

Intelligent Marketing Management: A Bibliometric Analysis of AI-Driven Technologies in Marketing

Bibliometric Analysis
of Ai-Driven
Technologies

Wahyudin Rahman

Universitas Muhammadiyah Luwuk; Banggai, Indonesia

E-Mail: wahyu@unismuhluwuk.ac.id

4837

Sutrisno K Djawa

Universitas Muhammadiyah Luwuk; Banggai, Indonesia

E-Mail: sutrisno@unismuhluwuk.ac.id

Submitted:

JULY 2025

Accepted:

DECEMBER 2025

ABSTRACT

The integration of AI-based technologies, such as machine learning and natural language processing, is crucial for intelligent marketing management. This study explores market intelligence, encompassing marketing insights, alliance-centric focus, services, and marketing transformation to address dynamic consumer preferences and technological advancements. This study examines the application of AI in marketing through bibliometric analysis and evaluates the effectiveness of market intelligence components. The method used was a comprehensive bibliometric analysis using performance metrics and science mapping conducted on publications from the Scopus and Web of Science databases (2020–2024), using VOSviewer for network visualization. The findings revealed that a total of 9,067 papers from 63 countries were published between 2022 and 2024, with the largest contribution from the United States. Publications were categorized as mathematical modeling (18.9%), exploratory (16.5%), conceptual (17.3%), theoretical review (20.8%), case study (13.8%), and simulation (12.5%). Between 2020 and 2022, 254 articles were identified, highlighting the role of AI in hyperpersonalization, predictive analytics, and chatbots. AI improves marketing efficiency and personalization, but requires an integrated framework for adoption. Future research should focus on industry-specific AI implementations to address barriers such as ethical issues and technology adoption.

Keywords: Artificial Intelligence, Bibliometric, Intelligent Marketing, Machine Learning, Natural Language Processing.

ABSTRAK

Integrasi teknologi berbasis AI, seperti machine learning dan natural language processing, sangat penting untuk manajemen pemasaran yang cerdas. Studi ini mengeksplorasi intelijen pasar, yang mencakup wawasan pemasaran, fokus yang berpusat pada aliansi, layanan, dan transformasi pemasaran untuk menjawab preferensi konsumen yang dinamis dan kemajuan teknologi. Studi ini mengkaji penerapan AI dalam pemasaran melalui analisis bibliometrik dan mengevaluasi efektivitas komponen intelijen pasar. Metode yang digunakan adalah analisis bibliometrik komprehensif menggunakan metrik kinerja dan pemetaan sains yang dilakukan pada publikasi dari basis data Scopus dan Web of Science (2020–2024), menggunakan VOSviewer untuk visualisasi jaringan. Temuan ini mengungkapkan bahwa total 9.067 makalah dari 63 negara diterbitkan antara tahun 2022 dan 2024, dengan kontribusi terbesar dari Amerika Serikat. Publikasi dikategorikan sebagai pemodelan matematika (18.9%), eksploratif (16.5%), konseptual (17.3%), tinjauan teoretis (20.8%), studi kasus (13.8%), dan simulasi (12.5%). Antara tahun 2020 dan 2022, 254 artikel telah diidentifikasi, menyoroti peran AI dalam hiperpersonalisasi, analitik prediktif, dan chatbot. AI meningkatkan efisiensi pemasaran dan personalisasi, tetapi membutuhkan kerangka kerja terintegrasi untuk adopsi. Penelitian di masa mendatang sebaiknya berfokus pada

JIMKES

Jurnal Ilmiah Manajemen

Kesatuan

Vol. 13 No. 6, 2025

pp. 4837-4852

IBI Kesatuan

ISSN 2337 – 7860

E-ISSN 2721 – 169X

DOI: 10.37641/jimkes.v13i6.3940

INTRODUCTION

In today's rapidly evolving marketplace, market intelligence has become a cornerstone of intelligent marketing management, enabling organizations to make informed strategic decisions, deepen customer understanding, and secure competitive advantages. Market intelligence integrates aggregated data and insights to navigate dynamic consumer preferences and technological advancements (Phabao et al., 2023). This process relies on a structured strategy encompassing four key elements: marketing insights, alliance-oriented collaboration, services, and marketing transformation. Marketing insights involve analyzing consumer behaviors, market trends, and competitive dynamics to inform effective strategies. Meanwhile, marketing servitization shifts businesses from product-centric to service-oriented models, fostering stronger customer relationships and differentiation. An alliance-centric approach leverages strategic collaborations to enhance market presence, while marketing transformation adapts strategies, processes, and technologies to align with evolving market demands. Together, these elements empower businesses to achieve sustainable growth and customer engagement in a competitive landscape (Passas et al., 2022).

The rise of Artificial Intelligence (AI), particularly Machine Learning (ML) and Natural Language Processing (NLP), has revolutionized market intelligence by enabling rapid and accurate analysis of vast datasets (Davenport et al., 2020; Khan et al., 2021). These technologies allow organizations to extract actionable insights from diverse sources, such as customer feedback, social media interactions, and online shopping behaviors. By harnessing data-driven insights, businesses can tailor marketing strategies to meet specific audience needs, reducing uncertainties associated with traditional methods and enhancing campaign precision. This data-centric approach, often referred to as intelligent marketing management, integrates analytics and innovative strategies to optimize marketing efforts and boost organizational performance (Verma et al., 2020; Passas, 2023). As a result, companies can respond swiftly to market changes, deliver personalized experiences, and maximize return on investment.

Despite the recognized importance of market intelligence, many organizations struggle to fully integrate advanced technologies like AI, ML, and NLP into their marketing strategies. The complexity of managing large datasets, aligning technological capabilities with strategic goals, and ensuring seamless collaboration across departments or partners poses significant challenges. Additionally, the lack of a cohesive framework to integrate marketing insights, servitization, alliances, and transformation limits the effectiveness of intelligent marketing management. Without addressing these issues, businesses risk falling behind in an increasingly competitive and data-driven market.

Several factors underscore the growing importance of market intelligence. First, rapid technological advancements, particularly in AI, ML, and NLP, enable organizations to process and analyze data with unprecedented speed and accuracy (Davenport et al., 2020). These technologies support predictive analytics, sentiment analysis, and personalized marketing, enhancing decision-making and customer engagement. Second, shifting consumer behaviors demand adaptive strategies that align with evolving preferences, as seen in the increasing reliance on digital platforms for purchasing and interaction (Verma et al., 2020; Donthu et al., 2020). Third, the competitive landscape encourages strategic alliances and service-oriented models, which allow firms to share resources, innovate, and reach new customer segments. Finally, the need for marketing transformation drives organizations to adopt digital tools and analytics to stay agile in

dynamic markets. These factors collectively highlight the necessity of a robust, technology-driven approach to market intelligence.

