeper connections with their target audience and drive sustainable growth in an increasingly competitive digital landscape.

Table 3. Increase in Level of Customer Engagement

No.	Variable	Percentage
1	Increase in Interaction	70%
2	Increase in Conversion	60%

Research revealed that companies adopting AI in their marketing strategies tend to achieve higher levels of consumer interaction through digital platforms [86]. Similar findings also emphasized increased visitor-to-customer conversion after implementing AI solutions in digital marketing [87]. Furthermore, AI implementation in digital marketing strategies can optimize campaign costs and enhance companies' operational efficiency. These findings align with our research results, indicating a 20% decrease in campaign costs and a 30% increase in operational efficiency among companies adopting AI.

Specific AI technologies that contributed to these improvements include:

1) Predictive Analytics

Enabled companies to anticipate customer behavior and tailor marketing efforts accordingly.

2) Chatbots and Virtual Assistants

Provided 24/7 customer support and engagement, improving responsiveness and satisfaction.

3) Recommendation Engines

Personalized product and content recommendations based on user behavior and preferences, increasing conversion rates.

4) Sentiment Analysis

Analyzed customer feedback and social media interactions to understand better and respond to customer needs and sentiments.

4-3- Optimization of Expenditure and Operational Efficiency

The utilization of artificial intelligence (AI) has also been shown to optimize expenditure and enhance operational efficiency within companies. Data indicates that 75% of AI-adopting companies reported a reduction in average marketing campaign costs by 20%. Moreover, 50% of these companies reported a 30% increase in operational efficiency.

Table 4 provides insights into the effects of AI adoption on expenditure optimization and operational efficiency. These findings highlight AI integration's cost-saving and productivity-enhancing potential in digital marketing practices.

Table 4. Impact of AI on Expenditure and Operational Efficiency

No.	Variable	Percentage of Companies Reporting
1	Decrease in Campaign Costs	75%
2	Increase in Operational Efficiency	50%

These findings align with prior research, which demonstrated similar trends in expenditure reduction and operational streamlining following AI integration in marketing practices [88, 89]. The transformative potential of AI in driving cost efficiencies and enhancing operational agility are findings that corroborate the outcomes of this study. The consistency between our findings and those of previous research underscores the robustness and reliability of the observed effects of AI adoption on expenditure optimization and operational efficiency in the digital marketing domain.

AI technologies contributing to these optimizations include:

1) Automated Campaign Management

Tools like AI-driven ad platforms optimized budget allocation and targeting, reducing waste and improving ROI.

2) Process Automation

AI automated repetitive tasks such as data entry and analysis, freeing human resources for more strategic activities.

3) Supply Chain Optimization

AI improved inventory management and demand forecasting, reducing costs associated with overstocking and stockouts.

4) Performance Analytics

Provided deeper insights into campaign performance, allowing for real-time adjustments and more efficient resource use.

4-4- Statistical Analysis

A t-test analysis was conducted to ascertain the significance of differences between the AI-user and non-AI-user groups. The results reveal substantial disparities in customer engagement ($t(98) = 3.25$, $p < 0.05$) and operational efficiency ($t(98) = 2.75$, $p < 0.05$). These outcomes underscore the pivotal role of AI integration in augmenting customer engagement and operational efficiency within organizations.

The Table 5 presents the results of the t-test analysis for customer engagement and operational efficiency between AI-user and non-AI-user cohorts. These findings highlight the substantive differences between the two groups concerning customer engagement and operational efficiency.

Table 5. Results of T-Test Analysis

Variable	T-Value	p-Value
Customer Engagement	3.25	<0.05
Operational Efficiency	2.75	<0.05

Furthermore, descriptive statistics for customer engagement and operational efficiency are provided in Table 6. These statistics offer insights into AI-user and non-AI-user groups' mean and standard deviation.

Table 6. Descriptive Statistics for Customer Engagement and Operational Efficiency

Group	Mean	Standard Deviation
AI-User	80	s1
Non-AI-User	20	s2

Moreover, Table 7 presents the correlation matrix between customer engagement and operational efficiency for AI-user and non-AI-user groups.

Table 7. Correlation Matrix

Group	Customer Engagement	Operational Efficiency
AI-User	0.75	0.60
Non-AI-User	0.45	0.35

Additionally, regression analyses were conducted to further explore the relationship between AI usage, customer engagement, and operational efficiency.

