Bibliometric Analysis IV

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PREFACE

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We thank all of the authors with whom we collaborated to publish their books across disciplines.

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Bölüm 2

CONVERSATIONAL MARKETING WITH AI-POWERED CHATBOTS: A COMPREHENSIVE BIBLIOMETRIC ANALYSIS

İbrahim Halil EFENDİOĞLU[1]

INTRODUCTION

A chatbot is an artificial intelligence software that can conduct natural language conversation via voice or text. Businesses use conversational marketing, a strategy that involves engaging customers in personalized, one-on-one conversations, to save time, personnel, and financial expenses, while also enhancing customer experiences. The global chatbot market, which reached $137 million in 2023, is expected to grow to $455 million by the end of 2027. As the fastest-growing communication channel for brands, chatbots can reduce routine response times by up to 80%, helping businesses save approximately 30% on customer support costs. These practical benefits underscore the potential of conversational marketing in the business world, providing a reliable and efficient solution for customer engagement. Furthermore, in 2023, around 67% of consumers used a chatbot, indicating a growing preference for this technology (Connell, 2024). Approximately 71% of consumers favor real-time and swift communication with businesses. 52% of consumers state that if a company provides support with chatbots, they are more likely to shop from that business again. On the other hand, businesses can save up to 30% on the cost spent on customer support thanks to chatbots. Additionally, 79% of companies report that the conversational marketing bot yields positive results in terms of customer loyalty, sales, and revenue (Sendpulse, 2024). Therefore, conversational marketing, with its focus on one-on-one conversations with customers throughout their purchasing

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journey, not only makes customers feel more personal but also fosters long-term relationships, thereby adding significant value to businesses.

The continuous growth in conversational marketing is significantly driven by advancements in AI technology. This technology, with its ability to understand and interpret human emotions and thoughts, is revolutionizing customer experiences. The expansion of conversational marketing is attributed to AI's capacity to integrate, comprehend, and interpret human emotions and thoughts, leading to not only improved customer experiences but also increased conversion rates. Additionally, the benefits of conversational marketing include an improved customer experience, higher conversion rates, the ability to track customers through the sales funnel, 24/7 customer service, and a personalized touch (Moguluwa et al., 2022). Thus, conversational marketing, with its AI-powered capabilities, enables businesses to provide customer support beyond regular working hours, cater to customers across different time zones, and offer a more efficient and personalized experience, thereby revolutionizing the customer-business relationship.

In marketing literature, various studies have explored the impact of Artificial Intelligence (AI) on marketing practices and the utilization of chatbots. These studies encompass a range of topics including the effect of AI on marketing applications and chatbot usage (Arsenijevic & Jovic, 2019), the influence of Conversational Marketing and AI on customer engagement (Bhagyalakshmi & Begam, 2023), the quality of communication in chatbot marketing (Cheng & Jiang, 2022), a review of publications on chatbots and customer experience (El Bakkouri et al., 2022), balancing speech characteristics in voice assistants for consumer trust (Hu et al., 2023), the usage rate of AI chatbots across industries and countries (Ikumoro & Jawad, 2019), the development of a Usage Scale for Conversational Agents in Conversational Marketing (Israfilzade, 2021), a review of anthropomorphic AI in Conversational Marketing (Israfilzade, 2023), user behavior and experience analysis with chatbots (Lin et al., 2022), the importance of personalized one-on-one real-time communication with consumers facilitated by conversational robots (Mirosavljević & Milovanovic, 2022), user experience and performance expectation with banking chatbots (Mogaji et al., 2021), fundamental theories, benefits, and enhancements of customer experience through conversational marketing (Moguluwa, 2022), and the impact of anthropomorphic verbal design cues in chatbots on perceived product

personalization and the willingness to pay a higher price for products in conversational commerce contexts (Sidlauskiene et al., 2023).

Based on the preceding descriptions and considering the research themes and methodologies in the literature, there is a clear need for bibliometric studies that comprehensively explore publication trends and research streams. To address this gap in the literature, this article aims to examine the literature on conversational marketing and AI-supported chatbots from a bibliometric analysis perspective. This research is significant as it seeks to identify research gaps and propose future research opportunities, opening up new avenues for exploration and discovery. More specifically, this article addresses the following research questions:

RQ1: What are the primary information statistics on conversational marketing and AI-supported chatbot publications indexed in the Web of Science?

RQ2: What is the distribution of publications related to conversational marketing and AI-supported chatbots indexed in Web of Science based on years?

RQ3: What are the average annual citations of conversational marketing and AI-supported chatbot publications indexed in Web of Science?

RQ4: What are the core sources, most relevant and locally cited sources of conversational marketing and AI-supported chatbot publications indexed in Web of Science?

RQ5: Who are the leading contributors (most relevant and locally cited authors) of conversational marketing and AI-supported chatbot publications indexed in Web of Science?

RQ6: What is the distribution of authors' production over time-related to conversational marketing and AI-supported chatbot indexed in Web of Science based on years?

RQ7: Which are the most influential affiliations and countries of conversational marketing and AI-supported chatbot publications indexed in Web of Science?

RQ8: What are the most frequently used words related to conversational marketing and AI-supported chatbot publications indexed in Web of Science?

RQ9: What are the conceptual structures (thematic Map and factorial analysis) of conversational marketing and AI-supported chatbot publications indexed in Web of Science?

RQ10: What intellectual structures (co-citation network) of conversational marketing and AI-supported chatbot publications indexed in the Web of Science?

RQ11: What social structures (countries' collaboration) of conversational marketing and AI-supported chatbot publications are indexed in Web of Science?

RQ12: What gaps exist in the current literature on conversational marketing and AI-supported chatbots, and what future research opportunities can be identified?

This research is organized as follows: First, studies on conversational marketing and chatbots in marketing were examined in the literature. Then, bibliometric analyses were made in the methodology section and presented in the findings section. The last section mentions the study's contributions and future research opportunities.

Literature Review

In recent years, AI-powered chatbots and conversational marketing have become significant strategic tools in the digital landscape. Numerous studies have been conducted on the effectiveness of chatbots, particularly in accelerating consumer interactions, enhancing customer satisfaction, and optimizing marketing processes. With the rapid advancement of technology, chatbots' ability to offer personalized recommendations and exhibit human-like features has enabled businesses to influence consumer behavior more effectively. These studies have demonstrated significant outcomes from chatbot usage across various industries and regions, from customer service to e-commerce.