While existing literature acknowledges the role of AI in marketing, there is a notable gap in understanding how to effectively integrate the four components of market intelligence, marketing insights, alliance-centric approaches, services, and marketing transformation within an AI-driven framework (Azzari et al., 2020). Previous studies often focus on individual technologies, such as ML or NLP, without exploring their synergistic impact on intelligent marketing management (Donthu et al., 2021). Moreover, there is limited research on how these components collectively enhance market intelligence in practice, particularly in diverse geographical and industry contexts (Laengle et al., 2020; Dominko et al., 2023). This gap hinders the development of comprehensive strategies that leverage AI to optimize marketing outcomes across all four elements.

This study aims to address these gaps through two primary objectives. First, it seeks to examine the application of AI, specifically ML and NLP, in marketing by analyzing published literature over time, geographical distribution, influential journals, key authors, and specific AI techniques across marketing subfields. Second, it aims to identify emerging research themes related to AI in intelligent marketing and evaluate the effectiveness of market intelligence, encompassing marketing insights, alliance-centric focus, services, and marketing transformation. By addressing these objectives, this research contributes to a deeper understanding of how AI-driven market intelligence can enhance strategic marketing efforts and drive sustainable competitive advantage.

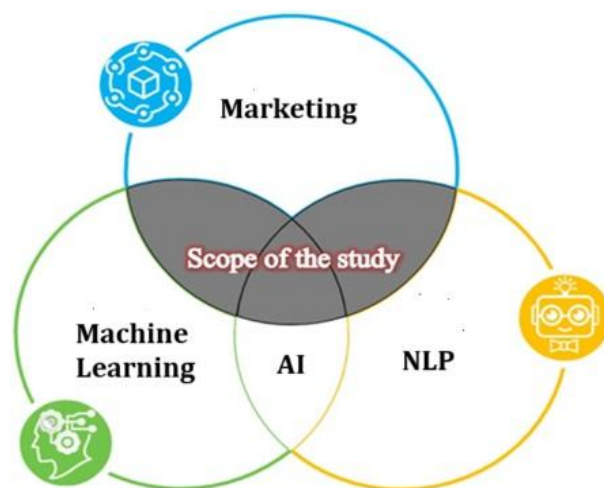


Figure 1. AI Integration in Marketing

Figure 1 is a Venn diagram depicting the scope of research at the intersection of several disciplines. The diagram shows that the research lies at the intersection of marketing, machine learning, and NLP within the larger umbrella of AI. Marketing is one of the primary applications of AI, particularly when combined with machine learning techniques to predict consumer behavior and NLP to understand and process natural language. The dark area in the center of the diagram indicates the “Scope of the Study,” the research area that integrates these three aspects. Therefore, this research focuses on the application of AI through machine learning and NLP in a marketing context, aiming to provide intelligent, data-driven solutions to support decision-making, understand consumers, and improve the effectiveness of marketing strategies.

LITERATURE REVIEW

Early Intelligent Marketing

The evolution of Artificial Intelligence (AI) over the past decades has significantly reshaped marketing practices, transitioning from traditional approaches to more intelligent, data-driven strategies. AI, alongside Machine Learning (ML) and Natural Language Processing (NLP), enables businesses to mimic human cognition in decision-making, predictive analytics, and customer engagement, surpassing the capabilities of conventional marketing methods (Sweileh, 2020; Zhao et al., 2023; Charli & Suharno, 2025). Early rule-based AI systems lacked adaptability, but the advent of ML has expanded applications to include image recognition, personalized recommendations, and real-time optimization, as exemplified in platforms like Netflix and Google (Li, 2019; Ma & Sun, 2020; Ramachandran et al., 2022; Aivaz et al., 2024; Kalsum et al., 2025). Deep Learning advances capabilities in speech recognition and autonomous systems, while Generative AI, such as GPT-3, enables human-like content generation (Bannor et al., 2023). NLP further transforms marketing by analyzing customer feedback and social media, facilitating sentiment analysis, customer segmentation, and personalized content optimization to boost engagement (Davenport et al., 2020; Verma et al., 2020).

Before the AI-driven era, intelligent marketing was grounded in understanding consumer needs and creating value beyond transactional interactions (Ragazou et al., 2022). Organizations relied on surveys, focus groups, and basic demographic data to identify explicit and latent consumer preferences (Rambaud et al., 2024). While these methods enabled product and service development aligned with customer desires, they were limited by manual data processing, static segmentation, and minimal personalization (Rousseau & Rousseau, 2021). Early intelligent marketing emphasized delivering customer value through satisfaction and loyalty, but the lack of automated, predictive tools restricted the efficiency and scalability of campaigns.

Combining the theoretical evolution of AI with the principles of early intelligent marketing highlights a continuum: AI and ML now allow organizations to analyze extensive datasets, predict behaviors, automate personalized engagement, and enhance operational efficiency, fulfilling the strategic objective of deeply understanding and addressing customer needs (Verma & Gustafsson, 2020). This integration marks a transformative shift toward highly adaptive, customer-centric marketing capable of sustaining competitive advantage in dynamic, data-driven environments.

AI-driven Marketing Generation

The rapid advancement of AI has transformed marketing, shifting from traditional, resource-heavy methods to data-driven, efficient strategies (Ma & Sun, 2020; Yeğin, 2020). Traditional marketing relied on mass communication channels like TV and print media, with manual data analysis that was time-consuming and lacked precision (Pinarbasi & Akpınar, 2020). These approaches offered limited personalization and slow feedback loops, making real-time consumer sentiment analysis challenging. AI has ushered in a paradigm shift, enabling marketers to understand and engage customers through predictive analytics and pattern recognition (Yeğin, 2020; Yau et al., 2021; Huang & Rust, 2022). By analyzing historical data, AI forecasts future behaviors and market trends, enhancing decision-making.

Computer vision, a key AI technology, analyzes visual content like images and videos, aiding brand monitoring on social media and optimizing product placement (Liu, 2021). This allows businesses to assess consumer reactions to advertisements and refine strategies for maximum impact. AI-driven approaches process vast datasets quickly, providing real-time insights that enable targeted, personalized campaigns (Araújo & Casais, 2020; Mariciuc, 2022). These advancements reduce inefficiencies, allowing marketers to focus on strategy and creativity (Raiter, 2021; Wang, 2022). By leveraging AI, businesses can create tailored experiences, boosting engagement and conversion rates (De Bruyn et al., 2020). As AI continues to evolve, it unlocks new opportunities, reshaping marketing into a more dynamic, customer-centric discipline.

