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SYSTEMATIC LITERATURE MAPPING AND BIBLIOMETRIC SYNTHESIS: STUDY OF THE IMPACT OF ARTIFICIAL INTELLIGENCE ON MARKETING PERFORMANCE

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ABSTRACT

Introduction: *This study explores the impact of Artificial Intelligence (AI) technologies on marketing performance through a systematic literature mapping and bibliometric analysis approach. The study identifies dominant AI technologies such as machine learning, natural language processing, predictive analytics, and generative AI and evaluates their impact on key marketing metrics, including customer engagement, conversion rates, and Return on Marketing Investment (ROMI).*

Methods: *The data collection and analysis process was conducted during the period of March to April 2025 on the Scopus database. 69 articles as of April 2025 with the keyword Technology and AI Trends in Marketing. The top 30 articles were downloaded for analysis and debate, then narrowed down to 13 selected scientific articles as secondary data.*

Results: *Bibliometric mapping through keyword co-occurrence analysis revealed six major research clusters, emphasizing the integration of AI in digital marketing, customer interaction, e-commerce, luxury tourism, manufacturing, and big data analytics. The findings suggest that AI-driven personalization, automation, predictive analytics, and omnichannel strategies significantly improve marketing effectiveness and efficiency. Furthermore, customer responses indicated increased satisfaction, engagement, loyalty, and conversion rates after AI implementation. Critical success factors identified included big data integration, real-time strategic adaptation, seamless customer experience, and ethical considerations. This study contributes to the academic field by providing a comprehensive visual map of AI applications in marketing and highlighting future research directions focused on long-term customer loyalty and ethical AI adoption.*

Keywords*: Artificial Intelligence, Bibliometric Analysis, Marketing Performance, Systematic Mapping, Customer Engagement*

INTRODUCTION

Across sectors, research shows that Artificial Intelligence (AI) is supporting personalized, data-driven marketing strategies, streamlining routine tasks, and improving real-time decision-making. AI-powered personalization is transforming the way organizations engage with customers, by tailoring content, recommendations, and communication channels based on individual preferences (Vashishth et al., 2025; Bijalwan et al., 2025). AI is becoming a critical tool for identifying and understanding consumer behavior patterns across the customer journey and improving their experience (Esmaeili Mahyari et al., 2025). AI-powered real-time data analytics are helping organizations respond to evolving customer needs quickly and agilely (Wirth, 2018). AI-powered chatbots and virtual assistants are also providing instant, contextual interactions, and improving the quality of the customer experience (Torres & Delgado, 2023).

AI significantly simplifies marketing operations and improves the accuracy of forecasting market trends and consumer behavior (Potwora et al., 2024; Chintalapati & Pandey, 2022). The evolution from simple data analysis to deep learning has transformed marketing techniques globally (Hutsaliuk et al., 2020). AI helps companies make strategic decisions based on predicted customer behavior and market trends and increases operational effectiveness through automation, campaign data analysis, and improved customer relationships (Potwora et al., 2024). AI-based automation drives increased ROI, efficiency, and campaign effectiveness (Allioui & Mourdi, 2023; Abrokwah-Larbi & Awuku-Larbi, 2023; Salkovska et al., 2023). For startups, AI enables rapid analysis of large data sets, generating insights for strategic decision-making and product development (Samal et al., 2024). With predictive analytics and trend forecasting, entrepreneurs can anticipate market demand, optimize resource allocation, reduce risks, and improve competitiveness and business continuity.

Customer engagement is increased thanks to AI's ability to adjust marketing strategies based on consumer data, accelerate campaign analysis, and improve the accuracy of market trend forecasts (Potwora et al., 2024; Goic et al., 2021; Tang et al., 2022). The integration of AI in market forecasting and sales outcome predictions allows businesses to plan more accurately, allocate resources effectively, and set realistic targets (Sohrabpour et al., 2021). AI predictive analytics also improves the accuracy of consumer demand forecasts speeds up customer response times and strengthens customer service. The importance of AI in marketing is also reflected in its ability to support personalized and scalable consumer relationship management, as well as more effective decision-making (Stone et al., 2020). AI can translate big data into strategic information, resulting in more successful marketing strategies (Paschen et al., 2020). AI systems will continue to redefine the marketing landscape by empowering target market segmentation, data-driven strategies, and hyper-personalized insights (Rita et al., 2025).

In the last decade, AI has become more than just an additional tool but has become a core foundation in developing modern marketing strategies. Technologies such as machine learning, natural language processing (NLP), predictive analytics, and generative AI have been shown to improve campaign effectiveness, accelerate consumer behavior analysis, personalize customer interactions, and accelerate companies' adaptation to market changes (Bijalwan et al., 2025; Esmaeili Mahyari et al., 2025; Potwora et al., 2024; Samal et al., 2024). However, despite the rapid growth of research on AI in marketing, the existing information is scattered and unstructured. Many studies focus on specific cases without building a big picture of how this technology is shaping the marketing field as a whole. Without trend mapping and systematic analysis, academics and practitioners struggle to understand the direction of research developments, identify research gaps, and design accurate data-driven strategies.

This study aims to analyze research trends on the application of technology and artificial intelligence (AI) in marketing based on a review of scientific publications. The focus of the research is directed at identifying dominant keywords, main topics, and patterns of relationships between concepts that develop in the literature. Through a bibliometric approach, this study maps the structure of the scientific network to understand the direction of research evolution in the field, while evaluating the influence of the application of technologies such as machine learning, natural language processing (NLP), predictive analytics, and generative AI on marketing performance based on the results of previous studies. In addition, this study aims to identify areas of research that are still under-

explored and emerging new trends, so that they can provide strategic direction for the development of further research and AI-based marketing practices in the future.

Unlike previous studies that tend to be fragmentary or focus on specific cases, this study offers a comprehensive visual map that illustrates the relationship between keywords, research topics, and AI technology applications to various marketing performance indicators. This study also examines how the combination of technologies such as machine learning, natural language processing, predictive analytics, and generative AI play a role across industry sectors in increasing customer engagement, loyalty, conversion, and operational efficiency. Thus, this study builds a new conceptual framework that can be the basis for the development of theory and practice in the field of technology-based marketing.

