

The Role of AI Chatbots and Customer Relationship Management in E-Commerce Platforms: A Literature Review

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Abstract

Purpose: This study aims to explore the role of artificial intelligence (AI)-based chatbot services in customer relationship management (CRM) on e-commerce platforms and their impact on service quality

Design/methodology/approach: Through a systematic literature review approach, this study analyzes various studies that discuss the effectiveness of AI chatbots in improving customer satisfaction, response speed, and the personalization of interactions

Findings: The results indicate that AI chatbots significantly improve the customer experience through human-like language capabilities, empathy, responsiveness, and engagement, including 24/7 service that ensures access to information whenever needed. Additionally, AI chatbots can analyze customer behavior in real-time to support proactive and personalized marketing strategies, as well as reduce operational costs and expand service reach.

Practical implications: Implicitly, the adoption of AI chatbots not only enhances operational efficiency but also strengthens long-term relationships with customers, particularly in the context of Indonesia's emerging market where information asymmetry and the challenges of non-standard Indonesian NLP are critical factors.

Originality/value: This research provides a strong foundation for the development of more human-like, efficient, and adaptive chatbots that align with the needs of modern consumers in the digital age.

Paper type: review

Keywords: AI Chatbots, Customer Relationship Management, E-commerce, Literature Review.

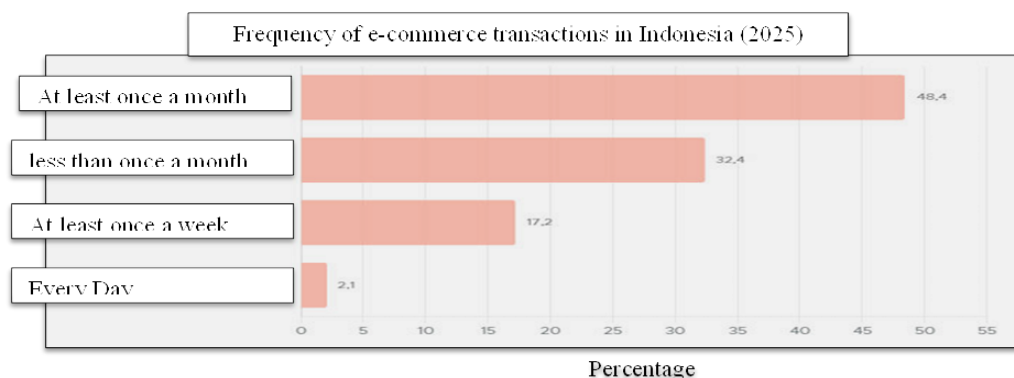
1. Introduction

Customer Relationship Management on digital platforms has become the backbone of modern business, where companies are required to be constantly available to serve customer needs in real time, 24 hours a day, 7 days a week. Given the complexity and high volume of interactions, it is extremely challenging to consistently understand and respond to each customer's unique needs without the help of advanced technology that is responsive yet retains a human touch. To address this, companies are now adopting AI-powered Customer Relationship Management (CRM) technologies, such as AI chatbots, customer analytics systems, and omnichannel interaction management platforms. Among these technologies, AI chatbots are the top choice due to their ability to provide instant, consistent, and personalized service at scale while still being designed with a human and empathetic tone of communication. AI chatbots not only reduce the workload on customer service teams but are also capable of dynamically learning user preferences to provide increasingly relevant responses over time. The use of AI enables marketers to create dynamic and responsive campaigns at every stage of the customer lifecycle, transforming business interactions into meaningful and personalized experiences (Oracle, 2021).

The growing use of the internet and digital devices in society has prompted companies to use artificial intelligence as a tool to better understand consumer behavior and deliver more targeted marketing messages. AI in marketing has been used in various forms, such as AI-powered customer service chatbots in e-commerce. However, there are several issues associated with the

use of AI. The most common ones are data privacy, the ethical use of technology, and public trust in automated systems. Since the advent of Industry 4.0, the business world has undergone significant changes, including shifts in consumption patterns and consumer behavior. Digital technologies such as big data, artificial intelligence (AI), and the Internet of Things (IoT) have transformed the way people use goods and services. Modern consumers are more informed, connected, and expect a more personalized shopping experience. Today's consumers are also more critical and selective when choosing products or services because they can easily access information online—such as comparing prices, reading reviews, and seeking recommendations. They are also shifting to online shopping and interacting via social media. Additionally, customers increasingly expect a more personalized and relevant brand experience, which can be achieved through technologies like data analytics and artificial intelligence (Chaidir & Irawan, 2024).

