

The Intellectual Structure and Evolution of Artificial Intelligence in Digital Marketing: A Bibliometric–Thematic Analysis and Capability-Based Framework.

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Abstract:

Artificial intelligence (AI) has become an integral part of digital marketing. Existing research often frames AI as a capability enhancer that improves efficiency, personalization, and decision-making. This study adopts a different perspective by arguing that AI also acts as a structural constraint on marketing autonomy. Using a bibliometric and thematic analysis of Scopus-indexed publications (2010-2025), the study shows that AI-driven marketing becomes with time dependent on data infrastructures, digital platforms, algorithmic systems, and governance mechanisms. These findings support a more critical understanding of AI's role in digital marketing. Building on these insights, the study proposes an integrative framework linking AI, value creation, and governance, highlighting the tension between performance optimization and responsible AI deployment.

Keywords: Artificial Intelligence (AI); Digital Marketing; Responsible AI; Governance; Value Creation.

1. INTRODUCTION

Artificial intelligence (AI) is increasingly embedded in digital marketing and is often presented as a driver of efficiency, personalization, and improved decision-making (Tewari, 2025; Tiahunova et al., 2024). AI-enabled tools such as predictive analytics, recommendation systems (H. E. Jang et al., 2024), and automated content generation are widely associated with marketing performance and competitive advantage (Chen, 2023; Nair & Gupta, 2020). As a result, digital marketing has become increasingly shaped by data, algorithms, and platform-based interactions (Sharma, 2023).

However, this dominant perspective remains largely optimistic. Most studies frame AI as a capability-enhancing force, while giving less attention to its problematic effects on marketing practice (Zghurska et al., 2024). In particular, AI may generate growing dependence on data infrastructures, digital platforms, algorithmic systems, and governance mechanisms (A. Al Adwan et al., 2023; PAVLOVIĆ & SAVIĆ, 2024). From this perspective, AI may not only improve marketing performance, but also constrain marketing autonomy (A. A. Adwan, 2024).

Despite the growing literature on AI in digital marketing, research still offers only a partial understanding of this transformation (Hunt & Kerr, 2025). Previous bibliometric studies have mainly described publication trends and research themes, but have paid less attention to the structural implications of AI adoption in marketing (Zintso et al., 2023). Therefore, a more critical interpretation of the field is needed (Li et al., 2024; Zaveri & Wilk, 2024).

To address this gap, this study examines the intellectual and thematic evolution of AI in digital marketing through a bibliometric and thematic analysis of Scopus-indexed publications from 2010 to 2025. It is guided by the following research question: **In what ways does AI improve marketing performance while simultaneously reducing marketing autonomy?**

Based on this question, the study proposes three hypotheses:

H1: Research on AI in digital marketing primarily frames AI as a capability-enhancing force that improves efficiency, personalization, and decision-making.

H2: Research on AI in digital marketing increasingly reflects that AI creates structural dependence on data infrastructures, digital platforms, algorithmic systems, and governance mechanisms, thereby constraining marketing autonomy.

H3: Research on AI in digital marketing suggests that AI operates through a dual dynamic: it enhances marketing performance while simultaneously reducing marketing autonomy.

These hypotheses are examined through bibliometric and thematic analysis in order to identify the dominant patterns, tensions, and intellectual evolution of the field. Building on these insights, the study develops an integrative framework for understanding AI in digital marketing beyond a purely capability-oriented perspective.

The remainder of the paper is structured as follows. Section 2 presents the methodology. Section 3 reports the results. Section 4 develops the discussion and integrative framework. Section 5 concludes the paper.

2. Methodology

Bibliometric analysis (bibliometrics) is a quantitative approach used to assess research activity within a specific field. It is commonly supported by tools such as CiteSpace, VOSviewer, Bibliometrix (R), Gephi, and Pajek (Mo & Wang, 2025). Bibliographic records were extracted from Scopus, cleaned using a thesaurus to standardize keywords and author names, and analyzed using Python for descriptive statistics and visualizations (e.g., publication trends, countries, and authors) (Das et al., 2025; Peixoto Rodriguez & Espina-Romero, 2024).

2.1.Database and Search Strategy

Scopus was selected as the sole database because of its broad multidisciplinary coverage and rich metadata, which support reliable bibliometric analysis. The search combined artificial intelligence and digital marketing keywords in the title, abstract, and keywords fields. Data retrieval and export were completed on **21 January 2026**.

2.2.Data Collection and Analysis Methods

Following the search process shown in Figure 1, duplicate records were removed and filters were applied for time span, subject area, document type, source type, language, and publication stage. A title and abstract screening were then conducted. The final dataset included 81 journal articles and reviews explicitly focused on both AI and digital marketing. Python was used for data cleaning and descriptive analysis, while VOSviewer was used for co-authorship, co-citation, and keyword co-occurrence mapping. Co-word analysis also helped trace thematic shifts over time.