As a scientific contribution, this study presents a knowledge structure map that shows the relationship between concepts, and the dynamics of topic evolution and identifies technologies that have the most significant impact on marketing performance. The findings of this study are expected to direct future research development, optimize AI-based marketing strategies, avoid duplication of studies, and accelerate innovation in the increasingly competitive business sector. With this understanding, organizations are expected to be able to make technology investment decisions that are more informed, strategic, and adaptive to market changes.

LITERATURE REVIEW

The development of Artificial Intelligence technology has brought fundamental changes in modern marketing strategies. In this context, AI is defined as an intelligent system capable of performing data analysis, adaptive learning, and automated decision-making to support marketing activities (Vashishth et al., 2025; Bijalwan et al., 2025). AI technologies such as machine learning, natural language processing (NLP), predictive analytics, and generative AI functions accelerate the process of analyzing consumer behavior, optimizing marketing decisions, and improving customer experience in real time. The application of AI in marketing focuses on four main aspects, namely personalization of marketing strategies, operational automation, data-driven decision-making, and strengthening customer relationships. AI enables the development of more specific communications to customers based on individual preferences, creating more relevant and memorable experiences (Esmaeili Mahyari et al., 2025). Routine tasks such as content management, audience segmentation, and advertising campaigns can be automated through AI, increasing operational efficiency (Bijalwan et al., 2025). AI supports strategic decision-making by leveraging big data analytics to predict market trends and consumer behavior (Potwora et al., 2024). With AI, companies can build more personal and adaptive relationships with customers through media such as chatbots and automated recommendations (Torres & Delgado, 2023). Thus, AI not only functions as a marketing tool but also as a foundation for forming a dynamic and adaptive data-driven marketing approach.

The development of Artificial Intelligence (AI) technology in marketing is not only driven by technical advances, but also by theories that underlie the relationship between technology, data, and consumer behavior. The Resource-Based View (RBV) concept (Barney, 1991) explains how AI becomes a rare and difficult-to-imitate strategic resource, providing a competitive advantage through unique analytical and personalization capabilities. The Adaptive Decision-Making theory (Gigerenzer & Selten, 2001) is also relevant, where AI allows organizations to dynamically adapt to market changes through real-time data analysis and machine learning. AI in marketing operates on the Customer Journey Analytics framework, where technologies such as predictive analytics and natural language processing (NLP) map all stages of customer interaction—from awareness to loyalty—with high precision (Lemon & Verhoef, 2016). The integration of AI with Media Ecology Theory (McLuhan, 1964) is also evident: AI creates a new media environment that facilitates hyper-personal and omnichannel interactions, changing the way customers perceive brands.

The four main aspects of AI implementation in marketing are marketing strategy personalization, operational automation, data-driven decision-making, and strengthening customer relationships. Based on Dynamic Segmentation theory (Wedel & Kamakura, 2000), AI enables continuously updated customer segmentation based on

real-time behavioral data, not static categories. For example, generative AI that generates content tailored to individual preferences (Rita et al., 2025). Operational Efficiency Theory (Porter, 1985) supports the use of AI to automate tasks such as campaign management and sentiment analysis, reducing transaction costs (Bijalwan et al., 2025). The concept of Data-Driven Marketing (Provost & Fawcett, 2013) emphasizes the role of AI in transforming raw data into strategic insights, such as market demand predictions (Potwora et al., 2024). Relational Marketing Theory (Morgan & Hunt, 1994) explains how chatbots and AI recommendations build trust through responsive and contextual interactions (Alsadoun & Alnasser, 2025).

Previous studies on the use of AI in marketing show consistent results that emphasize the strategic role of this technology in improving various marketing performance indicators. Studies by Potwora et al., (2024) and Chintalapati & Pandey (2022) highlight AI's ability to improve the accuracy of market trend forecasts, accelerate data analysis, and optimize resource allocation. This is reinforced by research by Esmaeili Mahyari et al., (2025) which found that AI drives increased personalization of customer service on a mass scale, especially through real-time data analytics. In terms of customer engagement, Torres & Delgado (2023) and Alsadoun & Alnasser (2025) prove that the use of AI-based chatbots significantly increases customer satisfaction and loyalty, especially in the e-commerce sector. Meanwhile, Rita et al., (2025) emphasize that the integration of AI with big data results in more precise market segmentation, increasing the relevance of marketing messages and campaign effectiveness.

A study by Astanakulov et al., (2024) showed that AI reduced campaign execution time by 33% while increasing ROI by 27%. This is in line with the findings of Potwora et al., (2024) who reported an increase in email marketing efficiency of 10–15% through dynamic pricing algorithms. Doanh et al., (2023) proved that generative AI in the manufacturing sector increased demand forecasting accuracy by 20%, reducing the risk of overstock. Cunha et al., (2024) studied the luxury tourism sector and found that AI-based personalization increased conversion rates by 18%. Esmaeili Mahyari et al., (2025) added that real-time data analysis increases the relevance of customer interactions across all channels. Alsadoun & Alnasser (2025) proved that AI chatbots increase customer satisfaction in Saudi Arabian e-commerce through fast and contextual responses. Dai et al., (2024) emphasized the synergy between AI and big data in improving market segmentation accuracy in the cross-border e-commerce industry. The study showed a 22% increase in sales after AI implementation. Chintalapati & Pandey (2022) and Potwora et al., (2024) found that predictive analytics reduced market forecast errors by 15%, allowing for more optimal budget allocation.

RESEARCH METHODS

This study uses a systematic mapping and bibliometric analysis approach based on secondary literature, with a descriptive quantitative approach and thematic synthesis. This study aims to identify and analyze the influence of artificial intelligence (AI) technology on various marketing performance metrics such as customer engagement, conversion rates, and return on marketing investment (ROMI). The research setting was carried out through online desk research, with data sources in the form of scientific articles obtained using Watase Uake, a tool developed to conduct literature reviews through collaboration and utilize database potential. The reviewed articles were publications available until 2025. The data collection and analysis process was conducted during the period of March to April 2025. The authors collected all articles in Scopus, tagged with the keyword Technology and AI Trends in Marketing (69 articles as of April 2025), sorted them based on citations, and downloaded the metadata of the top 30 articles for analysis and debate, then narrowed it down to the impact of AI on various marketing performance metrics, and used bibliometric visualization and qualitative data analysis software (VOSviewer and Watase Uake) to identify the impact of AI on customer engagement, conversion rates, and return on marketing investment (ROMI), and finally drew conclusions.