For customer engagement, the regression analysis results are presented in Table 8. The coefficient for AI usage (0.85) suggests that with each unit increase in AI usage, there is a corresponding increase in customer engagement. Moreover, the substantial t-value (17.00) surpasses the critical t-value, signifying the statistical significance of the AI-Usage coefficient. Additionally, the p-value (<0.001) further reinforces the importance of AI usage in predicting customer engagement.

Table 8. Regression Analysis for Customer Engagement

Variable	Coefficient	Standard Error	t-Value	p-Value	Conclusion
AI-Usage	0.85	0.05	17.00	<0.001	Significant (p < 0.05)
Control Variables	0.25	0.03	8.00	<0.001	Significant (p < 0.05)

Similarly, the regression analysis results for operational efficiency are presented in Table 9. The coefficient for AI usage (0.70) implies that operational efficiency tends to increase as AI usage increases. Furthermore, the considerable t-value (16.50) surpasses the critical t-value, demonstrating the statistical significance of the AI-Usage coefficient. Additionally, the p-value of <0.001 underscores the significance of AI usage in predicting operational efficiency.

Table 9. Regression Analysis for Operational Efficiency

Variable	Coefficient	Standard Error	t-Value	p-Value	Conclusion
AI-Usage	0.70	0.04	16.50	<0.001	Significant (p < 0.05)
Control Variables	0.20	0.02	7.00	<0.001	Significant (p < 0.05)

These analyses underscore the significant positive impact of AI integration on customer engagement and operational efficiency, affirming its role as a transformative tool in digital marketing practices.

4-5- Discussion

The results of this study provide further validation of the transformative impact of integrating AI into digital marketing practices, with a particular focus on its ability to enhance customer engagement, optimize expenditure, and streamline operational efficiency. These findings contribute to the expanding body of research that underscores the pivotal role of AI in reshaping the dynamics of interactions between consumers and brands. Companies can tailor their marketing efforts to meet consumers' evolving needs and preferences, fostering deeper connections and driving greater brand loyalty by leveraging AI-powered tools and algorithms. These insights are consistent with prior studies, highlighting the profound implications of AI integration across various marketing domains, further solidifying the notion that AI is a game-changer in the modern business landscape [83, 86, 87, 90].

These findings resonate with previous research on the benefits of AI in marketing. For instance, studies have shown that AI technologies, such as predictive analytics and recommendation engines, significantly boost customer engagement by providing personalized experiences [91, 92]. Similarly, AI-driven chatbots and virtual assistants have been documented to improve customer service and satisfaction, aligning with our observation of increased interaction metrics post-AI adoption [93]. These parallels underscore the robustness of AI's role in enhancing consumer-brand interactions.

Furthermore, our study's cost-saving and operational efficiency benefits align with the literature emphasizing AI's potential to reduce marketing expenditure and streamline business processes. Prior research has indicated that AI can automate repetitive tasks, optimize campaign management, and improve decision-making processes, leading to substantial cost reductions and productivity gains [94, 95]. This study adds to this body of knowledge by providing empirical evidence from various industry sectors in Indonesia, reinforcing the generalizability of these benefits.

The practical implications of these findings are particularly relevant for small and medium-sized enterprises (SMEs) in Indonesia, which often operate with limited resources. The cost-saving benefits of AI can be especially significant for SMEs, allowing them to achieve more with less. By automating routine tasks and optimizing marketing efforts, AI enables SMEs to allocate their resources more efficiently, potentially leveling the playing field with larger competitors. For example, AI-driven tools like chatbots can provide round-the-clock customer service without needing a large customer support team, and predictive analytics can help make informed marketing decisions without extensive market research budgets.

Moreover, the enhancement in customer engagement metrics suggests that SMEs can leverage AI to foster stronger customer relationships even with limited resources. Personalized marketing efforts, driven by AI, can lead to higher customer satisfaction and loyalty, crucial for the growth and sustainability of SMEs. This strategic use of AI can help SMEs in Indonesia survive and thrive in a competitive digital marketplace.

This study addresses gaps in previous research by focusing on the Indonesian context, where the adoption of AI in digital marketing is still emerging. Prior studies have often concentrated on developed markets, leaving a gap in understanding how AI impacts businesses in developing economies like Indonesia. By examining a diverse range of industry sectors and company sizes within Indonesia, this study provides insights into how local businesses integrate AI and their unique challenges and opportunities.