A chatbot is a software application that simulates human communication in written or spoken form, using natural language processing (NLP) to understand one or more human languages (Khanna et al., 2015). With the help of natural language processing capabilities, artificial intelligence (AI)-based chatbots can communicate with customers in a more natural and effective way. This improves operational efficiency, enhances the user experience with quick and personalized responses, and provides a competitive advantage through the ability to handle numerous interactions without losing the human touch. From a managerial perspective, investing in digital commerce infrastructure and AI technology requires an accurate ROI assessment as well as a deep understanding of consumer engagement metrics, which are currently an invaluable and limitless asset (Luo & Zhang, 2023).



Source: Ministry of Communications and Digital Affairs (2025)

Figure 1. Frequency of E-Commerce Transactions in Indonesia (2025)

Source: GoodStats

Figure 1 shows that the frequency of e-commerce transactions in Indonesia in 2025 will be quite high. A total of 48.4% of respondents make e-commerce transactions at least once a month, while 32.4% said they do so more than once a month. Additionally, 17.2% of respondents made transactions at least once a week, and 2.1% of respondents even made transactions every day. The data indicates that online shopping has become part of Indonesians' daily habits. Chatbots enhance the e-commerce customer experience by speeding up service, making searches easier, and improving issue resolution (Umam Al Jupri & Fasa, 2025). This AI-powered chatbot assists customers and businesses by automating inquiry handling and information requests through quick responses, 24/7 service, and an easy way to submit complaints (Rifky Ramadhani et al., 2024). Therefore, this study will focus on service efficiency, response speed, and ease of accessing data. The primary objective of this study is also to determine how chatbots contribute to customer relationship management (Pangestu et al., 2025).

A clear gap in the Indonesian marketplace concerns the impact of chatbot features in e-commerce on the user experience, particularly in terms of service efficiency, response speed, and ease of obtaining information. Natural language processing (NLP) for informal language, where the majority of research focuses on formal English, while conversations are dominated by slang and

local abbreviations (Abdul-Kader & Woods, 2015). Recent studies also highlight that NLP accuracy is 58% lower for non-standard Indonesian compared to English (Lau et al., 2020).

Another challenge is information asymmetry in multi-vendor marketplaces, which face unique challenges where chatbots must integrate information from thousands of vendors with varying standards. The literature indicates that there is no standard framework for addressing this issue (Gnewuch et al., 2022).

Artificial intelligence-based chatbots have evolved into innovative tools that can help businesses interact with customers automatically (Mariyam & Setiyowati, 2021). This aligns with the need for responsive, fast, and easily accessible services in the modern era, where consumers expect seamless interactions without the constraints of time and place (Johansah & Efda, 2023). The use of AI chatbots is extremely helpful in addressing issues arising from the ever-increasing volume of customer interactions, which are becoming increasingly complex and massive. Chatbots can handle thousands, if not millions, of requests simultaneously in near-real time.

The implementation of chatbots as virtual assistants offers significant benefits, such as improved service efficiency, accuracy in answering questions, and higher user satisfaction. Chatbots can respond to questions instantly, reduce the workload on human staff, and improve service accessibility without time or location constraints. These advantages make chatbots an innovative solution in the e-commerce sector. Chatbots can achieve over 90% accuracy in answering simple questions, boosting user confidence in this technology. Although chatbots offer many benefits, building the system requires a proper and well-planned approach to optimize performance and the user experience (Silva & Canedo, 2024). These factors include the chatbot's purpose, the complexity of the tasks it must perform, and how quickly and flexibly the chatbot needs to respond to customer inquiries.

This study is of significant urgency and novelty given the substantial gap in the literature regarding the implementation of AI-CRM chatbots, particularly in the context of emerging markets such as Indonesia and Southeast Asia, where infrastructure characteristics, regulatory environments, and customer behavior differ significantly from the North American and European contexts that dominate the current literature. This gap is important because research indicates a limited exploration of comprehensive empirical studies evaluating how AI-CRM system mechanisms influence customer satisfaction within the broader context of digital transformation.