The variables studied in this study include the types of AI technology used in the marketing context, such as machine learning, natural language processing, generative AI, predictive analytics, and various marketing performance metrics such as customer engagement levels, conversion rates, customer satisfaction levels, customer loyalty, and sales performance. The research population is all scientific articles that discuss the implementation of

AI in marketing. The research sample consists of 13 articles that have been selected based on inclusion criteria, namely articles that focus on the use of AI in improving marketing metrics, based on empirical studies or systematic reviews/meta-analyses, and include comparative data or results of analysis of the impact of AI use. The sampling technique used is purposive sampling, where articles are selected intentionally according to their relevance to the research topic. The selection process considers the completeness of the data, suitability to the research focus, and the existence of measurable marketing performance metrics.

The research instruments include Watase Uake for the data filtering and extraction process and VOSviewer bibliometric software for further analysis. Data is extracted based on certain categories, namely research design, type of AI technology, marketing metrics measured, key findings related to the impact of AI, and the industry context of each study. Data analysis was carried out through several stages, namely: (1) filtering articles based on inclusion criteria, (2) extracting the main variables from each article, (3) bibliometric analysis to map the frequency of technology use and relationships between concepts, and (4) thematic analysis to identify AI implementation patterns, customer responses to AI technology, and factors that influence the success of AI implementation in marketing.

RESULT AND ANALYSIS

RESULT

4.1. Analisis Bibliometric - Keyword Co-Occurrence Analysis Graph

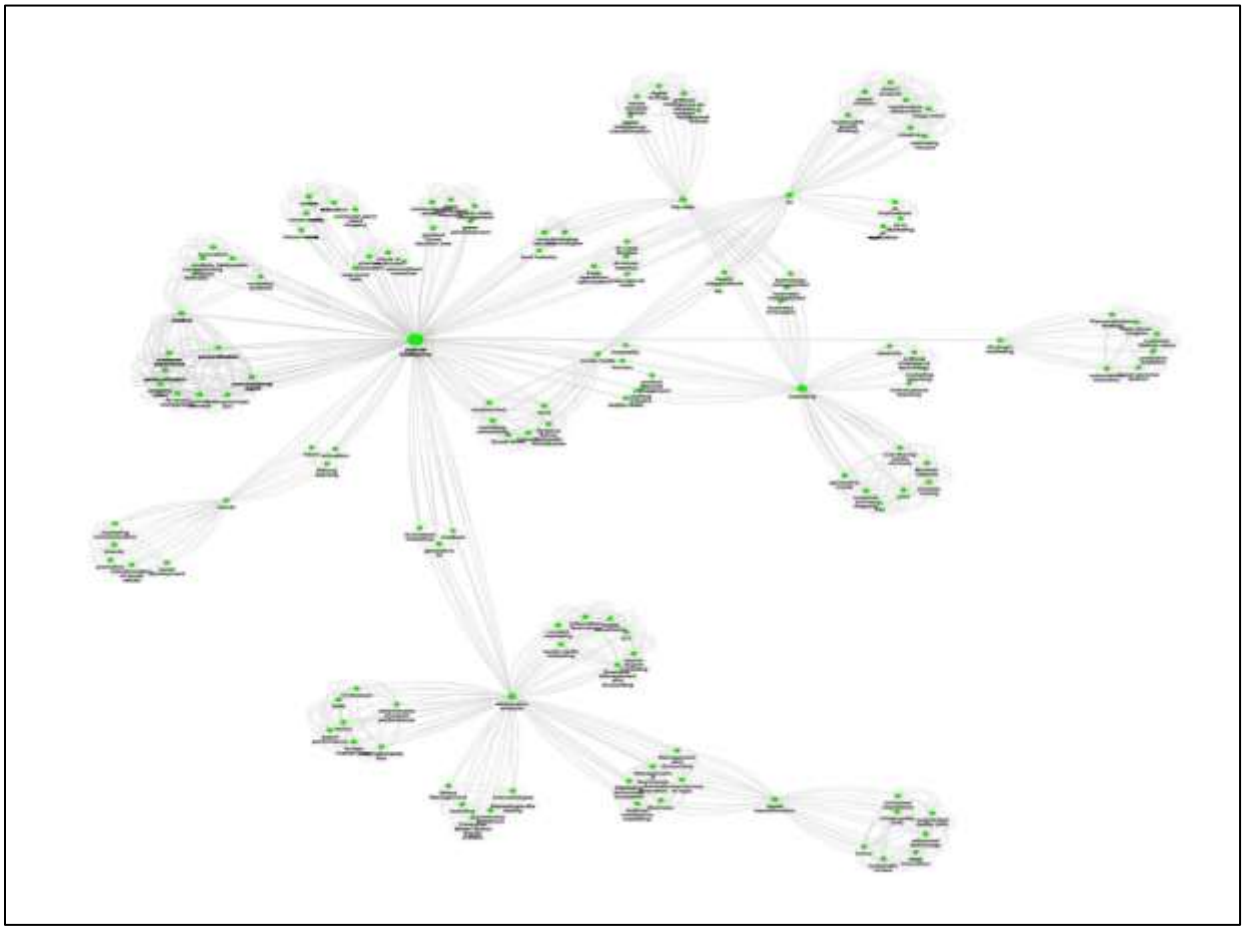

Figure 1. Keyword Co-Occurrence Analysis Graph
Source: Watase Uake

Based on bibliometric analysis of the analyzed literature corpus, a Keyword Co-Occurrence Analysis Graph was produced that shows the conceptual relationship between research themes related to the use of AI in marketing. The mapping results show that artificial intelligence and marketing are the two most dominant keywords, both in terms of frequency of occurrence and central position in the network. This dominance indicates that the analyzed research focuses on the integration of AI into modern marketing strategies.

Network visualization shows the formation of six main groups (clusters), each representing an interrelated theme:

1. AI & Digital Marketing: Covers the use of machine learning, predictive analytics, and personalization in digital marketing.
2. Customer Interaction: Focuses on the use of chatbots and other AI technologies to increase customer engagement and loyalty.
3. E-Commerce & Online Retail: Highlights the implementation of AI in the e-commerce sector and its impact on sales performance.
4. Luxury Tourism & Hospitality: Examines the adoption of AI in the luxury tourism sector to improve customer experience.
5. Manufacturing & Industry 4.0: Describes the use of generative AI in the manufacturing and industrial automation sectors.
6. Big Data Integration: Focusing on combining AI with big data analytics to strengthen data-driven marketing strategies.