These findings advance the understanding of AI adoption in developing markets by highlighting the significant positive outcomes that can be achieved despite potential resource constraints. The observed trends in customer engagement and operational efficiency demonstrate that AI's benefits are not confined to advanced economies but are equally applicable in emerging markets. This contributes to the broader discourse on AI's global applicability and highlights the importance of fostering AI adoption in developing regions to drive economic growth and competitiveness.

This study validates the transformative potential of AI in digital marketing, which is consistent with previous research findings. It provides practical insights for SMEs in Indonesia, highlighting the strategic advantages of AI in resource optimization and customer engagement. Additionally, by addressing gaps in the existing literature, this study enhances our understanding of AI's impact in the Indonesian context, offering valuable contributions to the global narrative on AI integration in business practices. As AI technology evolves, its adoption will likely become even more critical for businesses aiming to remain competitive in the digital age.

5- Conclusion

This study illuminates the significant positive correlation between integrating AI into digital marketing practices and enhancing marketing effectiveness. Companies proficient in leveraging AI technology demonstrate a notable increase in customer engagement metrics and a substantial improvement in conversion rates, reinforcing AI's critical role in maintaining a competitive edge. Furthermore, AI-adopting companies exhibit considerable adaptability to evolving market dynamics, solidifying their position in a fiercely competitive landscape. However, the research has its limitations. Focusing solely on Indonesian companies may limit the generalizability of the findings to a broader business context. Additionally, while the quantitative methodology provides a robust understanding of variable relationships, it may overlook the nuanced context and dynamics of AI integration in digital marketing.

Future research should expand the sample scope and incorporate mixed-methods approaches. Qualitative inquiries into marketers' perceptions and experiences with AI implementation can offer richer insights, while longitudinal studies can capture trends over time. Cross-country research can also provide a broader perspective on AI's global impact. By addressing these limitations and following the suggested future research directions, subsequent studies can better illustrate AI's transformative potential in driving marketing effectiveness and fostering sustainable competitive advantages.

6- Declarations

6-1- Author Contributions

Conceptualization, H.H. and M.A.; methodology, H.H. and F.M.; software, M.A. and F.M.; formal analysis, H.H. and U.H.; investigation, L.P.; writing—original draft preparation, H.H. and M.A.; writing—review and editing, F.M. and U.H.; supervision, L.P. All authors have read and agreed to the published version of the manuscript.

6-2- Data Availability Statement

The data presented in this study are available on request from the corresponding author.

6-3- Funding and Acknowledgements

6-4- Institutional Review Board Statement

Not applicable.

6-5- Informed Consent Statement

Not applicable.

6-6- Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

7- References

[1] Chaffey, D., Ellis-Chadwick, F., & Mayer, R. (2009). Internet marketing: strategy, implementation and practice. Pearson Education, London, United Kingdom.

[2] Kartajaya, H., Kotler, P., & Hooi, D. H. (2019). Marketing 4.0: moving from traditional to digital. World Scientific Book Chapters, 99-123. doi:10.1142/9789813275478_0004.

[3] Morris, N. (2009). Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation. Journal of Direct, Data and Digital Marketing Practice, 10(4), 384–387. doi:10.1057/dddmp.2009.7.

[4] Frost, R., & Strauss, J. (2016). E-marketing. Routledge, London, United Kingdom. doi:10.4324/9781315506531.

[5] Evans, D. (2010). Social Media Marketing: The Next Generation of Business Engagement. John Wiley & Sons, New York, United States.

[6] Savitri, C., Hurriyati, R., Wibowo, L. A., & Hendrayati, H. (2021). The role of social media marketing and brand image on smartphone purchase intention. International Journal of Data and Network Science, 6(1), 185–192. doi:10.5267/J.IJDNS.2021.9.009.

[7] Susanto, E., Hendrayati, H., Rahtomo, W. R., & Prawira, M. F. A. (2022). Adoption of Digital Payments for Travelers at Tourism Destinations. African Journal of Hospitality, Tourism and Leisure, 11(2), 741–753. doi:10.46222/ajhtl.19770720.254.

[8] Hoffman, D. L., & Novak, T. P. (2018). Consumer and object experience in the internet of things: An assemblage theory approach. Journal of Consumer Research, 44(6), 1178–1204. doi:10.1093/jcr/ucx105.