Ikumoro and Jawad (2019) emphasized the importance of AI-powered chatbots in personalized marketing strategies. Their study indicated that chatbots enhance customer satisfaction and engagement, although privacy concerns may arise from users' interactions with AI. Similarly, Arsenijevic and Jovic (2019) explored how chatbots function as artificial human agents in marketing processes, examining how customer interactions with chatbots shape brand perception and customer experience.

Mogaji et al. (2021) investigated the responses of emerging market consumers to chatbots, highlighting that chatbot adoption rates were lower in regions with limited internet penetration. However, the study also emphasized that chatbots increased customer engagement and positively influenced brand perception. Israfilzade (2021) evaluated the impact of individual interactions in conversational marketing, revealing that chatbots offering personalized recommendations improved user experience and positively affected purchase intentions.

Moguluwa (2022) examined how conversational marketing transformed traditional personnel roles. The author suggested that chatbots allow for more efficient and faster customer communication, saving time and reducing business costs. Another notable study by Mogaji et al. (2022) analyzed the reactions of emerging market consumers to chatbots, reinforcing that adoption rates were lower in areas with limited internet access. However, chatbots still enhanced customer engagement and fostered positive brand perceptions. Mirosavljević and Milovanovic (2022) investigated how technological advancements in conversational marketing affected consumer behavior. Their research demonstrated that technology enables businesses to interact with consumers more quickly and effectively. Lin et al. (2022) explored the impact of chatbots on B2B marketing employees, finding that chatbots improved efficiency in customer service processes and reduced the workload on staff.

Sidlauskiene et al. (2023) focused on the effectiveness of anthropomorphic design cues in AI-powered chatbots. Their study revealed that when chatbots display human-like characteristics, consumer interactions increase, leading to positive feedback. Israfilzade (2023) took a broader approach, examining the role of chatbots in customer service, particularly in the context of generative AI and anthropomorphic design principles. The study highlighted the potential of these chatbots to enhance user experience and foster customer loyalty. Hu et al. (2023) investigated the role of voice assistants (VA) in conversational marketing, showing that these assistants enable more natural and fluid communication with consumers, positively influencing purchasing behavior. Bhagyalakshmi and Begam (2023) explored how conversational marketing and AI have become strategic tools for enhancing customer interaction. Their research underscored the effectiveness of chatbots in speeding up customer service processes and improving operational efficiency.

In conclusion, the reviewed studies collectively highlight the transformative impact of AI-powered chatbots on marketing, emphasizing their growing role in customer engagement, service optimization, and strategic marketing initiatives across various sectors.

Methodology

Bibliometrics, based on library and information science, utilizes quantitative methods to examine and analyze bibliographic material. Additionally, it provides a comprehensive lens through which to trace the information anatomy of a research field (Broadus, 1987). Pritchard (1969) was the first to utilize bibliometric analysis, and since then, it has widely proliferated in quantitative analysis to enhance the understanding of the literature. Bibliometric analysis is a common technique for mapping out the knowledge structure within a research topic (Linnenluecke et al., 2020). The widely recognized bibliometric approach fundamentally explores large aggregated bibliographic datasets such as published journal articles and their citations to identify main themes, thematic changes, and the comprehensive structure of a specific research field in terms of its effectiveness. This facilitates the identification of current trends within the research field and the determination of potential future research avenues. Furthermore, bibliometric analysis encompasses performance analysis, which identifies influential authors, documents, journals, and institutions within the field, along with science mapping, which unravels the intellectual and conceptual structures of the domain (Donthu et al., 2021).

The data in this study were obtained from the widely known and reliable Web of Science (WoS) database. Furthermore, within WoS, a database of niche resources focusing on specific research domains, unique documents encompassing 34 K+ peer-reviewed journals, 300 K+ conferences, and 134 K+ books (Clarivate, 2024). Analyses utilized the Bibliometrix package and Biblioshiny within R Studio, leveraging the capabilities of the R programming language. This tool, employed for bibliometric analysis, proves valuable for scholarly work. It facilitates the discovery of novel insights, conceptual progress, data volume, citation networks, and trends among researchers, institutions, or countries over periods, as highlighted by Aria and Cuccurullo (2017). Biblioshiny is a potent, widely used, compatible, and contemporary tool designed for conducting in-depth science mapping analysis (Moral-Muñoz et al., 2020).

This study has been structured as a bibliometric analysis focusing on addressing research inquiries through performance assessment and network analysis across various parameters, including authors, citations, and country of origin. Accordingly, the search query ("conversational" OR "chatbots") AND ("marketing") was entered into the Web of Science database. The search used the publications' title, abstract, and keywords. The initial search was conducted in the Web of Science database, focusing on the title, abstract, and keywords, yielding 418 documents. Subsequently, to narrow down the focus of the analysis, documents published in fields such as business, economics, and social sciences were considered, excluding irrelevant documents, and this number was reduced to 230. A language restriction was then applied to include only publications in English, bringing the document count down to 218. Finally, by excluding editorial materials, book chapters, and retracted publications and including only articles and proceeding papers, the number of documents suitable for analysis was 212 (Figure 1). This process meticulously narrowed the selection to the field's most relevant and quality publications by specific criteria, ensuring a targeted approach to understanding the intersection of chatbots, conversational interfaces, and marketing strategies.

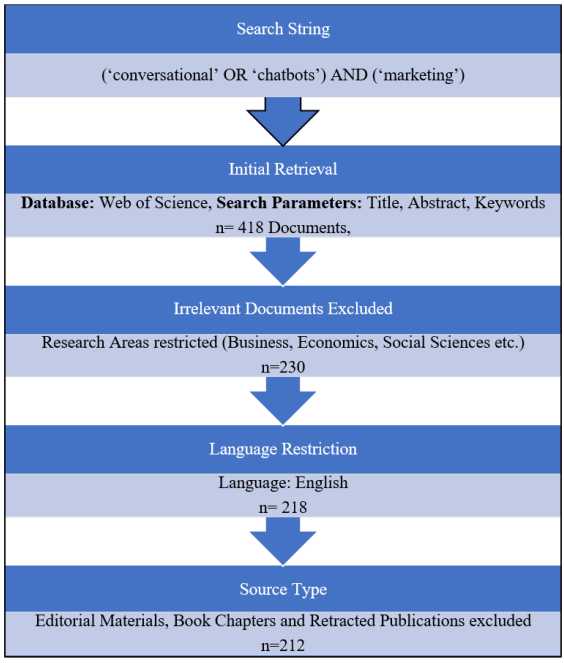

Figure 1. Data collection and workflow

Results

Descriptive Statistics

This bibliometric analysis study encompasses documents published between 1994 and 2024, totaling 212 documents sourced from 149 channels (journals, conferences, etc.). The findings indicate an annual growth rate of 8.64%, with the average age of the documents being 4.83 years. The average number of citations per document is 22.07, with 12,307 references identified. Regarding document contents, 567 "Keywords Plus" and 942 "Author's Keywords" were utilized. The study involved 596 authors, of which 44 contributed to single-authored documents. The number of single-authored papers is 45, with an average of 3 co-authors per document. International co-authorships account for 33.49% of the collaborations. Regarding document types, 187 articles and 25 proceedings papers were analyzed (see Table 1).