The study selection process followed the PRISMA 2020 framework to ensure transparency and reproducibility in the identification, screening, eligibility assessment, and inclusion of records.

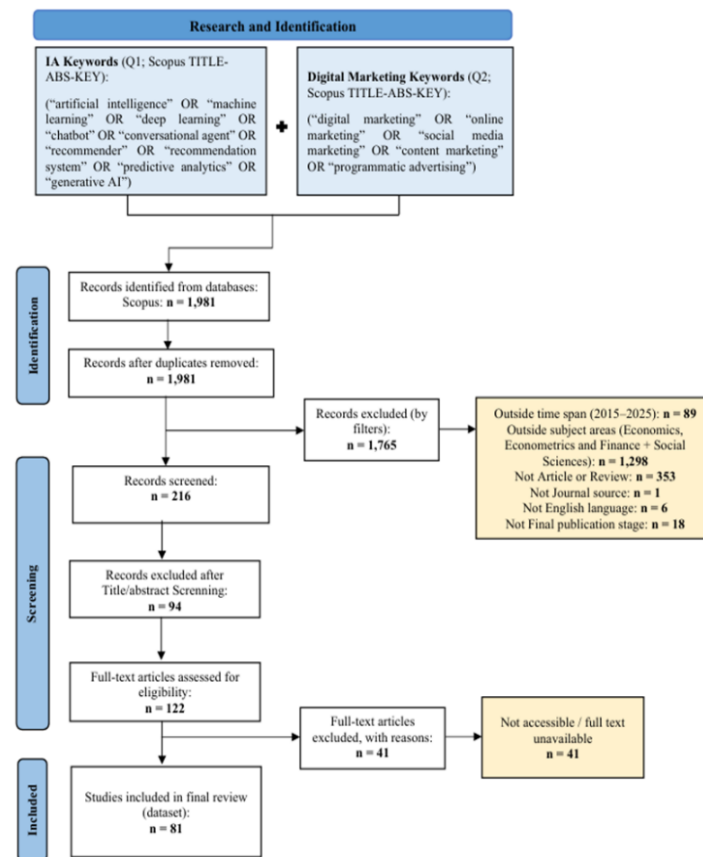


Figure 1. PRISMA 2020 flow diagram of the bibliometric data collection and study selection process

2.3.Data Processing, Visualization, and Network Analysis

The exported dataset underwent a multi-stage computational refinement process using Python. The Pandas library was utilized to standardize metadata and perform quality control; this included a verification step to ensure the absence of duplicate entries within the Scopus export. Furthermore, Python was also used to generate descriptive statistics and visualizations, including geographic maps, word clouds, and frequency-based graphics. For bibliometric mapping, the dataset was then imported into VOSviewer to conduct co-authorship and keyword co-occurrence analyses. Fractional counting and minimum occurrence thresholds were applied to improve the clarity and stability of the network structure, while link strength and cluster coherence were examined to support the reliability of the thematic mapping.

3. Results

3.1. Publication Trends

This section analyzes the evolution of scientific publications on Artificial Intelligence in Marketing over the period 2010–2025.

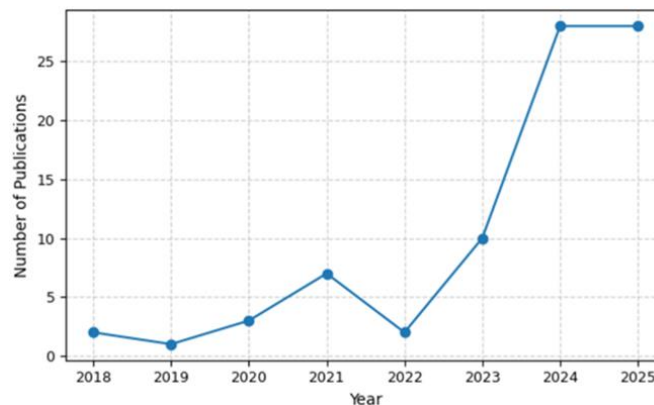


Figure 2. Distribution of annual publications in the Selected Dataset.

Source: authors' processing in Python, using Scopus indexed articles.

Figure 2 illustrates the annual evolution of publications within the selected dataset. Although the study period began in 2010, no publications meeting the inclusion criteria were identified between 2010 and 2017, suggesting that explicit integration of AI and digital marketing as core constructs is relatively recent. After a low and relatively stable output between 2018 and 2020, the number of publications increased noticeably in 2021, followed by a temporary decline in 2022. From 2023 onward, a sharp growth is observed, reaching a peak in 2024 and remaining stable in 2025. This trend indicates a rapidly growing research interest and the recent academic maturation of the field. The acceleration observed after 2023 may be associated with the widespread diffusion of generative AI technologies, particularly large language models such as ChatGPT, as well as other AI-powered platforms including Gemini and Microsoft Copilot. These technologies have significantly expanded both academic and industrial interest in AI-enabled marketing applications by facilitating content generation, customer engagement, personalization, and data-driven decision-making. Consequently, digital marketing has emerged as one of the most dynamic application domains for artificial intelligence.