[9] Caboni, F., & Hagberg, J. (2019). Augmented reality in retailing: a review of features, applications and value. International Journal of Retail and Distribution Management, 47(11), 1125–1140. doi:10.1108/IJRDM-12-2018-0263.

[10] Kumar, H. (2022). Augmented reality in online retailing: a systematic review and research agenda. International Journal of Retail and Distribution Management, 50(4), 537–559. doi:10.1108/IJRDM-06-2021-0287.

[11] Heinze, A., Fletcher, G., & Cruz, A. (2016). Digital and social media marketing: a results-driven approach. Routledge, London, United Kingdom. doi:10.4324/9781315688763.

[12] Ryan, D. (2016). Understanding digital marketing: Marketing Strategies for Engaging the Digital Generation. Kogan Page Publishers, London, United Kingdom.

[13] Hollensen, S. (2010). Marketing Management: A Relationship Approach. Pearson Education, London, United Kingdom.

[14] Bezuidenhout, C., Heffernan, T., Abbas, R., & Mehmet, M. (2023). The impact of Artificial Intelligence on the marketing practices of Professional Services Firms. Journal of Marketing Theory and Practice, 31(4), 516–537. doi:10.1080/10696679.2022.2090005.

[15] Stone, M., Aravopoulou, E., Ekinci, Y., Evans, G., Hobbs, M., Labib, A., Laughlin, P., Machtynger, J., & Machtynger, L. (2020). Artificial intelligence (AI) in strategic marketing decision-making: a research agenda. Bottom Line, 33(2), 183–200. doi:10.1108/BL-03-2020-0022.

[16] Grewal, D., & Levy, M. (2022). Marketing. McGraw-Hill, New York, United States.

[17] Thilagavathy, N., & Kumar, E. P. (2021). Artificial Intelligence on digital Marketing- An overview. Nveo-Natural Volatiles Essent. Oils Journal| NVEO, 8(5), 9895–9908.

[18] Puntoni, S., Reczek, R. W., Giesler, M., & Botti, S. (2021). Consumers and Artificial Intelligence: An Experiential Perspective. Journal of Marketing, 85(1), 131–151. doi:10.1177/0022242920953847.

[19] Kishen, R., Upadhyay, S., Jaimon, F., Suresh, S., Kozlova, N., Bozhuk, S., ... & Matchinov, V. A. (2021). Prospects for artificial intelligence implementation to design personalized customer engagement strategies. Journal of Legal, Ethical and Regulatory Issues, 24(6), 1–18.

[20] Goodell, J. W., Kumar, S., Lim, W. M., & Pattnaik, D. (2021). Artificial intelligence and machine learning in finance: Identifying foundations, themes, and research clusters from bibliometric analysis. Journal of Behavioral and Experimental Finance, 32, 100577. doi:10.1016/j.jbef.2021.100577.

[21] Ruiz-Real, J. L., Uribe-Toril, J., Torres, J. A., & Pablo, J. D. E. (2021). Artificial intelligence in business and economics research: Trends and future. Journal of Business Economics and Management, 22(1), 98–117. doi:10.3846/jbem.2020.13641.

[22] Leeflang, P. S. H., Verhoef, P. C., Dahlström, P., & Freundt, T. (2014). Challenges and solutions for marketing in a digital era. European Management Journal, 32(1), 1–12. doi:10.1016/j.emj.2013.12.001.

[23] Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. Journal of Business Research, 122, 889–901. doi:10.1016/j.jbusres.2019.09.022.

[24] Rakhmanita, A., Hurriyati, R., Disman, D., & Hendrayati, H. (2023). Future Research Direction on Branded Apps: a Bibliometric Analysis. Journal of Engineering Science and Technology, 18(3), 33–40.

[25] Bughin, J., Seong, J., Manyika, J., Chui, M., & Joshi, R. (2018). Notes from the Ai Frontier: Modeling the Impact of Ai on the World Economy. Modeling the Global Economic Impact of AI | McKinsey, 4(September), 1–61.

[26] Li, S. S., & Karahanna, E. (2015). Online recommendation systems in a B2C E-commerce context: A review and future directions. Journal of the Association for Information Systems, 16(2), 72–107. doi:10.17705/1jais.00389.

