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TRENDS IN ARTIFICIAL INTELLIGENCE MARKETING: A BIBLIOMETRIC ANALYSIS İbrahim Halil EFENDİOĞLU*^a

*Corresponding Author

ARTICLE INFO	ABSTRACT
<p>Research Article</p> <p>Received : 17/07/2023 Accepted : 10/10/2023</p> <p>Keywords: Artificial Intelligence Marketing, Bibliometric Analysis, Web of Science</p>	<p>This study aims to examine artificial intelligence marketing research through bibliometric analysis and thoroughly examine publications related to artificial intelligence marketing. In line with this objective, 350 studies containing the terms "artificial intelligence market*" or "AI market*" in their keywords, titles, or abstracts were analyzed from the Web of Science (WoS). The data were analyzed using the R programming language, R Studio, and Bibliometrix package. The examined studies span the years 1983 to 2023. The analyses indicate that artificial intelligence marketing studies gained significance in 2015 and experienced a more rapid increase after 2018. The most prominent keywords in the literature include artificial intelligence, technology, future, information, management, performance, and big data concepts. The countries with the most significant volume of research in artificial intelligence marketing are China and USA. In addition, the journals with the most significant number of publications, authors, and countries that collaborated are shown in the study. In addition, the publications' conceptual, social, and intellectual structure was examined. Finally, various suggestions have been made to researchers who want to work in artificial intelligence marketing.</p>

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YAPAY ZEKA PAZARLAMASINDA TRENDLER: BİBLİYOMETRİK BİR ANALİZ

MAKALE BİLGİSİ	ÖZ
<p><i>Araştırma Makalesi</i></p> <p>Geliş : 17/07/2023 Kabul : 10/10/2023</p> <p>Anahtar Kelimeler: Yapay Zeka Pazarlaması, Bibliyometrik Analiz, Web of Science</p>	<p>Bu çalışma, yapay zeka pazarlama araştırmalarını bibliyometrik analiz yoluyla incelemeyi ve yapay zeka pazarlamayla ilgili çalışmaların kapsamlı bir genel bakışını sunmayı amaçlamaktadır. Bu amaç doğrultusunda, anahtar kelimelerinde, başlıklarında veya özetlerinde "artificial intelligence market*" ve "AI market*" ifadesini içeren 350 çalışma, Web of Science (WoS) veritabanından analiz edilmiştir. Elde edilen veri seti R programlama dili, R Studio ve Bibliometrix paketi kullanılarak bibliyometrik analiz yöntemi esas alınarak analiz edilmiştir. İncelenen çalışmalar 1983 – 2023 yıllarını kapsamaktadır. Analizler, yapay zeka pazarlama çalışmalarının 2015 yılından itibaren önem kazandığı ve 2018 yılından sonra daha hızlı bir şekilde arttığını göstermektedir. Literatürde en fazla öne çıkan anahtar kelimeler; yapay zeka, teknoloji, gelecek, bilgi, yönetim, performans ve büyük veri kavramlarıdır. Yapay zeka pazarlama konusunda en fazla çalışma yapan ülkeler; Çin ve ABD'dir. Ayrıca araştırmada en fazla çalışma yayımlanan dergiler, yazarlar ve birlikte çalışma yapan ülkeler gösterilmiştir. Bunun yanında literatürün, kavramsal, entelektüel ve sosyal yapısı incelenmiştir. Son olarak yapay zeka pazarlamasında çalışma yapmak isteyen araştırmacılara çeşitli önerilerde bulunulmuştur.</p>

^a efendioglu@gantep.edu.tr bdoganli@adu.edu.tr <https://orcid.org/0000-0002-4968-375X>

1. INTRODUCTION

This study aims to examine artificial intelligence marketing research through bibliometric analysis and present a comprehensive investigation of these studies. Given the need to utilize research methods suitable for evaluation and prediction purposes, bibliometric analysis is one of the pertinent analyses in line with this objective. Bibliometrics is employed as a systematic analysis of data sets, providing specific insights about the most frequently cited articles and influential authors (Donthu et al., 2021). This analysis involves a systematic literature review and structuring of a substantial dataset in meaningful ways. Bibliometric analysis is an increasingly used method for analyzing studies conducted in specific fields (Han et al., 2021). Considering the impact generated by artificial intelligence in recent years and its growing popularity, this topic has become a necessity both in academia and in businesses. Feng et al. (2021) analyzed other bibliometric metrics related to articles on artificial intelligence in 68 marketing journals using VOSViewer. Ekinçi and Bilginer Özsaatçı (2023) conducted a bibliometric analysis in artificial intelligence and marketing using the SCOPUS database.

However, in this study, a range of 350 articles containing the terms "artificial intelligence market*" and "AI market*" in their keywords, abstracts, or titles published within the timeframe of 1983 to 2023 and retrieved from the WoS database were analyzed using the Bibliometrix package, R Studio, and R programming language.

The study initially provides an overview of artificial intelligence marketing. The following section delves into the utilized dataset and elucidates the research methodology. Subsequent sections address the analysis of acquired data and the resulting findings. The last part presents the research conclusions and its limitations.

2. ARTIFICIAL INTELLIGENCE (AI) MARKETING

AI is a computer technology with more human-specific abilities that can perform logical reasoning tasks such as understanding, learning, and reasoning (Nabiyev, 2012). Furthermore, artificial intelligence is expected to play a significant role in addressing future challenges. This is because AI is prone to rapid problem solving using cutting-edge technologies. AI makes it possible to make predictions by sampling human intelligence-related processes by machines (Kaplan, 2021).

