

ARTIFICIAL INTELLIGENCE AND MARKETING: A BIBLIOMETRIC ANALYSIS

AASTHA CHAUHAN

Assistant Professor of Commerce, Government College for Women, Karnal (Haryana)

GOPAL KRISHAN

Assistant Professor of Commerce, Government College for Women, Karnal (Haryana)

SEEMA PANDEY

Assistant Professor of Commerce, Government College for Girls, Palwal (Kurukshetra)

ABSTRACT

Disruptive technologies like IoT (Internet of Things), BDA (Big Data Analytics), Blockchain and Artificial Intelligence (AI) have altered and transformed the way businesses operate. Artificial Intelligence (AI) is the most recent disruption phenomena that hold immense potential to change the marketing landscape. Marketing strategies and the impact of artificial intelligence on marketing strategies have been widely studied. However, existing reviews have mostly studied them in isolation resulting in a fragmented understanding of the progress and contribution of their joint investigation. To address this gap, a 35-year review of marketing and Artificial intelligence research available in the Web of Science database was conducted. This review unpacks (1) the most prolific countries, institutions, journals, and authors, (2) the most cited countries, institutions, journals, authors and articles and (3) the major clusters or themes of research—i.e., Fintech and automation, service robots, digital servitization and chatbots, tourism and hospitality, B2B marketing, social media analytics and customer experience—on marketing and artificial intelligence. This paper concludes by using these retrospective insights to suggest prospective pathways forward to enrich the field.

Keywords: marketing, artificial intelligence, bibliometric analysis, review, intellectual structure, conceptual structure.

1. INTRODUCTION

Artificial Intelligence (AI) has emerged as a tool to disruptively transform the field of marketing in recent years. Machine learning algorithms are transforming the business landscape by processing large amounts of unstructured data using flexible models to provide strong predictive models.

Artificial Intelligence finds its acceptance across the industry in today's business scenario. Academicians and practitioners believe that Artificial Intelligence holds the key to the future. With advancements in Technology, interconnected networks function as a web to connect the world. Artificial intelligence makes use of a broad range of technologies, including machine learning, natural language processing, and computer vision, all of which make it possible for machines to perform tasks that historically required human intelligence. In relation to marketing, these technologies are leveraged to analyze vast amounts of data, gain a deeper understanding of consumer behavior, and automate various aspects of marketing processes.

The impact of AI in marketing cannot be overstated. From improving consumer insights and

segmentation to revolutionizing content creation and optimizing advertising strategies, AI-driven tools and applications are changing the marketing landscape. As businesses strive to stay competitive in an increasingly digital world, the adoption of AI in marketing is not only a strategic advantage but a necessity.

Artificial Intelligence has become a cornerstone of day-to-day life. Many people already interact with AI tools such as Siri or Alexa to execute daily tasks or for entertainment purposes. Artificial intelligence (AI) assists organizations to analyse real-time information and respond swiftly to customer expectations. AI offers vital insights on consumer behaviour patterns and is very instrumental in attracting and retaining customers. AI predicts the customer's next move and takes the customer's experience to the next level. AI tools are essential to predict customer behaviour and hold immense potential to change the marketing landscape. Marketing strategies and the impact of artificial intelligence on marketing strategies have been widely studied. However, existing reviews have mostly studied them in isolation resulting in a fragmented understanding of the progress and contribution of their joint investigation.

Opportunities abound for studying the joint impact of Artificial Intelligence (AI) and Marketing strategies. In the following sections, methodology, data analysis and findings are discussed.

2. METHODOLOGY

This study applies a bibliometric approach to examine research on marketing and artificial intelligence. Bibliometric methods enable a systematic assessment of publication trends, influential contributions, and the intellectual structure of a field (Donthu et al., 2021).

The methodology is organized into two stages: data collection, which describes the search and selection of relevant articles, and data analysis, which employs performance analysis and bibliographic coupling to evaluate research impact and map thematic clusters.