Furthermore, the literature remains very limited in exploring how companies can implement AI ethically in the context of emerging markets with evolving regulatory frameworks, and how to accurately measure the implementation of AI-CRM chatbots.

2. Literature Review and Hypotheses Development

The grand theory used in this study is derived from Porter's (1985) theory in the book *Competitive Advantage: Creating and Sustaining Superior Performance**, with one of its key perspectives being: "Pioneering technological change translates into first-mover advantages in addition to those inherent in the technology itself. "Technological change improves the overall industry structure." In a dynamic competitive landscape, leading technological change such as Artificial Intelligence (AI), not only yields the inherent first-mover advantages of the innovation itself but also reshapes the overall industry structure, as highlighted in Porter's theoretical quote, which emphasizes how technology pioneers secure long-term competitive advantage. Companies that adopt AI early to analyze consumer behavior such as processing real-time data from digital interactions, social media sentiment, and purchasing patterns can gain a competitive edge through proactive marketing strategies and deep personalization. This not only reduces customer acquisition costs but also creates a new industrial ecosystem where small companies can compete with large-scale enterprises, thereby enhancing the efficiency of the digital marketing value chain and driving sustainable growth in the era of digital transformation.

"Customer-centricity" is the definition provided by Gummesson (1936) for a middle-range marketing theory based on the concept of Relationship Marketing (RM), which is applied in this study as Customer Relationship Management (CRM). This slogan has become very popular, but few people truly understand or implement it. They may view it merely as a passing trend to be acknowledged, or just another strategy to trap customers. The values of "the customer as the primary focus" do not eliminate traditional values; rather, they push them to the sidelines, from where those

traditional values continue to strive to remain relevant. As for one of the fundamental values of RM “Marketing management should be broadened into marketing-oriented company management”—based on the assertion that marketing management needs to be expanded into marketing-oriented company management, this underscores the importance of integrating artificial intelligence into CRM. By expanding their focus from mere marketing to a marketing-oriented approach to overall corporate management, companies can more effectively leverage AI technology to conduct in-depth analyses of consumer behavior, proactively adjust business strategies, and create a sustainable competitive advantage. This concept underscores that the implementation of AI not only enhances digital marketing campaigns but also influences the entire operational management and data-driven decision-making processes to address consumer needs and preferences more effectively.

The integration of the Technology Acceptance Model (TAM) in the era of generative AI, based on the framework established by Davis (1989), is crucial for understanding how digital consumers are increasingly adopting technology. TAM posits that two main variables determine behavioral intention to use a system: Perceived Ease of Use and Perceived Usefulness. By shifting the interface from code-based technical systems to natural language interactions, Generative AI significantly alters the ease-of-use variable. AI transforms situations where analytical marketing tools or design software previously required high technical expertise. Generative AI enables marketers and customers to interact with intelligent systems in the same way they speak in everyday conversation, thereby removing technical barriers.

Chatbot AI

The use of artificial intelligence (AI) in digital marketing offers a range of strategic advantages, particularly in terms of customized sales management, effectiveness, and efficient allocation of marketing budgets. AI is capable of automatically processing and filtering large volumes of data, thereby reducing the need for marketers to focus extensively on traditional segmentation, behavioral analysis, marketing funnels, or the customer journey.

With these capabilities, AI provides valuable insights for marketing decision-making while enhancing value for consumers through relevant product or service recommendations and personalized user experiences. From a marketer’s perspective, AI not only predicts consumer behavior and market trends but also generates targeted and personalized marketing content. At the operational level, AI supports the automation and optimization of marketing processes, which directly contributes to improved effectiveness and efficiency.