The rapid changes and advancements in AI have also impacted the science of marketing (Wirtz, 2021). AI is predicted will have a very important place in marketing as it manages data sources with advanced data analytics (Haleem et al., 2022). It provides personalization in marketing scope using AI, virtual assistants, machine learning, and NLP. It is also expected to have an important effect on the field due to its great content creation and optimization capability. Therefore, it enables marketers to conduct analyses according to their needs. In the coming years, AI marketing will take a more prominent role in fostering innovation and enhancing productivity (Frank, 2021). In the marketing world, obtaining deeper consumer insights using artificial intelligence is possible. This enables marketers to categorize customers and provide them with a better experience. If marketers carefully analyze the data they gather from consumers, they can enhance their profitability (Peyravi et al., 2020). In the future, artificial intelligence is expected to be extensively utilized in marketing. It will be pivotal in automating and optimizing various marketing processes, enabling more personalized and targeted campaigns. AI-powered analytics will continue to provide deeper insights into consumer behavior, helping marketers make data-driven decisions. Machine learning and big data analysis will enhance customer interactions and enable brands to provide real-time tailored

responses. Chatbots and virtual assistants will become even more sophisticated, handling customer inquiries and providing seamless support.

In recent years, artificial intelligence has been recognized as a new technology that has started to be used in fields such as business management, healthcare, automotive, and education. Artificial intelligence, which has been the focus of professional groups such as engineers, IT experts, and analysts until now, now finds a broader scope of application and usage that also encompasses social sciences (Jarek & Mazurek, 2019).

Artificial intelligence offers a wide range of applications in various fields. Here are some areas where artificial intelligence is utilized (Marr, 2023):

- *Business Management and Industry:* Artificial intelligence is used to automate production processes, increase efficiency, and optimize operations in businesses.
- *Healthcare and Medicine:* Artificial intelligence is employed in medical diagnoses, disease predictions, and treatment planning. It is particularly effective in areas like image analysis and processing hospital data.
- *Automotive:* Artificial intelligence plays a crucial role in autonomous vehicles and automotive manufacturing, addressing aspects such as safety, navigation, and energy efficiency.
- *Education:* Artificial intelligence is used to monitor student performance, personalize learning materials, and provide support to educators.
- *Finance and Banking:* Artificial intelligence is used in financial transactions and services, including fraud detection, credit assessment, trading analysis, and customer services.
- *Service Sector:* Industries like restaurants, hotels, and retail use artificial intelligence to enhance customer experiences and optimize business processes.
- *Natural Language Processing:* Artificial intelligence is employed in the field of natural language processing to understand human language, perform translations, analyze text, and support language-based interactions.
- *Energy and Environment:* Artificial intelligence is used in optimizing energy production and consumption, waste management, and environmental impact analysis.
- *Security and Defense:* By aiding in cybersecurity, threat analysis, and war strategies, artificial intelligence contributes to security and defense systems.
- *Entertainment and Art:* Artificial intelligence supports creativity in game development, content creation, music, and art.

The increasing interest in artificial intelligence has led to the development of commercial applications and demonstrated the potential for these technologies to be applied in the marketing. Within marketing, artificial intelligence can be used to cater to individuals' desires and needs, learning their behaviors and preferences to provide personalized products and services. The essential resource required to achieve all this is customer data, and artificial intelligence is used to process this large data for these purposes (Ercan, 2020). For example, ChatGBT's recent specialization now allows him to write very successful marketing articles. Thus, content marketing with ChatGBT is now under the control of artificial intelligence. Businesses seem to be willing to use ChatGBT to produce desired outcomes in marketing more efficiently. In this regard, agencies and brands will start working with prompt engineers. Effective prompt engineering will utilize artificial intelligence tools like ChatGBT correctly and facilitate idea generation. (Peres et al., 2023).

In artificial intelligence studies within the field of marketing, the following topics have generally been emphasized: Better marketing tool (Alyoshina, 2019), Chatbots (Arsenijevic &

Jovic, 2019), Personal Assistants (Bayuk & Demir, 2019), Customer Classification (Kühl et al., 2019), Shopping Assistant (Gülşen, 2019), Digital Marketing (Parvatiyar & Sisodia, 2019), Increased Customer Satisfaction and Revenue (Tchelidze, 2019), Reduction of Human Mistakes (Kitsios & Kamariotou, 2021), Learning about Customer Preferences (Chatterjee et al., 2021), Analyse of Market Data (Rutskiy et al., 2021), Make Customer Choices (Feng et al., 2021), Examine Data about Customer (Mustak et al., 2021), Digital Advertising (Alawaad, 2021), Better Customer Experience (Dwivedi et al., 2021), Customise Shopping Process (Pedersen & Duin, 2022), Target Audience (Giroux et al., 2022). In marketing, the commonly used methods of Artificial intelligence are described below:

- *Personalized Content and Recommendations:* Artificial intelligence can provide personalized content and product recommendations by analyzing consumers' past behaviors and preferences. This helps better cater to consumers' interests and needs (Huang et al., 2023).
- *Chatbots and Customer Service:* Chatbots are used in marketing to provide 24/7 customer service. They answer consumer questions, provide assistance, and offer quick solutions (Wang et al., 2022).
- *Marketing Analytics and Prediction:* Artificial intelligence is employed to analyze big data, determining trends and predictions. This enables the development of more effective marketing strategies (Hossain et al., 2022).
- *Advertising Management:* Artificial intelligence is used to manage and optimize advertising campaigns. It determines which ads should be shown to which target audiences and helps make the best use of budgets (Shah et al., 2020).
- *Product Development and Design:* Artificial intelligence supports the design and development of new products by analyzing consumers' desires and needs (Soltani-Fesaghandis & Pooya, 2018).
- *Social Media Analysis:* Artificial intelligence monitors and understands brand reputation by analyzing consumers' opinions and feedback on social media platforms (Capatina et al., 2020).
- *Segmentation and Targeting:* Artificial intelligence divides consumers into specific segments, allowing for more precise and effective targeting (Raiter, 2021).
- *Email Marketing and Automation:* Artificial intelligence supports automation processes by sending consumers personalized emails (Pāvāloaia, 2020).
- *SEO and Search Engine Advertising:* Artificial intelligence is used to achieve better results in search engine optimization (SEO) and search engine advertising (Schultz et al., 2023).