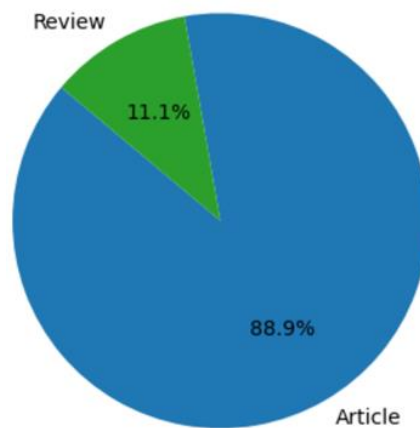


Figure 3. Distribution of Document Types.

Source: authors' processing in Python, using Scopus indexed articles.

The Figure 3 presents the distribution of document types in the selected dataset. Articles clearly dominate the literature, accounting for 88.9% of the publications, while review papers represent only 11.1%. The dominance of research articles suggests an expanding empirical base, while the limited number of reviews indicates ongoing theoretical consolidation.

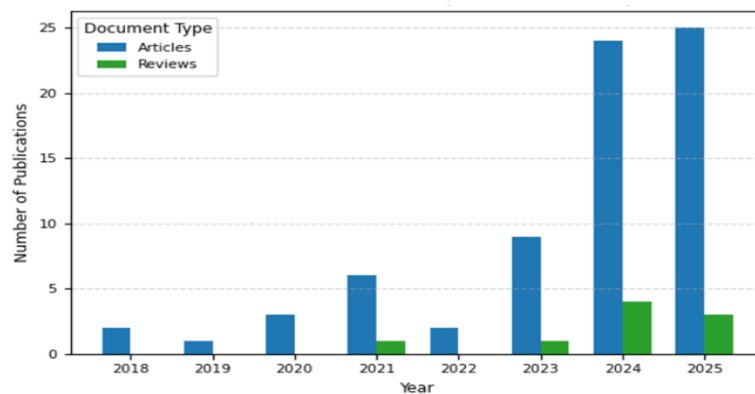


Figure 4. Annual Publication Trends (Articles vs Reviews).

Source: authors' processing in Python, using Scopus indexed articles.

The Figure 4 shows that the number of publications increases over time, especially in 2024 and 2025. Most documents are research articles, while reviews appear later and remain fewer. This strong growth suggests that the topic is becoming more important and more studied. The observed growth pattern highlights the need to examine how this expanding body of research is intellectually structured and thematically organized.

3.2. Most Influential Sources

The analysis of the most influential sources in AI marketing research highlights both journals and highly cited articles.

Table 1. Top 10 Most Productive Journals.

Rank	Source Title	Number of Publications	Total Citations	Average Citations per Paper
1	Sustainability (Switzerland)	7	46	6.57
2	International Journal of Data and Network Science	4	48	12.00
3	International Journal of Information Management	3	36	12.00
4	Financial and Credit Activity: Problems of The Economy	3	8	2.67
5	International Journal of Accounting and Economics	3	0	0.00
6	SAGE Open	2	150	75.00
7	Journal of Open Innovation: Technology, Market, and Complexity	2	10	5.00
8	Journal of Marketing Education	2	33	16.50
9	Journal of Innovation and Knowledge	2	55	27.50

Source: Authors' synthesis based on the reviewed literature.

Table 1 lists the top 10 most productive journals in the dataset, showing the number of publications, total citations, and average citations per paper. Sustainability (Switzerland) is the most prolific, while journals such as SAGE Open and the International Journal of Data and Network Science, despite fewer publications, exhibit higher average citations per paper. These patterns suggest a distinction between productivity and citation influence, indicating that some journals contribute fewer but more widely cited works. Overall, the table provides a snapshot of journals shaping research on AI in digital marketing.

Table 2. Top 10 Most Cited Articles.