Table 1. Main Information about Publications

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	1994:2024
Sources (Journals, Conference etc)	149
Documents	212
Annual Growth Rate %	8,64
Document Average Age	4,83
Average citations per doc	22,07
References	12307
DOCUMENT CONTENTS	
Keywords Plus	567
Author's Keywords	942
AUTHORS	
Authors	596
Authors of single-authored docs	44
AUTHORS COLLABORATION	
Single-authored docs	45
Co-Authors per Doc	3
International co-authorships %	33,49
DOCUMENT TYPES	
Article	187
Proceedings paper	25

Annual Scientific Production

The annual publication analysis investigates the distribution of scientific publications from 1994 to February 2024. Studies conducted in February 2024 reveal that 12 publications were made in the first two months of that year, indicating that interest and research activity in this field continue. It was observed that limited publications were made in the initial years, primarily until 2003. However, from 2004 onwards, there has been a noticeable increase in publications, especially gaining momentum post-2015. This upward trend continued steadily, with nine publications in 2018, 16 in 2019, 15 in 2020, 29 in 2021, and 34 in 2022 (Figure 2). The year 2023 marked the peak of the period under review, with 52 publications indicating significant interest in conversational marketing and AI chatbot technologies. The 12 publications in early 2024 suggest that the total publications for the year are expected to rise substantially, underscoring the growing engagement and investigative efforts within AI-powered chatbots and conversational marketing.

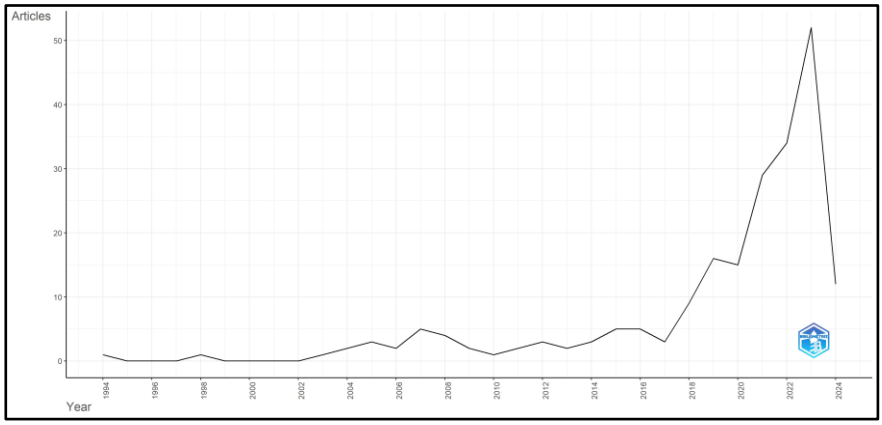

Figure 2. Publications over the Years

Average Citations Per Year

The bibliometric analysis conducted on chatbots powered by Artificial Intelligence in conversation marketing elucidates the academic impact and interest trajectory of publications in this field over time. According to the analyzed data, the average annual citation rate for articles published in

1994 was 0.97, which has generally increased, reaching 12.87 by 2020. This uptrend underscores the growing interest and recognition of chatbots and conversation marketing as significant research areas within the academic community. Notably, the period between 2012 and 2020, characterized by high average citation rates, signals an increasing awareness and interest in how this technology can revolutionize marketing strategies. Despite declining average citation rates from 2021 onwards, the rebound to an average annual citation rate of 5.64 in 2023 indicates that the field remains vibrant and evolving. The average citation rate of 0.25 in 2024 may be attributed to the timing of data collection and the early stage of the year, potentially affecting the low citation count (Figure 3). This analysis meticulously presents AI-powered chatbots' evolution and academic positioning within conversation marketing, showcasing its developmental trajectory and significance in the scholarly domain.

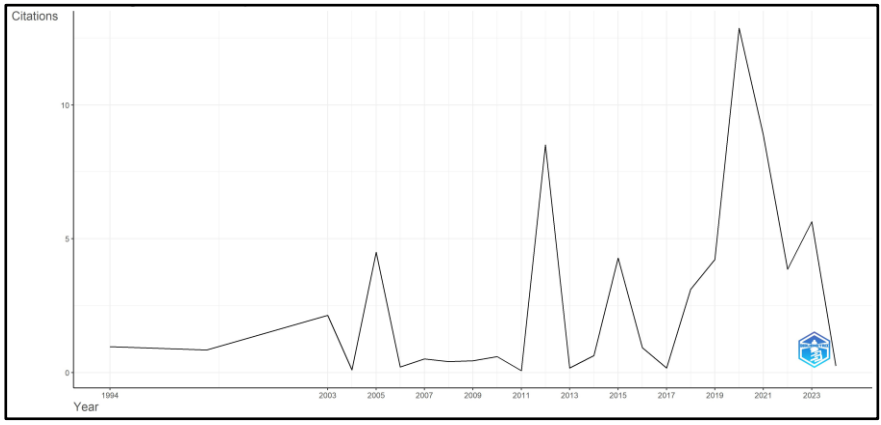

Figure 3. Yearly Average Citation Count

Most Relevant Sources

In the bibliometric analysis focusing on Conversation Marketing and Chatbots Powered by Artificial Intelligence, identifying the most relevant sources is pivotal for understanding the academic foundation and trends within this research area. The analysis highlights various journals contributing significantly to the discourse on artificial intelligence (AI) chatbots in marketing. Leading the list with the highest number of articles is "Psychology & Marketing," followed closely by the "Journal of Interactive Marketing" and the "Journal of Retailing and Consumer Services," indicating strong interest from these sectors in exploring the implications and applications of AI chatbots. Notably, the "European

Journal of Marketing" and "Computers in Human Behavior" also provide substantial contributions, underscoring the interdisciplinary nature of this research area, which spans marketing, consumer behavior, and technological applications. Additionally, the presence of journals such as "The International Journal of Bank Marketing" and "The Journal of Financial Services Marketing" reflects the growing interest in AI chatbots across various subfields of marketing, particularly in contexts related to banking and financial services (Figure 4). By enumerating the key sources, this analysis articulates the academic community's endeavor to understand and leverage AI chatbots for enhancing marketing strategies and consumer engagement, highlighting the impact of technological evolution on marketing paradigms.

