

Digital marketing evolution: Understanding the role of AI and Big Data in shaping marketing strategies

Shandikha Arya Yudha Rahman¹, Agus Rahayu², Heny Hendrayati³

Indonesia University of Education, Bandung, Indonesia^{1,2,3}

shandikhaarya@upi.edu¹, agusrahayu@upi.edu², henyhendrayati@upi.edu³



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Abstract

Purpose: This study explores the evolution of digital marketing and the role of Artificial Intelligence (AI) and Big Data in enhancing marketing effectiveness. As market complexity and consumer needs continue to evolve, companies must adopt new technologies to optimize their strategies.

Methodology/approach: This research employs a comprehensive literature review, analyzing journal articles, industry reports, and case studies related to AI and Big Data in digital marketing. The process involves selecting and evaluating relevant sources to gain in-depth insights into their impact on marketing strategies.

Results/findings: The study finds a positive correlation between AI implementation in digital marketing and improved campaign effectiveness. Companies leveraging AI report increased consumer engagement and higher sales conversions. Moreover, integrating Big Data and AI enhances customer satisfaction and loyalty. Firms adopting these technologies demonstrate greater adaptability to market dynamics and evolving consumer preferences.

Conclusion: The study concludes that AI and Big Data play a crucial role in shaping digital marketing strategies by enabling personalization, predictive analytics, and data-driven decisions. Although challenges such as privacy concerns and algorithmic bias remain, their benefits far outweigh the risks, offering firms a sustainable competitive advantage.

Limitations: The study is limited to existing literature, which may introduce selection bias. Additionally, the absence of empirical analysis restricts deeper insights into AI and Big Data applications in marketing.

Contribution: This research provides a deeper understanding of AI and Big Data's impact on digital marketing strategies. The findings assist marketers in developing more effective and adaptive strategies.

Keywords: *Artificial Intelligence, Big Data, Customer Experience, Digital Marketing, Marketing Strategy, Personalization*

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1. Introduction

The rapid development of digital technology has changed how businesses operate and interact with their audiences. In this context, digital marketing has become an essential element of modern business strategies. Digital marketing refers to any form of promotion, sales, and distribution of products or services through digital channels, such as the Internet and other online platforms, to attract target audiences, build brand awareness, and drive sales growth. Increasingly sophisticated information technology opens up opportunities for companies to reach wider and more segmented markets.

However, these advancements also pose significant challenges in designing relevant and effective marketing strategies.

In today's digital era, companies face numerous complex challenges in marketing, especially in the face of audiences who are increasingly connected online and more accustomed to customized digital experiences. Many businesses struggle to handle huge volumes of data, as well as to analyze and understand consumer behavior in a more effective way. Here, technology, specifically Artificial Intelligence (AI) and Big Data, plays a crucial role in helping businesses optimize their marketing strategies.

This research aims to identify the problems businesses face in digital marketing today and explore how the application of AI and Big Data can be a solution to improve marketing effectiveness. Using this technology, companies can create a more personalized customer experience, predict market trends more accurately, and design more efficient marketing campaigns. This study also aims to provide insights into how these technologies are shaping the future of digital marketing and how companies can utilize these technologies ethically and responsibly.

One of the key aspects that enriches digital marketing is technological advancements that allow for more in-depth personalization and data analysis. AI and Big Data have transformed the way marketers collect, analyze, and use customer data to improve user experience, optimize marketing campaigns, and forecast consumer behavior with a higher degree of accuracy (Figueiredo, Gonçalves, & Teixeira, 2021; Jin, Zhong, & Zhao, 2024). Among these technologies, AI is emerging as a transformative force in the world of digital marketing because of its ability to automate many processes, reduce human error, and provide a more personalized and relevant customer experience. The use of machine learning algorithms in AI allows for faster and more accurate analysis of large amounts of data, which directly impacts the effectiveness and efficiency of marketing campaigns. AI not only facilitates customer behavior analysis and customized content development, but also provides predictive insights that help companies forecast market trends and prepare appropriate strategies to respond to those changes (Potwora, Vdovichena, Semchuk, Lipych, & Saienko, 2024).