AI-Powered Marketing Innovations

AI's integration into marketing has revolutionized personalization, content creation, and analytics, driving efficiency and innovation (Vlačić et al., 2021). AI algorithms analyze extensive customer data, including past purchases, browsing history, and social media activity, to deliver tailored content and product recommendations (Riikkinen et al., 2018; Mathew & Scholar, 2021). This personalization enhances engagement, fosters brand loyalty, and boosts sales by aligning with individual preferences (Daqar & Smoudy, 2019; Ameen et al., 2021). ML and NLP power intelligent assistants like Google Assistant and chatbots, enabling seamless customer interactions.

NLP facilitates text analysis, sentiment analysis, and language generation, bridging human communication and machine comprehension (Liu et al., 2021). AI-driven platforms leverage these technologies to create high-quality, audience-specific content and optimize elements like headlines and keywords for better Search Engine Optimization (SEO). Predictive analytics, enabled by sophisticated ML, identifies emerging trends and customer behaviors, allowing proactive strategy adjustments (Ray et al., 2018; Mokhtari et al., 2021). These tools uncover subtle patterns in vast datasets, providing nuanced insights into market dynamics (Hashimoto et al., 2018). By automating data processing and content optimization, AI frees marketers to focus on creative campaigns, enhancing productivity and campaign effectiveness (Thandekkattu & Kalaiarasi, 2022). As AI continues to advance, it empowers businesses to deliver customer-centric experiences, ensuring sustained competitiveness in a data-driven marketing landscape (Ma & Sun, 2020).

RESEARCH METHODS

Bibliometrics has emerged as a prominent trend in academic research in recent years, owing to its effectiveness in managing vast volumes of scientific data and significantly enhancing research impact by revealing emerging trends in article and journal performance, collaboration patterns, research constituents, and the intellectual structure of a given domain within the existing literature. Bibliometric analysis serves as a robust approach to handling extensive information by conceptualizing trends, identifying patterns, and mapping the structural composition of a scientific research domain, thereby offering insights into the emergence and evolution of research topics over time while visually illustrating relationships among disciplines, fields, areas of expertise, and authors to evaluate, measure, and highlight advancements in specific topics or subjects. This methodology, encompassing performance analysis, which assesses research impact through metrics such as total publications, author contributions, and citation indicators, emphasizing quantity, collaboration, and influence, and science mapping, which visualizes the structure and dynamics of scientific research to uncover connections and trends, has been widely applied across diverse fields including accounting, operational research, sustainability, fraud, and economics, and is now gaining traction in other sectors, particularly for evaluating research trends in AI-driven marketing through a systematic review of intelligent marketing literature from Scopus and Web of Science databases to uncover prevailing research trends and scientific behaviors in the marketing field.

The methodology involves a comprehensive bibliometric analysis to explore AI, ML, and NLP applications in marketing. Performance analysis examines publication trends over time, geographical distribution, influential journals, top authors, and specific AI/ML techniques across the marketing subfield. Publication metrics, including keyword co-occurrence, co-authorship networks, journal co-citation, and document citation analysis, identify emerging research themes in intelligent marketing management. This approach ensures a thorough understanding of AI's role in marketing advancements.

Science mapping creates detailed network visualizations to highlight effective market intelligence, focusing on four key components: marketing insights, alliance-centric focus, services, and marketing transformation. Using search queries like "AI AND Marketing"

with wildcard operators (*), relevant publications were retrieved from Scopus (www.scopus.com) and Web of Science (www.webofscience.com). Data, including titles, authors, abstracts, and references, were exported to .csv files for analysis, enabling insights into temporal trends, geographical representation, and technology use.

VOSviewer software facilitates this analysis by visualizing networks of co-citation, bibliographic coupling, and co-authorship, revealing relationships among scholars, journals, and countries. By integrating performance analysis and science mapping, this study provides a robust framework for understanding AI’s transformative impact on marketing, fostering data-driven strategies and innovation.

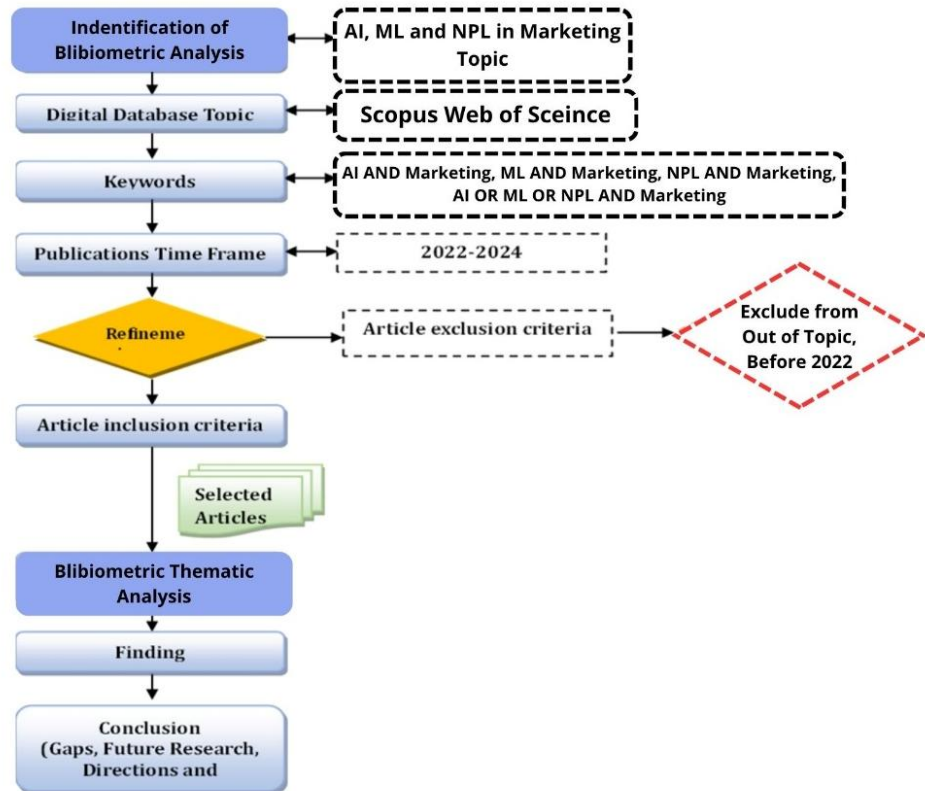


Figure 2. Systematic Review Process of AI, ML, and NLP Applications in Marketing

Figure 2 displays the systematic review process flow for applications of Artificial Intelligence (AI), Machine Learning (ML), and Natural Language Processing (NLP) in marketing. The process begins with identifying relevant topics through digital databases such as Scopus and Web of Science, followed by selecting the keyword “AI AND Marketing” and establishing a publication range of 2022–2024. Next, a screening process is conducted using inclusion and exclusion criteria to obtain selected articles. The selected articles are then analyzed using thematic bibliometrics to identify key findings. The final stage involves compiling conclusions that include identifying research gaps, future research directions, and resulting implications.