2.1. Data collection

To curate a corpus of relevant articles on marketing and artificial intelligence research, a document search was conducted using (1) a *search string* with "marketing" AND "artificial intelligence" OR "AI" in (2) the "article title, abstract, and keyword" (topic) *search field* for (3) "article" and "review" *document type* published in (4) the "English" *language* in (5) the *subject areas* "Business or Management or Economics or Social Sciences Interdisciplinary or Business Finance or Humanities Multidisciplinary" for (6) the *period* up to the most recent full year of 2023 in (7) Web of Science as the *search database*. These criteria, when included in the search on October 1, 2024, resulted in a corpus of 883 articles published between 1989 and 2023 (35 years).

Table 1: Article Inclusion and Exclusion Criteria

Filtering Criteria	Reject	Accept
Database: Web of Science	-	3794
Date of Search: 27 June 2024		
Time span of publication: 1983-2023		
Search term: “marketing” (Topic) AND “artificial intelligence” OR “AI” (Topic)		
Research Category: “Business or Management or Economics or Social Sciences Interdisciplinary or Business Finance or Humanities Multidisciplinary”	2876	918
Document type: “Article and Review Article”	33	885
Language: “English”	02	883

(Source: Author's own work)

2.2. Data analysis

As part of the analysis, two bibliometric analytical techniques were employed – Performance analysis and Bibliographic Coupling. A Performance Analysis was employed to delineate the most cited articles, prolific countries, institutions, journals, and authors in the field (Donthu et al., 2021). Additionally, Bibliographic Coupling was employed to perform science mapping in Vosviewer to create a network of articles segmented based on their similarities in shared references, to reveal themes underpinning the intellectual structure of published literature.

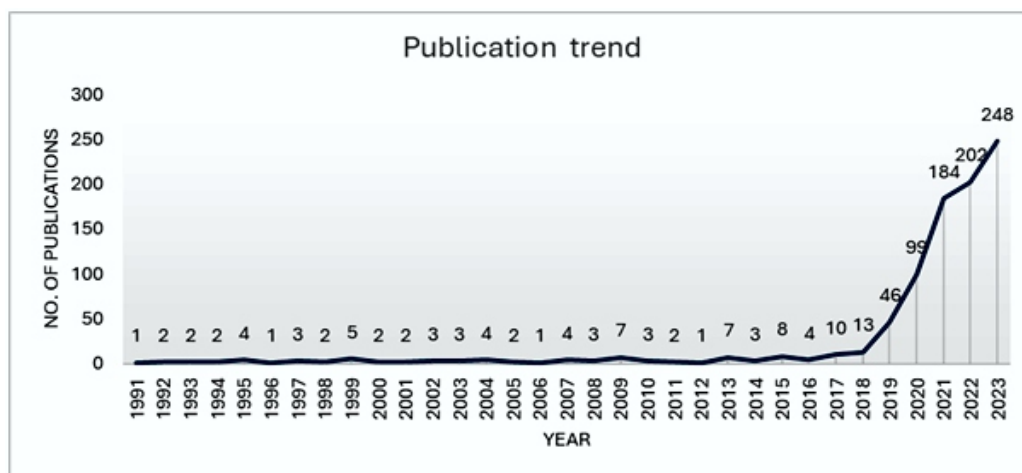
3. FINDINGS

The findings of this bibliometric study provide a comprehensive overview of the research landscape on marketing and artificial intelligence. The results are organized into five subsections. Section 3.1 examines publication trends to trace the evolution and growth of the field. Section 3.2 highlights the most prolific contributors, including countries, institutions, journals, and authors. Section 3.3 presents the most influential contributors based on citations and impact. Section 3.4 identifies the most cited papers that have shaped the domain. Finally, Section 3.5 uses bibliographic coupling to reveal the major clusters or themes that define the intellectual structure of this research area.

3.1. Publication trends

Marketing and artificial intelligence research has a 33-year history (1991–2023), publishing a total of 883 articles. Though the first article was published in 1991, it was not until 2017 that the field experienced a decent level of productivity (e.g., more than 1 articles per year). The field grew exponentially from 2019 onwards, with 2023 being the most productive year with 248 articles. (Fig. 1)

Figure 1: Publication trend of marketing and artificial intelligence research



(Source: Author's own Work)

3.2. Most prolific contributors

The most prolific countries, institutions, journals, and authors are listed in Table 2 and Table 3. Table 2 summarizes the most prolific contributors to marketing and artificial intelligence research, including countries, institutions, and journals.