The relationship between keywords shows a close relationship between chatbots and customer satisfaction, as well as between digital marketing and predictive analytics, indicating that this technology is a major driver in the development of AI-based marketing. The analysis also shows that the aspect of personalization is a consistent theme in almost all clusters, indicating the importance of personalization strategies in increasing the effectiveness of AI-based marketing.

4.2. Effects of AI Implementation on Marketing Performance

Based on data from 13 studies analyzed, the impact of AI integration on various marketing performance metrics can be summarized as follows:

4.2.1 Characteristics of Included Studies

a. AI Technologies:
   1. Machine Learning was mentioned as an AI technology in 12 studies we analyzed.
   2. Natural Language Processing was mentioned in 11 studies.
   3. AI Chatbots and Predictive Analytics were each mentioned in 8 studies.
   4. Generative AI was mentioned in 6 studies.
   5. Other technologies like Computer Vision, Deep Learning, and Expert Systems were mentioned in 2-3 studies each.
   6. Various other AI technologies were mentioned in single studies.

b. Industry Context:
   1. Marketing and Advertising were mentioned as an industry focus in the 7 studies we analyzed.
   2. Retail and E-commerce were mentioned in 3 studies.
   3. Manufacturing was mentioned in 2 studies.
   4. Various other industries (e.g., Food, Tourism/Hospitality, Banking) were mentioned in single studies.

c. Primary Metrics:
   1. Customer satisfaction was mentioned as a metric in 9 studies we analyzed.
   2. Customer engagement was mentioned in 8 studies.
   3. Customer loyalty was mentioned in 6 studies.

4. Sales performance was mentioned in 5 studies.
5. The conversion rate was mentioned in 3 studies.
6. Return on Marketing Investment (ROMI) was mentioned in 2 studies.
7. Various other metrics (e.g., click-through rates, time efficiency) were mentioned in single studies.

4.2.2 Effects of AI on Marketing Performance

a. Customer Engagement Metrics

Our analysis of the 13 studies examining the impact of AI solutions on various customer engagement metrics revealed:

1. Most commonly studied metrics:
   1) Customer engagement rates (4 studies)
   2) Customer satisfaction (3 studies)
   3) Customer engagement (3 studies)
   4) Customer experience (2 studies)
2. Impact of AI solutions:
   1) 10 studies reported qualitative improvements
   2) 2 studies provided quantitative improvements:
      i. Up to 22% increase in click-through rates in digital marketing
      ii. 10-15% increase in email marketing, 5-12% in targeted advertising, and 8-18% in product recommendation
3. Context of studies:
   1) Marketing and advertising was the most common context (5 studies)
   2) Digital marketing was the focus of 3 studies
   3) Other contexts included manufacturing, online retail/e-commerce, tourism and hospitality, banking, and startups
4. Geographic distribution:
   1) We found specific country mentions for Saudi Arabia (2 studies), China, Jordan, Portugal, Spain, and India (1 study each)
   2) 1 study had a global perspective
   3) 2 studies mentioned various or multiple sectors without specifying countries
5. AI solutions studied included chatbots, big data analytics, generative AI, and AI in branding and marketing strategies

b. Conversion and ROI Impacts

Our analysis of the table reveals:

1. Performance Metrics:
   1) Sales performance was mentioned in 4 studies.
   2) The conversion rate was mentioned in 3 studies.
   3) Return on Marketing Investment (ROMI) and Operational efficiency were each mentioned in 2 studies.
   4) We found single instances of Customer loyalty, Click-through rates, and ROI
2. Effect Sizes:
   1) 9 studies reported qualitative improvements without specific numerical data
   2) 4 studies provided quantitative effect sizes:
      i. One reported a Beta of 0.453 ($p < 0.01$)
      ii. One reported up to 22% increase in click-through rates

iii. One reported a 27% increase in campaign effectiveness and higher ROI for AI (1.48) compared to traditional methods (1.16)
iv. One reported a 15% to 20% increase in ROMI

3. Implementation Contexts:
   1) Marketing was mentioned in 7 studies.
   2) E-commerce was mentioned in 2 studies.
   3) We found single instances of manufacturing, food industry, tourism, and startups.

Overall, bibliometric analysis and marketing performance impact evaluation show that AI adoption makes a real contribution to increasing marketing effectiveness. Personalization, increased conversion, customer loyalty, and efficiency in resource management are the main benefits obtained from AI integration.

Table 1
Impact of AI Integration on Marketing Performance Metrics

Study Focus	AI Technology Type	Industry Context	Primary Metrics	Effects of AI on Marketing Performance							
				Customer Engagement Metrics				Conversion and ROI Impacts			
				AI Solution	Engagement Metric	Impact Magnitude	Context	Implementation Type	Performance Metric	Effect Size	Implementation Context
AI chatbot marketing impact on customer satisfaction and loyalty (Alsadoun & Alnasser, 2025)	AI chatbots, natural language processing, machine learning algorithms	Online retail, e-commerce, Saudi Arabia	Customer satisfaction, customer loyalty	AI chatbots	Customer satisfaction Customer loyalty	Beta = 0.396 (p < 0.01) Beta = 0.584 (p < 0.01)	Online retail, e-commerce, Saudi Arabia	AI chatbot marketing	Customer loyalty (indirect effect on conversion)	Beta = 0.453 (p < 0.01)	Online retail, e-commerce, Saudi Arabia
Impact of Sora AI on Marketing and advertising jobs (Bijalwan et al., 2025)	Generative AI, Machine learning, Deep learning, Predictive analytics	Marketing and Advertising	No mention found	Sora AI	Customer engagement	Qualitative improvement	Marketing and Advertising	Sora AI	Sales performance	Qualitative improvement	Marketing and Advertising
AI and big data in cross-border e-commerce for the straw hat industry (Dai et al., 2024)	Machine learning, Natural Language Processing, Generative AI, LDA topic model, Decision tree, AI-generated content, ChatGPT, AI chatbots	Cross-border e-commerce, straw hat manufacturing, Zhejiang Province, China	Sales performance, Customer satisfaction, Customer engagement rates	AI and big data analytics	Customer engagement rates	Qualitative improvement	Cross-border e-commerce, straw hat manufacturing, China	AI and big data analytics	Sales performance	Qualitative improvement	Cross-border e-commerce, straw hat manufacturing, China
AI and big data applications in food industry (Ding et al., 2023)	Machine learning, deep learning, natural language processing, computer	Food industry, global perspective, food service, food processing, and food retailing	Customer satisfaction scores, customer loyalty indicators	AI and big data	Customer satisfaction	Qualitative improvement	Food industry, global perspective	AI and big data	Operational efficiency (indirect impact on ROI)	Qualitative improvement	Food industry, global perspective