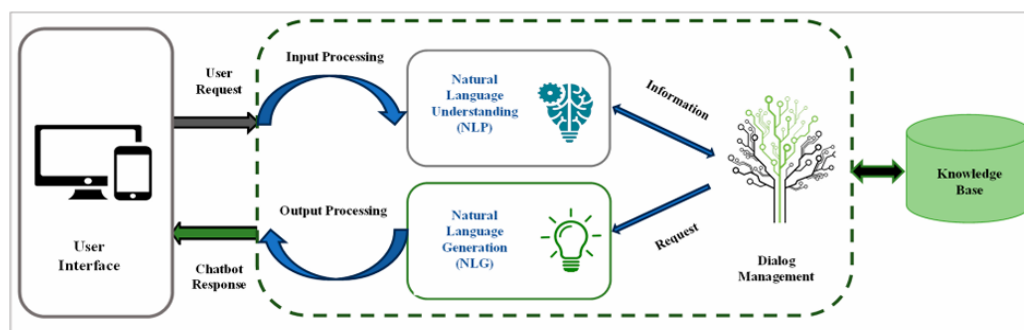


Figure 2. AI Chatbot Architecture

Source: Izadi & Forouzanfar (2024)

Figure 2 illustrates the general architecture of an AI-based chatbot. The User Interface (UI) is at the forefront of this architecture, designed to provide users with a seamless and intuitive way to communicate. Input processing acts as an initial “gatekeeper” that parses user input and prepares it for deeper analysis. To understand the user’s intent, the AI-based chatbot utilizes a natural language understanding (NLU) component. This unit analyzes the complexity of the language and extracts the intent and key entities from the conversation. This analysis is then routed to the conversation management system, the chatbot’s decision-making core, which determines the most relevant

response based on the conversation context, the knowledge the chatbot has accumulated, and previous interactions.

(Davenport et al., 2020) describes the development of AI in business in three stages. The first stage is reactive automation (rule-based systems), the second stage is proactive prediction (consumer journey analysis), and the third stage is generative transformation, in which content can be created autonomously. The use of artificial intelligence in the design, implementation, and evaluation of digital marketing strategies is known as AI-based digital marketing. Chatbots, predictive analytics, automated market segmentation, content personalization, and data-driven ad campaign automation are some of the features offered by related technologies (Putra & Santosa, 2021). In digital marketing, artificial intelligence has proven capable of enhancing the efficiency and effectiveness of marketing campaigns, accelerating decision-making processes, and improving the customer experience.

According to Tri (2023), the factors that influence the quality of customer service provided by chatbots can be found in several different studies. The following are some of the factors that have been identified:

a) **Compatibility:** The compatibility factor shows a positive relationship with perceptions of chatbot usage. This indicates that the ease of using a chatbot influences the extent to which customers find it useful (Nugraha et al., 2021).

b) **Perceived ease of use** has a positive impact on the perceived usefulness of a chatbot. This suggests that how easy it is for customers to use a chatbot influences how useful they find it (Christian, 2022).

c) **Outcome Quality:** Outcome quality has a significant positive effect on the perceived usefulness of the chatbot. This indicates that the quality of the information provided by the chatbot influences how useful customers find it (Rio, 2021)

d) **Consistency and Personalization:** Chatbots that provide consistent responses and personalized interactions enhance customer satisfaction. This indicates that a chatbot's ability to provide relevant and tailored responses based on customer needs influences their level of satisfaction.

Customer Relationship Management

The use of marketplaces in digital marketing encompasses various strategic aspects, ranging from responsive interactions with consumers and increased engagement through compelling content to in-depth analysis of consumer behavior data. The analytics technology available on these platforms enables companies to develop more personalized and accurate marketing strategies for market segmentation (Nurbaiti Maulidina & Pramono, 2024). In addition, the relatively low costs compared to traditional methods make promoting through marketplaces an efficient option for many businesses. By optimizing their use of marketplaces, companies can not only enhance their competitiveness but also address the challenges of market dynamics in the digital age in a more adaptive and innovative way.

In terms of customer management, the overall sentiment appears positive. Although there are concerns about rising unemployment in the increasingly automated service sector (West, 2018), The emergence of AI tools is seen as beneficial for all aspects of the customer relationship management process: it makes it easier for consumers to access more personalized goods and services while simultaneously boosting the company's profitability (Huang & Rust, 2018; Kumar, Rajan, Gupta, et al., 2019; Kumar, Rajan, Venkatesan, et al., 2019). However, despite the rosy picture painted in marketing literature, questions remain about the future of AI-driven customer experiences.