Table 2: Most Prolific Countries, Institutions and Journals in Marketing and Artificial Intelligence Research

Country	Documents		Institution	Documents		Journal	Documents	
	N	%		N	%		N	%
USA	276	31.26	University of Maryland	13	1.47	Journal of Business Research	52	5.89
China	147	16.65	---	10	1.13	Technological Forecasting and Social Change	50	5.66
England	128	14.5	National University of Singapore	10	1.13	Industrial Marketing Management	39	4.42
India	80	9.06	Swansea University	10	1.13	Psychology & Marketing	25	2.83
Germany	72	8.15	Swinburne University of Technology	10	1.13	IEEE Transactions on Engineering Management	21	2.38
Australia	71	8.04	NEOMA Business School	9	1.02	Journal of the Academy of Marketing Science	18	2.04
France	69	7.81	University of Illinois	9	1.02	European Journal of Marketing	14	1.59
Italy	54	6.12	University of Vaasa	9	1.02	Journal of Business & Industrial Marketing	14	1.59

Notes: TC = Total Citations; C/Y = Citations per Year.

(Source: Vosviewer)

In total, 83 countries and 1287 institutions have contributed to 883 articles on marketing and artificial intelligence research. Most articles have three authors (27.97%, 247 articles), followed by two authors (24.12%, 213 articles), and four authors (21.29%, 188 articles). The most prolific country is the United States of America, which account for 276 documents which translate into 31.26% of publications in the field, whereas the most prolific institutions are the University of Maryland (13 articles) followed by King's College London, National University of Singapore, Swansea University and Swinburne University of technology (10 articles each). The top three most prolific journals are Journal of Business Research (52 articles), Technological forecasting and social change (50 articles) and Industrial marketing management (39 articles).

Table 3: Most Prolific Authors in Marketing and Artificial Intelligence Research in terms of number of Articles

Rank	Author	Country	Institution	Articles
1	Parida, Vinit	Sweden	Lulea University of Technology	6
1	Dwivedi, Yogesh K.	United Kingdom	Swansea University, Wales	6
3	Wirtz, Jochen	Singapore	National University of Singapore	5
3	Tiwari, Aviral Kumar	India	Indian Institute of Management, Bodh Gaya	5
3	Sands, Sean	Australia	Swinburne University of Technology	5
3	Salminen, Joni	Finland	University of Turku	5
3	Rahman, Muhammad Sabbir	Bangladesh	North South University	5
3	Mustak, Mekhail	Finland	University of Turku	5
3	Malik, Ashish	Australia	University of Newcastle	5
12	Hossain, Md Afnan	Australia	University of Newcastle	5
12	Grewal, Dhruv	United States	Babson College	5
12	Puntoni, Stefano	United States	Erasmus University	5
12	Plangger, Kirk	United Kingdom	King's College London	4
12	Palmatier, Robert W.	United States	University of Washington	4
12	Ngai, Eric W. T.	China	Hong Kong Polytechnic University	4

(Source: Vosviewer)

Table 3 highlights the most prolific authors in marketing and artificial intelligence research. Vinit Parida (Sweden) and Yogesh K. Dwivedi (UK) lead with six publications each, followed by Jochen Wirtz, Aviral Kumar Tiwari, Sean Sands, and others with five articles, reflecting strong international contributions across regions.

3.3. Most influential contributors

The most cited countries, institutions, journals, and authors are listed in Table 4 and Table 5. A total of 883 articles on marketing and artificial intelligence have been cited 32960 times. Table 4 presents the most influential contributors to marketing and artificial intelligence research, measured in terms of total citations. The most influential country is the United States of America, which account for 14935 citations which translate into 45.31% of citations in the field, whereas the most prolific institutions are the Massachusetts Institute Of Technology (1635 citations) followed by National University of Singapore (1547 citations) and University of Queensland (1231 citations). The top three most influential Authors in terms of number of citations are Jochen Wirtz (1444 citations), Dhruv Grewal (835 citations) and Abhijit Guha (795 citations).