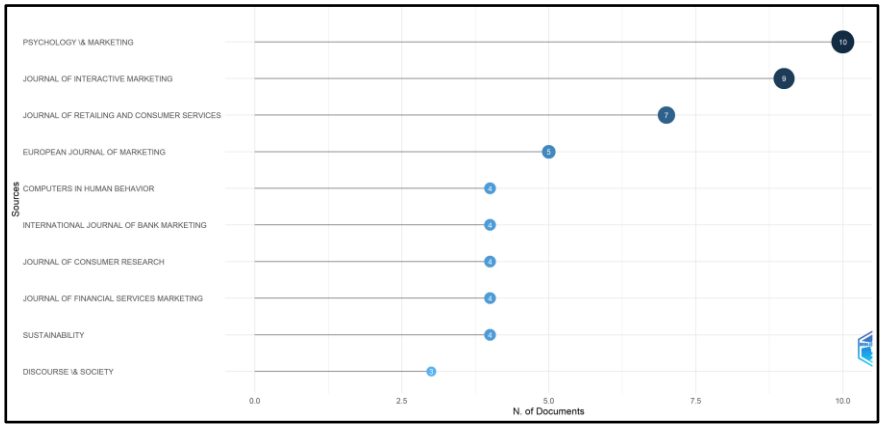

Figure 4. Most Relevant Sources

Most Local Cited Sources

This This section of the analysis delves into the 'Most Locally Cited Sources,' shedding light on the critical journals that significantly shape research in the field. The top-cited source, 'Computers in Human Behavior,' with a substantial 357 citations, serves as a cornerstone in understanding the intersection between technology and human interaction. Its influence underscores the importance of comprehending how consumers engage with AI chatbots. Following closely, 'Journal of Business Research' with 311 citations, and 'Journal of Marketing' with 271 citations, demonstrate the strong interest from the marketing research community in exploring AI chatbots' applications, impacts, and implications on business strategies and consumer behavior. Moreover, the 'Journal of Consumer Research' and 'Journal of the Academy of Marketing

Science' further contribute to the discourse, emphasizing the scholarly endeavor to dissect consumer interactions and the strategic marketing frameworks around AI chatbots. 'Psychology & Marketing' and 'Journal of Retailing and Consumer Services' in this list indicate a broad interest in understanding the psychological aspects of consumer engagement with technology and its service applications in retail.

These journals collectively highlight the multidisciplinary approach to AI chatbot research, bridging technology, psychology, and marketing. They explore the comprehensive impact of chatbots on consumer experience, business models, and marketing practices. This analysis not only delineates the pivotal academic sources within the field but also underscores the evolving nature of marketing strategies in the age of digital transformation and AI advancements.

Core Sources by Bradford's Law

Bradford's Law is a concept utilized in bibliometric analysis to comprehend the distribution of literature published on a specific topic. This Law posits that scientific publications tend to concentrate on a few core sources relevant to the subject, with the number of publications outside these core sources decreasing rapidly. This allows researchers to identify the most influential and central publications within a research area, which Bradford calls 'core sources.' These sources are foundational to the research field, offering substantial information and citations (Meller et al., 2023).

The bibliometric analysis of "Chatbots Powered by Artificial Intelligence in Conversation Marketing," core sources identified according to Bradford's Law, reveal the fundamental literature and the most impactful publications in this research domain. According to the analysis, journals such as "Psychology & Marketing," "Journal of Interactive Marketing," "Journal of Retailing and Consumer Services," "European Journal of Marketing," and "Computers in Human Behavior" are classified within Zone 1, playing a pivotal role in this field. These journals host vital studies that examine the effects of AI-powered chatbots on psychology, consumer behavior, retail, and marketing strategies. Moreover, journals, including "The International Journal of Bank Marketing," "Journal of Consumer Research," "Journal of Financial Services Marketing," and "Sustainability" also feature as core sources, contributing significantly to the examination

of AI chatbots from financial, consumer research, and sustainability perspectives (Figure 5).

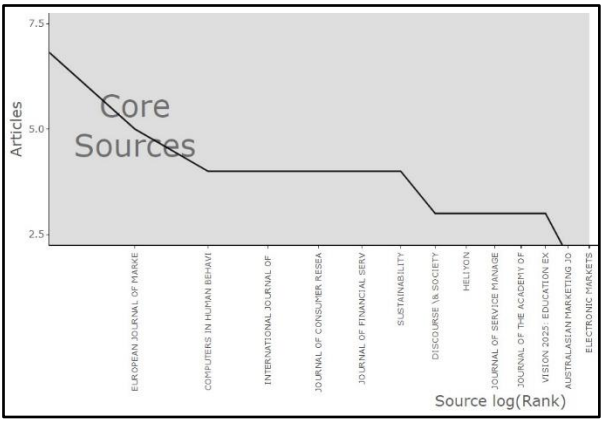

Figure 5. Core Sources by Bradford's Law

Most Relevant Authors

In bibliometric analysis, the 'Most Relevant Authors' section refers to identifying authors who have made the most significant and influential contributions within a specific research area. This concept aids in measuring the academic importance and impact of authors based on their work in the field, evaluated through factors such as the number of articles published and the extent to which these articles contribute to other studies in the domain. The 'Articles Fractionalized' value provides a fair estimate of each author's contribution when an article has multiple authors, reflecting a more accurate representation of an author's academic input.

In the bibliometric analysis of 'Chatbots Powered by Artificial Intelligence in Conversation Marketing,' the list of 'Most Relevant Authors' showcases those who have significantly advanced this area. MOGAJI E leads the list with four articles, emerging as one of the most influential authors in AI-powered chatbots and conversation marketing. Authors such as BALAKRISHNAN J, BOCA G, D'CRUZ P, DWIVEDI YK, IGHIAN D, NORONHA E, RICARD L, TOADER C, and WANG X also stand out with three articles each, marking their significant contributions to this domain. The 'Articles Fractionalized' values of 1.50 for D'CRUZ P and NORONHA E indicate their substantial individual contributions and pivotal roles in collaborative projects. EREN BA, with an 'Articles Fractionalized' value of 2.00 across two articles, is the only author to

demonstrate exceptional individual contribution, highlighting the profound impact of their work on the research in this field. This analysis illuminates the leading authors and their works' contributions to the domain of AI-powered chatbots and conversation marketing, inviting appreciation for their significant role in advancing the field.

