Artificial Intelligence Implementation in E-Marketing: A Systematic Literature Review and Bibliometric Analysis

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ABSTRACT

Artificial Intelligence (AI) has recently gained considerable attention and is being increasingly applied across various fields. One of the most rapidly growing areas is marketing, particularly in the development of e-marketing in many companies. The purpose of this article is to review various studies related to artificial intelligence and e-marketing by presenting a comprehensive discussion. The reviewed works consist of 82 studies published between 2018 and 2025. The data analysis focuses on methods applied, findings, strengths, and limitations. In addition, a bibliometric analysis was conducted to complement the review. A total of 500 articles related to artificial intelligence implementation in e-marketing were collected from Google Scholar, Emerald, Elsevier, ScienceDirect, and Scopus, and processed using VosViewer to support the findings. The combined analysis highlights key challenges and identifies future research opportunities in the field of artificial intelligence and e-marketing. Results from studies highlight several benefits of AI, including its potential to revolutionize marketing strategies, introduce new innovations, enhance personalization and customer experience, optimize operational efficiency, and improve overall company performance. The results reveal various research limitations that may help future researchers develop new theoretical and methodological insights. In addition, this study provides valuable information and knowledge for companies seeking to implement artificial intelligence in e-marketing.

Keywords*: Artificial Intelligence, E-Marketing, Marketing, Marketing Strategies.*

INTRODUCTION

The rapid advancement of technology over the past decades has brought significant transformations across various fields, including marketing. One of the most prominent innovations is the implementation of Artificial Intelligence (AI) in e-marketing. AI has emerged as a highly effective tool in assisting companies to better understand consumer behavior and deliver more personalized customer experience (Rabby et al., 2021; Raju et al., 2022; Sadeq et al., 2023). With its ability to analyze data on a large scale and at high speed, AI enables marketers to make more accurate and efficient decisions, thereby enhancing the effectiveness of digital marketing strategies. In the future, AI is expected to become a highly essential component for businesses (Naji, 2022; Alqurashi et al., 2023; Wilson et al., 2024). The continuously evolving trend of AI-driven automation signifies a major shift within the AI domain (Alqurashi et al., 2023). In recent years, new technologies have revolutionized digital marketing by enabling more efficient and effective strategies, with AI being one of the key technologies that allows marketers to optimize both efficiency and effectiveness (Anca, 2023).

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The rise of social media, greater internet penetration, and the exponential growth of data have propelled digital marketing to a higher level (Bhatt, 2024). AI enables marketers to automate processes, better understand complex consumer behavior, and optimize marketing campaigns in ways that were previously unattainable (Adami, 2015; Makki, 2023; Arshad et al., 2024). Organizations generally aim to assess the extent of their market size and resources in order to ensure sales growth. Therefore, companies must secure both the attractiveness and retention of potential customers to achieve long-term profitability (Bouchra, 2021). E-marketing encompasses a wide range of marketing activities designed to reach target audiences, engage them, and achieve business objectives through digital technologies (Efendioğlu, 2023). Digital marketing offers various advantages, including the ability to reach a broader audience, personalized marketing approaches, real-time measurement and analysis, and higher conversion rates.

AI has strong potential to automate digital marketing processes, identify potential customers, deliver personalized offers, and improve sales conversions (Efendioğlu, 2023). AI-driven digital marketing strategies help companies gain competitive advantages, improve business performance, increase sales, and enhance Return on Investment (ROI) (Behera et al., 2024; Bhatt, 2024; Khemnar, 2025). In the era of digitalization, companies increasingly use online platforms such as social media, websites, and blogs to engage consumers effectively, while creative content strengthens brand identity (Makrides et al., 2020). Moreover, AI improves operational efficiency by automating marketing tasks, reducing both time and costs (Peyravi et al., 2020; Bhatt, 2024; Potwora et al., 2024).

AI supports businesses in marketing products and services through better data utilization and more personalized marketing strategies. In e-marketing, AI not only automates processes but also strengthens brand–consumer interactions and enhances business growth and profitability (Fayed, 2021). Companies are encouraged to leverage AI technologies to improve marketing plans and strategic decision-making, including identifying opportunities, analyzing competitors, allocating budgets, and monitoring implementation (Fayed, 2021; Kumar et al., 2024). Therefore, optimizing AI in e-marketing is essential for creating greater value and achieving better business outcomes.

Despite the numerous benefits of AI implementation in e-marketing, businesses may still face challenges and barriers. These include high costs, limited supporting infrastructure, lack of skilled human resources, and employee resistance (Rabby et al., 2021; Razak, 2023). Moreover, AI technology still has limitations, as it cannot fully replace human creativity or emotional context. Although AI improves efficiency and personalization, challenges such as contextual limitations and the risk of diminishing genuine human interaction remain (Sumitha, 2022). Furthermore, limited studies have comprehensively examined the evolution, research trends, and future opportunities of AI implementation in e-marketing from both theoretical and practical perspectives. This gap highlights the urgency of conducting a broader analysis, considering the rapid development of AI technologies and the increasing dependence of businesses on digital marketing strategies to maintain competitiveness. Therefore, this study aims to analyze the development of previous research on artificial intelligence implementation in e-marketing, identify major research trends and challenges, and explore future research opportunities related to the integration of AI in e-marketing.