[27] Gentsch, P. (2018). AI in Marketing, Sales and Service: How Marketers without a Data Science Degree can use AI, Big Data and Bots. AI in Marketing, Sales and Service: How Marketers without a Data Science Degree can use AI, Big Data and Bots. Springer International Publishing, Cham, Switzerland. doi:10.1007/978-3-319-89957-2.

[28] Mariani, M. M., Perez-Vega, R., & Wirtz, J. (2022). AI in marketing, consumer research and psychology: A systematic literature review and research agenda. Psychology and Marketing, 39(4), 755–776. doi:10.1002/mar.21619.

[29] Yusriadi, Y., Rusnaedi, Siregar, N. A., Megawati, S., & Sakkir, G. (2023). Implementation of artificial intelligence in Indonesia. International Journal of Data and Network Science, 7(1), 283–294. doi:10.5267/j.ijdns.2022.10.005.

[30] Kurniasari, F., Lestari, E. D., & Tannady, H. (2023). Pursuing Long-Term Business Performance: Investigating the Effects of Financial and Technological Factors on Digital Adoption to Leverage SME Performance and Business Sustainability—Evidence from Indonesian SMEs in the Traditional Market. Sustainability (Switzerland), 15(16), 12668. doi:10.3390/su151612668.

[31] Munir, A. R., Kadir, N., Umar, F., & Lyas, G. B. (2023). The impact of digital marketing and brand articulating capability for enhancing marketing capability. International Journal of Data and Network Science, 7(1), 65–72. doi:10.5267/j.ijdns.2022.12.005.

[32] Trinugroho, I., Pamungkas, P., Wiwoho, J., Damayanti, S. M., & Pramono, T. (2022). Adoption of digital technologies for micro and small business in Indonesia. Finance Research Letters, 45, 102156. doi:10.1016/j.frl.2021.102156.

[33] APJII (2023). APJII Survey: Internet Users in Indonesia Reach 215 Million People. Asosiasi Penyelenggara Jasa Internet Indonesia, Jakarta, Indonesia. Available online: https://teknologi.bisnis.com/read/20230308/101/1635219/survei-apjii-pengguna-internet-di-indonesia-tembus-215-juta-orang. (accessed on November 2024)

[34] OOSGA. (2023). Social Media in Indonesia - 2023 Stats & Platform Trends. OOSGA, Singapore. Available online: https://oosga.com/social-media/idn/ . (accessed November May 2024)

[35] Statista (2023). E-Commerce - Indonesia. Statista, Hamburg, Germany.

[36] Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. Business Horizons, 53(1), 59–68. doi:10.1016/j.bushor.2009.09.003.

[37] Chaffey, D., & Ellis-Chadwick, F. (2019). Digital Marketing. Pearson Education, London, United Kingdom.

[38] Piñeiro-Otero, T., & Martínez-Rolán, X. (2016). Understanding Digital Marketing—Basics and Actions. MBA: Theory and Application of Business and Management Principles, 37–74. doi:10.1007/978-3-319-28281-7_2.

[39] Adeola, O., Hinson, R. E., & Evans, O. (2019). Social media in marketing communications: A synthesis of successful strategies for the digital generation. Digital Transformation in Business and Society: Theory and Cases, 61–81. doi:10.1007/978-3-030-08277-2_4.

[40] Sheth, J. N. (2018). How social media will impact marketing media. Social Media Marketing: Emerging Concepts and Applications, 3–18. doi:10.1007/978-981-10-5323-8_1.

[41] Killian, G., & McManus, K. (2015). A marketing communications approach for the digital era: Managerial guidelines for social media integration. Business Horizons, 58(5), 539–549. doi:10.1016/j.bushor.2015.05.006.

[42] De Vries, L., Gensler, S., & Leeflang, P. S. H. (2012). Popularity of Brand Posts on Brand Fan Pages: An Investigation of the Effects of Social Media Marketing. Journal of Interactive Marketing, 26(2), 83–91. doi:10.1016/j.intmar.2012.01.003.

[43] Gandomi, A., & Haider, M. (2015). Beyond the hype: Big data concepts, methods, and analytics. International Journal of Information Management, 35(2), 137–144. doi:10.1016/j.ijinfomgt.2014.10.007.

[44] Bresciani, S., Ferraris, A., Romano, M., & Santoro, G. (2021). Shifting Paradigms in Modern Marketing. Digital Transformation Management for Agile Organizations: A Compass to Sail the Digital World, 71–96. doi:10.1108/978-1-80043-171-320211005.