3. METHODOLOGY

This research methodology involves using bibliometric analysis, a method employed to ascertain a discipline's nature and developmental trajectory through the amalgamation, interpretation, and analysis of existing sources and statistics (Pritchard & Groos, 1969). Furthermore, bibliometric analysis is a versatile method that integrates various analytical techniques like co-authorship, co-occurrence, and co-citation (Gao et al., 2021). Within this spectrum, co-occurrence analysis is recognized as a potent technique for exploring and delineating interactions across different scientific research domains (Muñoz-Leiva et al., 2013). Bibliometric studies are valuable for offering a holistic view of relevant subjects or fields, illustrating changes and developments over the years, and indicating gaps and emerging topics to prospective researchers (Üsdiken & Pasadeos, 1992). Furthermore, these studies enable researchers to comprehensively understand the relevant subject matter (Hood & Wilson, 2001).

In the scope of this research, data collection was performed across all indexes of the Web of Science. Following the search strategy, research articles were examined without imposing publication year constraints, utilizing the keyword "artificial intelligence market*." The entirety of the articles was downloaded, and it was observed that in most of the analyzed articles, the abbreviation "AI Market*" was used in subsequent paragraphs for the term "artificial intelligence market*." As a result, the database was searched for the abbreviation, and articles that did not use this abbreviation were excluded from the study. Specifically, this research exclusively examined publications where the expression "AI Market*" appeared in the title or keywords.

Web of Science is an internationally recognized digital bibliometric platform acknowledged for its high-quality standards among researchers. It has become one of the primary tools for exploring and evaluating various publication types and journals (Thelwall, 2008). Web of Science provides researchers interested in bibliometric analysis with a range of metadata, including abstracts, references, citation counts, lists of authors, institutions, countries, and journal impact factors. These data enable more robust analyses. Researchers can conduct searches and retrieve data according to desired tags from the WoS Core Collection database. Additionally, criteria such as publication year, language, document type, and citation index can be applied during searches (Eren & Eren, 2020).

In the context of this research, an initial query was conducted within the WOS database using the keywords "artificial intelligence market*" and "AI Market*" in the title, abstract, or keywords fields, resulting in 350 records. Subsequently, these results were transferred to the R programming language for bibliometric analysis. The "bibliometrix" package was employed for this analysis. Developed by Aria and Cuccurullo (2017), the "bibliometrix" package is designed for use within the R programming language, enabling comprehensive examination of studies in the literature and providing researchers with insights into developments within various fields.

4. RESULTS

The academic studies included in the research were examined in the following categories: distribution of studies over the years, types of studies, most cited authors, most cited studies, countries with the highest research output, journals with the highest publication count, most frequently recurring keywords, and the social intellectual, and conceptual structures of the studies.

4.1. Publication Trends

An overview of the distribution of studies over the years in the domain of AI marketing (Figure 1) is presented. When a general overview of studies related to artificial intelligence marketing is taken, a total of 350 articles authored by 935 authors in 257 journals across 54 countries were identified within 40 years (1983-2023). The number of studies between 1983 and 2015 remained close to zero. In these 32 years, 30 studies were published, with one study each in 1983, 1986, 1991, 1995, 1997, 1998, 2001, 2004, 2009, 2012, and 2015. A significant surge in studies related to artificial intelligence marketing was observed in 2015, marking the onset of increased research activity in this area. Notably, the year 2022 alone witnessed the publication of 102 studies. The annual growth rate of study counts was determined to be 10.54%.

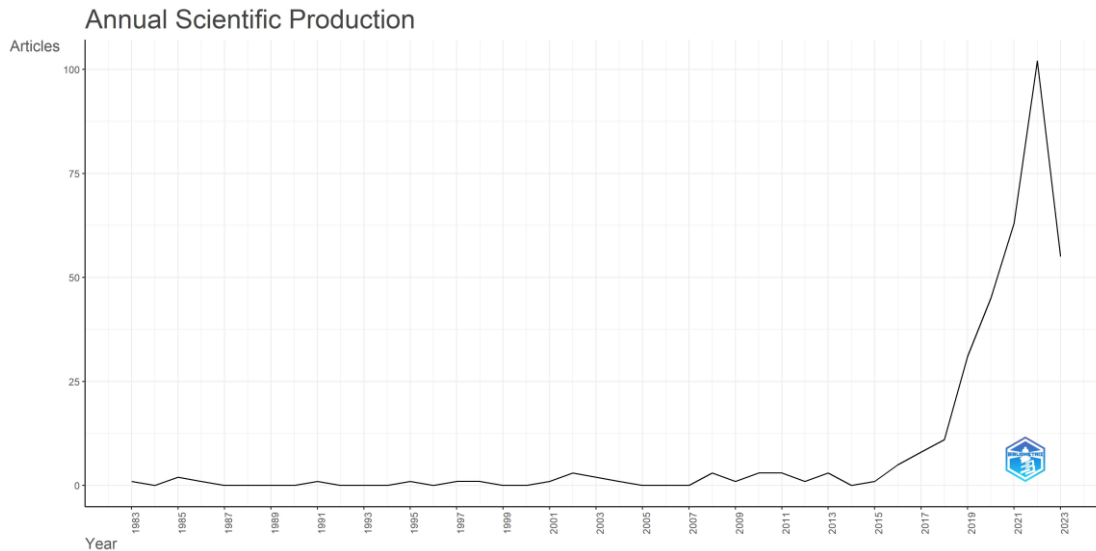


Figure 1. The Distribution of Studies over the Years

4.2. Types of Publications

The types of studies conducted in the scope of AI marketing are shown in Table 1. Out of 350 studies conducted between 1983 and 2023, 254 have been published as articles, while nine have been published as book chapters. The number of studies published as conference papers is 68, and it is observed that 19 studies are prepared in other formats, such as editorials, book reviews, and the like.