In customer relationship management, digital technology is used to enhance customer satisfaction through marketing automation, service personalization, and the use of customer data to develop better business strategies (Rita & Hendri, 2018). In the world of digital startups, CRM is essential for understanding customer behavior through data analysis and offering more segmented and relevant services (Nicolas, Sri & Adriana, 2024). Thus, the proper implementation of CRM can reduce costs for startups. The customer experience becomes smoother with cloud-based systems that enable the integration of customer data from various platforms (Akip & Efa, 2023). Optimizing the operational, analytical, and collaborative aspects of CRM can enhance customer engagement and

loyalty. Implementing CRM in digital-based companies can improve customer retention through personalization, data analysis, and responsive service. Intelligent AI-powered chatbot recommendation systems can deliver more relevant services and rapid responses, thereby improving the quality of customer relationships.

(Zamora, 2017) further emphasizes that AI-powered chatbots play a crucial role in providing round-the-clock support, ensuring customers are always assisted, which boosts satisfaction and encourages repeat interactions. Conversational agents have evolved over the years, with more advanced AI chatbots utilizing sophisticated machine learning algorithms and natural language processing (NLP) technology. As emphasized by (Huang & Rust, 2018), Advances in AI-powered customer service solutions have enabled chatbots not only to process customer inquiries, but also to anticipate their needs and preferences.

Research Questions

1. How do AI chatbots in e-commerce contribute to customer relationship management by improving service quality?
2. How does the implementation of AI chatbots positively contribute to improving customer relationship management on e-commerce platforms?
3. What are the findings of previous research on the implementation of AI chatbots in customer relationship management?

3. Research Method

Research Design

This study employs a qualitative approach using the systematic literature review (SLR) method to comprehensively identify, analyze, and summarize previous studies on solutions and challenges related to AI-CRM chatbots. This method offers a structured approach to collecting and evaluating articles from various sources, as well as facilitating a transparent and replicable review of existing research articles (Chitu & Kira, 2010), thereby enabling an objective and systematic mapping of marketing research developments, minimizing publication bias, and ensuring that the analyzed data possesses strong academic credibility. (Sugiyono, 2022) states that qualitative research does not make generalizations but rather emphasizes the depth of information, which allows researchers to uncover the uniqueness of the research subjects and understand the meaning behind visual and auditory data, thereby enabling them to gain a deep understanding of complex phenomena through rich contextual interpretation. A qualitative approach to literature review enables researchers to identify dominant patterns, emerging trends, research gaps, and the unique contributions of each study to the AI-CRM knowledge domain.

The purpose of this study is to conduct an in-depth analysis of the impact of chatbot features in e-commerce on the user experience, with a focus on Shopee platform users (Snyder, 2019). The primary data was collected from various secondary sources, including case studies, research articles, and literature reviews related to chatbots and user experience in e-commerce. Data analysis was conducted by identifying key themes and patterns from previous research on the role of chatbots in improving service, speeding up responses, providing access to information, and enhancing user satisfaction. This study also examined user interactions with Shopee's chatbot, including reviewing user feedback on discussion forums, digital platforms, and social media (Lim, 2025; Moser & Korstjens, 2023). Using thematic coding, the findings of this study were analyzed qualitatively. The purpose of this study is to gain a comprehensive understanding of how AI chatbot features influence Shopee's customer relationship management in the context of e-commerce services and to provide a critical analysis supported by scientific evidence.

Data Analysis Techniques

A Systematic Literature Review (SLR) was chosen as the primary method because it allows for a comprehensive synthesis of current knowledge regarding the application of AI and CRM to customer satisfaction through a structured, transparent, and replicable process. This method aligns with the PRISMA 2020 guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), which provide a standard framework for conducting and reporting systematic reviews with high methodological quality. According to (Melianté et al., 2025), The PRISMA method continues to

demonstrate clear advantages in terms of reproducibility and accuracy at key stages of systematic reviews, from searching for relevant literature to conducting re-evaluations.