LITERATURE REVIEW

Artificial Intelligence

AI has attracted considerable scholarly attention for decades, reflecting the strong and ongoing human interest in this technology (Schmager et al., 2025). AI can be understood as the capability of machines to execute tasks that normally require human intelligence, including activities ranging from basic data processing to complex decision-making (Moosa, 2025). It is commonly characterized as the ability of machines to perform cognitive processes similar to those of humans, such as perception, reasoning, learning, environmental interaction, problem-solving, decision-making, and creativity (Rai et al., 2019). Furthermore, AI involves autonomous non-biological systems that combine

perception, reasoning, learning, and action in ways that may imitate or even exceed human capabilities (Belk et al., 2023). According to Sheikh et al. (2023), AI represents a system capable of displaying intelligent behavior through environmental analysis and autonomous actions aimed at achieving particular objectives. Unlike human intelligence, AI primarily depends on high-speed data processing. In essence, AI is developed to replicate human abilities while potentially outperforming humans in terms of precision, memory capacity, and processing speed (Dwivedi et al., 2019; Flavián et al., 2022).

Nevertheless, ethical issues continue to hinder the broader implementation of AI in business environments (Maiti et al., 2025). As a result, the concept of ethical AI has emerged, referring to the responsible use of AI aimed at supporting employees and organizations while ensuring equitable outcomes for customers and society (Fitriastuti et al., 2019; Eitel-Porter, 2021). Machucho and Ortiz (2025) emphasize that AI offers significant benefits in supporting corporate strategic planning processes. In addition, the adoption of AI has the potential to transform how companies engage and communicate with their customers (McLean & Frimpong, 2019). Consequently, marketing has become one of the key areas where AI applications are rapidly expanding.

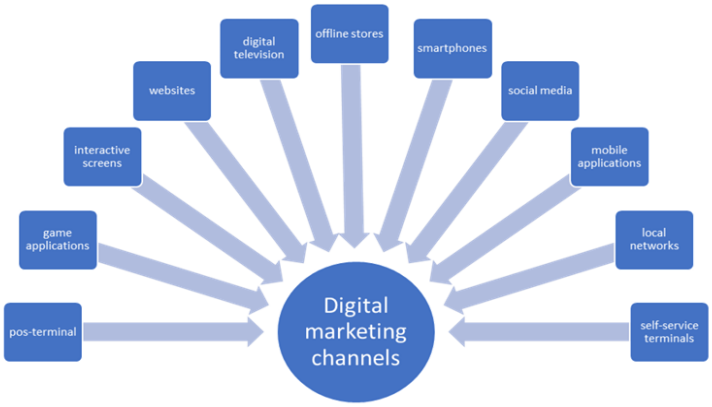
Source: Haleem et al. (2022)

Figure 1. Several Segments of AI Applications in the Marketing Domain

According to Saleem et al. (2022), as illustrated in Figure 1, several segments for AI applications in the marketing domain include pricing management, strategy and planning, production management, and promotion management. AI-based systems in marketing can be further linked to product design and customer needs, real-time price variation and fluctuating demand, place management, as well as targeting and positioning.

E-Marketing

Marketing analysis and organizational marketing capabilities are considered important sources of competitive advantage (Cao et al., 2025). The advancement of digitalization has significantly changed the ways products and services are researched, designed, produced, distributed, and marketed within the marketplace (Kumanova-Larde & Hristov, 2019). Kotler (2021) describes e-marketing as a company's effort to provide information, communicate, promote, and market products and services through the internet. Similarly, Sadeq et al. (2023) define electronic marketing (e-marketing) as a contemporary business philosophy and practice that focuses on marketing goods, services, information, and ideas using the internet and other electronic platforms. In addition, Sokolova and Titova (2019) state that digital marketing involves a range of activities and practices that apply marketing principles through the use of information and communication technologies along with electronic devices.



Source: Săracu and Susanu (2023)
Figure 2. Digital Marketing Channels

As illustrated in Figure 2, Săracu and Susanu (2023) identify various digital marketing channels, including websites, digital television, smartphones, social media platforms, gaming applications, mobile applications, local networks, interactive displays, point-of-sale systems, and self-service terminals. In practice, many businesses primarily utilize social media platforms such as Facebook and WhatsApp for promotional activities, while the adoption of e-commerce platforms remains limited due to challenges such as high shipping costs, limited human resources, and weak content management strategies (Karundeng & Suyanto, 2025). Furthermore, Istianingsih and M (2025) found that digital marketing strategies positively influence sales performance, highlighting the importance for businesses to integrate brand-building efforts with targeted marketing strategies in order to maximize short-term sales and long-term customer retention.