Table 4: Most Influential Countries, Organizations and Authors in Marketing and Artificial Intelligence Research (in terms of number of citations)

TC	Country	TP	TC	Organization	TP	TC	Author	TP
14935	USA	276	1635	Massachusetts Institute of Technology	8	1444	Wirtz, Jochen	5
6144	England	128	1547	National University of Singapore	10	835	Grewal, Dhruv	5
4852	Germany	72	1231	University of Queensland	6	795	Guha, Abhijit	3
4390	Peoples R China	147	1166	University of Maryland	13	718	Bressgott, Timna	1
4381	Australia	71	1137	University of Massachusetts	4	718	Davenport, Thomas	1
3091	Netherlands	43	1132	Australian National University	5	640	Rust, Roland T.	3
2738	France	69	1071	Loughborough University	4	493	Huang, Ming-Hui	2
2393	India	80	1041	University of New South Wales	2	490	Kumar, V	4
1975	Italy	54	1033	RWTH Aachen University	1	404	Putoni, Stefano	4

1850	Canada	38	1002	Friedrich Alexander University	2	334	Salminen, Joni	5
1727	Spain	49	963	Otto Von Guericke University	2	330	Pachen, Jeannette	3
1690	Singapore	15	942	University of Wurzburg	1	266	Mustak, Mekhail	5
1641	Sweden	31	878	University of South Carolina	6	209	Dabic, Marina	2
1246	Finland	30	869	Babson College	6	183	Corbo, Leonardo	1
1027	Taiwan	29	852	University of Virginia	4	183	Silva, Susana Costa E.	1

(Source: Vosviewer)

Table 5 lists the most influential journals publishing research on marketing and artificial intelligence, ranked by total citations. The most Cited journals are Journal of The Academy of Marketing Science with a total of 2537 citations (140.94 citations per article) followed by Journal of Business Research with 2350 citations (45.19 citations per article) and Journal of Service Management with 1492 citations (149 citations per article).

Table 5: Most Influential Journals in Marketing and Artificial Intelligence Research (in terms of number of citations)

Journal	TC	TP	TC/TP
Journal of the Academy of Marketing Science	2537	18	140.94
Journal of Business Research	2350	52	45.19
Journal of Service Management	1492	10	149.20
Industrial Marketing Management	1457	39	37.36
Psychology & Marketing	1353	25	54.12
Electronic Markets	1159	11	105.36
Journal of Marketing	837	6	139.50



International Journal of Contemporary Hospitality Management	708	7	101.14
Journal of Research in Interactive Marketing	528	14	37.71
California Management Review	416	6	69.33
Journal of Business & Industrial Marketing	377	14	26.93
International Journal of Bank Marketing	372	9	41.33

Notes: TC = Total Citations; TP = Total Publications; TC/TP = Average Citations per Publication.

(Source: Author's own Work)

3.4. Most Cited Papers

Table 6 highlights the most cited articles in marketing and artificial intelligence research, showcasing the studies that have had the greatest scholarly impact.

Table 6: Most Cited Articles in Marketing and Artificial Intelligence Research

Rank	Title	Author(s)	Source Title	TC	C/Y
1	Brave new world: service robots in the frontline	Wirtz et al. (2018)	Journal of Service Management	1033	147.6
2	Machine learning and deep learning	Janiesch et al. (2021)	Electronic Markets	942	235.5
3	How artificial intelligence will change the future of marketing	Davenport et al. (2020)	Journal of the Academy of Marketing Science	718	143.6
4	Effects of COVID -19 on hotel marketing and management: a perspective article	Jiang & Wen (2020)	International Journal of Contemporary Hospitality Management	457	91.4
5	Understanding anthropomorphism in service provision: a meta - analysis of physical robots, chatbots and other AI	Blut et al. (2021)	Journal of the Academy of Marketing Science	426	106.5

6	A strategic framework for artificial intelligence in marketing	Huang & Rust (2021)	Journal of the Academy of Marketing Science	375	75
7	Consumer and Artificial Intelligence: An Experimental Perspective	Puntoni et al. (2021)	Journal of Marketing	365	73
8	Technological disruptions in services: lessons from tourism and hospitality	Buhalis et al. (2019)	Journal of Service Management	360	60
9	Transforming the Customer Experience through New Technologies	Hoyer et al. (2020)	Journal of Interactive Marketing	351	70.2
10	Service robot implementation: a theoretical framework and research agenda	Belanche et al. (2020)	Service Industries Journal	322	53.67

Notes: TC = Total Citations; C/Y = Citations per Year.