For example, AI can be used to optimize customer segmentation, allowing companies to segment their audiences based on preferences, purchasing behavior, and other characteristics. This allows for more targeted and relevant marketing, which increases the chances of conversions and customer loyalty. Additionally, AI supports sentiment analysis, which helps companies understand how consumers feel about their products or services, as well as allowing marketers to adjust campaigns in real-time to respond more quickly to market dynamics (Adeleye, Awonuga, Asuzu, Ndubuisi, & Tubokirifuruar, 2024). Another increasingly popular technique is predictive modeling, which allows companies to project future consumer behavior and design more effective offerings to meet evolving needs (Amini & Amini, 2024). By incorporating AI into the digital marketing process, companies can create more personalized experiences and improve their interactions with their audience.

Meanwhile, Big Data refers to a very large and complex set of data, which contains rich and invaluable information for marketing analysis. In the context of digital marketing, Big Data allows companies to gain deep insights into consumer behavior, market trends, and campaign performance. One of the key benefits of Big Data is the ability to identify previously undetected patterns and trends, as well as to make smarter decisions based on existing data. Data-driven marketing allows marketers to better understand audience preferences, measure return on investment (ROI) more accurately, and optimize overall marketing strategies (Adeleye et al., 2024). With an enormous volume of data collected from various digital channels, ranging from social media and e-commerce to interactions on websites, companies can unearth richer insights to refine their products, offerings, and communications.

The integration of AI and Big Data further enhances digital marketing capabilities. AI, which can analyze and process large amounts of data, works well when combined with Big Data. This combination allows companies to design more targeted and personalized marketing campaigns, as well as to respond to market changes at a higher pace. Data collected through various channels can be used to optimize

marketing strategies, tailor messaging, and offer the right products to the right audience at the right time (Tauheed, Shabbir, & Pervez, 2024; Ziakis & Vlachopoulou, 2023). For example, by leveraging Big Data analytics, companies can identify high-potential customers and develop customized offers that fit their individual needs, increase conversion rates, and increase customer loyalty. Overall, the synergy between AI and Big Data allows companies to gain deeper insights and create richer experiences for their consumers.

However, while AI and Big Data offer a wide range of opportunities and advantages, the adoption of these technologies in digital marketing also brings a number of challenges, especially related to ethical and privacy issues. The collection and analysis of personal data, which is a critical component of AI- and Big Data-based digital marketing, raises important questions regarding consumer data protection. In this context, companies should take care to ensure that the data collected and used in marketing strategies comply with applicable privacy regulations, such as the General Data Protection Regulation (GDPR) in the European Union, as well as other local privacy policies (Potwora et al., 2024). The protection of personal data is crucial for maintaining consumer trust and ensuring that digital marketing does not damage brand reputation or disrupt customer relationships.

Additionally, the use of AI in digital marketing can pose problems related to biases in algorithms. If the data used to train AI algorithms are not representative or do not reflect the diversity of the overall audience, the resulting model can result in unfair or biased decisions, which can be detrimental to certain groups in society (Ma, 2023). Therefore, companies must be careful in designing and executing AI-based marketing strategies to ensure that the use of these technologies does not negatively impact more vulnerable or marginalized groups.

This study aims to explore and understand how digital marketing has evolved owing to the application of AI and Big Data, as well as how these technologies are shaping marketing strategies in the future. With a more targeted and personalized approach, companies can design more effective and efficient marketing campaigns and respond to consumer needs and desires more appropriately. However, it is important to remember that the application of this technology does not just rely on data and algorithms but also considers ethical and privacy aspects that are no less important. Therefore, companies must adopt a balanced approach between technological innovation and social responsibility to create a safe, efficient, and sustainable digital marketing experience.

2. Literature review

2.1 The Evolution of Digital Marketing

Digital marketing has undergone a tremendous transformation since its emergence, evolving as technology advances and consumer behavior changes. Initially, digital marketing focused more on email campaigns and simple online advertising. However, over time, digital marketing has evolved into a complex discipline encompassing a wide range of strategies and tools. The advent of social media, the use of Artificial Intelligence (AI), and the integration of new technologies such as the Internet of Things (IoT) and Big Data analytics have significantly changed the digital marketing landscape (Ziakis & Vlachopoulou, 2023). According to Ziakis and Vlachopoulou (2023), these technologies, which are part of the Industry 4.0 revolution, have redefined how businesses operate and interact with customers, enabling more efficient and targeted marketing efforts.