RESULTS

Evolution and Growth of AI-driven Marketing Research

The visualization of the number of research publications over time is used to track the evolution of the research domain. This approach aims to observe how AI-driven technology-based marketing research has progressed and developed throughout the years. It has been observed that both practitioners and academicians are increasingly contributing to the expansion of AI-driven technology-based marketing. A total of 9,067 papers were published between 2022 and 2024, with 2,260 papers in 2022, 3,113 papers

in 2023, and 3,694 papers in 2024 see Figure 2. This indicates that AI and ML-related research in the marketing domain is emerging as a significant study area, driven by heightened interest from researchers and practitioners.

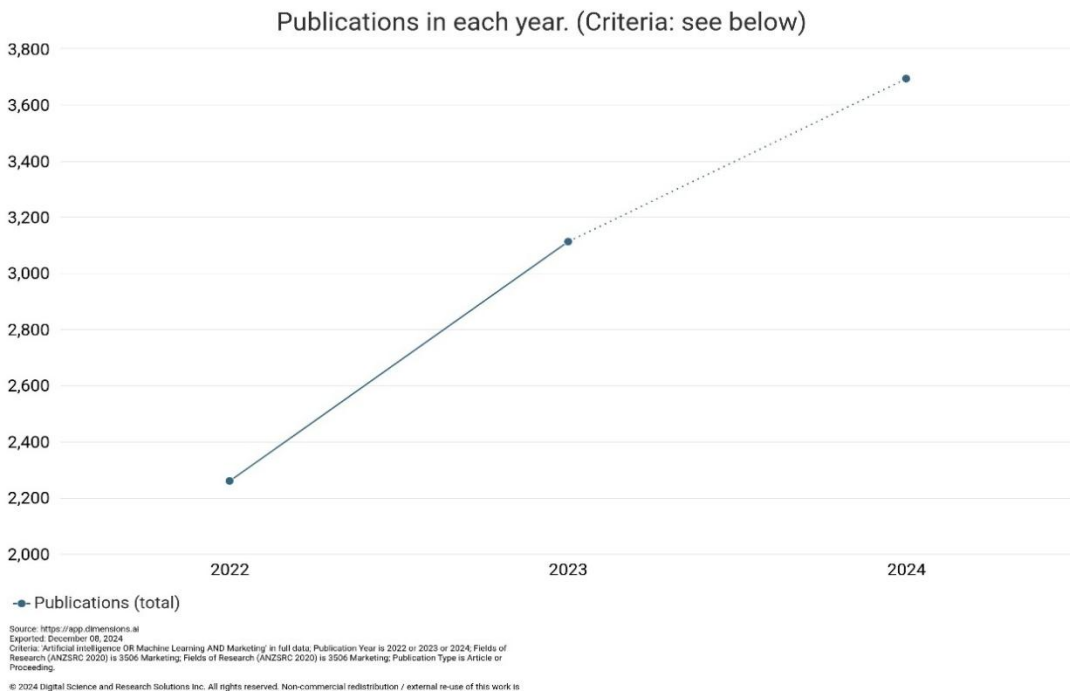


Figure 2. Number of Research Publications Over Time

The proliferation of AI-driven technologies has profoundly transformed various sectors, with marketing emerging as a particularly dynamic domain for their application. Each year, the number of publications focusing on AI-driven technologies in marketing continues to rise, reflecting both the growing interest and the increasing complexity of these technologies. The annual publication trends in AI-driven technologies within the marketing field signify an exciting blend of innovation and inquiry. As these technologies continue to develop, the body of literature surrounding them is likely to expand further, fostering a more profound understanding of their implications and applications in contemporary marketing practices. As such, both researchers and practitioners must keep abreast of these advancements to remain competitive and ethically aligned in an ever-evolving landscape.

Geographical and Authorial Contributions in AI Marketing Research

The annual increase in scholarly articles, industry reports, and practical case studies indicates a broader recognition of the potential benefits that AI-driven technologies can offer in enhancing marketing strategies. These publications often explore diverse topics, ranging from consumer behavior analysis to personalized advertising and predictive analytics. By leveraging vast amounts of data, marketers can now gain insights that were previously unattainable, allowing for more targeted and effective campaigns. Furthermore, as technology evolves, so too does the discourse surrounding ethical considerations and best practices in the utilization of AI-driven technologies in marketing. Recent studies highlight the importance of transparency, consumer trust, and data privacy, underscoring the need for responsible artificial intelligence practices. This is crucial as businesses strive not only to maximize efficiency and profitability but also to maintain ethical standards and societal responsibilities. The geographical distribution of publications highlighting key regions contributing to this body of work and the

implications of regional trends are shown in Figure 3. The circle sizes represent each country's percentage contribution, highlighting a higher density of contributing countries.

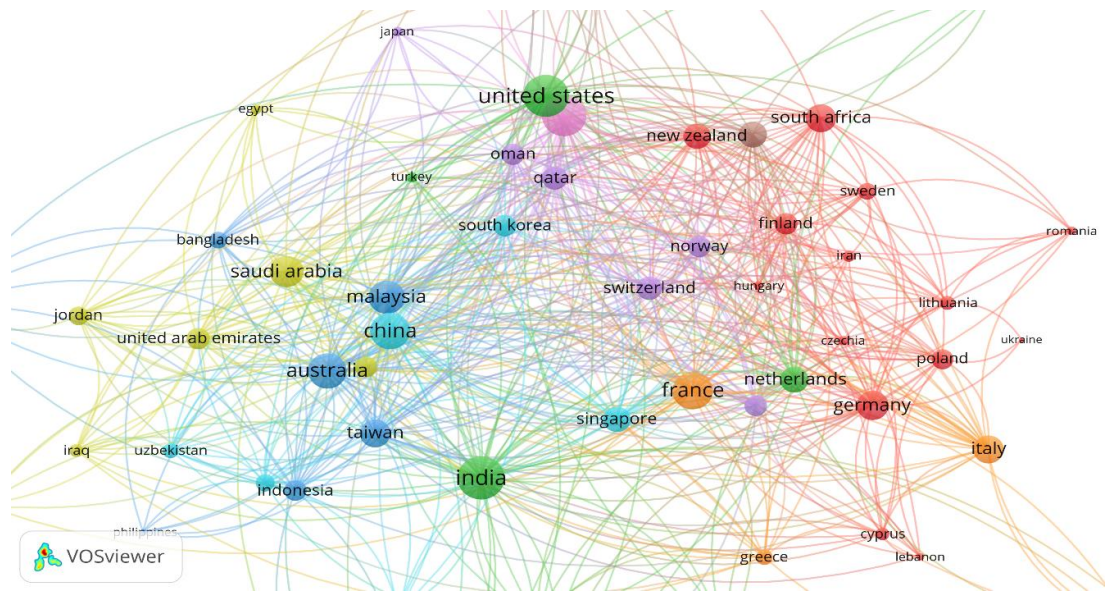


Figure 3. The Geographical Distribution of Publications

The rapid evolution of AI-driven technologies has significantly transformed the marketing landscape. These innovations have catalyzed a proliferation of academic research aimed at exploring their applications and impacts within the marketing sector. The geographical distribution of publications in AI-driven technologies as they pertain to marketing, highlighting key regions contributing to this body of work, and the implications of regional trends.