The PRISMA guidelines were applied through the article eligibility process, identification of literature sources, literature selection, and chatbot data collection. The review was conducted systematically and methodically in the following specific stages:

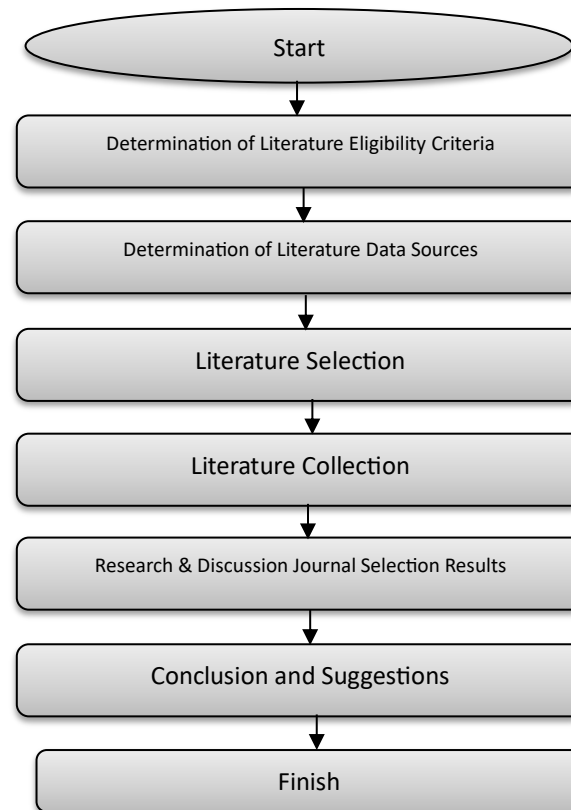


Figure 3. Research Flowchart

Source: Karunia et al. (2024)

Stage 1. Journal Article Eligibility Criteria

Determined by the Inclusion Criteria (IC), which are divided into several criteria, namely:

1. IC1: Articles must be original research studies written in Indonesian and/or English, indexed, and available online via OJS
2. IC2: The reviewed articles must be from reputable journals with a publication date range between 2020 and 2025.
3. IC3: The articles must aim to analyze key topics related to the development of AI chatbots and CRM.

Step 2. Identification of Literature Sources

1. Literature was collected from Crossref, Google Scholar, and Scopus in online databases with significant repositories.
2. In addition to articles relevant to the IC, other studies related to this research were also identified.

Step 3. Literature Selection

1. The first keyword selected was “AI Chatbot,” and the second was “Customer Relationship Management.”
2. To explore and select titles, abstracts, and articles
3. Keywords are obtained from search results based on predefined eligibility criteria.
4. Read articles that were not eliminated in the previous stage, either in full or in part, to determine whether they meet the criteria for the next review.
5. Selected articles are reviewed and re-evaluated to identify related research.

Stage 4. Data Collection

By creating a data extraction form, data collection can be conducted manually. Based on the list of sources and inclusion criteria, this study selected journals containing the keywords “AI Chatbot” and “Customer Relationship Management.” Subsequently, journal articles were identified as suitable candidates for this study. This study selected several articles based on the keywords and then proceeded to the evaluation phase for those articles that met the criteria for this study following further review.

Table 1. Research Question

No.	Research Question	Background
RQ 1	How do AI chatbots in e-commerce contribute to customer relationship management by improving service quality?	Identifying and analyzing AI chatbot services that influence customer relationship management by improving service quality?
RQ 2	How does the implementation of AI chatbots positively contribute to improving customer relationship management on e-commerce platforms?	Exploring how AI chatbots' contextual understanding impacts customer relationship management in e-commerce?
RQ 3	What are the findings of previous research on the implementation of AI chatbots in customer relationship management?	Identify and analyze previous research literature on the results of implementing AI chatbots in CRM?

Source: Data Processed (2026)

4. Result and Discussion

The literature identification process in this study began with a search using key terms such as “Chatbot,” “AI Chatbot,” “Customer Relationship Management,” “CRM,” and “Customer Relationship Management.” The selection of these keywords took into account the challenges faced by digital-based businesses in implementing CRM systems. To ensure the relevance and timeliness of the references, the literature search focused on publications released in the last five years, specifically between 2020 and 2025. Reference sources were collected from scientific journals, academic articles, research reports, and other publications.