Research Gap: Although much research has been conducted on the evolution of digital marketing, there is still a lack of understanding of how the interaction between digital marketing and product quality affects consumer purchasing decisions in a broader context. More research is needed to explore this relationship, especially in the context of entrepreneurship-oriented marketing (Purnamasari and Hermawan, 2024).

The advent of Industry 4.0 technologies has enabled businesses to simplify their operations and improve customer engagement in unprecedented ways. One of the most significant changes is the ability to collect, analyze, and utilize large volumes of data in real time. Through IoT devices and Big Data analytics, businesses can gain deeper insights into consumer behavior, preferences, and trends, enabling

more personalized and relevant marketing campaigns. As conveyed by Ziakis and Vlachopoulou (2023), this data-driven approach allows companies to save time and energy by automating processes and improving decision-making and overall operational efficiency. By leveraging these technological advancements, companies can now target their audiences more precisely and tailor their messages to the specific needs of customers, making their marketing efforts more effective and cost efficient.

Research Gap: More research is needed to understand how digital transformation can improve marketing performance across different sectors, including how digital transformation strategies can mediate digital marketing effectiveness (Hawa et al., 2023).

Another key factor in the evolution of digital marketing is the role of AI technology (Liu, Gupta, & Patel, 2023), which emphasized that AI plays an important role in digital marketing, especially in predictive analytics and real-time data sharing. AI-driven tools allow companies to forecast trends, identify emerging patterns, and deliver personalized content to consumers based on their previous behavior and preferences. This predictive ability is becoming increasingly important in a fast-paced environment, where consumer expectations are constantly evolving, and businesses must move quickly to stay competitive. With AI, companies can make data-driven decisions more quickly, optimize their marketing strategies, and improve customer satisfaction (Liu et al., 2023).

Research Gap: Although much research has been conducted on AI in marketing, there is still a lack of understanding of how AI can be used to increase consumer engagement on social media and how it contributes to purchasing decisions (Barger, Peltier, & Schultz, 2016).

The role of social media in digital marketing has also grown rapidly, providing companies with new ways to interact with their audiences. Social media platforms, such as Facebook, Instagram, Twitter, and LinkedIn, are now integral to marketing strategies, allowing brands to reach millions of users worldwide. In contrast to traditional advertising, social media allows two-way communication between companies and their consumers. Brands can now directly interact with their audience in real time, respond to inquiries, handle complaints, and build relationships in ways that were previously impossible with older marketing methods (Barger et al., 2016; Grandinetti, 2020), highlighting the importance of social media in digital marketing, with many companies now allocating the majority of their marketing budgets to social media campaigns. This change reflects the growing recognition of the potential of social media to increase brand awareness, engagement, and customer loyalty.

Research Gap: More research is needed to explore the factors that influence consumer attitudes and intentions to engage with retail brands through social media and how these factors contribute to purchasing decisions (Bianchi & Andrews, 2018).

The growing influence of digital marketing is also evident in the increasing use of automation tools and platforms that simplify the marketing process. Companies are increasingly adopting marketing automation software to handle repetitive tasks, such as email marketing, lead nurturing, and social media posts. This automation not only saves time but also allows companies to expand their marketing efforts and focus on more strategic initiatives. Additionally, the integration of AI and machine learning with automation tools allows companies to deliver highly targeted content, thereby increasing customer engagement and conversion rates.

Research Gap: More research is needed to understand how marketing automation can be optimized to improve the user experience and its impact on consumer behavior in the context of digital marketing (Sudirjo, Ausat, Suherlan, & Azzaakiyyah, 2024).

As digital marketing continues to evolve, the integration of new technologies, such as AI, IoT, Big Data, and social media, will become increasingly important in shaping the future of marketing. Companies that adopt these advancements will be better equipped to meet the changing needs of consumers and stay ahead of their competitors. Digital marketing's ability to provide personalized, data-driven, and

interactive experiences has made it an integral part of modern business strategies, and its importance of digital marketing will continue to grow in the future.

Research Gap: There is a need to explore how companies can integrate various digital technologies to create a better customer experience and how this affects consumer purchasing decisions (Ibiwumi et al., 2024).