RESEARCH METHODS

The method used in this article is a qualitative literature review to analyze the research developments related to the implementation of artificial intelligence in e-marketing, complemented by a bibliometric analysis to strengthen the findings. Several stages of data processing were conducted until the conclusions were drawn. First, collecting articles related to artificial intelligence in e-marketing. The next step is analyzing the selected articles by reviewing their methodologies, results, strengths, and limitations, followed by a bibliometric analysis. The third stage was drawing conclusions and identifying opportunities for future research. Data from various journals published between 2018 and 2025 relevant to the research topic were identified, and a total of 82 selected articles were analyzed further in the literature review. In addition, a bibliometric analysis was conducted as supporting evidence and comparative insights using 500 articles from 2018–2025 sourced from Google Scholar on the topic of artificial intelligence in e-marketing.

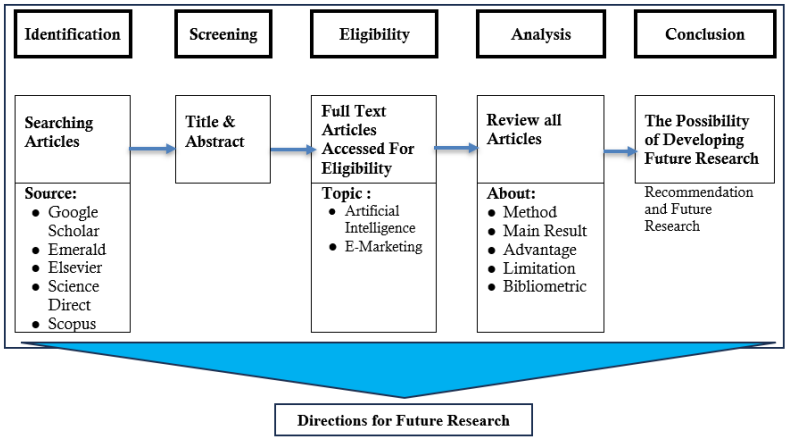


Figure 3. Review Method

The data sources and collection procedures in this study followed a systematic literature review approach, as illustrated in Figure 3. The data were collected from several reputable academic databases, including Google Scholar, Emerald, Elsevier, ScienceDirect, and Scopus. The identification stage involved searching for relevant articles related to artificial intelligence and e-marketing using selected keywords and combinations of search terms. Subsequently, the screening process was conducted by reviewing article titles and abstracts to ensure their relevance to the research topic. In the eligibility stage, full-text articles were accessed and evaluated based on predefined inclusion criteria, particularly studies focusing on AI implementation in e-marketing. The selected articles were then analyzed comprehensively by examining research methods, main findings, advantages, limitations, and bibliometric aspects. This procedure enabled the study to synthesize previous research systematically and identify future research directions regarding the integration of artificial intelligence in e-marketing.

RESULTS

Systematic Literature Review Analysis

Table 1 presents a systematic overview of previous studies on artificial intelligence in e-marketing. The summary covers the methods used, key findings, critical reviews, and future research directions.

Table 1. Summary of Studies on Artificial Intelligence Implementation in E-Marketing

Author(s)	Methodology	Findings
Dimitrieska et al. (2018)	Descriptive Research and Trend Analysis	AI transforms marketing via smarter searches and more effective advertising.
Yang and Siau (2018)	A Qualitative Case Study	AI revolutionizes marketing/sales with ethical and workforce implications.
Thomassey and Zeng (2018)	Ordinal Logistic Regression	AI enhances efficiency in the fashion industry's manufacturing and supply chains via demand prediction.
Khokhar (2019)	Descriptive, Quantitative, and Conceptual Approach	AI marketing is more efficient than traditional marketing, with consumer awareness of real-time personalization and chatbots.
Gkikas and Theodoridis (2019)	Qualitative Methods	Proposes a machine learning model applicable to various digital marketing methods.
Kumanova-Larde and Hristov (2019)	Literature Analysis and Case Studies	Digital marketing (especially social media & content) improves e-business visibility and sales.
Ruan and Siau (2019)	Qualitative Approach	AI and machine learning enhance marketing effectiveness and customer experience, though integration challenges exist.
Shahid and Li (2019)	Qualitative Approach	AI improves business performance by understanding customer needs, but implementation challenges must be considered.
Soni et al. (2019)	Literature Analysis	AI accelerates business growth, especially for start-ups.
Jarek and Mazurek (2019)	This Study Draws on Secondary Data.	AI influences all marketing mix elements and increases consumer value, but implementation remains cautious.
Stone et al. (2019)	Literature Review and Consultations with Marketing Experts	AI has great potential to enhance marketing effectiveness, but current implementation in strategic decisions is minimal.
Peyravi et al. (2020)	Systematic Literature Review	AI provides faster shopping, strengthens consumer-brand relationships, and impacts marketing mix and strategies.
Khrais (2020)	Word Cloud Analysis	Explainability in AI relates to model, explanation, and use; XAI increases user and business engagement.
Basri (2020)	Quantitative, PLS-SEM	AI-SMM positively influences SME performance, with business management as mediator (explains 92.1% variance).
Eriksson et al. (2020)	Qualitative, Exploratory Approach	AI can enhance, replace, or complement human decision-making in marketing, but organizations remain unprepared.
Lasi and Salim (2020)	A Conceptual Approach	E-marketing elements significantly influence integrated marketing communications and strategy effectiveness.