Rank	Authors	Title	Year	Source Title	Cited by
1	Dwivedi, Y.K.; Ismagilova, E.; Hughes, D.L.; ...	Setting the future of digital and social media marketing research: Perspectives and research propositions (Dwivedi et al., 2021)	2021	International Journal of Information Management	1509
2	Mogaji, E.; Soetan, T.O.; Kieu, T.A.	The implications of artificial intelligence on the digital marketing of financial services to vulnerable customers (Mogaji et al., 2021)	2021	Australasian Marketing Journal	172
3	van Esch, P.; Stewart Black, J.	Artificial Intelligence (AI): Revolutionizing Digital Marketing(van Esch & Stewart Black, 2021)	2021	Australasian Marketing Journal	145
4	Darmody, A.; Zwick, D.	Manipulate to empower: Hyper-relevance and the contradictions of marketing in the age of surveillance capitalism (Darmody & Zwick, 2020)	2020	Big Data and Society	111
5	Abbasi, G.; Rahim, N.F.; Wu, H.; Iranmanesh, M.	Determinants of SME's Social Media Marketing Adoption: Competitive Industry as a Moderator (Ali Abbasi et al., 2022)	2022	SAGE Open	106
6	Ruiz-Real, J.L.; Uribe Toril, J.; Torres Arriaga, M.	Artificial Intelligence in Business and Economics Research: Trends and Future (Ruiz-Real et al., 2021)	2021	Journal of Business Economics and Management	104
7	Nair, K.; Gupta, R.	Application of AI technology in modern digital marketing (Nair & Gupta, 2020)	2020	World Journal of Entrepreneurship, Management...	101
8	Dellaert, B.G.C.; Shu, S.B.; Arentze, T.A.; Baarsma, B.	Consumer decisions with artificially intelligent voice assistants (Dellaert et al., 2020)	2020	Marketing Letters	97

9	Nalbant, K.G.; Aydin, S.	Development and Transformation in Digital Marketing and Branding with Artificial Intelligence and Digital Technologies Dynamics in the Metaverse Universe (Nalbant & Aydin, 2023)	2023	Journal Metaverse	of 90
10	Rodgers, W.; Nguyen, T.	Advertising Benefits from Ethical Artificial Intelligence Algorithmic Purchase Decision Pathways (Rodgers & Nguyen, 2022)	2022	Journal Business Ethics	of 76

Source: Authors' synthesis based on the reviewed literature.

Table 2 presents the top 10 most cited articles in the dataset, showing authors, titles, journals, and citation counts. The most cited article, Dwivedi et al. (2021) with 1509 citations, provides a broad overview of digital and social media marketing research; while not exclusively focused on AI, it is included because it frames emerging AI-related topics within the digital marketing domain. Other highly cited articles, such as Mogaji et al. (2021) and van Esch & Stewart Black (2021), specifically address AI applications, including personalization, customer engagement, and algorithmic decision-making. Overall, these citation patterns indicate that the field is influenced both by foundational digital marketing studies and by targeted AI–digital marketing research, highlighting the emergence of AI as a distinct yet interconnected research focus.

3.3. Key Authors and Collaboration Strength

Table 3. Highly Cited Authors with ≥ 2 Publications and ≥ 5 Citations.

Rank	Author	Documents	Citations
1	Wang, Y.	2	1509
2	Ahmad, A.A.	2	38
3	Nyagadza, B.	2	30
4	Gunduzeli, B.	2	19

Source: Authors' elaboration based on Scopus database using VOSviewer.

Table 3 lists authors with at least two publications and a minimum of five citations. Citation counts are aggregate values for all publications associated with the author and do not necessarily reflect the contribution of individual authors to each paper. Wang, Y., despite having only two publications, has the highest total citation count due to one highly cited collaborative article. The table provides a perspective on the most visible contributors within the AI–digital marketing research community and the structure of collaboration, without implying individual dominance.

3.4. Geographic Distribution

This section presents the geographic distribution of publications, highlighting the countries contributing most to AI and digital marketing research.

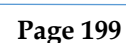


Figure 6. Frequency-based keyword distribution analysis.

Source: authors' processing in Python, using Scopus indexed articles.

The most dominant keywords (digital marketing, marketing, artificial intelligence, consumer analysis, data, and social media) indicate that the literature is primarily centered on AI-enabled data-driven marketing practices, particularly consumer analytics and digital platform engagement.

Frequent appearance of terms such as machine learning, customer experience, and engagement, show a focus on improving marketing results. Words such as privacy, ethics, and trust show that researchers also care about using AI in a responsible way.

4.2. Thematic Networks

Figure 7 illustrates the keyword co-occurrence network.

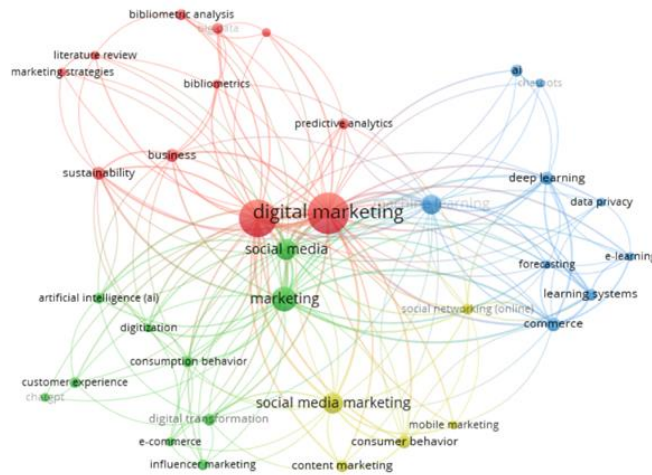


Figure 7. Keyword co-occurrence network of the selected dataset on artificial intelligence in digital marketing.