2.2 The Role of Artificial Intelligence in Digital Marketing

Artificial Intelligence (AI) has dramatically transformed the digital marketing landscape, becoming a key pillar driving innovation and efficiency in modern marketing strategies (Ziakis & Vlachopoulou, 2023). Ziakis and Vlachopoulou (2023) stated that AI and machine learning algorithms have introduced new ways of performing predictive analyses and personalizations. Previously, marketers relied on limited data or manual observations to develop their strategies. However, with the advent of AI, the ability to analyze data at scale quickly and accurately has allowed companies to make more informed and data-driven decisions than before. As a result, AI has improved companies' ability to target more precise audiences, improved efficiency, and accelerated their response to changing dynamic market trends (Ziakis & Vlachopoulou, 2023).

Research Gap: Although there is a lot of research on AI in marketing, there is still a lack of understanding of how AI can be used to improve customer experience and how this affects brand loyalty (Ajina, 2019).

In the context of social media marketing, AI has revolutionized the way companies interact with their audience. Social media, as one of the main marketing channels, provides a huge volume of data that contains user behavior, preferences, and engagement levels. Without AI, these data are difficult to analyze and utilize to their full potential. However, with AI, companies can use machine-learning algorithms to analyze user behavior in real time. AI-based tools can monitor consumers' interactions with content, assess their sentiments, and recognize specific patterns that provide insights into how audiences respond to different types of messages or advertisements. This allows marketers to make dynamic adjustments, whether in the form of more relevant content, more engaging product offers, or more personalized ads (Liu et al., 2023).

Research Gap: Further research is required to explore the use of AI in understanding the psychological dynamics of consumer decision-making processes in the era of digital marketing (Sudirjo et al., 2024).

One of the key advantages of using AI in marketing is its ability to identify trends and patterns in big data that are often undetected by human analyses. AI can process large amounts of data, from consumer behavior on websites to interactions on social media platforms, and identify patterns that can be used to design more effective marketing strategies. For example, AI can predict purchasing trends based on historical data or analyze user interactions to tailor content in real time, ensuring that each consumer receives the most relevant message. In this case, AI not only improves the accuracy of the analysis but also provides the ability to tailor marketing approaches with more precision, improving the relevance and effectiveness of campaigns (Gao et al., 2018).

Research Gap: More research is needed to explore how AI can be used to improve the effectiveness of marketing campaigns across various industry sectors (Lamberton & Stephen, 2016).

Simion and Popescu (2023) showed that companies that integrate AI into their marketing strategies not only experience increased efficiency in data management but also record significant increases in consumer engagement and sales conversions. For example, using AI-driven behavioral analytics, companies can identify the audience segments with the highest potential for conversion and tailor their product or service offerings to make them more appealing to that audience. This creates a more personalized experience for consumers, which, in turn, increases retention and loyalty rates (Holloway, 2024).

Research Gap: More research is needed to understand the impact of AI use in marketing on consumer behavior and how this can be measured effectively (Karjaluoto, Mustonen, & Ulkuniemi, 2015).

In addition, AI provides great benefits in marketing automation. By leveraging AI to automate various marketing tasks, such as sending personalized emails or automatically targeting advertisements based on individual preferences, companies can save time and resources. This automation also allows companies to run more structured and measurable campaigns, ensuring that each marketing effort is not only more efficient but also more measurable in terms of the results.

Research Gap: There is a need to explore how AI-driven automation can improve customer experience and its impact on purchasing decisions (Sljivo and Poturak, 2021).

With the ability to quickly and accurately analyze big data, predict trends in consumer behavior, and personalize marketing content, AI has become a crucial tool for improving the effectiveness of digital marketing campaigns. Companies that adopt this technology are not only able to achieve better results in terms of engagement and conversions, but also position themselves to stay relevant in an increasingly competitive and rapidly changing market. Over time, the adoption of AI in digital marketing is expected to continue to grow, with increased sophistication and accuracy, allowing companies to interact with consumers more effectively and efficiently.

Research Gap: More research is needed to understand how companies can leverage AI to create added value in customer experience and increase brand loyalty (Widyatmoko 2022).

2.3 Integration of Big Data in Marketing Strategy

Big Data play a crucial role in data-driven marketing decision-making. According to Simion and Popescu (2023), companies that leverage Big Data in their marketing strategies can significantly improve user experience and campaign performance. The ability to collect, process, and analyze large amounts of data from various sources, such as social media, websites, and sales transactions, allows companies to tailor their campaigns to better suit the needs of different consumer segments. This personalized approach not only improves customer engagement but also increases the effectiveness of marketing efforts. Moreover, Gupta, Leszkiewicz, Kumar, Bijmolt, and Potapov (2020) show that the integration of Big Data with Artificial Intelligence (AI) can provide deeper insights into consumer behavior, improve marketing strategies, and provide a competitive advantage (Cunha, Pereira, Cardoso, Figueiredo, & Oliveira, 2024).