Author(s)	Methodology	Findings
Bouchra (2021)	Combination of Qualitative and Quantitative Methods.	Consistent digital marketing strategies significantly contribute to sales growth.
Fayed (2021)	Quantitative Approach, Multiple Regression, and Friedman Test Analyses.	AI helps set marketing goals, prepare budgets, and evaluate/control marketing plans.
Thilagavathy and Kumar (2021)	Descriptive, Quantitative, and Empirical Approach.	AI transforms consumer behavior via personalization, efficiency, and user experience, increasing profitability.
Rabby et al. (2021)	Systematic Literature Analysis.	AI enhances customer experience and buying behavior, but requires robust IT infrastructure and customer understanding.
Verma et al. (2021)	Literature Review and Bibliometrics, Secondary Data.	Significant growth in AI marketing publications; Expert Systems with Applications is the leading journal.
Mustak et al. (2021)	Latent Dirichlet Allocation (LDA) Algorithm	Key topics: consumer sentiment analysis, customer satisfaction, eWOM; identifies relationships among studies.
Jain et al. (2021)	Descriptive Analysis	E-commerce enhances efficiency in developing countries; trust and familiarity influence adoption.
Chintalapati and Pandey (2022)	Systematic Literature Review	The human aspect is important in AI implementation; ethical and privacy challenges need further exploration.
Huang and Rust (2022)	Analytical and Exploratory Approach	AI + human intelligence enhances consumer experience; AI optimizes decisions via data analysis and emotion modeling.
Raju et al. (2022)	Qualitative and Approach	AI transforms digital marketing by enhancing efficiency, understanding consumer behavior, and personalizing experiences.
Naji (2022)	Descriptive and Quantitative Approach	AI supports faster, lower-risk decision-making in digital marketing, given data complexity.
Sabharwal (2022)	Quantitative Design with a Cross-Sectional Approach.	AI positively relates to digital advertising, cost leadership, differentiation, customer acquisition, and retention.
Sumitha (2022)	Exploratory Research Methodology	AI offers advantages in data collection and analysis for customer behavior, but a balance with traditional approaches is needed.
Hermann (2022)	Systematic Search Approach	AI benefits society but poses risks to vulnerable consumers; it emphasizes ethics, transparency, fairness, and accountability.
Wen et al. (2022)	Case Study Method	AI enhances computational advertising via big data analysis and content customization; scenario-based strategies help.
Bawack et al. (2022)	Bibliometric Analysis	Four AI e-commerce categories: applications, technological issues, support, and implementation. Most published: optimization, trust, personalization, sentiment analysis.
Cheng and Jiang (2022)	Structural Equation Modeling	Significant relationships among corporate marketing efforts, credibility, accuracy, competence, and customer responsiveness.
Alqurashi et al. (2023)	Both Qualitative and Quantitative Methods; Surveys, PLS	AI enhances marketing effectiveness, serves as innovation, and improves consumer engagement and experience.
Anca (2023)	Qualitative Approach	AI revolutionizes digital marketing via personalization, efficiency, and customer experience; it must consider ethics and accountability.
Efendioğlu (2023)	Bibliometric Analysis	Machine learning analyzes consumer behavior accurately, enhancing marketing effectiveness and customer satisfaction.
Basha (2023)	Qualitative Approach	AI benefits: increased efficiency, time savings, higher conversion rates, and better customer understanding. Ethical considerations needed.