This study reveals that AI-driven technologies in the marketing research area span 63 countries worldwide. The USA has produced a substantial volume of scholarly articles, attributing this concentration to the presence of leading academic institutions, research centers, and established technology companies. The United States benefits from a robust infrastructure for innovation, alongside significant investments in research and development, leading to substantial advancements in the deployment of research in marketing strategies. Major conferences such as the American Marketing Association (AMA) and the Association for Computing Machinery (ACM) facilitate the dissemination of cutting-edge research, further solidifying North America's pre-eminence in this field. Europe follows closely behind, with countries like Germany, the United Kingdom, and France contributing a significant share of publications. In Europe, interdisciplinary collaboration within academia and industry has fostered substantial research outputs. The European Union's commitment to digital transformation and innovation has also provided a supportive framework for research initiatives, leading to an impressive increase in publications pertaining to the use of AI-driven technologies in marketing contexts.

Asia is an emerging player in this research domain, with countries such as China, India, and Japan increasingly contributing to the global discourse on AI-driven technologies in marketing. China's rapid technological advancement and the commercialization of AI technologies have resulted in a flourishing ecosystem for academic research. Indian scholars are also making noteworthy contributions, particularly in the area of consumer behavior analytics and personalized marketing, fueled by a booming startup culture centered around technology.

Despite these prominent regions, research on AI-driven technologies in marketing is not uniformly distributed. Developing countries often lag behind in the volume of publications, primarily due to infrastructural constraints, limited access to cutting-edge

technology, and fewer collaborative opportunities. However, as global interest in digital marketing grows, there is a burgeoning potential for increased contributions from these regions. Initiatives aimed at enhancing research capacity and encouraging international collaboration will be crucial for integrating diverse perspectives into the evolving narrative of AI-driven technologies in marketing. Conversely, there is a notable lack of enthusiasm in several underdeveloped nations.

Table 1 displays the top 10 contributing countries. The USA leads with 482 articles, followed by Germany with 338, the UK with 317, France with 158, and China with 105 articles, as shown in Table 1.

Table 1. Top 10 Contributing Countries

No	Country	Documents	Citations	Total Link Strength
1	USA	482	6460	268
2	Germany	338	5379	225
3	UK	317	7843	300
4	France	158	5322	288
5	China	105	416	54
6	India	95	4364	169
7	Spain	85	1753	162
8	Turkey	60	465	25
9	Spain	74	2458	67
10	Italy	73	2698	88

The geographical distribution of publications on AI-driven technologies in marketing shows a concentration in the United States and Europe, with growing but limited contributions from Asia. Understanding these regional dynamics is crucial for fostering global collaboration and leveraging AI advancements to enhance marketing strategies worldwide. Developing research ecosystems in underserved regions is essential for equitable knowledge distribution. Leading journals like *Journal of Marketing* and *Journal of Interactive Marketing* consistently publish research on AI, ML, and NLP applications in consumer behavior analysis, marketing automation, personalization, and customer relationship management, reflecting the expanding academic discourse on these technologies.

The database provided information on authors and their institutional affiliations, which was then used to calculate the frequency of each author's contributions. Figure 4 illustrates the distribution of publications per author. From a total of 982 contributors, 12 were identified as the most prolific, with details on their affiliations, countries, and publication counts included.

AI-driven Technologies and Marketing Applications

The body of literature can be divided into six major categories: (1) studies focused on mathematical modeling, (2) exploratory research, (3) conceptual works, (4) theoretical reviews, (5) case studies, and (6) simulation-based papers. Each category offers unique perspectives and methods, contributing to a deeper understanding of how AI, ML, and NLP intersect with marketing practices. As shown in Figure 4, theoretical review articles dominate the sample, representing 53 papers (20.8%). These are followed by mathematical modeling studies with 48 papers (18.9%), conceptual research with 44 papers (17.3%), exploratory works with 42 papers (16.5%), case studies with 35 papers (13.8%), and simulation research with 32 papers (12.5%).

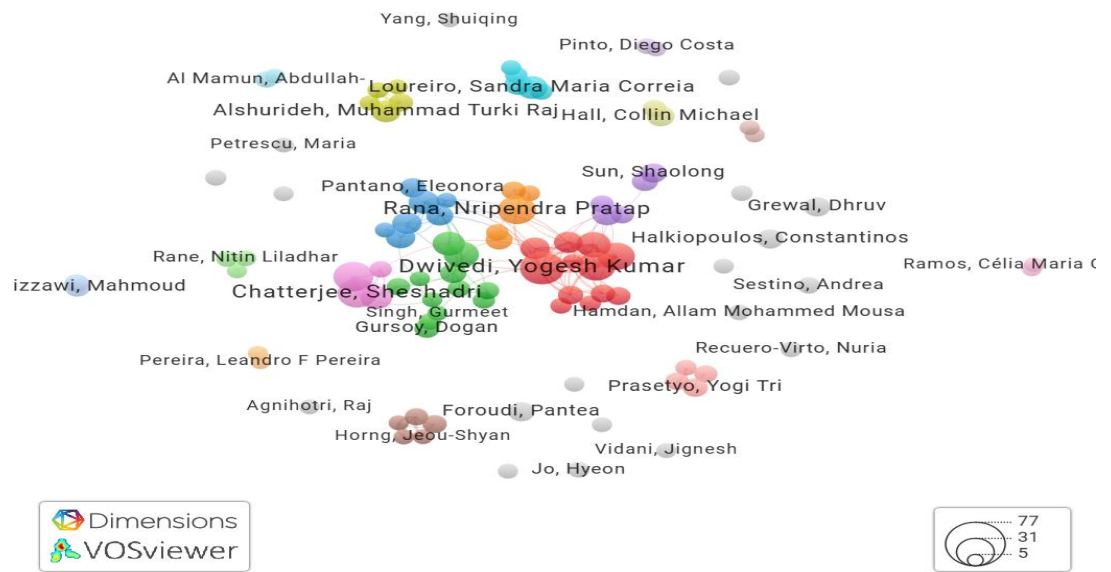


Figure 4. Number of Publications by Each Author

The literature on AI-driven technologies in marketing is categorized into six approaches, each offering unique insights. Mathematical modeling papers use quantitative techniques and algorithms to build predictive models, enabling precise targeting and resource allocation at the statistics-marketing nexus. Exploratory studies investigate emerging trends, such as sentiment analysis and clustering-based segmentation, inspiring innovative applications and future directions. Conceptual papers theorize AI/ML implications through interdisciplinary lenses, redefining paradigms and addressing ethical, social, and economic dimensions. Theoretical reviews synthesize existing knowledge, identify gaps, and propose research agendas for comprehensive trend analysis. Case studies illustrate real-world AI/ML implementations, highlighting successes, challenges, and empirical-theoretical balance. Finally, simulation studies model dynamic environments to test scenarios, enhancing predictive accuracy and strategic foresight in decision-making. Collectively, these categories advance a nuanced understanding of AI's transformative role in marketing.