Table 1. Types and Numbers of Publications

Types of Publications	Number of Publications
Article	254
Book Chapter	9
Conference Paper	68
Other (such as editorials, book reviews, etc.)	19
Total	350

4.3. Most Cited Publications

The most cited top 10 publications from the field of artificial intelligence in marketing are presented in Table 2. Notably, all of these contributions fall under the category of articles. Notably, the most highly referenced works are those published in 2019 and beyond.

Table 2. Most Cited Publications

Title of Article	Author	Year	Journal Name	Number of Citations	Annual Average Citation
How artificial intelligence will change the future of marketing	DAVENPORT T	2020	Journal of the Academy of Marketing Science	426	106,5
A strategic framework for artificial intelligence in marketing	HUANG MH	2021	Journal of the Academy of Marketing Science	181	60,33
Understanding the Role of Artificial Intelligence in Personalized Engagement Marketing	KUMAR V	2019	California Management Review	139	27,80
Locational marginal price forecasting in deregulated electricity markets using artificial intelligence	HONG YY	2002	Generation, Transmission and Distribution	109	4,95
Machine learning and AI in marketing – Connecting computing power to human insights	MA L	2020	International Journal of Research in Marketing	109	27,25
Artificial intelligence (AI) and its implications for market knowledge in B2B marketing	PASCHE J	2019	Journal of Business & Industrial Marketing	99	19,80
The evolving role of artificial intelligence in marketing: A review and research agenda	VLACIC B	2021	Journal of Business Research	89	29,67
Artificial intelligence in marketing: Topic modeling, scientometric	MUSTAK M	2021	Journal of Business Research	88	29,33

analysis, and research agenda					
Artificial Intelligence: The Ambiguous Labor Market Impact of Automating Prediction	AGRAWAL A	2019	Journal Of Economic Perspectives	86	17,20
Artificial intelligence-based systems applied in industrial marketing: An historical overview, current and future insights	MARTINEZ-LOPEZ FJ	2013	Industrial Marketing Management	85	7,73

4.4. Countries with the Greatest Number of Publications

The ten countries that have published the highest number of studies on artificial intelligence in marketing are presented in Table 3. While compiling the list, the countries of the journals where the studies were published were not considered; instead, the focus was on the countries of the authors who conducted the research. As observed, China leads the list with 53 studies, followed by the USA with 42 and the United Kingdom with 27. Furthermore, as indicated in Table 3, the total number of studies conducted in the top 10 countries on the list is 218. This figure corresponds to approximately 62% of the total 350 studies in this research.

Table 3. Countries with the Greatest Number of Publications

Country	Number of Publications
CHINA	53
USA	42
UNITED KINGDOM	27
INDIA	22
GERMANY	17
SPAIN	13
FRANCE	13
CANADA	12
AUSTRALIA	10
RUSSIA	9

4.5. Journals with the Greatest Number of Article Publications

The top 10 journals with the greatest number of article publications in AI in marketing are presented in Table 4. To construct this table, the beginning search results from the WOS

database, which yielded a total of 350 studies, were narrowed down to focus solely on 60 articles published. The first two positions on the list are occupied by the journals "Industrial Marketing Management" and "Journal of Business Research," each with ten publications. Subsequently, it is observed that the journals "Psychology & Marketing" and "Australasian Marketing Journal" follow with 6 and 5 publications, respectively.

Table 4. Journals with the Greatest Number of Article Publications

Journal	Number of Article
INDUSTRIAL MARKETING MANAGEMENT	10
JOURNAL OF BUSINESS RESEARCH	10
PSYCHOLOGY \& MARKETING	6
AUSTRALASIAN MARKETING JOURNAL	5
SUSTAINABILITY	5
ENERGIES	4
IEEE ACCESS	4
INTERNATIONAL JOURNAL OF BANK MARKETING	4
JOURNAL OF THE ACADEMY OF MARKETING SCIENCE	4
TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE	4

4.6. Most Frequently Used Words in Title, Abstract, Keywords, and References

Within the scope of this study, the most frequently used words in the bibliometric analysis of 350 examined studies are presented in Table 5. In this section, data initially display the 25 most frequently used words in article titles, keywords, and abstracts. Examining the words most commonly found in article titles reveals the prominence of terms such as "technology" and "artificial intelligence" alongside "future," "knowledge," and "management." This underscores that researchers prioritize artificial intelligence technology as a central theme in marketing studies. Including terms like "big data" and "AI" in the list further reinforces this observation. Moreover, the remaining words on the list offer significant insights for marketing researchers, signifying that these areas hold considerable importance within artificial intelligence marketing research. These domains represent focal points of emphasis within artificial intelligence marketing.

Table 5. Most Frequently Used Words in Title, Abstract, Keywords, and References

Word	Frequency	Word	Frequency
technology	26	internet	12
artificial-intelligence	21	systems	12
future	20	consumer	11
knowledge	20	framework	11
management	20	social media	11
performance	20	analytics	10

big data	18	innovation	9
impact	18	acceptance	8
ai	17	strategy	8
model	15	engagement	7
information	14	neural-network	7
decision-making	12	neural-networks	7

The 25 most frequently recurring words in the keywords, titles, and abstract sections of the examined studies within the research scope are depicted in Word Cloud format in Figure 2. As discernible from the figure, following the words "technology" and "artificial intelligence," the most frequently recurring terms are "future," "knowledge," "management," "performance," and "big data." The visualization option of presenting the most common words using a Word Cloud in R programming, facilitated by the "bibliometrix" package, offers readers a visual convenience. The increase in the size of a word in the cloud indicates its higher frequency of occurrence.