Most Local Cited Authors

Most Local Cited Authors is a term in bibliometric analysis that identifies the authors most frequently cited within a specific research community or dataset. The "Most Local Cited Authors" results in this bibliometric analysis demonstrate a concentration of scholarly attention around particular authors in AI-powered chatbots and conversation marketing. MOGAJI E is the most cited author with 13 local citations, indicating his work's significant importance and influence among other researchers in this domain. Authors such as HOYER WD, KRAUME K, KROSCHKE M, POELS K, SCHMITT B, SHANKAR V, VAN DEN BROECK E, and ZAROUALI B follow closely with eight citations each. These authors have contributed substantially to the discourse on conversation marketing and AI-powered chatbots, creating a broad impact within the research community. Including KULL AJ with seven citations also underlines his significant impact in this area. These findings reveal how the leading authors and their work gain centrality through interactions and citations within the academic community, highlighting their pivotal roles in advancing research on AI-powered chatbots and conversation marketing.

Authors' Production over Time

The bibliometric analysis focusing on "Authors' Production over Time" and "Documents" related to the study presents a comprehensive overview of the contributions and impact of key researchers in this rapidly evolving field. Notably, authors such as MOGAJI E and DWIVEDI YK emerge as significant contributors with substantial effects on the discourse around AI in marketing, as evidenced by their high citation counts and recent publications in prestigious journals. For instance, MOGAJI E's 2023 publication in the International Journal of Information Management, discussing multidisciplinary perspectives on generative conversational AI, demonstrates an impressive citation count, highlighting its influence and relevance in current research dialogues (see Figure 6).

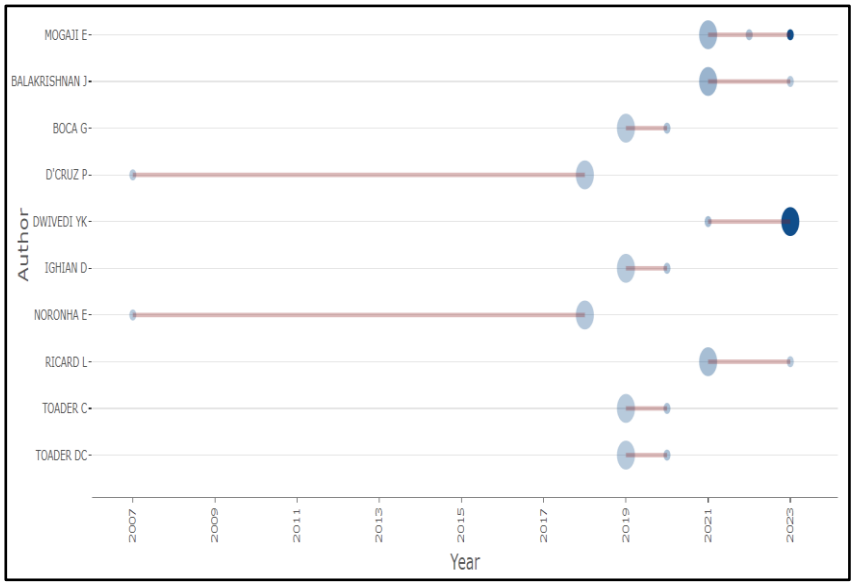

Figure 6. Authors' Production over Time

The distribution of authors' production over time, as presented in Table 2, reflects a concentration of influential contributions primarily in the period between 2021 and 2023, rather than a uniformly increasing trend over recent years. Thematically, these studies focus on specific and recurring research streams such as chatbot adoption in financial services, user trust and cognitive absorption, consumer interactions with banking chatbots, and the exploration of perceived humanness in customer purchase journeys. The citation patterns indicate that publications from 2021, particularly those addressing emerging-market contexts and cognitive and behavioral mechanisms, have generated substantial scholarly impact, while the exceptionally high citation performance of Dwivedi et al. (2023) highlights the recent prominence of generative conversational AI in multidisciplinary marketing and information systems research.

Rather than signaling a broad-based surge across all themes, Table 2 demonstrates that research impact is driven by a limited number of highly influential works published in top-tier journals, especially within marketing, financial services, and information management domains. These findings suggest that the evolution of conversational AI research in marketing has progressed through focused theoretical and contextual advancements, with financial services and trust-related constructs serving as central anchors. Accordingly, the authors' production over time

illustrates a selective yet impactful development of the field, emphasizing depth within specific application areas over sheer publication volume, and underscoring the role of conceptually strong and methodologically rigorous studies in shaping the intellectual trajectory of AI-powered chatbot research.

Table 2. Authors' Production over Time

Author	**Year**	**Tıtle**	**Source**	**TC**	**TCpY**
Dwivedi et al.	2023	"So What If ChatGPT Wrote It?" Multidisciplinary Perspectives on Opportunities, Challenges and Implications of Generative Conversational AI for Research, Practice and Policy	International Journal of Information Management	375	188
Balakrishnan & Dwivedi	2021	Role of Cognitive Absorption in Building User Trust and Experience	Psychology & Marketing	81	20,3
Abdulquadri et al.	2021	Digital Transformation in Financial Services Provision: A Nigerian Perspective on the Adoption of Chatbots	Journal of Enterprising Communities: People and Places in the Global Economy	56	14
Mogaji et al.	2021	Emerging-Market Consumers' Interactions with Banking Chatbots	Telematics and Informatics	52	13
Mogaji & Nguyen	2022	Managers' Understanding of Artificial Intelligence in Relation to Marketing Financial Services: Insights from a Cross-Country Study	International Journal of Bank Marketing	33	11
Rajaobelina & Ricard	2021	Classifying Potential Users of Live Chat Services and Chatbots	Journal of Financial Services Marketing	12	3

Most Relevant Affiliations

This section of the bibliometric analysis highlights various universities' contributions to conversational marketing and AI-powered chatbots. Under the title "Most Relevant Affiliations," universities from different countries and regions are ranked according to the number of publications they have contributed. Swansea University leads the list with 11 articles, marking it the most critical institution in this area. Guangxi University and the University of Economics Ho Chi Minh City have also made significant contributions, each with eight articles. The Bucharest University of Economic Studies, Radboud University Nijmegen, and the University of Greenwich are other notable institutions, each contributing seven articles. Florida State University, RMIT University, and the University of Quebec Montreal are included with six articles each. Edith Cowan University and the Indian Institute of Management Ahmedabad have each contributed five articles to the field. The analysis presents a rich tableau of diversity and global participation, demonstrating that academic work in this field is widespread across a broad geography. These results also bring potential opportunities for further research and collaborations.