Source: Author processing in VOSviewer, using Scopus-indexed articles.

The network reveals a highly connected core around “digital marketing,” with four interrelated thematic clusters:

Cluster 1 (Red) includes terms such as digital marketing, bibliometrics, literature review, and sustainability (Lai et al., 2025), reflecting strategic and evaluative research on AI adoption and its broader implications (Gündüzyeli, 2024).

Cluster 2 (Green) groups keywords related to marketing, social media, artificial intelligence (Ali Alqudah et al., 2024), and customer experience, capturing studies on AI-driven consumer interactions and personalization (Aidargaliyeva et al., 2025).

Cluster 3 (Yellow) focuses on operational aspects, including social media marketing (Murár et al., 2024), content marketing, and consumer behavior (Joshi et al., 2025), highlighting AI applications in campaign optimization (Paşcalău et al., 2024).

Cluster 4 (Blue) includes deep learning, chatbots, and data privacy (Moradi, 2021), representing technical approaches alongside governance and ethical concerns (Said, 2025).

The emergence of governance-related keywords reflects the increasing regulatory pressure associated with AI deployment, particularly after the publication of international AI governance frameworks and the growing concern regarding algorithmic transparency, privacy protection, and responsible AI.

4.3. Thematic Evolution and Emerging Research Fronts

Figure 8 presents the overlay visualization, with node colors reflecting average publication year (2022–2025).

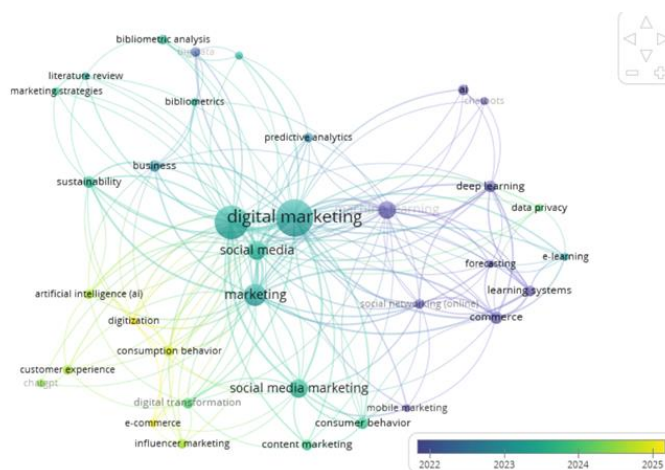


Figure 8. Overlay Visualization of Research Themes by Average Publication Year (2022–2025).

Source: Author processing in VOSviewer, using Scopus-indexed articles.

The overlay visualization suggests three broad phases in the evolution of the field. The first phase (2022–2023) is centered on performance optimization, with themes such as deep learning, forecasting, and predictive analytics (Ullal et al., 2021). The second phase (2023–2024) reflects strategic integration, marked by stronger links with digital marketing strategy, social media analytics, and customer engagement (Maldonado-Canca et al., 2024; Paşcalău et al., 2024). The third phase (2024–2025) highlights governance and legitimacy, with growing emphasis on data privacy, ethical AI, trust, and transparency (Acatrinei et al., 2025; Anute et al., 2025). Overall,

the field is moving from a technology-focused perspective toward a more strategic and governance-oriented one, while privacy and ethics remain persistent concerns across periods (Al Muala, 2025).

These findings are consistent with the bibliometric analyses conducted by Sang (2024), which also identified a transition from technology-oriented research toward strategic AI applications. Similarly, Das et al. (2025) observed that governance and ethical AI have become emerging research fronts. However, unlike previous bibliometric studies, our analysis further demonstrates that governance is not merely an emerging topic but constitutes a structural dimension of AI capabilities in digital marketing.

4.4. Thematic Categorization of Articles

To support the bibliometric analysis, the articles were grouped into four categories: **Trends**, **Limitations**, **Future Perspectives**, and **Uncategorized**. This was done by analyzing titles, abstracts, and keywords with Python, then checking the results manually to make sure the classification was correct. The objective was to see whether the literature focuses more on current developments, existing problems, or future directions.