Study Focus	AI Technology Type	Industry Context	Primary Metrics	Effects of AI on Marketing Performance							
				Customer Engagement Metrics				Conversion and ROI Impacts			
				AI Solution	Engagement Metric	Impact Magnitude	Context	Implementation Type	Performance Metric	Effect Size	Implementation Context
	vision, recurrent neural networks, convolutional neural networks, expert systems, fuzzy logic systems										
AI impact on branding (Dong, 2025)	Computer vision, Reinforcement learning, Neural network, Machine learning, Natural language processing, Chatbots, Generative AI	Artificial Intelligence in Branding, Business Areas: Retailing, Consumer Service, Marketing	Customer satisfaction, Customer Experience, Brand loyalty, Sales Performance, Customer engagement rates	AI in branding	Customer experience	Qualitative improvement	Retailing, Consumer Service, Marketing	AI in branding	Sales performance	Qualitative improvement	Retailing, Consumer Service, Marketing
Generative AI in manufacturing processes (Doanh et al., 2023)	Generative Artificial Intelligence, Machine learning, Natural Language Processing, Predictive analytics	Manufacturing industry, Industry 4.0, automotive industry, bioengineering, additive manufacturing	Conversion rate, Customer satisfaction, Customer engagement	Generative AI	Customer engagement	Qualitative improvement	Manufacturing industry, Industry 4.0	Generative AI	Conversion rate	Qualitative improvement	Manufacturing industry, Industry 4.0
AI applications in Marketing (Esmaeili Mahyari et al., 2025)	Machine learning, natural language processing, AI chatbots,	Marketing industry, digital marketing strategies, customer experience	Customer satisfaction, Customer loyalty, Return on marketing	AI in marketing	Customer experience	Qualitative improvement	Marketing industry, digital marketing strategies	AI in marketing	Return on marketing investment (ROMI)	Qualitative improvement	Marketing industry, digital marketing strategies

Study Focus	AI Technology Type	Industry Context	Primary Metrics	Effects of AI on Marketing Performance							
				Customer Engagement Metrics				Conversion and ROI Impacts			
				AI Solution	Engagement Metric	Impact Magnitude	Context	Implementation Type	Performance Metric	Effect Size	Implementation Context
	deep learning, predictive analytics	enhancement	investment (ROMI), Customer engagement rates								
AI in digital marketing Systems (Makki, 2023)	AI (unspecified), Algorithms for content creation, Voice search technologies, Voice assistants, Propensity modeling, Dynamic pricing, Marketing automation tools, Dynamic emailing, Augmented reality, Edge Artificial Intelligence	Digital marketing systems, Jordanian banking sector	Customer engagement rates, click-through rates	AI in digital marketing	Customer engagement rates	Up to 22% increase in click-through rates	Digital marketing systems, Jordanian banking sector	AI in digital marketing	Click-through rates (indirect impact on conversion)	Up to 22% increase	Digital marketing systems, Jordanian banking sector
AI and Machine Learning in luxury tourism and hospitality marketing (Cunha et al., 2024)	AI (unspecified), Machine learning, Natural language processing, Predictive analytics, AI chatbots	Luxury tourism and hospitality, Portugal and Spain, Luxury hotels and related services	Conversion rates, Customer satisfaction scores	AI chatbots and predictive analytics	Customer interaction	Qualitative improvement	Luxury tourism and hospitality, Portugal and Spain	AI and Machine Learning in Luxury Tourism	Conversion rates	Qualitative improvement	Luxury tourism and hospitality, Portugal and Spain

Study Focus	AI Technology Type	Industry Context	Primary Metrics	Effects of AI on Marketing Performance							
				Customer Engagement Metrics				Conversion and ROI Impacts			
				AI Solution	Engagement Metric	Impact Magnitude	Context	Implementation Type	Performance Metric	Effect Size	Implementation Context
AI impact on digital marketing strategies (Astanakulov et al., 2024)	Machine learning, natural language processing, stochastic models, predictive analytics	Digital marketing industry	Customer engagement rates, Conversion rates, Sales performance, Return on Investment (ROI), Time efficiency	AI in digital marketing	Customer engagement rates	Qualitative improvement	Digital marketing industry	AI in digital marketing	ROI, Conversion rates	27% increase in campaign effectiveness, Average ROI 1.48 (AI) vs 1.16 (traditional)	Digital marketing industry
AI in marketing Strategies (Potwora et al., 2024)	Machine learning, Predictive Analytics, AI chatbots, Natural Language Processing	General marketing strategies across various sectors, with examples from printing firms and customer relationship management; global context with mention of South Korea	Customer engagement rates, Return on marketing investment (ROMI), Sales Performance, Customer retention rates	AI in marketing strategies	Customer engagement rates	10% to 15% increase in email marketing, 5% to 12% in targeted advertising, 8% to 18% in product recommendation	General marketing strategies across various sectors	AI in marketing strategies	ROMI	15% to 20% increase	General marketing strategies across various sectors
AI applications in Marketing (Rita et al., 2025)	Machine learning techniques, Natural Language Processing, Expert Systems, Generative AI, Reinforcement learning, AI-powered sentiment analysis, AI integration with AR/VR, AI-powered	Marketing industry, with a focus on AI applications	Customer satisfaction, Customer loyalty, Sales performance	AI in marketing	Customer satisfaction	Qualitative improvement	Marketing industry	AI in marketing	Sales performance	Qualitative improvement	Marketing industry

Study Focus	AI Technology Type	Industry Context	Primary Metrics	Effects of AI on Marketing Performance							
				Customer Engagement Metrics				Conversion and ROI Impacts			
				AI Solution	Engagement Metric	Impact Magnitude	Context	Implementation Type	Performance Metric	Effect Size	Implementation Context
	chatbots, Predictive analytics, Generative and quantum AI										
AI-based innovation in startup entrepreneurship (Samal et al., 2024)	Machine learning, natural language processing, computer vision, predictive analytics, generative AI, AI chatbots	Startups in India, across multiple sectors including healthcare, transportation, real estate, education	Customer engagement, brand loyalty, customer satisfaction	AI in startups	Customer engagement	Qualitative improvement	Startups in India, across multiple sectors	AI in startups	Operational efficiency (indirect impact on ROI)	Qualitative improvement	Startups in India, across multiple sectors