Countries' Scientific Production

This section examines various countries' scientific output, showcasing the geographical distribution and leadership in the global research arena. The United States leads the chart with 143 publications, indicating a dominant position in scientific research, followed by the United Kingdom with 78 publications. This demonstrates the significant impact of both the US and the UK in the field at a global level. China and India follow with 69 and 60 publications, respectively, highlighting Asia's growing significance as a center for scientific research. Countries like Australia, Italy, Germany, and France also make substantial contributions with 33, 29, 26, and 22 publications, respectively, proving the influence of Europe and Oceania in scientific production.

Moreover, nations such as Canada and the Netherlands contribute equally, with 21 publications each (Figure 7). These findings underscore that scientific research is a global effort, with various countries worldwide making significant contributions to the field. Furthermore, this geographical spread offers potential for research collaborations and illustrates how diverse perspectives from different countries enrich the scientific community.

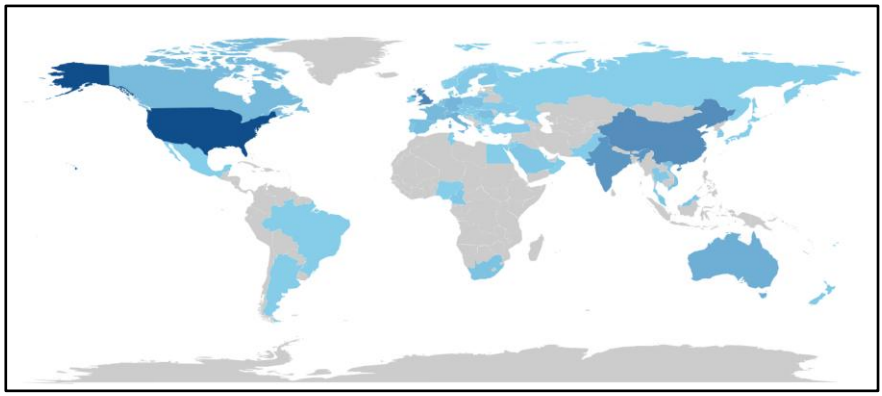

Figure 7. Countries' Scientific Production

Most Frequent Words

This section reveals the core concepts and focal points within this research field. The prominence of terms such as "impact," "artificial intelligence," and "technology" highlights the role and significance of AI and technology in conversational marketing. The frequency of these words reflects the effort to understand the influence of AI-powered chatbots on interactions between businesses and consumers and the acceptance of these technologies. Words like "acceptance," "satisfaction," and "trust" indicate how consumers respond to these technologies and the underlying factors of their adoption. Terms such as "model," "information," and "behavior" point to the theoretical frameworks and methodologies used to comprehend consumer behaviors and reactions toward these technologies. The frequent appearance of "social media" and "online" underscores the role of AI-powered chatbots within digital marketing strategies and customer services. Terms like "engagement," "communication," and "word-of-mouth" highlight the potential impacts of chatbots on brand image and customer loyalty. Overall, this analysis helps us understand how AI-powered chatbots have revolutionized conversational marketing and the profound effects these technologies have on businesses, consumers, and marketing strategies.

Word Cloud

This section researches the domain's most prevalent themes and concepts. The term "impact" stands out as the most frequently occurring word, suggesting a strong focus on understanding the effects of AI-

powered chatbots on various aspects of marketing and customer interaction. Close behind, "artificial intelligence" and "technology" underscore the technological underpinnings of this research area. Words like "acceptance," "satisfaction," and "trust" indicate an emphasis on consumer perceptions and their responses to chatbot interactions. The presence of terms such as "information," "engagement," and "service" reflects the key areas of interest in how chatbots are transforming the delivery of information and services and engaging consumers (Figure 8). Additionally, "model," "behavior," and "experience" suggest a deep dive into theoretical frameworks and empirical studies aimed at understanding the dynamics between consumers and chatbots. This analysis provides a snapshot of the focal points in the evolving field of AI-enabled conversational marketing, pointing towards an interdisciplinary approach encompassing technology, consumer behavior, and strategic marketing practices.

Figure 8. Word Cloud

Thematic Map

Thematic Map reveals a rich landscape of themes and focus areas in this burgeoning field. High occurrences and centrality scores for terms such as "impact," "satisfaction," "model," "information," "behavior," "experience," and notably "artificial intelligence" and "technology" underscore the emphasis on understanding the effects of AI-powered chatbots on consumer satisfaction, engagement, and behavioral intentions.

The significant presence of "artificial intelligence" alongside "technology acceptance" and "user acceptance" suggests a keen interest in how consumers adapt to and accept this evolving technology. Furthermore, themes like "service," "engagement," and "customer satisfaction" highlight a focus on the customer experience, underscoring the importance of AI chatbots in enhancing service quality and customer engagement (Figure 9). This thematic Map illustrates the dynamic interplay between technological advancements and marketing strategies, revealing a comprehensive picture of how AI-powered chatbots are reshaping the landscape of conversational marketing through diverse research lenses.