Research Gap: Although some studies have shown a positive relationship between Big Data and marketing, there is still a lack of understanding of how Big Data can be integrated with marketing strategies to improve customer satisfaction and loyalty (Ibiwumi et al., 2024).

Based on this insight, the second hypothesis that can be put forward is that the integration of Big Data and AI in marketing strategies will result in increased customer satisfaction and loyalty. This hypothesis is supported by the fact that when companies better understand customer preferences and behaviors through data-driven insights, they can create more relevant and engaging experiences for customers. This, in turn, builds stronger customer relationships and increases the likelihood of repeat business. In addition, Big Data allows companies to continuously monitor and adjust their marketing efforts in real time, ensuring that their strategies remain in line with changing customer expectations (Ravikumar et al., 2022).

Research Gap: More research is needed to explore how companies can leverage Big Data to improve customer experience and its impact on purchasing decisions (Rosário, 2022).

Fosso Wamba (2017) asserts that companies that use Big Data in their marketing strategies can improve the effectiveness of campaigns while reducing customer acquisition costs. By leveraging data analytics, companies can more efficiently identify high-value customers and focus their efforts on retaining them rather than spending excessive resources on acquiring new customers. This data-driven approach not

only results in cost savings but also supports long-term business growth and profitability, as it allows companies to build a loyal customer base and improve overall marketing ROI (Logalakshmi, Krishnan, & Maheswari, 2023).

Research Gap: More research is needed to explore how companies can use Big Data to optimize their marketing strategies and improve overall business outcomes (Mehmeti-Bajrami et al., 2022).

2.4 Challenges in the Application of AI and Big Data

While the benefits offered by AI and Big Data are enormous, there are also challenges and risks to be aware of. As explained by Mogaji, Soetan, and Kieu (2020), the use of AI in marketing can have a negative impact, especially on vulnerable consumers, where bias in algorithms can lead to discrimination. This emphasizes the importance of companies designing and implementing AI strategies that consider ethical principles and social responsibility. A poorly managed AI system can reinforce existing biases in society, ultimately exacerbating the marginalization of certain groups. Moreover, Davenport, Guha, Grewal, and Bressgott (2020) emphasizing the need for clear policies regarding privacy and algorithmic bias in AI applications. By establishing strong guidelines, companies can ensure that AI technology is used in a way that respects the right to privacy and reduces discriminatory outcomes while building public trust in these systems (Oanh, 2024).

Research Gap: More research is needed to explore how companies can address the ethical challenges associated with the use of AI and Big Data in marketing and how this can affect consumer trust (Lawal & Binuyo, 2022).

Another challenge that companies face in the application of AI and Big Data is the lack of skills and knowledge among marketing staff. Many companies still struggle to find and retain talent with the analytical skills necessary to utilize this technology effectively. According to Bughin, Seong, Manyika, Chui, and Joshi (2018), companies that do not have the right competencies in data analysis will find it difficult to compete in an increasingly data-driven market. In this rapidly evolving landscape, having professionals skilled in analyzing and interpreting data is essential for gaining a competitive advantage. To address this, companies must invest in training programs and build a workforce that is not only technically proficient but also able to understand the strategic implications of data analysis. Without these skills, even the most advanced AI and Big Data systems will be wasted, limiting their potential to drive business growth (Jayanthi, 2025).

Research Gap: More research is needed to explore how companies can develop the skills and knowledge of their staff to effectively utilize AI and Big Data in marketing strategies (Gillpatrick, 2019).

2.5 The Role of AI in Personalization and Customer Experience

One of the most exciting aspects of AI in digital marketing is its ability to improve personalization and customer experience, which has been key to creating more effective interactions between brands and consumers. According to Khatri (2021), AI-powered analytics have transformed the way marketers design digital strategies. AI allows marketers to not only better understand consumer behavior but also design more relevant and engaging experiences, thus creating deeper relationships with customers. By leveraging granular consumer behavior data, companies can deliver tailored content and more targeted offers, which, in turn, increases conversion rates and customer loyalty (Zaripova, Kosulin, Shkinderov, & Rakhmatullin, 2023).