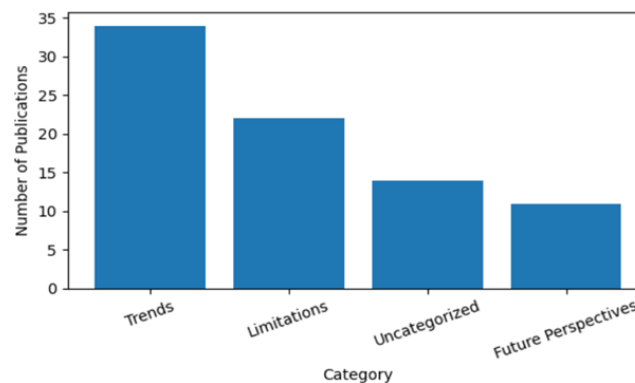


Figure 9. Distribution of Publications by Category.

Source: authors' processing in Python, using Scopus indexed articles.

Figure 9 shows that most articles are in the **Trends** category, followed by **Limitations**. This means that the literature mainly discusses new AI applications and adoption in digital marketing, while also paying attention to problems such as privacy, ethics, and implementation

challenges. The **Future Perspectives** category has fewer articles, which suggests that future research directions are still less explored.

4.4.1. Trends in AI in Digital Marketing

Studies indicate that AI applications in digital marketing increasingly emphasize automation, personalization, and customer analytics. Table 7 summarizes the most cited articles associated with these developments.

Table 4. Top 5 articles cited on AI trends in digital marketing (2010-2025).

Rank	Year	Article	Source	Citations	Key Contribution
1	2022	Determinants of SME's Social Media Marketing Adoption: Competitive Industry as a Moderator (Ali Abbasi et al., 2022)	SAGE Open	106	Identifies drivers of SME adoption of social media marketing using PLS-SEM + ANN, highlighting the moderating role of competitive pressure.
2	2021	Artificial intelligence in business and economics research: Trends and future (Ruiz-Real et al., 2021)	Journal of Business Economics and Management	104	Maps AI research clusters in business/economics through bibliometric analysis and outlines emerging directions.
3	2022	Advertising Benefits from Ethical Artificial Intelligence Algorithmic Purchase Decision Pathways (Rodgers & Nguyen, 2022)	Journal of Business Ethics	76	Proposes ethical AI-based decision pathways for advertising and frames "intelligent advertising" as a future research domain.
4	2024	Is AI-based digital marketing ethical? Assessing a new data privacy paradox (Saura et al., 2024)	Journal of Innovation and Knowledge	50	Synthesizes ethics/privacy variables and highlights the gap between AI-driven tracking practices and privacy/ethics compliance.

5	2024	A review on emotion detection by using deep learning techniques (Chutia & Baruah, 2024)	Artificial Intelligence Review	39	Reviews deep learning approaches for emotion detection, relevant for social media monitoring and AI-driven consumer analytics.
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Source: Authors' elaboration based on Scopus database using Python.

4.4.2. Challenges in AI in Digital Marketing

Despite increasing adoption, the literature identifies several challenges (Limitations) associated with AI deployment in digital marketing. Frequently discussed issues include privacy concerns, algorithmic bias, transparency limitations, organizational readiness constraints, and governance complexity. Table 5 presents the most cited articles addressing these challenges.

Table 5. Top 5 most cited articles on the challenges of artificial intelligence in digital marketing (2010-2025).

Rank	Year	Article	Source	Citations	Key Contribution
1	2021	Setting the future of digital and social media marketing research: Perspectives and research propositions (Dwivedi et al., 2021)	International Journal of Information Management	1509	Provides a major research agenda highlighting key challenges and future propositions.
2	2021	The implications of artificial intelligence on the digital marketing of financial services to vulnerable customers (Mogaji et al., 2021)	Australasian Marketing Journal	172	Examines ethical and governance risks of AI in marketing financial services, especially for vulnerable customer groups.
3	2021	Artificial Intelligence (AI): Revolutionizing Digital Marketing (van Esch & Stewart Black, 2021)	Australasian Marketing Journal / Special issue context	145	Discusses AI benefits but stresses limitations: ethics, uncertainty, adoption barriers, and research immaturity.

4	2021	Information technology adoption on digital marketing: A literature review (Figueiredo et al., 2021)	Informatics (MDPI)	35	Reviews adoption barriers such as organizational readiness, capability gaps, and difficulties extracting value from big data in digital marketing.
5	2018	Optimal ways for companies to use facebook messenger chatbot as a marketing communication channel (Balasudarsun et al., 2018)	Asia Business Research Corporation	18	Identifies practical constraints and user expectations that limit effective chatbot deployment in marketing communication.

Source: Authors' elaboration based on Scopus database using Python.

4.4.3. Future Perspectives in AI in Digital Marketing

The literature also outlines forward-looking perspectives on AI's transformative potential. Table 6 highlights influential contributions that explore predictive analytics, machine learning integration, AI-driven CRM systems, intelligent advertising models, and marketing education transformation.

Table 6. Top 5 most cited articles on the future prospects of artificial intelligence in digital marketing (2010-2025).