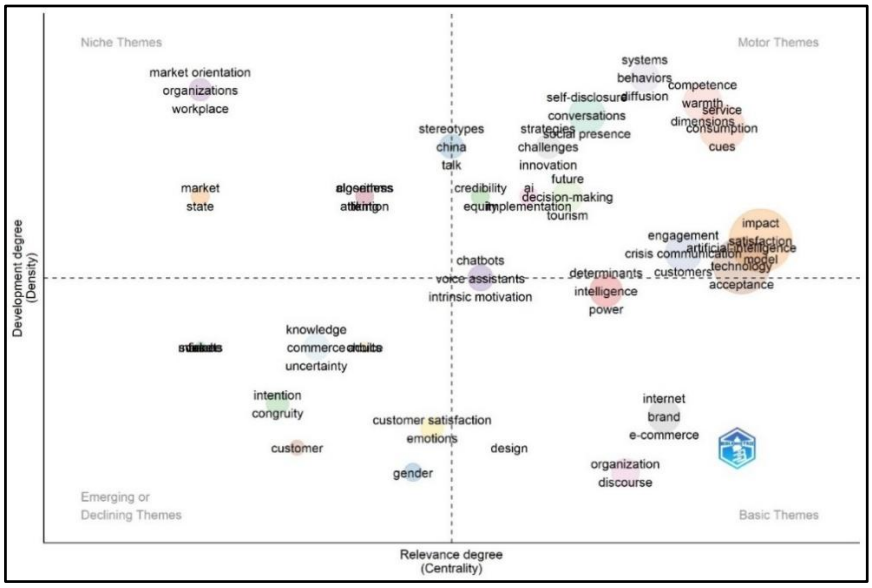

Figure 9. Thematic Map

Factorial Analysis

The factorial analysis reveals a multidimensional structure in this research domain, with keywords clustering along two main dimensions. One dimension centers on technological and digital aspects, where terms such as "artificial intelligence," "mobile banking," "consumer," and "e-commerce" show how AI reshapes marketing practices and online interactions. The other dimension highlights the human side of technology use, with "trust," "satisfaction," "engagement," and "anthropomorphism" pointing to how these tools influence consumer perceptions and behaviors (Figure 10). In particular, "self-service" technologies underline the growing role of autonomous AI-based customer service. At the same time,

"information technology," "information," "communication," "word-of-mouth," and "social media" emphasize chatbots' role in knowledge exchange and digital brand interaction. Overall, the analysis portrays a field positioned at the intersection of technology and human interaction, where AI-powered chatbots require not only technological adoption but also careful management of consumer engagement and satisfaction in the digital era.

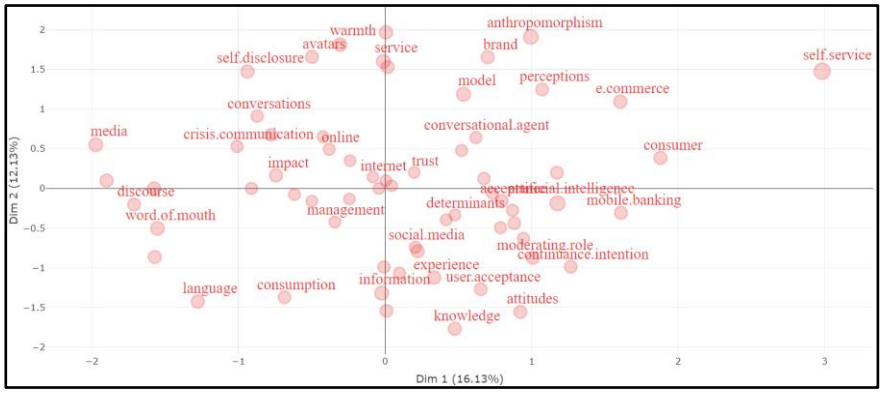

Figure 10. Factorial Analysis

Co-citation Network

The "Co-citation Network" results from the bibliometric analysis reveal the intellectual structure and the relationships among significant studies in this field. The works of Araujo (2018) and Chung (2020), with their high "Betweenness" values, occupy central positions within the network, serving as bridges between research in this area. This indicates their pivotal role in the studies on conversational marketing and AI-powered chatbots. Authors such as Adam (2021) and Sheehan (2020) have also made significant contributions, influencing the development of the field with their "Closeness" and "PageRank" values (Figure 11). The co-citation analysis further illustrates how studies in different clusters relate, showcasing the various aspects of AI-powered chatbots in conversational marketing and how these technologies integrate with consumer behavior, technology adoption, and customer satisfaction. Notably, classical works on acceptance modeling, such as those by Fornell (1981), Davis (1989), and Venkatesh et al. (2003), remain central to understanding the adoption and interaction with these new technologies. This co-citation network elucidates how science works in conversational marketing, how AI-

powered chatbots are interconnected, and which studies have been influential in the field.

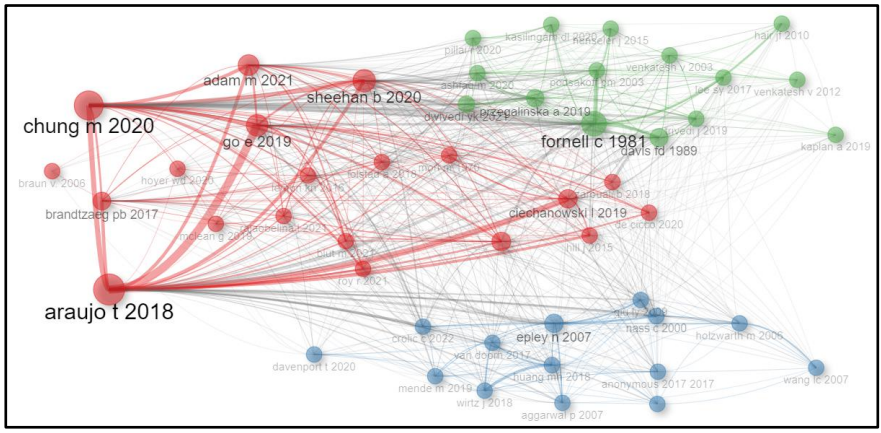

Figure 11. Co-citation Network

Countries' Collaboration World Map

In this section, the "Countries' Collaboration World Map" analysis reveals the intricate web of international collaborations fueling research in this cutting-edge field. The United States and China emerge as central nodes in this global network, with the US having the highest frequency of collaborations, notably with Australia, Canada, China, France, Germany, India, Italy, the United Kingdom, and Switzerland. This suggests a robust interdisciplinary and international approach to developing and understanding AI-powered chatbot technologies within conversational marketing. Australia also stands out for its diverse international collaborations, engaging with countries across different continents, including Brunei, Denmark, France, Germany, and New Zealand, indicating its active role in this research area. The United Kingdom's significant collaborations with France, Germany, India, the Netherlands, and notably, four collaborations, each with China and India, underline the UK's strategic partnerships in pushing the boundaries of AI in marketing (Figure 12). Such collaboration patterns highlight the importance of cross-border academic partnerships in advancing knowledge and innovation in AI-powered conversational marketing. This global network of collaborations reflects the universality of interest in and the collaborative effort towards enhancing conversational marketing through AI technology,

emphasizing the critical role of international cooperation in advancing this field.