(Source: Vosviewer)

Wirtz et al. (2018) is the most cited paper on Artificial Intelligence which has been cited 1033 times with 147.57 citations per year. The paper by Janiesch et al. (2021) is the second most cited paper on this topic with total citations of 942 and 235.5 citations per year. This is followed by Davenport et al. (2020) which has been cited 718 times with 143.6 citations per year from the year of publication.

3.5. Major clusters or themes

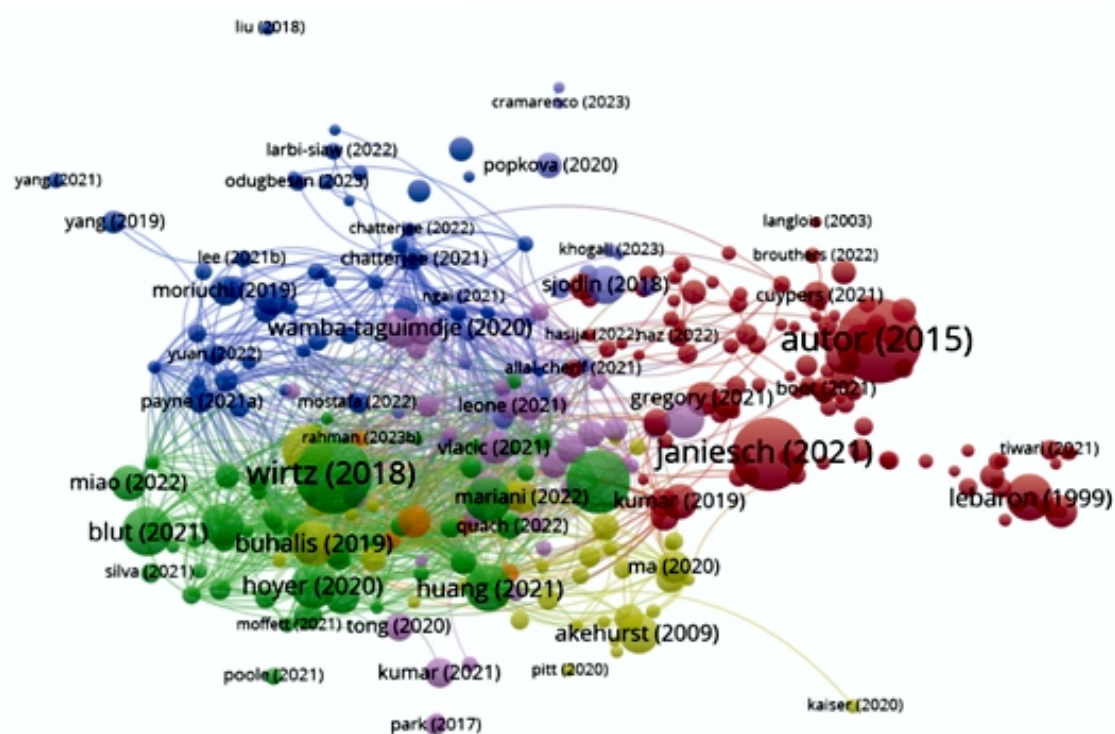
To generate the major clusters or themes for marketing and artificial intelligence research, we conduct a bibliographic coupling of articles with at least 25 citations per article, resulting in 310 articles being segmented across seven major clusters or themes, as seen in Fig. 2. Each cluster is summarized below.

Cluster 1 (Red network): *Fintech and automation*. This network consists of 110 articles with a total of 9290 citations. The most cited article in this cluster is Janiesch (2021) with 942 citations followed by Kumar (2019) and Gregory (2021) with 228 and 203 citations respectively. This cluster concentrates on how Financial technology and automation are transforming businesses and affecting marketing. Janiesch et al. (2021) explores the challenges that spring up due to implementation of Artificial Intelligence systems in networked businesses. Kumar et al. (2019) studies the role of

Artificial Intelligence on branding and customer management practices. Gregory et al. (2021) explores the relationship between Artificial Intelligence capabilities of platforms and user value.