The convergence of AI-driven technologies with marketing strategies has given rise to a more nuanced approach to consumer engagement and data analysis. This essay categorizes the technology used in marketing applications into three distinct groups: AI in marketing, ML in marketing, NLP in marketing, and the integration of both ML and NLP in marketing that encompasses four key components: marketing insights, an alliance-centric focus, services, and marketing transformation as displayed in Table 2.

Table 2. AI-driven technologies

Marketing Framework	Application	AI-driven technologies	Key Benefit
Marketing Insights	Hyper-Personalization	AI-driven tailoring of content, recommendations, and experiences to individual customers	Enhanced customer engagement, satisfaction, and loyalty
	Predictive Analytics	Forecasting customer behavior, campaign performance, and market trends using ML algorithms	Proactive strategy development, improved decision-making

Marketing Framework	Application	AI-driven technologies	Key Benefit
	Chatbots and Conversational AI	Advanced NLP-powered systems for customer interaction and lead qualification	Scalable customer engagement, real-time insight gathering
Alliance-Centric Focus	Campaign Management	AI-powered automation and optimization of marketing campaigns	Improved efficiency, dynamic budget allocation
Services	Chatbots, Voice Assistant	Tailoring services and marketing strategies that precisely meet client needs	Fostering personalized experience, driving customer loyalty and satisfaction
Marketing Transformation	ChatGPT, Chatbots, Voice Assistant	Facilitates more efficient decision-making processes using ML algorithms and advanced NLP	Enabling marketers to respond swiftly to evolving consumer preferences and market dynamics

Incorporating AI into marketing insights signifies a significant shift in data analysis and consumer engagement strategies. By leveraging advanced ML algorithms, organizations can extract from large datasets, allowing them to identify emerging trends as well as consumer behaviors with remarkable accuracy (Li, 2023). This integration not only enhances the efficiency of marketing campaigns but also facilitates personalized communication, ultimately driving higher conversion rates and customer satisfaction. As businesses increasingly embrace AI technologies, the potential for enriched marketing strategies and improved decision-making processes becomes increasingly evident.

DISCUSSION

Recent research highlights the transformation of marketing through AI technology. Barik et al. (2023) introduced a blockchain-based method for predicting customer satisfaction using AI techniques such as multi-dimensional naive bayes-k nearest neighbor and multi-objective logistic particle swarm optimization, achieving 95% accuracy and 95% precision, surpassing previous methods to improve service quality and decision-making. Zhuk and Yatskyi (2024) explored the integration of AI and ML in e-commerce marketing strategies, overcoming the limitations of traditional approaches by improving customer relationship management, operational efficiency, and customer engagement, thereby driving sales. Aldunate et al. (2022) emphasized the role of AI predictive analytics in understanding consumer behavior, enabling product personalization and more effective marketing strategies.

The significance of intelligent marketing cannot be overstated in the contemporary business landscape. Integrating AI into marketing servitization represents a transformative approach to enhancing customer engagement and optimizing service delivery (Ameen et al., 2021; Alkudah & Almomani, 2024). By leveraging AI, organizations can process large volumes of consumer data, enabling them to tailor services and marketing strategies that precisely meet client needs. This integration not only streamlines operations but also fosters a more personalized experience, ultimately driving customer loyalty and satisfaction. As businesses continue to evolve in a competitive landscape, incorporating AI in marketing servitization is becoming increasingly indispensable for sustained growth and innovation (Ma & Sun, 2020; Huang & Rust, 2022).

Ijomah (2024) examined the role of AI, Internet of Things (IoT), and big data in strengthening customer loyalty through improved satisfaction, engagement, relationships, and experiences. The study stresses the combined effect of these technologies while also noting their distinct contributions, showing how data-driven insights can support long-term customer commitment. Findings reveal that integrating blockchain and AI with IoT fosters secure and transparent transactions, thereby enhancing trust and loyalty, whereas big data allows firms to derive actionable insights for more targeted strategies aimed at boosting customer satisfaction and retention.

Olujimi and Ade-Ibijola (2023) investigated the application of NLP in automating customer query handling, emphasizing the rising need for automated support across industries. Their findings show that NLP empowers conversational AI to interpret human language and generate automated replies to customer requests, enabling rapid assistance through chatbots without the need for human involvement. Research by Mari et al. (2024) shows that empathetic AI voice assistants, such as Alexa, increase consumers' intentions to delegate tasks, seek help, and trust recommendations in voice commerce, with families appreciating functional attributes when empathy is present, contributing to the understanding of AI empathy for managerial design decisions. Furthermore, the integration of AI within a marketing alliance framework optimizes joint campaigns, identifies market trends, and personalizes customer interactions, facilitating real-time decision-making and efficient resource allocation, resulting in increased customer engagement and improved outcomes.

According to Babatunde et al. (2024), AI algorithms are capable of processing large-scale customer data to anticipate individual preferences and behaviors, thereby supporting targeted advertising, personalized product suggestions, and content tailored to specific consumer groups. This capability enhances the relevance and effectiveness of customer experiences. Similarly, Alkudah and Almomani (2024) examined the application of AI techniques in e-commerce and found that their adoption can substantially boost customer satisfaction, raise revenue, and lower operational expenses, with personalized recommendation systems and conversational agents proving particularly impactful.

The integration of AI in marketing transformation represents a significant advancement in organizational strategy. By leveraging AI technology, businesses can optimize customer engagement, enhance data analytics, and personalize marketing efforts at an unprecedented scale (Kadasah, 2023). This adoption facilitates efficient decision-making, enabling marketers to respond quickly to changing consumer preferences and market dynamics, thus supporting sustainable growth and competitive advantage. Gao et al. (2023) highlight the use of AI in advertising, focusing on targeting, personalization, content creation, and ad optimization. Personalization and targeting work together to deliver relevant ads, increasing effectiveness through engaging creative.

AI-powered chatbots have revolutionized marketing, customer service, and e-commerce by reducing costs, increasing revenue, and improving the customer experience (Kadasah, 2023). Yoldaş and Aycı (2024) emphasize the role of AI, specifically ChatGPT, in integrated marketing communications, increasing customer engagement, satisfaction, and purchase intent, as well as process efficiency and profitability. Kedi et al. (2024) examine chatbot adoption in SME marketing platforms, highlighting its positive impact on customer engagement and service effectiveness, while providing practical guidance for future integration and trends.