4.3. Patterns of AI Technology Integration in Marketing

Analysis of the included studies shows several key patterns in the integration of AI technology in marketing. First, AI integration strengthens personalization strategies and customer-centric approaches. A study by Esmaeili Mahyari et al., (2025) reveals how AI enhances personalized interactions through real-time data analytics, while Cunha et al., (2024) emphasizes AI's contribution to enabling mass personalization, especially in the luxury tourism sector. These findings reflect a major shift in marketing strategies towards more tailor-made experiences that focus on individual customer needs. Second, AI plays a significant role in automating routine marketing tasks. Bijalwan et al., (2025) noted that Sora AI can automate processes such as video creation and ad placement, while Astanakulov et al., (2024) reported a reduction in human marketing campaign execution time by up to 33%. This pattern shows that automation with AI is becoming a common practice that increases efficiency across marketing contexts.

Third, the use of AI-based predictive analytics also strengthens the decision-making process. Potwora et al., (2024) and Dai et al., (2024) show that AI's ability to improve forecasting accuracy and predict market trends opens up opportunities for more proactive and data-driven marketing strategies. In addition, AI also drives omnichannel integration, optimizing marketing efforts across channels such as email marketing, targeted advertising, and product recommendations. Potwora et al., (2024) report increased engagement levels thanks to this integration, indicating that AI plays a critical role in building a cohesive customer experience across platforms. Fourth, AI, especially through chatbots and virtual assistants, enriches customer interactions. Alsadoun & Alnasser (2025) provide quantitative evidence of the positive impact of AI chatbots on customer satisfaction and loyalty, emphasizing that AI can improve the quality of the relationship between brands and customers. Overall, these patterns reflect a fundamental transformation in marketing strategies, where AI is a key catalyst towards a more personalized, efficient, and data-driven approach.

4.4. Customer Response Patterns to AI-Based Marketing Strategies

Analysis of customer responses to AI-based marketing revealed several key themes. Increased customer satisfaction was one of the most consistent findings, with many studies, including Alsadoun & Alnasser (2025), showing quantitative evidence that AI integration, specifically chatbots, increased customer satisfaction in the e-commerce sector. This increase was also associated with more personalized experiences and faster service. In addition, AI has been shown to drive increased customer engagement. Potwora et al., (2024) reported increased engagement levels across multiple marketing channels following the implementation of AI. Many other studies have also shown that AI improves the overall quality of customer interactions, leading to more meaningful brand experiences.

In terms of customer loyalty, several studies have shown that AI-based marketing strategies can increase customer loyalty. Alsadoun & Alnasser (2025) noted the positive impact of AI chatbots on loyalty, demonstrating the potential for AI to build long-term relationships with customers. Positive responses to personalization were also a consistent pattern. Studies such as those conducted by Cunha et al., (2024) in the context of luxury tourism show that customers highly value customized experiences, highlighting the importance of a personalized approach in AI-based marketing. Furthermore, AI contributes to increased conversion rates. Astanakulov et al., (2024) noted a 27% increase in campaign effectiveness thanks to AI, indicating that AI can drive customers from the consideration stage to the purchase stage more effectively. There is evidence of increased adoption of AI-based interactions, such as the use of chatbots and virtual assistants. This is reflected in increased customer satisfaction and engagement, indicating that customers are becoming comfortable and accepting of AI technology in their journey of interacting with brands. While most studies highlight positive outcomes, it is important to note that there is a need for more research exploring negative responses or challenges in AI adoption from the customer perspective.

4.5. Success Factors for AI Implementation in Marketing Strategy

Further analysis shows several key factors that contribute to the success of AI implementation in marketing. One of the main factors is the integration of AI with big data analytics. Dai et al., (2024) showed that this synergy significantly improves market responsiveness and sales performance, paving the way for more accurate and responsive marketing strategies. The ability of AI to deliver a highly personalized approach was also identified as a key factor. Esmaeili Mahyari et al., (2025) and Cunha et al., (2024) emphasized how AI enhances customer experience through customized interactions, a critical element in winning the hearts of modern consumers.

Another factor that plays a major role is the creation of a seamless customer experience. Alsadoun & Alnasser (2025) showed that AI chatbots contribute to increased customer satisfaction and loyalty, indicating that AI integration that does not disrupt the natural flow of customer interactions tends to be more successful. The ability to adapt and optimize strategies in real-time is also an important aspect. Astanakulov et al., (2024) study highlights that AI can increase campaign effectiveness while reducing execution time, indicating the need for a more agile and dynamic marketing approach.

Integration across marketing functions is also a determining factor for success. Potwora et al., (2024) describe how AI can unite various marketing functions, from personalization to forecasting, resulting in more cohesive and strategic operations. In addition, the alignment of AI implementation with overall business goals is also important. Rita et al.. (2025) emphasize that AI implemented within a clear business goal framework can transform operational activities to be more strategic and successful.

Ethical issues and trust-building in the use of AI, although less explored, are also mentioned as important factors, especially for long-term sustainability and customer acceptance. The success of AI implementation depends heavily on the system's ability to continuously learn and adapt, as well as effective collaboration between humans and AI. Several studies have shown that the combination of artificial intelligence and human creativity results in more innovative and relevant marketing strategies. Taken together, these factors confirm that AI success in marketing requires a strategic, integrated, adaptive, and customer-centric approach.

4.6. Several Key Negative Impacts of AI on Marketing Performance

Based on the research report and extractions, several key negative impacts of AI on marketing performance were identified. First, there are significant cost and technical barriers. High initial investments and ongoing maintenance costs pose substantial challenges, particularly for small and medium-sized enterprises (Dai et al., 2024). Additionally, the technical complexity and difficulties in implementation further hinder the effective adoption of AI (Ding et al., 2023). Second, issues related to data and privacy are prominent. Concerns over data privacy and challenges in regulatory compliance—especially in heavily regulated industries—are notable (Cunha et al., 2024). Furthermore, algorithmic bias and a lack of transparency in AI-driven decision-making processes raise ethical and operational concerns (Rita et al., 2025), along with the growing risks of data breaches and cyberattacks (Cunha et al., 2024).