Research Gap: Although research has demonstrated the benefits of AI-based personalization, there is still a lack of understanding of how personalization can influence consumer purchasing decisions and how this can be measured effectively (Alanmi & Alharthi, 2023).

Adeleye et al. (2024) assert that by leveraging AI-based digital marketing analytics, organizations can make smarter, more strategic, data-driven decisions. This not only allows them to target a more specific audience but also to maximize their return on investment (ROI) more efficiently. These data-driven

decisions lead to the creation of more effective campaigns and minimal risk of errors, as marketers can rely on real-time data to adjust their tactics (Kamkankaew et al. 2024).

Research Gap: More research is needed to explore how data-driven decisions can be optimized to improve customer experience and their impact on brand loyalty (Wibowo & Haryokusumo, 2020).

Additionally, AI-driven personalization introduces new ways for companies to improve their overall customer experience. For example, e-commerce platforms such as Amazon and Netflix have successfully leveraged AI technology to recommend relevant products or content based on customers' purchase history and browsing behavior. Research by Arora, Lund, Naren, Zingarelli, and Naren (2020) shows that effective personalization not only improves customer satisfaction but also has the potential to drive stronger brand loyalty. When customers feel that their experience is tailored to their preferences and needs, they are more likely to return, which increases the chances of repeat purchases and strengthens long-term relationships with the brand (De Bruyn, Viswanathan, Beh, Brock, & Von Wangenheim, 2020).

Research Gap: More research is needed to understand how AI-based personalization can be applied across different sectors and its effects on consumer behavior (Khairani & Fachira, 2021).

2.6 AI and Big Data in Content Development

AI has played an increasingly important role in marketing content development, which is not just focused on content creation, but also on larger strategies to attract audiences (Hawa et al., 2023; Seif, 2024) observed that the use of AI in marketing is now becoming more widespread, with companies leveraging this technology to produce content that is more engaging, relevant, and tailored to the needs of their audience. AI allows marketers to analyze consumer data in depth, identify patterns of preferences and behaviors, and provide useful insights into creating content that not only engages but also touches the emotional and functional needs of the audience. This provides an opportunity for companies to manage customer experience more efficiently, build stronger and more personal relationships, and ultimately increase customer loyalty and conversions (Seif, 2024).

Research Gap: Despite advances in the use of AI for content development, there remains a lack of understanding of how AI-generated content can influence consumer behavior and how this can be measured effectively (Buratti, Parola, & Satta, 2018).

In addition, Choi, Wallace, and Wang (2018) show that Big Data analytics, often combined with AI technology, can be used to more accurately understand customer preferences and behaviors. With this information, companies can develop more relevant and precisely targeted content for specific audiences. This increased relevance affects the customer's perception of the brand and increases the effectiveness of the digital marketing strategy implemented.

Research Gap: More research is needed to explore how the combination of AI and Big Data can be used to improve content development and its impact on consumer purchasing decisions (Masrianto, Hartoyo, Hubeis, & Hasanah, 2024).

The use of AI in content development also creates opportunities for automating the content creation process, which previously required considerable time and human effort. AI-based tools, such as automated product description generators, blog article creators, and customized social media content generators, can now be produced quickly and efficiently. By using AI, companies can save time and resources while still producing high-quality content that aligns with their audience's trends and preferences. As such, AI is not only changing the way content is created, but also the way companies interact and build long-term relationships with their customers.

Research Gap: More research is needed to understand how AI-driven content automation can be optimized to improve the user experience and its impact on consumer behavior (Guan, 2023).

3. Research methodology

This study used a comprehensive literature review. This study collects and analyzes a variety of relevant literature sources, including journal articles, industry reports, and case studies related to the use of AI and Big Data in digital marketing. This process involves identifying, selecting, and evaluating existing literature to gather in-depth information regarding the topic being researched.

This literature review was conducted using academic databases to identify relevant articles. Keywords used in searches include "digital marketing," "artificial intelligence," "big data," "marketing strategy," and "customer experience." After collecting relevant articles, the author conducted a critical analysis of the existing findings to identify trends, challenges, and opportunities in the application of AI and Big Data in digital marketing.