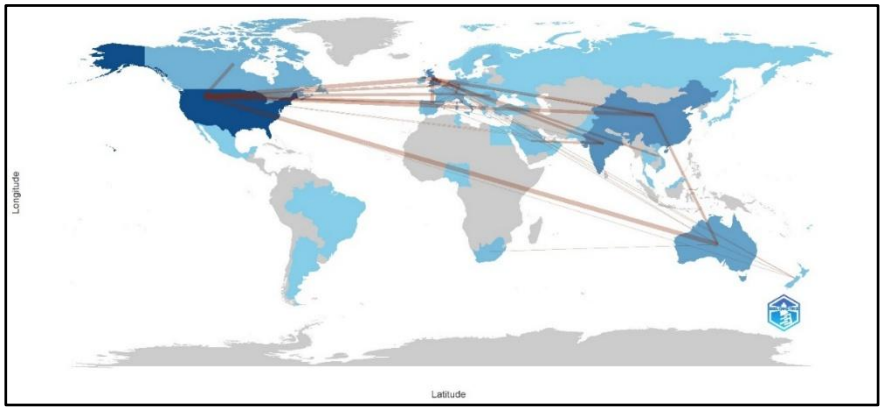

Figure 12. Countries' Collaboration World Map

Conclusion

This bibliometric analysis reveals the escalating significance of artificial intelligence in enhancing conversational marketing strategies. It underscores the pivotal role of chatbots in fostering customer engagement and satisfaction. The study spans publications from 1994 to 2024 on conversational marketing and AI-supported chatbots, noting a marked increase in literature, especially post-2015, with an impressive annual growth rate of 8.64%. With a peak of 52 publications in 2023 and 12 in the first two months of 2024, a significant rise in publications throughout the year is anticipated. This trend suggests a growing interest in AI-supported chatbots and their integration into conversational marketing strategies.

The research underscores the global interest in AI-supported chatbots, with significant contributions from the United States, the United Kingdom, China, and India. This universal applicability and importance across various market contexts serve to connect researchers, businesses, and marketers worldwide in their shared interest in AI-supported chatbots and conversational marketing.

Furthermore, this study reveals that research on AI-supported chatbots and conversational marketing spans multiple disciplines, including marketing, psychology, information technology, and computer science. This interdisciplinary approach is vital for addressing the complex interactions between technology and consumer behavior. The importance

of multidisciplinary collaboration emphasizes how AI chatbots transform marketing strategies and highlights their applicability across different sectors. Publications are concentrated in leading journals like "Psychology & Marketing," "Journal of Interactive Marketing," and "Journal of Retailing and Consumer Services," serving as primary platforms for disseminating research in this area. Additionally, advances in AI and machine learning are directing the evolution of chatbot capabilities, emphasizing the need to explore new functions and their impacts on marketing. The analysis also suggests integrating the effects of AI chatbots on consumer behavior, ethical evaluations, and conversational marketing theories with technology adoption models.

This research offers numerous practical implications for businesses, marketers, and technology developers. Understanding these outcomes can empower the audience to utilize chatbot technologies to enhance customer engagement, rationalize marketing strategies, and ultimately sustain business growth. AI-supported chatbots highlight the potential for providing real-time, personalized customer service, and by integrating these technologies into customer service platforms, businesses can enhance customer satisfaction and loyalty.

Chatbots can collect vast amounts of data from customer interactions. Analyzing this data can give businesses valuable insights into customer preferences, behaviors, and pain points. Marketers can use these insights to customize marketing strategies, develop targeted campaigns, and create more personalized customer experiences. The role of chatbots in reducing the time and resources required for customer services is significant. By automating routine queries and tasks, businesses can allocate human resources to more complex and value-adding activities, enhancing operational efficiency and reducing costs.

Moreover, AI-supported chatbots enable businesses to interact with customers around the clock. This constant accessibility significantly enhances the customer experience, especially in global markets with different time zones. Businesses' ability to consistently capture and respond to customer needs increases engagement and sales opportunities.

The evolving capabilities of AI chatbots highlight the importance of integrating these technologies with current digital marketing tools and platforms. Businesses should focus on creating seamless experiences across all digital touchpoints, using chatbots for innovative customer

interactions, and staying ahead in the technology adoption curve. The analysis demonstrates the applicability of conversational marketing and AI chatbots across various industries. Retail, banking, and healthcare service businesses can implement chatbots to meet sector-specific needs and customer expectations, enhancing service delivery and competitive advantage.

However, as businesses rapidly adopt AI-supported chatbots, ethical concerns and privacy regulations emerge, as earlier studies indicate. These concerns include issues of data privacy, transparency in chatbot use, and compliance with data protection laws. Establishing transparent communication about chatbot use, safeguarding customer data, and complying with data protection laws are critical steps to building trust and maintaining a positive brand reputation.

While AI-powered chatbots are increasingly important in marketing strategies and transforming consumer interactions, their adoption also comes with potential risks and challenges. These include issues of data privacy, customer trust, and the need for continuous technological updates. However, by effectively managing these challenges, these technologies can provide operational efficiency to businesses and personalized customer experiences, making them a compelling research topic for researchers and businesses.

Ultimately, the insights from this bibliometric analysis on conversational marketing and AI-supported chatbots offer businesses a roadmap to leverage the power of AI in their marketing strategies. By focusing on customer-centric approaches, leveraging data for insights, improving business efficiency, and adhering to the highest ethical standards, businesses can effectively navigate the challenges and opportunities in the digital marketing landscape. This includes transparent communication about chatbot use, safeguarding customer data, and complying with data protection laws.

Limitations and Future Directions

First, the study is limited to sources examined within the WoS database. Although many national and international academic institutions recognize the WoS database as an essential and reputable resource, the study could be expanded by utilizing broader international databases such as Scopus and Google Scholar.

Second, the study focuses solely on articles published in English, potentially excluding significant research in other languages. This oversight could be rectified by highlighting the potential of non-English language research, particularly from Asia and the Middle East, to provide a more comprehensive and global perspective on conversational marketing trends.

Third, while bibliometric methods are valuable, they inherently rely on quantitative data and may overlook the equally important qualitative insights. Your expertise in theoretical frameworks and practical applications is crucial for understanding the full scope of the field. For instance, qualitative research on the psychological effects of AI-powered chatbots in marketing could provide valuable insights into consumer satisfaction and loyalty.

Lastly, the study could benefit from a deeper exploration of the effects of emerging technologies and AI trends. There is a growing need for more research on how technologies like natural language processing (NLP) and affective AI influence marketing strategies and how these technologies can be implemented. Additionally, the study could delve into the increasingly crucial topics of data privacy and ethical concerns in consumer-business interactions.

Keywords: conversational marketing, chatbots, artificial intelligence, bibliometric analysis

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