Rank	Year	Article	Source	Citations	Key Contribution
1	2021	The Role of Machine Learning in Digital Marketing (Ullal et al., 2021)	SAGE Open	44	Argues that ML will reshape targeting and decision-making in digital marketing and calls for stronger models integrating customer behavior.
2	2025	The Future of Marketing and Marketing	Journal of Marketing Education	28	Highlights future skills and curriculum changes driven by AI/genAI and analytics

		Education (Grewal et al., 2025)			transformation of marketing jobs.
3	2018	How machine learning potentials are transforming the practice of digital marketing: State of the art (Bayoude et al., 2018)	Periodicals of Engineering and Natural Sciences	15	Reviews ML potentials in digital marketing and outlines future opportunities for prediction, optimization, and scalable analytics.
4	2024	Investigating the Role of Artificial Intelligence to Measure Consumer Efficiency: The Use of Strategic Communication and Personalized Media Content (Binlibdah, 2024)	Journalism and Media	8	Suggests AI-enabled systems can enhance performance outcomes by mediating strategic communication and consumer service efficiency.
5	2024	Visual Attributes of Thumbnails in Predicting YouTube Brand Channel Views in the Marketing Digitalization Era (H. Jang et al., 2022)	IEEE Transactions on Computational Social Systems	8	Demonstrates how AI- based analysis of visual attributes can predict content performance, supporting future content optimization strategies.

Source: Authors' elaboration based on Scopus database using Python.

5. Discussion

This study answers the research question by showing that AI in digital marketing has evolved from automation and analytics toward personalization and governance-oriented concerns. The results reveal that the field is structured around three main dimensions: AI capabilities, marketing value creation, and governance.

The findings support **H1**, as research has shifted toward personalization, generative AI, and governance. They also support **H2**, since the analyses confirm a structure based on technology, value creation, and governance. Finally, **H3 is supported**, as recent studies increasingly emphasize ethics, privacy, and legitimacy issues (Anute et al., 2025; Das et al., 2025)

The thematic network analysis reinforces this interpretation through four clusters: (i) strategic and evaluative research (Abdullah et al., 2023; Sang, 2024), (ii) consumer–platform dynamics, (iii) operational applications (Christou et al., 2025; Grabowska et al., 2025; Zaki et al., 2025), and (iv) AI techniques and governance (Bormane & Blaus, 2024; Han et al., 2023; Said, 2025) confirm this evolution. Together, they show that AI is becoming a broader organizational capability shaped by both performance and institutional pressures.

In addition, the thematic categorization of articles provides a complementary perspective. Most studies focus on **Trends**, followed by **Limitations**, while **Future Perspectives** remain less developed. This suggests that the literature is mainly oriented toward current applications and adoption challenges, while forward-looking research is still relatively limited.

Building on these findings, AI can be conceptualized as an evolving capability structured across three interconnected levels: operational (automation and analytics), strategic (personalization and engagement), and governance (ethics, privacy, and regulation). These levels may coexist rather than follow a strict sequence.

Within this framework, we propose the concept of **AI Capabilities in Digital Marketing and the Performance–Responsibility Paradox**, highlighting the tension between performance optimization (e.g., efficiency, targeting accuracy, ROI) and responsible practices (e.g., transparency, fairness, and privacy).

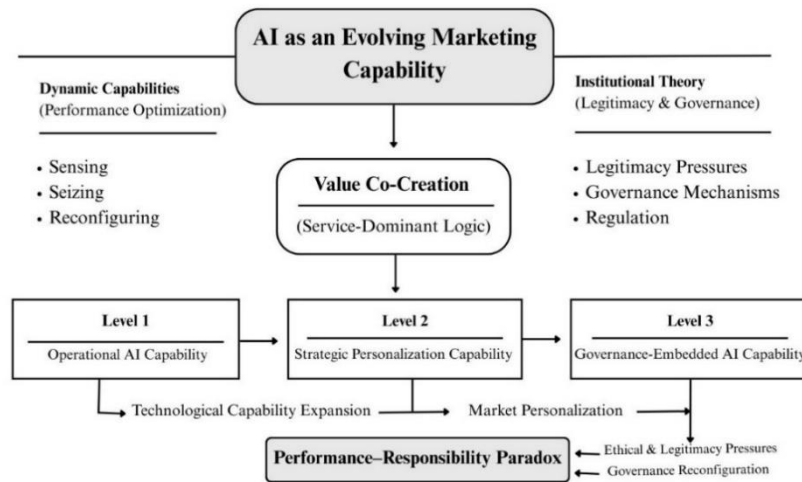


Figure 10. Evolution of AI Capabilities in Digital Marketing and the Performance–Responsibility Paradox.