Data Analysis: This study used a qualitative approach. The qualitative method was chosen because it allows researchers to explore and understand complex phenomena, such as the application of AI and Big Data in digital marketing, from a more in-depth perspective. Using this approach, researchers can identify nuances and contexts that may not be visible in a quantitative analysis.

Interview Methods: In addition to literature reviews, the study involved interviews as the primary method of collecting data. Interviews were chosen because they provide an opportunity to gain first-hand insights from experts and practitioners in the field of digital marketing. Through interviews, researchers can delve into the experiences, views, and challenges faced by individuals involved in the application of AI and Big Data in their marketing strategies. This method is in line with the research objectives of those who want to understand how these technologies are applied in practice and their impact on customer experience.

Interviews will be conducted using a semi-structured interview guide, which allows flexibility in exploring relevant topics while maintaining a focus on the research question. With this approach, researchers can collect rich and diverse data, which will be analyzed thematically to identify patterns and themes that emerge from the respondents' experiences.

Thus, the methodology used in this study combines a comprehensive literature review with qualitative interviews, providing a holistic approach to understanding the application of AI and Big Data in digital marketing. This research is expected to make a significant contribution to the understanding of how this technology can be leveraged to improve marketing strategies and customer experiences.

4. Result and discussion

The results of this study show a positive relationship between the use of AI in digital marketing strategies and the effectiveness of marketing campaigns. Respondents who used AI reported significant improvements in consumer engagement and sales conversions. In addition, the integration of Big Data and AI has been proven to improve customer satisfaction and loyalty. Companies that adopt this technology are also better able to adapt to market changes and dynamic consumer requirements. This shows that leveraging AI and Big Data allows companies to stay ahead of the increasingly fierce competition by understanding consumer behavior and market trends more efficiently.

Further discussion revealed that although the application of AI and Big Data presents certain challenges, such as privacy concerns and algorithmic bias, the benefits obtained are much greater. Companies that successfully address these issues can leverage technology to create a better customer experience and improve operational efficiency. By integrating AI-generated insights into their marketing strategies, companies can improve decision-making, generate more targeted and personalized campaigns, and become more relevant to their audiences.

One of the key findings of this study is that companies that use AI and Big Data in their marketing strategies are better able to respond quickly to changes in consumer behavior. Real-time analytics allow companies to identify emerging trends and patterns so that they can tailor campaigns according to the

changing needs of consumers. This is in line with research conducted by Chaffey and Ellis-Chadwick (2019), which shows that companies that use data analytics to inform their marketing decisions can significantly increase their return on investment (ROI). By monitoring and adjusting strategies on an ongoing basis, companies can ensure that their marketing efforts remain relevant and effective despite changing consumer preferences.

However, challenges remain in the application of this technology. Many companies still struggle to integrate AI and Big Data into their marketing strategies. Bughin et al. (2018) show that one of the main obstacles to the adoption of this technology is a lack of skills among marketing staff, which hinders their ability to harness the full potential of AI and Big Data. Therefore, companies must invest in training and skill development programs for their marketing teams. This type of investment not only helps companies address knowledge gaps but also ensures that employees are equipped with the ability to use these advanced technologies effectively, thereby maximizing the value they can provide to the organization. By prioritizing continuous learning and upskilling, companies can create a culture of innovation and remain at the forefront of the digital marketing world.

4.1 Case Studies

To provide a clearer picture of the application of AI and Big Data in digital marketing, several case studies can be added. For example, e-commerce companies, such as Amazon, have successfully used AI to improve customer experience through personalized product recommendations. By analyzing customer behavior data, Amazon can present relevant products to users, which in turn increases the conversion rates and sales. Research by Chen, Min, Zhang, Ma, and Evans (2021) shows that this strategy not only increases customer satisfaction but also encourages brand loyalty.

Another interesting case study is Netflix's use of Big Data to understand audience preferences. By analyzing data from millions of users, Netflix can develop content that matches the interests of its audience, which helps the company retain and attract new customers.