Author(s)	Methodology	Findings
Mao (2023)	Bibliometric and Content Analysis	AI enhances company performance and fosters collaboration across marketing domains.
Razak (2023)	Qualitative Approach	Companies need large, diverse datasets, data quality, infrastructure investment, and employee training for effective AI integration.
Sadeq et al. (2023)	Descriptive-Analytical Approach; Statistical Methods	AI (motion navigation, bots, expert systems) enhances customer experience, operational efficiency, dynamic pricing, and competitive advantage.
Săracu and Susanu (2023)	Qualitative Approach	AI impacts marketing services via big data analysis; marketers must integrate AI into promotional policies.
Singh et al. (2023)	Quantitative Study, Pearson's R, and Spearman's Correlation	AI transforms social media marketing, enhances strategy efficiency/effectiveness, and creates new business opportunities.
Stăncioiu et al. (2023)	Interview Techniques: Qualitative	Integrated IT and AI systems enhance SME efficiency and customer interaction despite high initial investment.
Wang et al. (2023)	Positivist Approach	Trust positively impacts perceived ease of use and attitudes toward AI in e-commerce; behavioral intentions affect actual usage.
Ziakis and Vlachopoulou (2023)	PRISMA, Bibliometrics, and Meta-Analysis.	Seven main clusters: AI/ML algorithms, social media, consumer behavior, e-commerce, digital advertising, budget optimization, and competitive strategy.
Makki (2023)	Systematic Literature Review	AI revolutionizes digital marketing, enhances engagement and conversion rates, but challenges and risks exist.
Arshad et al. (2024)	Quantitative Approach; Surveys	AI significantly enhances digital marketing campaigns (SEO, PPC, social media) with statistically significant results.
Ali Alqudah et al. (2024)	Survey Method with a Quantitative Approach.	AI positively impacts e-marketing, consumer behavior modeling, and market trend forecasting as a key marketing success component.
Bhatt (2024)	Comprehensive Literature Review, Case Studies	AI enhances personalization efficiency, user engagement, and ROI in understanding consumer behavior.
Dutta et al. (2021)	Descriptive Method	Age and occupation significantly relate to AI awareness in e-marketing; AI implementation positively affects awareness.
Kalu and Nwakaego (2024)	Survey Design	AI via data mining and machine learning enhances e-commerce adoption; predicts trends, supports decision-making, and encourages digital marketing participation.
Kumar et al. (2024)	Systematic Review, PRISMA Framework, Meta-Analysis	Generative AI transforms digital marketing via personalization, operational efficiency, and data-driven strategies.
Labib (2024)	Systematic Review	AI-adopting organizations gain a competitive advantage through operational efficiency and innovative marketing; trust-building essential.
Madanchian (2024)	Critical Review Methodology	AI-based marketing improves marketing performance metrics; social and psychological factors influence the adoption of AI tools.
Potwora et al. (2024)	Systematic Review and Thematic Analysis	AI transforms operational efficiency (automation, data analysis, personalization); ethical challenges regarding consumer privacy arise.
Suraña-Sánchez and Muneta (2024)	Bibliometric Analysis	Performance analysis and knowledge mapping are essential for understanding scientific impact; AI enhances customer engagement.
Wilson et al. (2024)	Qualitative Methodology and Thematic Analysis	AI transforms digital marketing via targeting, personalization, and campaign efficiency; ethical implications must be considered.
Abrokwah-Larbi and Awuku-Larbi (2024)	Survey Strategy, SEM-PLS	AI positively impacts SME internal processes, financial performance, customer outcomes, and growth (via IoT, CDMS, VAR, and personalization).
Bravo and Iturralde (2024)	Bibliometrics Analysis	Company size, managerial capability, and financial resources influence textile company growth; VOSviewer provides insights.

Author(s)	Methodology	Findings
Al-Ababneh et al. (2024)	Economic-Statistical Analysis; Causal Relationships, Assessing Population Homogeneity.	Emphasizes the importance of AI in digital marketing and logistics; a comprehensive methodology is needed to manage modifications.
Al-zuhair (2024)	Descriptive Approach with a Survey Method.	AI applications require an understanding of AI concepts to enhance marketing effectiveness and club member engagement in Kuwaiti sports clubs.
Mohiuddin Babu et al. (2024)	Mixed-Methods	Highlights the importance of AI adoption in the textile industry; collaboration between academics and practitioners enhances implementation.
Suchanová (2024)	Mixed-Methods Approach with an Explanatory Sequential, Thematic Analysis	Digital Marketing Playbook helps educational institutions increase brand awareness and enrollment via Google tools.
Žyla (2024)	Experimental Methodology.	ChatGPT consistently outperforms Google Gemini in code quality and marketing content appeal.
Raid et al. (2024)	Quantitative Approach	AI positively impacts customer interactions and satisfaction in the Saudi context.
Zakaria et al. (2024)	Conceptual Approach with a Literature Review	AI enhances digital marketing via product development, relevant advertising, and audience data analysis, promising a technology-driven future.
Le et al. (2024)	Quantitative Approach; Surveys	KOCs positively influence behavioral intentions and product adoption on TikTok (Uses & Gratifications theory); AI recommendations influence purchase decisions.
Shoukat et al. (2025)	Quantitative; SEM-PLS	Perceived usefulness mediates negative psychological factors and behavioral intentions; it influences consumer decisions to use commercial social apps.
Billel et al. (2025)	Descriptive and Analytical Methods.	AI applications significantly positively impact digital marketing effectiveness; companies gain insights into AI integration importance.
Alrubaye and Adnan (2025)	Literature Review and Case Studies	AI (recommendation systems, chatbots) improves targeting and customer experience; cultural factors and trust influence adoption.
Stancu and Panait (2025)	Azure Text Analytics	AMSDM delivers comprehensive analysis and actionable recommendations for marketing strategies from consumer feedback.
Kwajaffa and Balami (2025)	Qualitative Research Approach	AI enhances company performance and profitability; it provides insights into the challenges and opportunities of AI implementation.
Bachina and Kanagala (2025)	Mixed-Methods Approach	AI positively influences buyer behavior in online pharmacy apps; ease of use plays crucial mediating role.
Gündüzyeli (2025)	Literature Review	Social media technologies and AI support adaptive and sustainable marketing strategies during crises.
Olan et al. (2025)	Quantitative-SEM	XAI and resilience enhance B2B marketing for social entrepreneurship; entrepreneurial engagement mediates XAI and value creation.
Reeyazati and Samizadeh (2025)	PRISMA Methodology	Proposes a new theoretical framework for machine learning applications in targeted advertising.
Cao et al. (2025)	Mixed-Method Design; Random Forest Approach and Empirical Analysis.	AI increases firm TFP by 0.046 units per unit of AI; innovation capability mediates; younger TMT strengthens the positive effect.
Ikhsan et al. (2025)	Mixed-Methods Approach.	AI with 3D printing enhances clinical training via precise anatomical replicas; it addresses limitations of traditional methods.
Kusumawati and Subagiyo (2025)	Quantitative Approach	AI significantly impacts MSME performance (contributes 85%); organizational culture and business strategy also influence performance.
Ibrahim et al. (2025)	Systematic Approach	Ongoing research is needed to understand the long-term AI impact on nursing practice and patient outcomes.