Figure 2. Most Frequently Used Words in Publications

Figure 3, on the other hand, illustrates the 25-year developmental trend of the most frequently utilized terms in the studies examined within this research. As observed, the studies featuring the terms 'technology,' 'artificial intelligence,' 'future,' 'knowledge,' 'management,' 'performance,' and 'big data' have increased since 2017.

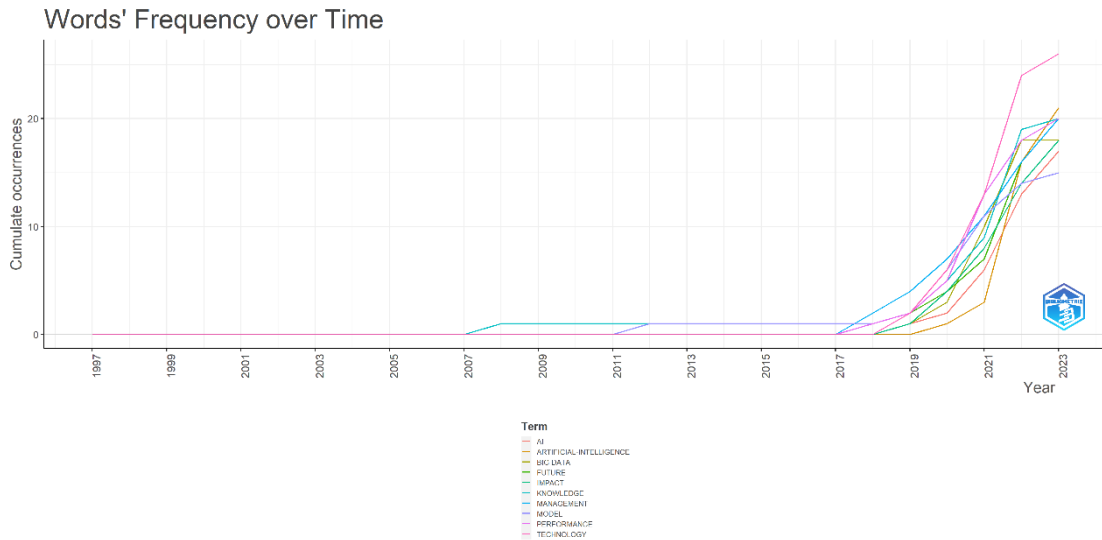


Figure 3. Words Frequency over Time

The three domain graphs resulting from the analysis based on keywords, authors, and universities are presented in Figure 4 below. Accordingly, the universities with the highest publication rates among authors are the University of Toronto and the University of Twente.

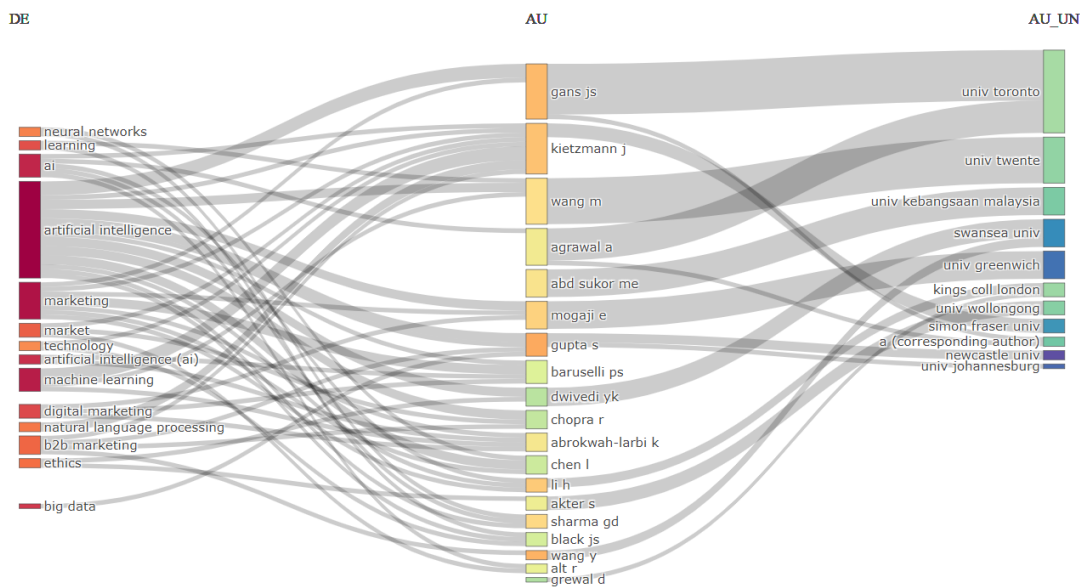


Figure 4. The Three-Domain Graph of Keywords, Authors, and Universities

The clustering of the studies examined in bibliometric analyses according to their common characteristics aids readers in gaining a holistic understanding of the field. Referred to as science mapping, this process aims to analyze and visualize the works within a discipline (Kurutkan & Orhan, 2018: 3). In science mapping, the analysis of conceptual, intellectual, and social structures of the investigated studies aim to reveal their interconnections (Cobo et al., 2011). Within the scope of co-citation and co-occurrence analysis of the keywords used in articles was carried out to explore the conceptual structures of the examined 350 studies (Aria & Cuccurullo, 2017). When examining the results indicated in Figure 4, it can be observed that the research topics are clustered under the following main themes: technology, artificial intelligence, AI, decision-making, performance, big data, knowledge, management, and future.

authors are affiliated with, or the countries where authors conduct their research. This method, known as co-authorship analysis, provides valuable insights for identifying influential research groups within a field (Aria & Cuccurullo, 2017). This study examined the international collaborative authorship endeavors to determine the countries involved in such partnerships. Table 7 displays the connections, and Figure 6 depicts a world map showcasing the international collaborative authors identified through bibliometric analysis across the 350 studies. The connections in the figure indicate countries that have engaged in at least two or more collaborative works.