Cluster 2 (Green network): *Service Robots*. This cluster consists of 52 articles with a total of 6709 citations. The most cited articles in this cluster are Wirtz (2018) with 1033 citations, Davenport (2020) with 426 citations and Blut (2021) with 426 citations. This Cluster focuses on the increasing use of robots in services and how they shape consumer experiences. Wirtz et al. (2018) explores the impact of robotics and other rapidly improving artificial intelligence technologies on service industries. It studies the impact of robots on customer perceptions. Davenport et al. (2020) discusses the effect of Artificial Intelligence imbedded robots on marketing strategies and customer behaviours. Blut et al. (2021) conducted a meta-analysis on impact of physical service robots on marketing.

Figure 2: Major Clusters of Marketing and Artificial Intelligence research



Note: Cluster 1 (Red Network): Fintech and automation. Cluster 2 (Green Network): Service robots.

Cluster 3 (Blue Network): Digital servitization and chatbots. Cluster 4 (Yellow Network): Tourism and hospitality. Cluster 5 (Pink Network): B2B marketing. Cluster 6 (Purple network): Social media analytics. Cluster 7 (Orange Network) Customer experience.

(Source: Vosviewer)

Cluster 3 (Blue Network): *Chatbots and digital servitization*. This network consists of 46 papers with total citation of 2822. Alsajjan (2010) with 166 citations is the most influential paper in this network followed by Mouriuchi (2019) with 162 citations and Payne (2021a) with 108 citations. This cluster contains papers focusing on chatbots and their impact on customer engagement and loyalty. Alsajjan et al. (2010) proposed a revised technology acceptance model that measures consumer's acceptance of internet banking. Moriuchi (2019) studied the impact of voice assistants on consumer loyalty and engagement. Payne et al. (2021a) discusses the digital servitization framework for Artificial Intelligence services, its consequences for consumers and firms and its role in digital transformation of financial service ecosystems.

Cluster 4 (Yellow network): *Tourism and hospitality*. This cluster comprises of 38 articles with a total citation of 3265. Most cited paper is Jiang (2020) with 457 citations. Buhalis (2019) with 360 citations and Akehurst (2009) with 269 citations are also highly cited papers in this network. This cluster focuses on the impact of AI technologies on Service sector in general and on the Tourism and hospitality sectors in particular. Jiang et al. (2020) explores the role of Artificial Intelligence (AI) and robotics on hotel marketing and management practices to stimulate recovery and growth after the COVID-19 pandemic. Buhalis (2019) identifies the technological disruptions such as IoT and autonomous devices in the services and its implications for the Tourism and Hospitality Sector. Akehurst (2009) studies the use of blogs as a method of marketing communication for consumers in Tourism sector.

Cluster 5 (Pink network): *B2B marketing*. This cluster consists of 37 articles with a total of 6709 citations. The most cited articles in this cluster are Toorajipour (2021) with 281 citations, Wamba-Taguimdje (2020) with 277 citations and Vlacic (2021) with 183 citations. This cluster focuses on the influence of AI on B2B marketing and its implications on the businesses including manufacturing, SCM, etc. Toorajipour (2021) carried out a systematic literature review to identify the existing literature on current and potential artificial intelligence techniques in supply chain management. Wamba-Taguimdje (2020) explores the impact of artificial intelligence on firm performance. It focuses on how firms use artificial intelligence in building business value of their transforming projects. Vlacic (2021) studies the existing literature to understand the revolving role of artificial intelligence/intelligent systems in marketing specifically B2B marketing.

Cluster 6 (Purple network): *Social media analytics*. This network consists of 20 articles with a total of 1134 citations. The most cited article in this cluster is Sjodin (2018) with 256 citations followed by Popkova (2020) and Hentzen (2022) with 120 and 70 citations respectively. This cluster focuses on the role of AI in social media. It includes papers on different aspects of social media analytics and how they affect customer journey. Sjodin (2018) explores the impact of implementing smart factory and process innovation on manufacturing. It studies how real-time communication systems lead to adaptation and enhanced efficiency. Popkova (2020) emphasised on role of Artificial Intelligence on the Social entrepreneurship in Russia. It studied the relationship between social media, human capital and AI in Industry. Hentzen (2022) conducted a systematic literature review to understand the impact of artificial intelligence in customer-facing financial services and how the increasing use of social media influences consumer adoption AI driven services and thereby consumer behaviour.