4.2 Market Trend Analysis

In addition to digital marketing, AI, and Big Data have become important components in shaping modern business strategies, and to stay at the forefront, an analysis of emerging trends is essential. One of the growing trends is the use of AI-based chatbots for customer service. The chatbot is designed to provide fast, efficient, and personalized responses to customer queries, significantly improving customer experience. By doing so, companies can handle more customer interactions, simplify support processes, and reduce operational costs. Gnewuch, Morana, and Maedche (2017) showed that customers tend to be more satisfied with interactions through chatbots than with traditional service methods, mainly because of convenience and 24/7 availability. This development is further driven by advances in natural language processing (NLP), which allow chatbots to provide increasingly sophisticated and contextual responses. As companies increasingly prioritize customer experience, the use of AI-based chatbots is expected to continue to grow, with many companies integrating them into multichannel support systems, such as websites, social media, and messaging platforms.

Another trend worth noting is the increasing use of video marketing, which is growing in popularity along with the rapid growth of platforms such as YouTube and TikTok. Video content is proving to be one of the most engaging and impactful ways for brands to connect with their audience, allowing companies to convey their messages in a more dynamic and creative way. The visual and auditory nature of videos often creates a deeper emotional bond, making them a highly effective tool for building brand awareness and customer conversion. According to Wyzowl (2021), 84% of consumers claim to be influenced to buy a product after watching a brand video. These statistics highlight the huge potential of video marketing as a conversion driver, showing how important it is for companies to integrate video content into their digital marketing strategies. From product demonstrations to behind-the-scenes footage and customer testimonials, videos allow brands to showcase their products and services in a way that static text or images cannot. With these insights, it is clear that integrating video marketing into an overall digital strategy is essential to remain competitive and relevant in today's fast-paced market.

These two trends, namely the use of AI-based chatbots and increasing reliance on video marketing, reflect a broader shift in digital marketing towards personalization, automation, and more interactive experiences. As AI and Big Data evolve, companies are increasingly able to leverage these technologies to provide more targeted content, engage with customers more effectively, and optimize their marketing efforts to drive growth.

4.3 Interviews with Practitioners

Interviews with marketing practitioners who use AI and Big Data in their work can also provide valuable practical perspectives. For example, a marketing chief at a tech company can share their experience applying AI to data analysis and marketing strategy development. This can provide insights into the challenges faced, successes achieved, and lessons learned during the process. Pham et al. (2014) demonstrated that involving stakeholders in the research process can help identify new issues that may not have been published in the literature.

4.4 Comparison with Traditional Methods

Comparisons between AI-driven digital marketing and Big Data with traditional marketing methods are also important. Traditional methods often rely on a one-way approach, where companies send messages to consumers without receiving immediate feedback. In contrast, AI-and big data-driven digital marketing allows for two-way interactions, where companies can better listen to and respond to consumer needs. Research by Hines, Yu, Guy, Brand, and Papaluca-Amati (2019) shows that this data-driven approach can improve campaign effectiveness and reduce marketing costs.

4.5 Ethical Implications

Expanding the discussion on the ethical implications of using AI and Big Data in marketing is also important. Companies should consider how they collect and use consumer data and the potential risks associated with privacy and algorithmic bias. Mertz, Kahrass, and Strech (2016) show that transparency in data processing and data-driven decision-making is key to building consumer trust. Therefore, companies must develop clear policies regarding data use and ensure compliance with applicable regulations.

4.6 The Future of Digital Marketing

Finally, discussions on the future of digital marketing, considering the rapid development of technology, are also important. With advancements in technologies such as blockchain, augmented reality (AR), and virtual reality (VR), companies have new opportunities to interact with their consumers. Aguinis, Ramani, and Alabduljader (2018) show that the adoption of this new technology can provide a significant competitive advantage for companies that can adapt quickly. Therefore, marketers must continue to explore and adopt new technologies to remain relevant in an ever-changing market.

5. Conclusion

The evolution of digital marketing, driven by AI and Big Data, has paved the way for more sophisticated and data-driven marketing strategies. Although challenges and risks remain, the benefits offered by this technology are significant. Companies that can leverage AI and Big Data in their marketing strategies will have a strong competitive advantage in an increasingly complex and dynamic market. Therefore, marketers must continue to explore and adopt new technologies to remain relevant and effective in achieving their marketing goals.

This study provides valuable insights into how AI and Big Data can be used to improve marketing effectiveness and customer experience. By understanding the role of this technology, companies can formulate better strategies and respond to the changing needs of consumers. In addition, this study highlights the importance of addressing the challenges faced in the application of this technology to ensure that companies can harness the full potential of AI and Big Data.

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