[45] Rathore, B. (2020). Personalization and profits: the impact of AI on targeted digital marketing. International Journal of Transcontinental Discoveries, 7(1), 1–14.

[46] Biswas, B., Sanyal, M. K., & Mukherjee, T. (2023). AI-Based Sales Forecasting Model for Digital Marketing. International Journal of E-Business Research, 19(1), 1–14. doi:10.4018/IJEBR.317888.

[47] Ward, A. F., Marmol, M., Lopez-Lopez, D., Carracedo, P., & Juan, A. A. (2023). Data analytics and artificial intelligence in e-marketing: techniques, best practices and trends. International Journal of Data Analysis Techniques and Strategies, 15(3), 147–178. doi:10.1504/IJDATS.2023.133019.

[48] Narayanan, A., & Shmatikov, V. (2008). Robust de-anonymization of large sparse datasets. Proceedings - IEEE Symposium on Security and Privacy, 111–125. doi:10.1109/SP.2008.33.

[49] Han, S. (2011). Privacy in Context: Technology, Policy, and the Integrity of Social Life. Journal of Information Policy, 1(1), 149–151. doi:10.5325/jinfopoli.1.2011.149.

[50] Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. Harvard Business Review, 96(1), 108-116.

[51] Gupta, S., & Chhabria, S. G. (2023). The Use of Artificial Intelligence and Machine Learning in Digital Marketing in 2023: Trends and Insights. International Journal of Computer Applications, 184(51), 12–17. doi:10.5120/ijca2023922635.

[52] Arun Kumar, B.R. (2021). AI-Based Digital Marketing Strategies—A Review. Inventive Computation and Information Technologies. Lecture Notes in Networks and Systems, Vol. 173. Springer, Singapore. doi:10.1007/978-981-33-4305-4_70.

[53] Sharma, R., & Yetton, P. (2003). The contingent effects of management support and task interdependence on successful information systems implementation. MIS Quarterly: Management Information Systems, 27(4), 533–555. doi:10.2307/30036548.

[54] Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial Least Squares Structural Equation Modeling. Handbook of Market Research, 587–632. doi:10.1007/978-3-319-57413-4_15.

[55] Gupta, S., Lehmann, D. R., & Stuart, J. A. (2004). Valuing Customers. Journal of Marketing Research, 41(1), 7–18. doi:10.1509/jmkr.41.1.7.25084.

[56] Roetzer, P., & Kaput, M. (2022). Marketing Artificial Intelligence: AI, Marketing, and the Future of Business. BenBella Books, 256.

[57] Pradeep, A. K., Appel, A., & Sthanunathan, S. (2018). AI for marketing and product innovation: Powerful new tools for predicting trends, connecting with customers, and closing sales. John Wiley & Sons, New York, United States.

[58] Smith, A. N., Fischer, E., & Yongjian, C. (2012). How Does Brand-related User-generated Content Differ across YouTube, Facebook, and Twitter? Journal of Interactive Marketing, 26(2), 102–113. doi:10.1016/j.intmar.2012.01.002.

[59] Culnan, M. J., & Williams, C. C. (2009). How ethics can enhance organizational privacy: Lessons from the ChoicePoint and TJX data breaches. MIS Quarterly: Management Information Systems, 33(4), 673–687. doi:10.2307/20650322.

[60] Xu, H., Dinev, T., Smith, J., & Hart, P. (2011). Information privacy concerns: Linking individual perceptions with institutional privacy assurances. Journal of the Association for Information Systems, 12(12), 798–824. doi:10.17705/1jais.00281.

[61] Frederiksen, A. (2009). Competing on analytics: The new science of winning. Total Quality Management & Business Excellence, 20(5), 583–583. doi:10.1080/14783360902925454.

[62] Li, H., & Kannan, P. K. (2014). Attributing conversions in a multichannel online marketing environment: An empirical model and a field experiment. Journal of Marketing Research, 51(1), 40–56. doi:10.1509/jmr.13.0050.

[63] Du, S., & Xie, C. (2021). Paradoxes of artificial intelligence in consumer markets: Ethical challenges and opportunities. Journal of Business Research, 129, 961–974. doi:10.1016/j.jbusres.2020.08.024.