Table 7. Countries with the Greatest Number of Collaborative Publications

Country	Country	Number of Publications
UNITED KINGDOM	AUSTRALIA	9
USA	UNITED KINGDOM	8
UNITED KINGDOM	ITALY	7
CHINA	USA	6
UNITED KINGDOM	CANADA	6
USA	AUSTRALIA	6
UNITED KINGDOM	FRANCE	5
UNITED KINGDOM	IRELAND	4
USA	NETHERLANDS	4
AUSTRALIA	NETHERLANDS	3



Figure 6. International Collaborative Authors Map

5. CONCLUSION

AI will have a significant impact on shaping forthcoming developments in the field of marketing. Marketing processes are automated with advanced data analytics, personalization and customer segmentation, chatbots and virtual assistants. Thus, marketers driven by AI technologies will have the opportunity to create a significant and sustainable competitive advantage for their businesses and themselves. In this direction, marketers will be able to optimize their strategies and improve campaign performance by utilizing artificial intelligence

technologies. Accordingly, marketing costs will decrease significantly and the income of businesses will increase by using the ability to make comprehensive forecasts. Therefore, marketers must adapt to these trends and explore new opportunities using artificial intelligence.

The objective of this study was to investigate the realm of marketing through the lens of artificial intelligence and contribute to researchers interested in this area. For this purpose, a systematic search was conducted on the WOS database, yielding 350 studies with titles, abstracts, or keywords containing 'artificial intelligence market*', or "AI market*" subsequently analyzed across various categories.

An overview of the literature reveals that researchers predominantly disseminate their findings through articles. A notable point regarding artificial intelligence marketing pertains to the increasing number of studies in this domain since 2015, accelerating notably from 2018 onwards. This upsurge in research could be attributed to various factors, including technological advancements, data analytics, enhancement of customer experience, and optimization of marketing strategies.

Notably, researchers such as Davenport et al. (2020) and Huang & Roland (2021) have garnered substantial citations, suggesting their significant contributions to the field of artificial intelligence marketing. Furthermore, China and the USA have the highest publication rates in this domain. The journals 'Industrial Marketing Management' and 'Journal of Business Research' also stand out as the most active publishers in the AI marketing domain.

Artificial intelligence marketing is a dynamic realm shaped by the amalgamation of elements such as artificial intelligence, technological advancements, future expectations, knowledge analytics, and AI applications. Consequently, the titles of the studies often prominently feature words like 'technology,' 'artificial intelligence,' and 'future.' Artificial intelligence marketing, grounded in the essence of technology, often accentuates the concept of technology due to its integral role. In this process, marketers and researchers explore and share technological approaches to integrate artificial intelligence into marketing strategies. The term 'future' emphasizes artificial intelligence marketing studies' potential development and implementation. Given the continuously evolving nature of artificial intelligence marketing, focusing on future trends, expectations, and potential scenarios is imperative.

Lastly, within the context of this research, the conceptual, intellectual, and social structures of the examined studies have been elucidated. The analyses that cluster existing studies based on their topics, citations, and the countries of collaborative authors provide a snapshot of the digital marketing landscape, serving as a resource for future researchers in the field. Future scholars can contribute to the eight main clusters that have emerged ('artificial intelligence,' 'AI,' 'big data,' 'decision-making,' 'knowledge,' 'performance,' 'management,' and 'future') and may also create new clusters based on keywords.

While this study offers a significant resource for researchers in artificial intelligence marketing, the results should be considered within certain limitations. The sources examined in the study were restricted to the WOS database. Future researchers can perform a similar bibliometric analysis using different databases. Another constraint of the study arises from the number of examined works. As the volume of research in artificial intelligence marketing increases, so will the number of sources available for analysis. Consequently, future researchers can conduct more comprehensive studies.

REFERENCES

- Agrawal, A., Gans, J. S., & Goldfarb, A. (2019). Artificial intelligence: the ambiguous labor market impact of automating prediction. *Journal of Economic Perspectives*, 33(2), 31-50. <https://doi.org/10.1257/jep.33.2.31>
- Alyoshina, I. V. (2019). Artificial intelligence in an age of digital globalization. In *International Conference Technology & Entrepreneurship in Digital Society*. 26-30.
- Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959-975. <https://doi.org/10.1016/j.joi.2017.08.007>
- Arsenijevic, U. ve Jovic, M. (2019). Artificial intelligence marketing: chatbots. *International Conference on Artificial Intelligence: Applications and Innovations*, Crete, Greece, 19-22.
- Bayuk, M. N. ve Demir, B. N. (2019). Endüstri 4.0 kapsamında yapay zeka ve pazarlamanın geleceđi. *Journal of Social, Humanities and Administrative Sciences*, 5(19), 781-799
- Capatina, A., Kachour, M., Lichy, J., Micu, A., Micu, A. E., & Codignola, F. (2020). Matching the future capabilities of an artificial intelligence-based software for social media marketing with potential users' expectations. *Technological Forecasting and Social Change*, 151, 119794. <https://doi.org/10.1016/j.techfore.2019.119794>
- Chatterjee, S., Chaudhuri, R., Vrontis, D., Thrassou, A., & Ghosh, S. K. (2021). Adoption of artificial intelligence-integrated CRM systems in agile organizations in India. *Technological Forecasting and Social Change*, 168, 120783. <https://doi.org/10.1016/j.techfore.2021.120783>
- Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., ve Herrera, F. (2011). Science mapping software tools: Review, analysis, and cooperative study among tools. *Journal of the American Society for Information Science and Technology*, 62(7), 1382-1402. <https://doi.org/10.1002/asi.21525>
- Davenport, T., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, 48, 24-42. <https://doi.org/10.1007/s11747-019-00696-0>
- Donthu, N., Kumar, S., Pattnaik, D., & Lim, W. M. (2021). A bibliometric retrospection of marketing from the lens of psychology: Insights from Psychology & Marketing. *Psychology & Marketing*, 38(5), 834-865. <https://doi.org/10.1002/mar.21472>
- Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., ... & Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57, 101994. <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>
- Ekinci, G., & Özsaatci Bilginer, F. G. (2023). Yapay Zekâ ve Pazarlama Alanındaki Yayınların Bibliyometrik Analizi. *Sosyoekonomi*, 31(56), 369-388. <https://doi.org/10.17233/sosyoekonomi.2023.02.17>
- Ercan, F. (2020). Turizm pazarlamasında yapay zekâ teknolojilerinin kullanımı ve uygulama örnekleri. *Ankara Hacı Bayram Veli Üniversitesi Turizm Fakültesi Dergisi*, 23(2), 394-410.