Author(s)	Methodology	Findings
Khemnar (2025)	A Qualitative Research; Thematic Analysis, Secondary Data	AI offers opportunities for entrepreneurs in digital marketing despite resource limitations and ethical concerns (data privacy).
Massoudi et al. (2025)	Quantitative Research; Surveys, SEM	Perceived value mediates AI marketing practices and customer loyalty, highlighting the importance of perceived value in customer behavior.

Previous research related to AI and e-marketing has shown a developmental trend over the years. Studies conducted between 2018 and 2020 largely focused on developing the basic concepts. Research from 2021 to 2023 began to demonstrate improvements in methodological quality and analytical rigor. Meanwhile, studies from 2024 to 2025 are dominated by methodological innovations and practical applications. Dimitrieska et al. (2018), Yang and Siau (2018), and Huang and Rust (2022) contributed theoretically by developing conceptual frameworks, theoretical models, and classifications of AI applications in marketing. Meanwhile, Basri (2020), Thilagavathy and Kumar (2021), and Alqurashi et al. (2023) focused on practical business applications by providing implementation examples, operational guidelines, performance metrics, and recommendations for marketing practitioners. Mustak et al. (2021), Ziakis and Vlachopoulou (2023), and Potwora et al. (2024) contributed through comprehensive datasets, advanced statistical analyses, and multidisciplinary perspectives. Meanwhile, Žyla (2024), Cao et al. (2025), and Bachina and Kanagala (2025) emphasized methodological innovation by applying advanced AI and machine learning techniques as well as developing new measurement tools. In addition, Ruan and Siau (2019), Razak (2023), and Kusumawati and Subagiyo (2025) focused on the social and organizational impacts of AI, including benefits for SMEs, organizational performance improvement, and cost–benefit analysis.

The synthesis of previous studies reveals several significant findings concerning AI implementation in e-marketing. There is a transformational impact of AI on marketing strategies. Studies by Yang and Siau (2018), Anca (2023), and Kumar et al. (2024) consistently show that AI has revolutionized both traditional and digital marketing practices and strategies. Previous research emphasizes that AI is not merely an additional tool but rather a driver of fundamental business transformation. Implementing AI in e-marketing offers multiple benefits. Studies by Dimitrieska et al. (2018), Khokhar (2019), Ruan and Siau (2019), and Raju et al. (2022) highlight that AI implementation has an impact on personalization and customer experience enhancement. AI enables smarter searches and more effective advertising tailored to complex consumer needs; AI-driven marketing is more efficient with real-time personalization and chatbots; AI significantly improves marketing strategies and customer experiences; and AI helps in understanding consumer behavior and personalizing experiences.

Second, studies by Thomassey and Zeng (2018), Gkikas and Theodoridis (2019), Peyravi et al. (2020), and Sadeq et al. (2023) emphasize that AI implementation affects process optimization and operational efficiency of companies. AI can improve efficiency in manufacturing and the fashion supply chain, develop machine learning models for optimizing digital marketing strategies, create faster and more convenient marketing solutions for consumers, and enhance operational efficiency and dynamic pricing strategies. Third, studies by Basri (2020), Thilagavathy and Kumar (2021), Sumitha (2022), Alqurashi et al. (2023), Kusumawati and Subagiyo (2025), Kwajaffa and Balami (2025), and Billel et al. (2025) stress the impact of AI usage on improving company performance. AI-based social media marketing enhances SME performance, AI integration in digital marketing increases profitability, AI offers significant advantages in data collection and analysis, and AI improves marketing effectiveness. Fourth, researchers such as Kumanova-Larde and Hristov (2019), Verma et al. (2021), Bawack et al. (2022), and Ziakis and Vlachopoulou (2023) note that AI implementation represents innovation in marketing strategies. Digital marketing improves the visibility and sales of

e-commerce businesses. There has been significant growth in the role of AI in marketing, AI applications in e-commerce are expanding, and AI-based digital marketing strategies are being optimized. Fifth, studies by Stone et al. (2019), Naji (2022), and Razak (2023) associate AI with decision-making support. AI enhances the effectiveness of strategic decision-making, helps in making faster and lower-risk decisions, and provides insights from large datasets for decision-making.

On the other hand, several previous studies discuss challenges in AI implementation. These include the need for infrastructure, organizational readiness, human resource skills, and system integration (Sabharwal, 2022). Many companies face challenges related to data quality (Eriksson et al., 2020; Peyravi et al., 2020; Mustak et al., 2021; Thilagavathy & Kumar, 2021). Ethical and transparency issues (Hermann, 2022), limited empirical data, and resistance to change are also important considerations (Jarek & Mazurek, 2019; Stone et al., 2019). Beyond these challenges, ethical and regulatory implications in AI applications must also be addressed. Findings from Hermann (2022) highlight ethical dilemmas arising from the use of AI in marketing. Their study identifies data privacy issues, algorithmic bias, and lack of transparency as major challenges (Chintalapati & Pandey, 2022; Efendioğlu, 2023). Wilson et al. (2024) further emphasize the need for a clear regulatory framework, while Ibrahim et al. (2025) call for stricter ethical guidelines, particularly in regional contexts.