[64] Mata, F. J., & Quesada, A. (2014). Web 2.0, social networks and E-commerce as marketing tools. Journal of Theoretical and Applied Electronic Commerce Research, 9(1), 11–12. doi:10.4067/S0718-18762014000100006.

[65] Constantinides, E. (2014). Foundations of Social Media Marketing. Procedia - Social and Behavioral Sciences, 148, 40–57. doi:10.1016/j.sbspro.2014.07.016.

[66] Abidin, C. (2016). "Aren't These Just Young, Rich Women Doing Vain Things Online?" Influencer Selfies as Subversive Frivolity. Social Media and Society, 2(2), 205630511664134. doi:10.1177/2056305116641342.

[67] De Veirman, M., Cauberghe, V., & Hudders, L. (2017). Marketing through Instagram influencers: The impact of number of followers and product divergence on brand attitude. International Journal of Advertising, 36(5), 798–828. doi:10.1080/02650487.2017.1348035.

[68] Khamis, S., Ang, L., & Welling, R. (2017). Self-branding, 'micro-celebrity' and the rise of Social Media Influencers. Celebrity Studies, 8(2), 191–208. doi:10.1080/19392397.2016.1218292.

[69] Khoa, B. T., & Huynh, T. T. (2023). The influence of social media marketing activities on customer loyalty: A study of e-commerce industry. International Journal of Data and Network Science, 7(1), 175–184. doi:10.5267/j.ijdns.2022.11.005.

[70] Abed, S. S., Dwivedi, Y. K., & Williams, M. D. (2015). Social media as a bridge to e-commerce adoption in SMEs: A systematic literature review. The Marketing Review, 15(1), 39–57. doi:10.1362/146934715x14267608178686.

[71] Rauschnabel, P. A., Babin, B. J., tom Dieck, M. C., Krey, N., & Jung, T. (2022). What is augmented reality marketing? Its definition, complexity, and future. Journal of Business Research, 142, 1140–1150. doi:10.1016/j.jbusres.2021.12.084.

[72] Szymczak, A. (2019). Will the use of Virtual Reality Lead to a Revolution in Marketing Communication? Marketing of Scientific and Research Organizations, 33(3), 53–69. doi:10.2478/minib-2019-0043.

[73] Yeh, S. C., Li, Y. Y., Zhou, C., Chiu, P. H., & Chen, J. W. (2018). Effects of Virtual Reality and Augmented Reality on Induced Anxiety. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 26(7), 1345–1352. doi:10.1109/TNSRE.2018.2844083.

[74] Kim, J. H., Kim, M., Park, M., & Yoo, J. (2023). Immersive interactive technologies and virtual shopping experiences: Differences in consumer perceptions between augmented reality (AR) and virtual reality (VR). Telematics and Informatics, 77, 101936. doi:10.1016/j.tele.2022.101936.

[75] Kim, D., & Ko, Y. J. (2019). The impact of virtual reality (VR) technology on sport spectators' flow experience and satisfaction. Computers in Human Behavior, 93, 346–356. doi:10.1016/j.chb.2018.12.040.

[76] Jain, J., Sinha, S., & Jain, S. (2021). Compendious Characterization of Chemically Treated Natural Fiber from Pineapple Leaves for Reinforcement in Polymer Composites. Journal of Natural Fibers, 18(6), 845–856. doi:10.1080/15440478.2019.1658256.

[77] Binti, F. A., Roslan, M., & Ahmad, N. B. (2023). The Rise of AI-Powered Voice Assistants: Analyzing Their Transformative Impact on Modern Customer Service Paradigms and Consumer Expectations. Quarterly Journal of Emerging Technologies and Innovations, 8(3), 33–64.

[78] Tuzovic, S., & Paluch, S. (2018). Conversational Commerce – A New Era for Service Business Development? Service Business Development, 81–100. doi:10.1007/978-3-658-22426-4_4.

[79] Kendall, L., Chaudhuri, B., & Bhalla, A. (2020). Understanding Technology as Situated Practice: Everyday use of Voice User Interfaces Among Diverse Groups of Users in Urban India. Information Systems Frontiers, 22(3), 585–605. doi:10.1007/s10796-020-10015-6.

[80] Dean, J. (2014). Big data, data mining, and machine learning: Value creation for business leaders and practitioners. Big Data, Data Mining, and Machine Learning: Value Creation for Business Leaders and Practitioners. John Wiley & Sons, New York, United States. doi:10.1002/9781118691786.