Cluster 7 (Orange network): *Customer experience*. This network consists of 7 articles with a total of 484 citations. The most cited article in this cluster is Mustak (2021) with 191 citations. This cluster focuses on the Impact of AI on consumers. Mustak (2021) explored the different dimensions

in which Artificial intelligence impact customer behaviour and customer relationships through a scientometric analysis and identified 10 research themes.

4. CONCLUSION

This bibliometric analysis has provided valuable insights into the intersection of Artificial Intelligence (AI) and marketing, showcasing the current state of research, emerging trends, and future directions in this dynamic field. By examining a diverse array of scholarly publications, we have identified key themes, influential authors, notable journals, and trends that shape the landscape of AI in marketing.

Our analysis highlights a significant increase in research on AI applications in marketing over the past decade, reflecting the growing importance of AI technologies in modern marketing practices. The findings demonstrate the various ways AI is utilized to enhance consumer insights, personalize marketing efforts, optimize advertising strategies, and improve customer service. The data also underscores the collaborative nature of research in this field, with contributions from computer science, business, and social sciences.

Key research areas identified include AI-driven data analytics, predictive modeling, and machine learning applications in marketing. These areas illustrate the potential of AI to revolutionize marketing by enabling precise targeting, real-time decision-making, and enhanced customer engagement. The study also highlights the importance of addressing ethical considerations and data privacy concerns associated with AI adoption in marketing.

Despite the rapid advancements and increasing interest in AI and marketing, our analysis also points out gaps and areas for future research. More empirical studies are needed to evaluate the long-term impact of AI on marketing performance and consumer behavior. Additionally, further research is necessary to explore the implications of AI-driven marketing strategies across different cultural and geographical contexts.

In summary, this bibliometric analysis offers a comprehensive overview of research on AI and marketing, providing valuable insights for academics, practitioners, and policymakers. As AI technologies continue to advance, their applications in marketing will become increasingly sophisticated and impactful. Continued collaboration and rigorous research will be essential to fully harness the potential of AI while addressing associated challenges and ethical considerations. Advancing our understanding of AI in marketing will pave the way for more effective, responsible, and innovative marketing practices in the digital age.

5. IMPLICATIONS

The findings of this bibliometric analysis carry several important implications for academia, industry, and policymakers seeking to understand and leverage the role of artificial intelligence in marketing.

5.1. Theoretical Implications

The study enriches the academic discourse by mapping the intellectual structure of AI applications in marketing and identifying dominant themes such as predictive modeling, machine learning, and AI-driven consumer insights. These results provide a consolidated foundation for future research frameworks, particularly in extending theories of consumer behaviour, technology adoption, and marketing performance in the context of AI. Moreover, the observed research gaps highlight opportunities for theory-building through cross-disciplinary integration of computer science, business

management, and social sciences.

5.2. Managerial Implications

For practitioners, the results emphasize the transformative potential of AI in reshaping marketing strategies. Managers can utilize insights on personalization, customer engagement, and predictive analytics to design data-driven, consumer-centric strategies that improve competitive advantage. At the same time, the findings caution practitioners about the ethical and privacy-related concerns of AI deployment, suggesting the need for transparent policies, responsible AI practices, and trust-building measures to maintain consumer confidence.

5.3. Policy Implications

The increasing adoption of AI in marketing calls for clear regulatory frameworks to safeguard consumer rights and ensure ethical usage of data. Policymakers can draw from these findings to develop guidelines that balance innovation with accountability, ensuring that firms deploying AI tools comply with standards of fairness, transparency, and privacy. Such frameworks will be crucial for sustainable adoption of AI technologies across different cultural and geographical contexts.

5.4. Future Research Implications

The study underscores the need for more empirical investigations into the long-term effects of AI adoption on marketing performance and consumer behavior. Future studies should focus on comparative research across industries and geographies to assess the contextual applicability of AI-driven strategies. Addressing underexplored areas such as consumer trust, cross-cultural adoption, and ethical dilemmas will not only fill existing gaps but also advance both scholarly understanding and practical application of AI in marketing.

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