Bibliometric Analysis

Figure 4 depicts the density visualization of topic areas using VOSviewer. In this visualization, items are represented by their labels in the same way as in network and overlay visualizations. The points in the visualization are color-coded to indicate the density of items at a given point. The colors range from blue to green to yellow. The greater the number of topic items around a point, the closer the color of the point is to yellow. Conversely, the fewer the topic items around a point and the lower the weight of surrounding items, the closer the color of the point is to blue.

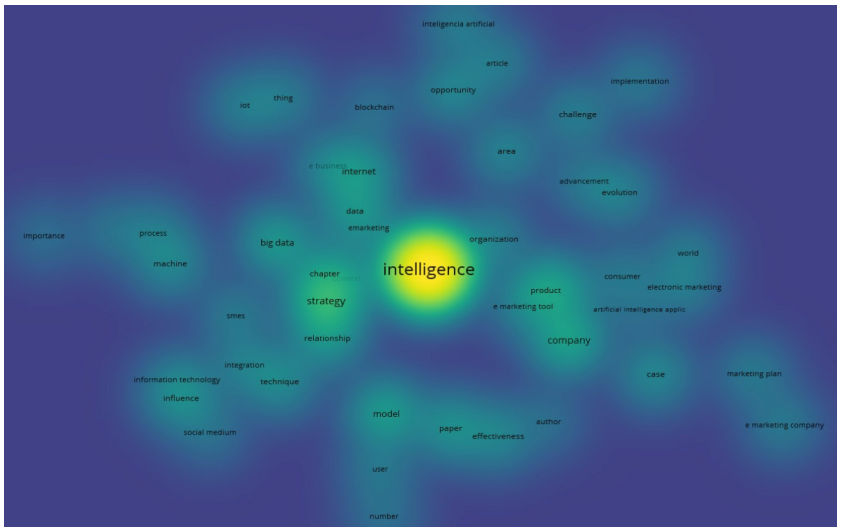


Figure 4. Topic Areas Using Density Visualization

As shown in Figure 4, the brighter the color in the area around a keyword or topic, the more journals or articles have published research on that topic, and vice versa. The topic "Artificial Intelligence Implementation in E-Marketing" is mapped from 500 articles collected from Google Scholar between 2018 and 2025, processed using VOSviewer. Figure 4 shows that the most frequently researched topic is Intelligence. This is followed by topics such as strategy, company, big data, internet, and model. The topic AI and e-marketing appears in green, indicating that research related to AI and e-marketing remains attractive and promising for further development.

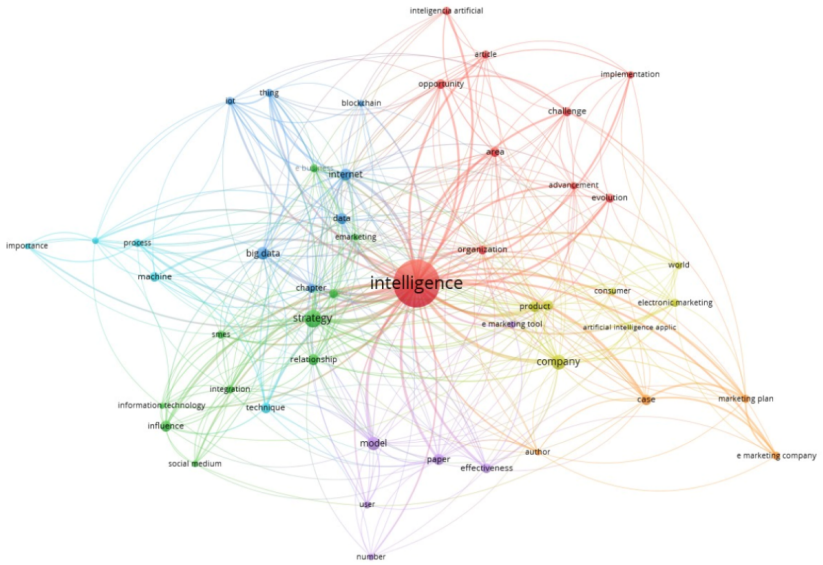


Figure 5. Topic Areas Using Network Visualization

Figure 5 illustrates the network visualization of artificial intelligence implementation in e-marketing using VOSviewer. In network visualization, topics are represented by labels and circles. The number of related topics determines the size of each circle the more related topics, the larger the circle. The color of the circle is determined by the cluster to which the topic belongs. The lines between circles represent the links, while the distance between two topics in the visualization approximately indicates their relationship in terms of citation. The closer two research topics are, the stronger their interconnection. As shown in Figure 5, the topic related to artificial intelligence implementation in e-marketing was mapped from 500 articles collected from Google Scholar between 2018 and 2025 and processed using VOSviewer. The network visualization results indicate that the term intelligence appears most frequently, followed by other frequently occurring terms such as strategy, company, big data, internet, and model. The distance between AI and e-marketing appears relatively far, although a connecting line exists. This suggests a research opportunity to further explore and strengthen the link between AI implications and e-marketing.