CONCLUSION

Bibliometric analysis using network visualization shows that AI technology in intelligent marketing is developing rapidly. AI and ML support automation, predictive analytics, and personalization, such as chatbots for customer service and generative design for tailored content. Diverse research approaches, including mathematical modeling, exploration, and case studies, enrich the academic discourse on intelligent marketing. Practically, AI integration improves operational efficiency, customer engagement, and conversion rates through hyper-personalized campaigns that respond to consumer behavior. ML enables audience segmentation and targeted advertising, supporting strategic decision-making and optimal resource allocation. Theoretically, these diverse research approaches broaden understanding of the ethical, social, and economic implications of AI in marketing, encouraging the development of new frameworks.

However, this study has limitations, such as limited coverage of the Scopus and Web of Science databases, which may exclude literature from developing regions, and potential bias in keyword selection. Barriers to the marketing discipline, such as limited technology

adoption, short innovation cycles, fragmented management, and lack of accountability, also need to be addressed. Going forward, research should focus on the application of AI in industry-specific marketing contexts, with adoption roadmaps that encompass technological, economic, human resource, legislative, ethical, and sustainability aspects. Practical recommendations for addressing these barriers will strengthen the adoption of intelligent marketing, ensuring relevance and competitive advantage in the evolving digital landscape.

REFERENCES

- [1] Aivaz, K. A., Florea, I. O., & Munteanu, I. (2024). Economic fraud and associated risks: An integrated bibliometric analysis approach. *Risks*, 12(5), 74-83.
- [2] Aldunate, Á., Maldonado, S., Vairetti, C., & Armelini, G. (2022). Understanding customer satisfaction via deep learning and natural language processing. *Expert Systems with Applications*, 20(6), 119-126.
- [3] Alkudah, N. M., & Almomani, T. O. (2024). The integration of artificial intelligence techniques in e-commerce: Enhancing online shopping experience and personalization. *Global Journal of Economics & Business*, 14(6), 245-252.
- [4] Ameen, N., Tarhini, A., Reppel, A., & Anand, A. (2021). Customer experiences in the age of artificial intelligence. *Computers in human behavior*, 114(9), 106-121.
- [5] Araujo, T., & Casais, B. (2019). Customer acceptance of shopping-assistant chatbots. In *Marketing and smart technologies: Proceedings of ICMaTech 2019* (pp. 278-287). Singapore: Springer Singapore.
- [6] Azzari, V., Mainardes, E. W., & Costa, F. M. D. (2021). Accounting services quality: a systematic literature review and bibliometric analysis. *Asian Journal of Accounting Research*, 6(1), 80-94.
- [7] Babatunde, S. O., Odejide, O. A., Edunjobi, T. E., & Ogundipe, D. O. (2024). The role of AI in marketing personalization: A theoretical exploration of consumer engagement strategies. *International Journal of Management & Entrepreneurship Research*, 6(3), 936-949.
- [8] Bannor, R. K., Arthur, K. K., Oppong, D., & Oppong-Kyeremeh, H. (2023). A comprehensive systematic review and bibliometric analysis of food fraud from a global perspective. *Journal of Agriculture and Food Research*, 14(5), 106-118.
- [9] Barik, K., Misra, S., Ray, A. K., & Shukla, A. (2023). A blockchain-based evaluation approach to analyse customer satisfaction using AI techniques. *Heliyon*, 9(6), 345-355.
- [10] Charli, C. O., & Suharno, P. (2025). Analyzing the effect of green HRM on employee performance: the mediating role of artificial intelligence. *Jurnal Ilmiah Manajemen Kesatuan*, 13(5), 3837-3842.
- [11] Daqar, M. A. A., & Smoudy, A. K. (2019). The role of artificial intelligence on enhancing customer experience. *International Review of Management and Marketing*, 9(4), 22-34.
- [12] 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.
- [13] De Bruyn, A., Viswanathan, V., Beh, Y. S., Brock, J. K. U., & Von Wangenheim, F. (2020). Artificial intelligence and marketing: Pitfalls and opportunities. *Journal of Interactive Marketing*, 51(1), 91-105.
- [14] Dominko, M., Primc, K., Slabe-Erker, R., & Kalar, B. (2023). A bibliometric analysis of circular economy in the fields of business and economics: towards more action-oriented research. *Environment, Development and Sustainability*, 25(7), 5797-5830.
- [15] Donthu, N., Kumar, S., & Pattnaik, D. (2020). Forty-five years of Journal of Business Research: A bibliometric analysis. *Journal of Business Research*, 10(2), 1-14.
- [16] Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 13(4), 285-296.
- [17] Gao, B., Wang, Y., Xie, H., Hu, Y., & Hu, Y. (2023). Artificial intelligence in advertising: advancements, challenges, and ethical considerations in targeting, personalization, content creation, and ad optimization. *Sage Open*, 13(4), 219-227.
- [18] Hashimoto, D. A., Rosman, G., Rus, D., & Meireles, O. R. (2018). Artificial intelligence in surgery: promises and perils. *Annals of Surgery*, 268(1), 70-76.
- [19] Huang, M. H., & Rust, R. T. (2022). A framework for collaborative artificial intelligence in marketing. *Journal of Retailing*, 98(2), 209-223.
- [20] Ijomah, T. I., Idemudia, C., Eyo-Udo, N. L., & Anjorin, K. F. (2024). The role of big data analytics in customer relationship management: Strategies for improving customer engagement and retention. *World Journal of Advanced Science and Technology*, 6(1), 13-24.
- [21] Kadasah, E. A. (2023). Artificial intelligence powered chatbot for business. *International Journal of Information Technology and Business*, 5(2), 18-23.
- [22] Kalsum, E. U., Pramesworo, I. S., Yuli, S. B. C., Sedyastuti, K., & Mursalin, A. (2025). Bibliometric exploration of human resource innovation in the tourism industry. *Jurnal Ilmiah Manajemen Kesatuan*, 13(4), 2459-2470.