Third, the use of AI can negatively impact customer experience and trust. The potential loss of authenticity in customer interactions can undermine consumer confidence (Bijalwan et al., 2025), while excessive hyper-targeting may lead to customer fatigue (Rita et al., 2025). Overreliance on AI also risks diminishing creativity and the human touch in marketing strategies (Bijalwan et al., 2025). Fourth, there are operational challenges, including the need for continuous updates and system maintenance (Cunha et al., 2024), difficulties in integrating AI with existing systems (Ding et al., 2023), and potential issues with quality control and the accuracy of results (Ding et al., 2023). While AI generally outperforms traditional marketing approaches, these negative impacts can significantly affect marketing return on investment, especially if not properly managed. The effects are particularly pronounced in environments with low digital maturity or strict regulatory requirements (Olim et al., 2024).

CONCLUSION

This study aims to understand how Artificial Intelligence (AI) technology shapes modern marketing performance through a systematic mapping approach and bibliometric analysis. By utilizing keyword network visualization and concept relationship mapping through tools such as VOSviewer and Watase Uake, this study successfully uncovers the evolving knowledge structure in the AI-based marketing domain. The results of the bibliometric analysis show that artificial intelligence and marketing are the two most dominant keywords, indicating the main focus of the literature on the integration of AI technology into marketing strategies. The mapping forms six main clusters, with themes such as digital marketing, customer interaction, e-commerce, to big data integration, clarifying the direction of research evolution.

From this bibliometric analysis, a hypothesis was obtained that the integration of AI in marketing contributes to increasing the effectiveness and efficiency of marketing strategies. This hypothesis was confirmed through an analysis of 13 empirical studies, which consistently showed that the implementation of AI has a positive impact on various performance metrics such as customer engagement, conversion rates, and increasing Return on Marketing Investment (ROMI).

The main findings of this study confirm that the hypothesis is supported by the results of the analysis:

1. AI has been shown to increase marketing effectiveness through data-driven personalization, task automation, predictive analytics enhancement, and omnichannel integration.
2. AI technologies such as machine learning, natural language processing, predictive analytics, and generative AI play an important role in increasing customer engagement, conversion rates, and ROMI.
3. Customer responses to AI-based marketing strategies are generally positive, especially towards personalization and fast interactions via chatbots or virtual assistants.
4. Key factors for successful AI implementation include integration with big data, creating seamless customer experiences, real-time adaptation, human-AI collaboration, and alignment with strategic business goals.

However, this study also highlights several critical negative impacts that must be considered. Significant cost and technical barriers, such as high initial investment and complex implementation, pose challenges—especially for small and medium-sized enterprises. Data privacy concerns, regulatory compliance issues, algorithmic bias, and cybersecurity risks also threaten the effectiveness and trustworthiness of AI systems. Moreover, customer experience can suffer from overreliance on AI, leading to reduced authenticity, consumer fatigue from hyper-targeting, and a lack of human creativity. Operational difficulties, such as integration with existing systems, the need for continuous maintenance, and potential inaccuracies in output, further complicate implementation. Although AI often outperforms traditional marketing methods, these negative impacts can substantially reduce the return on marketing investment if not properly managed. These challenges are particularly pronounced in sectors with low digital maturity or strict regulatory environments.

This study also produced new findings in the form of:

1. Comprehensive visual mapping of the relationship between AI technology and marketing metrics.
2. Identification of industry trends that are starting to adopt AI more widely, not only in e-commerce and marketing, but also in sectors such as manufacturing, luxury tourism, and food services.
3. The importance of building an AI-based marketing strategy that considers ethical factors and customer trust for long-term sustainability.

This study also identified that the success of AI implementation in marketing depends not only on technical aspects, but also on the organization's ability to build consumer trust, consider ethical issues, and develop systems

that are adaptive to market dynamics. Thus, this study not only enriches the theoretical understanding of AI in marketing but also provides a new conceptual framework based on bibliometrics that can be used as a navigation map for further research and the development of technology-based business strategies. This study opens up opportunities for deeper exploration of areas that are still under-explored in the bibliometric map, such as the long-term impact of AI on customer loyalty, or the ethical dynamics of AI adoption in the marketing sector. Future research can use a longitudinal bibliometric approach to see changes in research focus over time.

REFERENCES

Abrokwah-Larbi, K., & Awuku-Larbi, Y. (2023). The impact of artificial intelligence in marketing on the performance of business organizations: Evidence from SMEs in an emerging economy. *Journal of Entrepreneurship in Emerging Economies*. https://doi.org/10.1108/jeee-07-2022-0207

Allioui, H., & Mourdi, Y. (2023). Unleashing the potential of AI: Investigating cutting-edge technologies that are transforming businesses. *International Journal of Computer Engineering and Data Science, 3*(2), 1-12.

Alsadoun, A. A., & Alnasser, A. N. (2025). Role of artificial intelligence chatbot marketing in enhancing customer satisfaction and loyalty in digital shopping experiences. International Journal of Innovative Research and Scientific Studies, 8(1), 1902–1909. https://doi.org/10.53894/ijirss.v8i1.4826

Astanakulov, O. T., Balbaa, M. E., Foziljonov, I., & Batirova, N. (2024). Investigating the impact of artificial intelligence on digital marketing tactics strategies using Neutrosophic set. *International Journal of Neutrosophic Science, 23*(3), 175–183. https://doi.org/10.54216/IJNS.230315

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120.