Source: authors' processing

The proposed framework integrates Dynamic Capabilities Theory, Service-Dominant Logic, and Institutional Theory to explain the relationships among AI capabilities, marketing value creation, and governance. AI capabilities enable firms to generate marketing value through data-driven decision-making, automation, and personalization, while increasing reliance on governance mechanisms to ensure transparency, privacy, and regulatory compliance. As AI capabilities expand, both performance opportunities and governance pressures increase, leading to a performance–responsibility dynamic (Parker & James, 2024), in which firms must balance efficiency with ethical and regulatory requirements.

AI research in digital marketing is largely application-driven, with strong emphasis on personalization, customer experience, and data analytics (Chutia & Baruah, 2024; Grabowska et al., 2025; Ullal et al., 2021). Recent studies also show a broader integration of AI into marketing processes and organizational transformation (H. Jang et al., 2022; Sang, 2024; Wang et al., 2025). This evolution is also linked to sustainability and governance concerns (Abdullah et al., 2023; H. Jang et al., 2022; Salhab, 2024), while learning and practice-based developments continue to shape the field (Al-Ababneh et al., 2024; Aljabari et al., 2024; Kobets et al., 2024).

This expansion is accompanied by important constraints. Several studies report methodological limitations, including restricted generalizability in qualitative research and limited explanatory

power in adoption models (Alhamdi & Al-Kahtani, 2025; Rajendran, 2023). Other challenges include data quality and interoperability issues, platform dependency, influencer-related risks, and reputational vulnerability (Dal Verme, 2023; Kumar et al., 2025; Rajathi & Dass, 2024). These findings reinforce that AI implementation is not only technical but also shaped by organizational, ethical, and institutional pressures (Dwivedi et al., 2021).

Conclusions

This study provides a theory-informed understanding of AI in digital marketing by mapping its intellectual evolution between 2010 and 2025 and synthesizing the field through a capability-based framework. The findings show that research has moved from a primary focus on automation and analytics toward personalization, generative AI, and governance-related concerns (Anute et al., 2025; Das et al., 2025). In this sense, AI is no longer viewed only as a performance-enhancing tool, but as a governance-embedded organizational capability shaped by ethical, regulatory, and institutional pressures (Alrahman, 2025; Gabelaia, 2025).

Building on these findings, the study proposes an integrative framework linking AI capabilities, marketing value creation, and governance. This framework highlights a performance–responsibility dynamic, showing that greater use of AI creates new opportunities for optimization and personalization while also increasing concerns related to privacy, trust, and legitimacy (Aidargaliyeva et al., 2025; van Esch & Stewart Black, 2021). For practitioners, this means that competitive advantage depends not only on algorithmic performance, but also on transparent processes, privacy-preserving data architectures, and sustained human oversight (Enshassi et al., 2025; Hwangbo & Kim, 2019).

The study also identifies several directions for future research. More work is needed on the long-term development of AI-enabled marketing capabilities, especially their effects on trust, loyalty, and brand legitimacy (Alhamdi & Al-Kahtani, 2025; Rajathi & Dass, 2024; Rajendran, 2023). Greater conceptual clarity is also needed regarding governance mechanisms such as privacy-by-design, algorithmic auditing, and accountability structures (Kumar et al., 2025). In addition, emerging contexts such as generative AI, metaverse environments, and AR/VR raise new questions related to inclusion (Fuat Kuyumcu & Çakın, n.d.; Raman et al., 2025), regulation, and data security (Aljabari et al., 2024; Almashaleh et al., 2025). Comparative studies across industries and regions, as well as research on human–AI collaboration in marketing, would further strengthen the field (Gündüzyeli, 2025; Khargharia et al., 2023; Lam et al., 2024).

Future Research and Limitations

Although future-oriented studies remain fewer, they point to important developments. Emerging work highlights scalable social media intelligence (Nyagadza et al., 2024; Salhab, 2024), immersive environments such as the metaverse and AR/VR (Almashaleh et al., 2025; Wasiq et al., 2024), and the growing impact of generative AI on skills, education, and governance. At the same time, the literature still focuses strongly on short-term engagement metrics, while long-term outcomes such as trust, loyalty (Jeon, 2024), and brand equity remain less explored (Rajathi & Dass, 2024). Future research should therefore examine the long-term development of AI-enabled marketing capabilities (Tam & Lung, 2025), clarify acceptable personalization boundaries under ethical and privacy constraints (Kumar et al., 2025), and test these frameworks across industries and digital contexts (Gündüzyeli, 2025; Lam et al., 2024).

The literature shows several limitations in AI-driven digital marketing. These include methodological weaknesses and limited explanatory power in some studies (Enshassi et al., 2025; Gabelaia, 2025), as well as practical problems such as data quality, interoperability, and platform dependency (Khargharia et al., 2023; Lam et al., 2024). Other challenges involve influencer selection, reputational risks, and growing ethical and governance pressures (Fazel, 2024). Together, these limitations show that AI in digital marketing is not only a technical issue, but also an organizational and institutional challenge.

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