DISCUSSION

The findings of this study demonstrate that research on AI implementation in e-marketing has evolved significantly from conceptual exploration toward methodological sophistication and practical application. Early studies between 2018 and 2020 primarily emphasized theoretical foundations and conceptual classifications of AI in marketing (Dimitrieska et al., 2018; Yang & Siau, 2018). This indicates that the initial stage of AI adoption in marketing was strongly driven by the need to understand how AI could reshape marketing functions and business strategies. The transition observed in studies from 2021 onward reflects increasing maturity in the field, where researchers began integrating empirical evidence, advanced analytics, and multidisciplinary perspectives (Mustak et al., 2021; Ziakis & Vlachopoulou, 2023). This development aligns with the argument of Rai et al. (2019) and Belk et al. (2023), who emphasized that AI is not merely a technological tool but a system capable of transforming organizational decision-making and customer interaction processes.

The results further confirm that AI has become a strategic driver of transformation in e-marketing. Previous studies consistently highlight that AI enhances personalization, customer engagement, and customer experience through technologies such as predictive analytics, recommendation systems, and chatbots (Dimitrieska et al., 2018; Raju et al., 2022; Alrubaye & Adnan, 2025). This supports the perspective of McLean and Frimpong (2019), who argued that AI revolutionizes the way businesses communicate and interact

with consumers. In the context of e-marketing, AI enables firms to process large volumes of customer data in real time, resulting in more targeted and efficient marketing strategies. The strong emphasis on "Intelligence," "Strategy," and "Big Data" in the bibliometric analysis also reinforces the growing interconnection between AI-driven analytics and strategic marketing management.

In addition, the findings indicate that AI contributes substantially to operational efficiency and organizational performance. Studies by Thomassey and Zeng (2018), Peyravi et al. (2020), and Sadeq et al. (2023) suggest that AI improves process automation, pricing optimization, and supply chain efficiency. This is consistent with the broader digitalization perspective proposed by Kumanova-Larde and Hristov (2019), where digital transformation reshapes the entire marketing value chain. Furthermore, the positive relationship between AI implementation and business performance identified in studies on SMEs and digital businesses implies that AI adoption is increasingly viewed as a competitive necessity rather than an optional innovation (Basri, 2020; Alqurashi et al., 2023; Kusumawati & Subagiyo, 2025).

However, despite these advantages, the study also highlights persistent challenges in AI implementation. Organizational readiness, infrastructure limitations, data quality, and employee capabilities remain major barriers (Eriksson et al., 2020; Mustak et al., 2021; Sabharwal, 2022). More importantly, ethical concerns related to privacy, transparency, and algorithmic bias continue to attract scholarly attention (Hermann, 2022; Chintalapati & Pandey, 2022; Efendioğlu, 2023). These findings are consistent with the concept of ethical AI proposed by Eitel-Porter (2021), emphasizing that AI implementation should balance technological advancement with social responsibility. The bibliometric analysis further reveals that although AI and e-marketing are interconnected, the relatively distant relationship between these topics in the network visualization indicates that opportunities for integrative and interdisciplinary research remain open. Therefore, future studies should focus not only on technological innovation but also on governance, ethical frameworks, and strategic integration to ensure sustainable AI adoption in e-marketing.

CONCLUSION

The methodologies employed in studies on AI implementation in e-marketing are predominantly mixed-method approaches, with many researchers combining qualitative and quantitative methods to achieve a more comprehensive understanding. Bibliometric analysis is another popular method, while several studies rely on empirical approaches such as field surveys and interviews involving key stakeholders, including marketing professionals and consumers. In addition, systematic reviews are frequently conducted to synthesize findings across multiple studies, particularly in research addressing AI trends and impacts. AI has demonstrated transformational benefits in modern marketing, though its optimal implementation requires strategic approaches that consider organizational capabilities and ethical aspects. The advantages of AI are evident across various marketing dimensions, ranging from enhanced efficiency and personalization to business growth. Specifically, AI has the potential to revolutionize marketing strategies, improve customer experiences, optimize operational efficiency, and boost organizational performance.

This study is limited by its reliance on secondary data obtained from previously published articles, which may lead to variations in research quality, methodology, and scope across studies. In addition, the bibliometric analysis was primarily based on articles indexed in selected databases between 2018 and 2025, potentially excluding relevant studies from other sources or earlier periods. For future research, it is recommended to expand the geographical scope and increase sample sizes by examining diverse countries and industry groups. Methodological rigor should also be strengthened, for example, by adopting more advanced mixed-methods designs. Further empirical studies are needed to explore concrete cases of AI implementation in e-marketing, particularly concerning the challenges, benefits, and factors contributing to success or failure. Moreover, future

research should give greater attention to critical issues such as data privacy, social impacts, and ethical considerations in the implementation of AI within e-marketing.

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