- [23] Kedi, W. E., Ejimuda, C., Idemudia, C., & Ijomah, T. I. (2024). AI Chatbot integration in SME marketing platforms: Improving customer interaction and service efficiency. *International Journal of Management & Entrepreneurship Research*, 6(7), 2332-2341.
- [24] Khan, M. A., Pattnaik, D., Ashraf, R., Ali, I., Kumar, S., & Donthu, N. (2021). Value of special issues in the journal of business research: A bibliometric analysis. *Journal of Business Research*, 12(4), 295-313.
- [25] Laengle, S., Merigó, J. M., Modak, N. M., & Yang, J. B. (2020). Bibliometrics in operations research and management science: a university analysis. *Annals of Operations Research*, 294(1), 769-813.
- [26] Li, H. (2019). Special section introduction: Artificial intelligence and advertising. *Journal of advertising*, 48(4), 333-337.
- [27] Li, Y. (2023). Big data analysis in consumer behavior: Evidence from social media and mobile payment. *Advances in Economics, Management and Political Sciences*, 4(3), 269-275.
- [28] Liu, X., Shin, H., & Burns, A. C. (2021). Examining the impact of luxury brand's social media marketing on customer engagement: Using big data analytics and natural language processing. *Journal of Business research*, 125(12), 815-826.
- [29] Liu, Y. (2021). Research on the new model of aerobics physical education under the background of artificial intelligence era. *Mobile information systems*, 2(1), 317-321.
- [30] Ma, L., & Sun, B. (2020). Machine learning and AI in marketing—Connecting computing power to human insights. *International journal of research in marketing*, 37(3), 481-504.
- [31] Mari, A., Mandelli, A., & Algesheimer, R. (2024). Empathic voice assistants: Enhancing consumer responses in voice commerce. *Journal of Business Research*, 7(3), 566-571.
- [32] Mariciuc, D. F. (2022). Using virtual assistants as relationship marketing instruments. *Ovidius University Annals, Economic Sciences Series*, 22(1), 634-641
- [33] Mathew, J., & Scholar, P. G. (2021). A study into the use of artificial intelligence in e-commerce stock management and product suggestion generation for end users. In *Proceedings of the National Conference on Emerging Computer Applications (NCECA)* (Vol. 103).
- [34] Mokhtari, S., Yen, K. K., & Liu, J. (2021). Effectiveness of artificial intelligence in stock market prediction based on machine learning. *International Journal of Computer Applications*, 183(7), 1-8.
- [35] Olujimi, P. A., & Ade-Ibijola, A. (2023). NLP techniques for automating responses to customer queries: a systematic review. *Discover Artificial Intelligence*, 3(1), 20-32.
- [36] Passas, I. (2023). *Accounting for integrity: ESG and financial disclosures: the challenge of internal fraud in management decision-making*. Heraklion: Hellenic Mediterranean University.
- [37] Passas, I. (2024). Bibliometric analysis: the main steps. *Encyclopedia*, 4(2), 12-21.
- [38] Passas, I., Ragazou, K., Zafeiriou, E., Garefalakis, A., & Zopounidis, C. (2022). ESG controversies: A quantitative and qualitative analysis for the sociopolitical determinants in EU firms. *Sustainability*, 14(19), 128-139.
- [39] Phabao, S., Pongsiri, P., & Silpcharu, T. (2023). Intelligent marketing management approach in the industrial business sectors. *International Journal of Professional Business Review*, 8(6), 39-43.
- [40] Pinarbasi, F., & Akpınar, H. M. (2020). Transformation of marketing with technology: Case approach for artificial intelligence. In *Handbook of research on strategic fit and design in business ecosystems* (pp. 144-165). Hershey: IGI Global.
- [41] Ragazou, K., Passas, I., Garefalakis, A., & Dimou, I. (2022). Investigating the research trends on strategic ambidexterity, agility, and open innovation in SMEs: Perceptions from bibliometric analysis. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), 118-129.
- [42] Raiter, O. (2021). Segmentation of bank consumers for artificial intelligence marketing. *International Journal of Contemporary Financial Issues*, 1(1), 39-54
- [43] Ramachandran, K. K., Mary, A. A. S., Hawladar, S., Asokk, D., Bhaskar, B., & Pitroda, J. R. (2022). Machine learning and role of artificial intelligence in optimizing work performance and employee behavior. *Materials Today: Proceedings*, 51(12), 2327-2331.
- [44] Ray, R., Khandelwal, P., & Baranidharan, B. (2018). A survey on stock market prediction using artificial intelligence techniques. In *2018 International Conference on Smart Systems and Inventive Technology (ICSSIT)*, 594-598.
- [45] Riikkinen, M., Saarijärvi, H., Sarlin, P., & Lähtenmäki, I. (2018). Using artificial intelligence to create value in insurance. *International Journal of Bank Marketing*, 36(6), 1145-1168.
- [46] Rousseau, S., & Rousseau, R. (2021). Bibliometric techniques and their use in business and economics research. *Journal of Economic Surveys*, 35(5), 1428-1451.
- [47] Sweileh, W. M. (2020). Bibliometric analysis of scientific publications on “sustainable development goals” with emphasis on “good health and well-being” goal (2015–2019). *Globalization and health*, 16(1), 68-78.
- [48] Thandekkattu, S. G., & Kalaiarasi, M. (2022). Customer-centric e-commerce implementing artificial intelligence for better sales and service. In *Proceedings of Second International Conference on Advances in Computer Engineering and Communication Systems: ICACECS 2021* (pp. 141-152). Singapore: Springer Nature Singapore.

- [49] Verma, S., & Gustafsson, A. (2020). Investigating the emerging COVID-19 research trends in the field of business and management: A bibliometric analysis approach. *Journal of Business Research*, 118, 253-261.
- [50] Verma, S., Sharma, R., Deb, S., & Maitra, D. (2021). Artificial intelligence in marketing: Systematic review and future research direction. *International Journal of Information Management Data Insights*, 1(1), 103-118.
- [51] Vlačić, B., Corbo, L., e Silva, S. C., & Dabić, M. (2021). The evolving role of artificial intelligence in marketing: A review and research agenda. *Journal of Business Research*, 18(21), 187-203.
- [52] Wang, C. (2022). Efficient customer segmentation in digital marketing using deep learning with swarm intelligence approach. *Information Processing & Management*, 59(6), 3070-3085.
- [53] Yau, K. L. A., Saad, N. M., & Chong, Y. W. (2021). Artificial intelligence marketing (AIM) for enhancing customer relationships. *Applied Sciences*, 11(18), 8562-8574.
- [54] Yeğın, T. (2020). The place and future of artificial intelligence in marketing strategies. *Ekev Akademi Dergisi*, 3(81), 489-506.
- [55] Yıldas, E. N., & Aycı, A. (2024). The Role of Artificial Intelligence in Integrated Marketing Communication: An Evaluation of ChatGPT. *Pamukkale Üniversitesi İşletme Araştırmaları Dergisi*, 11(2), 611-637.
- [56] Zhao, X., Nan, D., Chen, C., Zhang, S., Che, S., & Kim, J. H. (2023). Bibliometric study on environmental, social, and governance research using CiteSpace. *Frontiers in Environmental Science*, 10(2), 109-125.
- [57] Zhuk, A., & Yatskyi, O. (2024). The use of artificial intelligence and machine learning in e-commerce marketing. *Technology audit and production reserves*, 3(4), 33-38.