- Eren, A., & Eren, D. (2020). Pazarlama literatüründe elektronik ağızdan ağıza iletişimin bibliyometrik analizi. *Journal of Business Research-Turk*, 12(3), 2515-2530 <https://doi.org/10.20491/isarder.2020.990>
- Feng, C. M., Park, A., Pitt, L., Kietzmann, J., & Northey, G. (2021). Artificial intelligence in marketing: A bibliographic perspective. *Australasian Marketing Journal*, 29(3), 252-263. <https://doi.org/10.1016/j.ausmj.2020.07.006>
- Frank, B. (2021). Artificial intelligence-enabled environmental sustainability of products: Marketing benefits and their variation by consumer, location, and product types. *Journal of Cleaner Production*, 285, 125242. <https://doi.org/10.1016/j.jclepro.2020.125242>
- Gao, P., Meng, F., Mata, M. N., Martins, J. M., Iqbal, S., Correia, A. B., ... & Farrukh, M. (2021). Trends and future research in electronic marketing: A bibliometric analysis of twenty years. *Journal of Theoretical and Applied Electronic Commerce Research*, 16(5), 1667-1679. <https://doi.org/10.3390/jtaer16050094>
- Giroux, M., Kim, J., Lee, J. C., & Park, J. (2022). Artificial intelligence and declined guilt: Retailing morality comparison between human and AI. *Journal of Business Ethics*, 178(4), 1027-1041. <https://doi.org/10.1007/s10551-022-05056-7>
- Gülşen, İ. (2019). İşletmelerde yapay zeka uygulamaları ve faydaları: perakende sektöründe bir derleme. *Tüketici ve Tüketim Araştırmaları Dergisi*, 11(2), 407-436.
- Haleem, A., Javaid, M., Qadri, M. A., Singh, R. P., & Suman, R. (2022). Artificial intelligence (AI) applications for marketing: A literature-based study. *International Journal of Intelligent Networks*. 3(1), 119-132. <https://doi.org/10.1016/j.ijin.2022.08.005>
- Han, R., Lam, H. K., Zhan, Y., Wang, Y., Dwivedi, Y. K., & Tan, K. H. (2021). Artificial intelligence in business-to-business marketing: a bibliometric analysis of current research status, development and future directions. *Industrial Management & Data Systems*, 121(12), 2467-2497. <https://doi.org/10.1108/IMDS-05-2021-0300>
- Hong, Y. Y., & Hsiao, C. Y. (2002). Locational marginal price forecasting in deregulated electricity markets using artificial intelligence. *IEEE Proceedings Generation, Transmission and Distribution*, 149(5), 621-626. <https://doi.org/10.1049/ipgtd:20020371>
- Hood, W. W., & Wilson, C. S. (2001). The literature of bibliometrics, scientometrics, and informetrics. *Scientometrics*, 52, 291-314. <https://doi.org/10.1023/A:1017919924342>
- Hossain, M. A., Agnihotri, R., Rushan, M. R. I., Rahman, M. S., & Sumi, S. F. (2022). Marketing analytics capability, artificial intelligence adoption, and firms' competitive advantage: evidence from the manufacturing industry. *Industrial Marketing Management*, 106, 240-255. <https://doi.org/10.1016/j.indmarman.2022.08.017>
- Huang, M. H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science*, 49, 30-50. <https://doi.org/10.1007/s11747-020-00749-9>
- Huang, A. Y., Lu, O. H., & Yang, S. J. (2023). Effects of artificial Intelligence-Enabled personalized recommendations on learners' learning engagement, motivation, and outcomes in a flipped classroom. *Computers & Education*, 194, 104684. <https://doi.org/10.1016/j.compedu.2022.104684>