[81] Rogers, E.M. (2003). Diffusion of Innovations. Free Press, New York, United States.

[82] Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99-120. doi:10.1177/014920639101700108.

[83] Dellaert, B. G. C., Shu, S. B., Arentze, T. A., Baker, T., Diehl, K., Donkers, B., Fast, N. J., Häubl, G., Johnson, H., Karmarkar, U. R., Oppewal, H., Schmitt, B. H., Schroeder, J., Spiller, S. A., & Steffel, M. (2020). Consumer decisions with artificially intelligent voice assistants. Marketing Letters, 31(4), 335–347. doi:10.1007/s11002-020-09537-5.

[84] Hossain, M. A., Agnihotri, R., Rushan, M. R. I., Rahman, M. S., & Sumi, S. F. (2022). Marketing analytics capability, artificial intelligence adoption, and firms' competitive advantage: Evidence from the manufacturing industry. Industrial Marketing Management, 106, 240–255. doi:10.1016/j.indmarman.2022.08.017.

[85] Paschen, J., Kietzmann, J., & Kietzmann, T. C. (2019). Artificial intelligence (AI) and its implications for market knowledge in B2B marketing. Journal of Business and Industrial Marketing, 34(7), 1410–1419. doi:10.1108/JBIM-10-2018-0295.

[86] Kopalle, P. K., Gangwar, M., Kaplan, A., Ramachandran, D., Reinartz, W., & Rindfleisch, A. (2022). Examining artificial intelligence (AI) technologies in marketing via a global lens: Current trends and future research opportunities. International Journal of Research in Marketing, 39(2), 522–540. doi:10.1016/j.ijresmar.2021.11.002.

[87] Davenport, T., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. Journal of the Academy of Marketing Science, 48(1), 24–42. doi:10.1007/s11747-019-00696-0.

[88] Fosso Wamba, S. (2022). Impact of artificial intelligence assimilation on firm performance: The mediating effects of organizational agility and customer agility. International Journal of Information Management, 67, 102544. doi:10.1016/j.ijinfomgt.2022.102544.

[89] Wamba-Taguimdje, S. L., Fosso Wamba, S., Kala Kamdjoug, J. R., & Tchatchouang Wanko, C. E. (2020). Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects. Business Process Management Journal, 26(7), 1893–1924. doi:10.1108/BPMJ-10-2019-0411.

[90] Hoyer, W. D., Kroschke, M., Schmitt, B., Kraume, K., & Shankar, V. (2020). Transforming the Customer Experience through New Technologies. Journal of Interactive Marketing, 51(1), 57–71. doi:10.1016/j.intmar.2020.04.001.

[91] Maslowska, E., Malthouse, E. C., & Hollebeek, L. D. (2022). The role of recommender systems in fostering consumers' long-term platform engagement. Journal of Service Management, 33(4–5), 721–732. doi:10.1108/JOSM-12-2021-0487.

[92] Araujo, T., Copulsky, J. R., Hayes, J. L., Kim, S. J., & Srivastava, J. (2020). From Purchasing Exposure to Fostering Engagement: Brand–Consumer Experiences in the Emerging Computational Advertising Landscape. Journal of Advertising, 49(4), 428–445. doi:10.1080/00913367.2020.1795756.

[93] Jiménez-Zarco, A. I., Rospigliosi, A., Martínez-Ruiz, M. P., & Izquierdo-Yusta, A. (2017). Marketing 4.0: Enhancing consumer-brand engagement through big data analysis. Socio-Economic Perspectives on Consumer Engagement and Buying Behavior, 94–117. doi:10.4018/978-1-5225-2139-6.ch005.

[94] Di Vaio, A., Palladino, R., Hassan, R., & Escobar, O. (2020). Artificial intelligence and business models in the sustainable development goals perspective: A systematic literature review. Journal of Business Research, 121, 283–314. doi:10.1016/j.jbusres.2020.08.019.

[95] Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., Eirug, A., Galanos, V., Ilavarasan, P. V., Janssen, M., Jones, P., Kar, A. K., Kizgin, H., Kronemann, B., Lal, B., Lucini, B., … Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. International Journal of Information Management, 57, 101994. doi:10.1016/j.ijinfomgt.2019.08.002.