Bijalwan, P., Gupta, A., Johri, A., Wasiq, M., & Wani, S. K. (2025). Unveiling Sora Open AI's impact: A review of transformative shifts in marketing and advertising employment. *Cogent Business & Management, 12*(1), 2440640. https://doi.org/10.1080/23311975.2024.2440640

Chintalapati, S., & Pandey, S. K. (2022). Artificial intelligence in marketing: A systematic literature review. *International Journal of Market Research, 64*(1), 38-68. https://doi.org/10.1177/14707853211018428

Cunha, M. N., Pereira, M., Cardoso, A., Figueiredo, J., & Oliveira, I. (2024). Revolutionizing luxury: The role of AI and machine learning in enhancing marketing strategies within the tourism and hospitality luxury sectors. *Geojournal of Tourism and Geosites, 55*(3), 1345–1353. https://doi.org/10.30892/gtg.55335-1307

Dai, J., Mao, X., Wu, P., Zhou, H., & Cao, L. (2024). Revolutionizing cross-border e-commerce: A deep dive into AI and big data-driven innovations for the straw hat industry. *PLOS ONE, 19*(12), e0305639. https://doi.org/10.1371/journal.pone.0305639

Ding, H., Tian, J., Yu, W., Wilson, D. I., Young, B. R., Cui, X., Xin, X., Wang, Z., & Li, W. (2023). The application of artificial intelligence and big data in the food industry. *Foods, 12*, 4511. https://doi.org/10.3390/foods12244511

Doanh, D. C., Dufek, Z., Ejdys, J., Ginevičius, R., Korzyński, P., Mazurek, G., Paliszkiewicz, J., Wach, K., & Ziemba, E. (2023). Generative AI in the manufacturing process: Theoretical considerations. *Engineering Management in Production and Services, 15*(4), 76–89. https://doi.org/10.2478/emj-2023-0029

Dong, Y. (2025). Implementation of artificial intelligence for brand equity. *Cogent Business & Management, 12*(1), 2471538, 1-17. https://doi.org/10.1080/23311975.2025.2471538

Esmaeili Mahyari, M., Irani, H., Nourmandi Pour, V., & Nozari, H. (2025). Understanding the nexus of marketing and artificial intelligence (AI): Customer experience is of the essence. *International Journal of Supply and Operations Management, 12*(2), 236–253. https://doi.org/10.22034/ijsom.2025.110285.3017

Gigerenzer, G., & Selten, R. (Eds.). (2001). *Bounded rationality: The adaptive toolbox*. The MIT Press. https://doi.org/10.7551/mitpress/1654.001.0001

Goic, M., Rojas, A., & Saavedra, I. (2021). The effectiveness of triggered email marketing in addressing browse abandonments. *Journal of Interactive Marketing, 55*(1), 118-145. https://doi.org/10.1016/j.intmar.2021.02.002

Hutsaliuk, O., Koval, V., Tsimoshynska, O., Koval, M., & Skyba, H. (2020). Risk management of forming enterprises integration corporate strategy. *TEM Journal: Technology, Education, Management, Informatics, 9*(4), 1514-1523. https://doi.org/10.18421/tem94-26

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing, 80*(6), 69–96. https://doi.org/10.1509/jm.15.0420

Makki, A. (2023). Application of artificial intelligence technology in digital marketing systems. *Proceedings on Engineering Sciences, 5*(4), 609–616. https://doi.org/10.24874/PES05.04.003

McLuhan, M. (1964). *Understanding media: The extensions of man*. McGraw-Hill.

Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing, 58*(3), 20–38.

Paschen, J., Wilson, M., & Ferreira, J. J. (2020). Collaborative intelligence: How human and artificial intelligence create value along the B2B sales funnel. *Business Horizons, 63*(3), 403–414. https://doi.org/10.1016/j.bushor.2020.01.003

Porter, M. E. (1985). *Competitive advantage: Creating and sustaining superior performance*. Free Press.

Potwora, M., Vdovichena, O., Semchuk, D., Lipych, L., & Saienko, V. (2024). The use of artificial intelligence in marketing strategies: Automation, personalization and forecasting. *Journal of Management World, 2024*(2), 41–49. https://doi.org/10.53935/jomw.v2024i2.275

Provost, F., & Fawcett, T. (2013). *Data science for business: What you need to know about data mining and data-analytic thinking*. O'Reilly Media.

Rita, P., Omran, W., Ramos, R. F., & Costa, T. (2025). Exploring the applications of artificial intelligence in marketing: A topic modelling analysis. *Tourism & Management Studies, 21*(1), 39–55. https://doi.org/10.18089/tms.2025.0103

Salkovska, J., Batraga, A., Kaibe, L., & Kellerte, K. (2023). Use of Artificial Intelligence in the Digital Marketing Strategy of Latvian Companies. In X.-S. Yang, R. S. Sherratt, N. Dey, & A. Joshi (Eds.), *Proceedings of 8th International Congress on Information and Communication Technology - ICICT 2023* (pp. 785-797). (Lecture Notes in Networks and Systems; Vol. 694 LNNS). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1007/978-981-99-3091-3_64

Samal, A., Radhakrishna, H., Rajimol, K. P., Lakshmi, S. R., Mehrotra, D., & Girish, H. S. (2024). An investigation into the role of AI-based innovation in supporting the next generation of startup entrepreneurs. *Nanotechnology Perceptions, 20*(S5), 548–555. https://doi.org/10.62441/nano-ntp.vi.758

Sohrabpour, V., Oghazi, P., Toorajipour, R., & Nazarpour, A. (2021). Export sales forecasting using artificial intelligence. *Technological Forecasting and Social Change, 163*, 120480. https://doi.org/10.1016/j.techfore.2020.120480

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

Tang, L., Li, J., Du, H., Li, L., Wu, J., & Wang, S. (2022). Big data in forecasting research: A literature review. *Big Data Research, 27*, 100289. https://doi.org/10.1016/j.bdr.2021.100289

Torres, A. I., & Delgado, C. J. (2023). Assessing Customer Interactions With Chatbots in Online Shopping Experiences: An Empirical Study. In *Promoting Organizational Performance Through 5G and Agile Marketing* (pp. 203-223). IGI Global.

Vashishth, T. K., Sharma, K. K., Kumar, B., Chaudhary, S., & Panwar, R. (2025). Enhancing customer experience through AI-enabled content personalization in e-commerce marketing. *Advances in digital marketing in the era of artificial intelligence*, 7-32.

Wahyudi, Lilik. (2024). Watase Uake: Research Collaboration Tools. Retrieved from https://www.watase.web.id

Wedel, M., & Kamakura, W. A. (2000). *Market segmentation: Conceptual and methodological foundations*. Springer. https://doi.org/10.1007/978-1-4615-4651-1

Wirth, N. (2018). Hello marketing, what can artificial intelligence help you with?. *International Journal of Market Research, 60*(5), 435-438. https://doi.org/10.1177/1470785318776841

Yigitcanlar, T., & Cugurullo, F. (2020). The sustainability of artificial intelligence: An urbanistic viewpoint from the lens of smart and sustainable cities. *Sustainability, 12*(20), 8548. https://doi.org/10.3390/su12208548