- Jarek, K. ve Mazurek, G. (2019). Marketing and artificial intelligence. *Central European Business Review*, 8(2), 46-55.
- Kaplan, A. (2021). Artificial intelligence, marketing, and the fourth industrial revolution: criteria, concerns, cases. *In Handbook of research on applied AI for international business and marketing applications* (pp. 1-13). IGI Global.
- Kumar, V., & Reinartz, W. (2016). Creating enduring customer value. *Journal of Marketing*, 80(6), 36-68. <https://doi.org/10.1509/jm.15.0414>
- Kurutkan, M. N., & Orhan, F. (2018). Kalite prensiplerinin görsel haritalama tekniğine göre bibliyometrik analizi. *Sage Yayıncılık San. Tic. ve Ltd. Şti*, 1, 7-14.
- Kitsios, F., & Kamariotou, M. (2021). Artificial intelligence and business strategy towards digital transformation: A research agenda. *Sustainability*, 13(4), 2025. <https://doi.org/10.3390/su13042025>
- Kühl, N., Mühlthaler, M. ve Goutier, M. (2019). Supporting customer-oriented marketing with artificial intelligence: automatically quantifying customer needs from social media. *Electronic Markets, OnlineFirst*, <https://doi.org/10.1007/s12525-019-00351-0>.
- Ma, L., & Sun, B. (2020). Machine learning and AI in marketing—Connecting computing power to human insights. *International Journal of Research in Marketing*, 37(3), 481-504. <https://doi.org/10.1016/j.ijresmar.2020.04.005>
- Marr, B. (2023). Amazing Real-World Applications Of AI Everyone Should Know About. <https://www.forbes.com/sites/bernardmarr/2023/05/10/15-amazing-real-world-applications-of-ai-everyone-should-know-about/?sh=73875efc85e8> (Access Date: 01.08.2023)
- Martínez-López, F. J., & Casillas, J. (2013). Artificial intelligence-based systems applied in industrial marketing: An historical overview, current and future insights. *Industrial Marketing Management*, 42(4), 489-495. <https://doi.org/10.1016/j.indmarman.2013.03.001>
- Muñoz-Leiva, F., Sánchez-Fernández, J., Liébana-Cabanillas, F. J., & Martínez Fiestas, M. (2013). Detecting salient themes in financial marketing research from 1961 to 2010. *The Service Industries Journal*, 33(9-10), 925-940. <https://doi.org/10.1080/02642069.2013.719884>
- Mustak, M., Salminen, J., Plé, L., & Wirtz, J. (2021). Artificial intelligence in marketing: Topic modeling, scientometric analysis, and research agenda. *Journal of Business Research*, 124, 389-404. <https://doi.org/10.1016/j.jbusres.2020.10.044>
- Nabiyev, V. (2012). *Yapay Zeka*. Ankara: Seçkin Yayıncılık.
- Parvatiyar, A., & Sisodia, R. (Eds.). (2019). *Handbook of advances in marketing in an era of disruptions: Essays in Honour of Jagdish N. Sheth*. SAGE Publications India.
- Paschen, J., Kietzmann, J., & Kietzmann, T. C. (2019). Artificial intelligence (AI) and its implications for market knowledge in B2B marketing. *Journal of business & industrial marketing*, 34(7), 1410-1419. <https://doi.org/10.1108/JBIM-10-2018-0295>
- Păvăloaia, V. D., Anastasiei, I. D., & Fotache, D. (2020). Social media and e-mail marketing campaigns: Symmetry versus convergence. *Symmetry*, 12(12), 1940. <https://doi.org/10.3390/sym12121940>

- Pedersen, I., & Duin, A. (2022). AI agents, humans and untangling the marketing of artificial intelligence in learning environments. *Proceedings of the 55th Hawaii International Conference On System Sciences*.
- Peres, R., Schreier, M., Schweidel, D., & Sorescu, A. (2023). On ChatGPT and beyond: How generative artificial intelligence may affect research, teaching, and practice. *International Journal of Research in Marketing*, 40(2). <https://doi.org/10.1016/j.ijresmar.2023.03.001>
- Peyravi, B., Nekrošienė, J., & Lobanova, L. (2020). Revolutionised technologies for marketing: Theoretical review with focus on artificial intelligence. *Business: Theory and Practice*, 21(2), 827-834.
- Pritchard, A., & Groos, O. V. (1969). Documentation notes, *Journal of Documentation*, 25(4), 344-349.
- Raiter, O. (2021). Segmentation of bank consumers for artificial intelligence marketing. *International Journal of Contemporary Financial Issues*, 1(1), 39-54. <http://dx.doi.org/10.17613/q0h8-m266>
- Rutskiy, V., Mousavi, R., Chudopal, N., Amrani, Y. E., Everstova, V., & Tsarev, R. (2021). *Artificial intelligence as a disruptive technology for digital marketing*. In Proceedings of the Computational Methods in Systems and Software (pp. 895-900). Cham: Springer International Publishing.
- Schultz, C. D., Koch, C., & Olbrich, R. (2023). Dark sides of artificial intelligence: The dangers of automated decision-making in search engine advertising. *Journal of the Association for Information Science and Technology*. <https://doi.org/10.1002/asi.24798>
- Shah, N., Engineer, S., Bhagat, N., Chauhan, H., & Shah, M. (2020). Research trends on the usage of machine learning and artificial intelligence in advertising. *Augmented Human Research*, 5, 1-15. <https://doi.org/10.1007/s41133-020-00038-8>
- Soltani-Fesaghandis, G., & Pooya, A. (2018). Design of an artificial intelligence system for predicting success of new product development and selecting proper market-product strategy in the food industry. *International Food and Agribusiness Management Review*, 21(7), 847-864. <https://doi.org/10.22434/IFAMR2017.0033>
- Tchelidze, L. (2019). Potential and skill requirements of artificial intelligence in digital marketing. *Calitatea*, 20(S3), 73-78.
- Thelwall, M. (2008). Bibliometrics to webometrics. *Journal of Information Science*. <https://doi.org/10.1177/0165551507087238>
- Üsdiken, B., & Pasadeos, Y. (1992). Türkiye’de yayınlanan yönetimle ilgili veri temelli makalelerde yöntem. *ODTÜ Gelişme Dergisi*, 19(2), 249-266.
- Vlačić, B., Corbo, L., e Silva, S. C., & Dabić, M. (2021). The evolving role of artificial intelligence in marketing: A review and research agenda. *Journal of Business Research*, 128, 187-203. <https://doi.org/10.1016/j.jbusres.2021.01.055>
- Wang, X., Lin, X., & Shao, B. (2022). How does artificial intelligence create business agility? Evidence from chatbots. *International journal of information management*, 66, 102535. <https://doi.org/10.1016/j.ijinfomgt.2022.102535>
- Wirtz, J. (2021), Artificial Intelligence in Marketing: Bibliometric Analysis, Topic Modeling and Research Agenda, *Journal of Business Research*, (124), 389-404. <https://doi.org/10.1016/j.jbusres.2020.10.044>