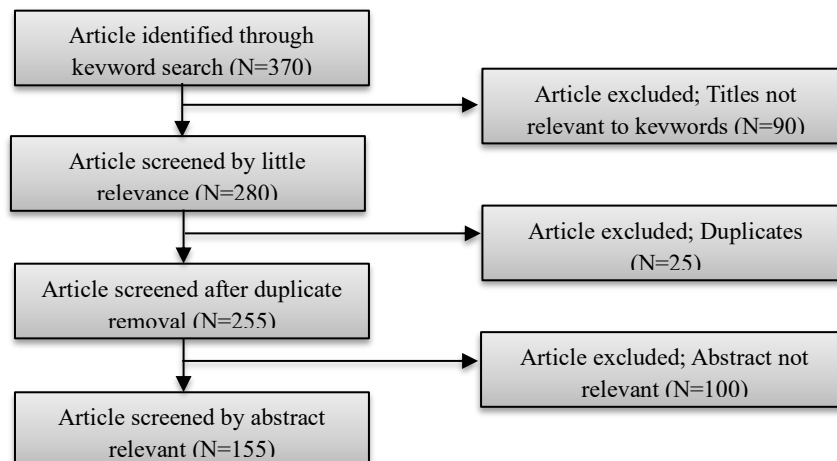


Figure 4. Literature Search Flowchart

Source: Data Processed (2026)

The flowchart above illustrates the article screening process in the literature search. Of the total 370 articles identified through the keyword search, 90 were excluded because their titles were irrelevant to the research topic, leaving 280 articles. Next, a duplication check was conducted, and 25 duplicate articles were identified and subsequently removed, resulting in 255 unique articles for the next stage. From this number, a screening based on abstract relevance was performed. As a result, 100 articles were eliminated because their abstracts did not align with the research focus, leaving 155 final articles deemed relevant and suitable for further analysis. This process demonstrates a systematic approach to

ensuring that only literature truly aligned with the topic is retained for the research review. Analysis of the 155 publications identified from 2020 to 2025 reveals significant developments in AI chatbot research, in terms of temporal trends, publication sources, and thematic directions.

From a temporal perspective, a fairly clear trend is evident. In the early stages (2020–2022), the number of publications remained limited, with 15 papers in 2020 and 25 papers in 2021–2022. However, starting in 2023, the number of publications began to increase gradually, reaching 30 papers in 2023. A significant surge occurred in 2024, marking the peak of publications with 40 papers. This exponential growth can be attributed to the increasing adoption of generative AI chatbot technology as well as the post-pandemic demand for digital service automation. Meanwhile, data for 2025 shows a fairly high figure (45 papers), which is likely influenced by the growing demand for AI chatbot services on e-commerce platforms.

When viewed by publication source, research on AI-CRM chatbots tends to be published more frequently at international conferences than in journals in Indonesia. Leading conferences such as IEEE (13 papers) and AAAI (7 papers) dominate, underscoring researchers' preference for faster publication channels in the field of management. Other thematic conferences such as CHI, HICSS, and HCII also appear, albeit in limited numbers (about 1 paper per year). On the other hand, international journals with Q2/Q3 reputations (15 papers) indicate a growing trend of academic validation. Major publishers such as Elsevier and Springer are noted as productive contributors with a combined total of 11 publications.

From a thematic perspective, the emerging patterns indicate a differentiation in focus. Conference publications, particularly those from IEEE and AAAI, place greater emphasis on technical aspects such as AI innovations in the field of consumer services. In contrast, journals in the fields of business, psychology, and consumer behavior focus on the social, behavioral, and economic impacts of chatbot implementation. This multidisciplinary trend is also becoming increasingly evident with the emergence of interdisciplinary journals, such as *Telematics and Informatics*, which combines perspectives from technology and communication, and *Behavior & Information Technology*, which links aspects of consumer behavior with information systems.

However, there are several limitations to the analyzed data. First, the uneven distribution of publications per year could introduce bias due to publications that have not been fully indexed. Second, the quality of publication representation varies, given that some of the identified venues (e.g., Compendium Paper Asia) are not yet widely recognized internationally. Overall, this publication trend indicates that AI chatbot research is currently in a phase of rapid expansion with a cross-disciplinary orientation. The dominance of conferences underscores the accelerated development of the technology, while the contribution of international journals reflects more established efforts at academic validation.

Table 2. Research Methods

Research methods	Number of Papers
Survey	35
Literature Review	33
Data Analysis	30
Experiment	19
Case Study	16
System Development	11
Meta Analysis	7
Model/ Theoretical Analysis	4

Source: Data Processed (2026)

The research methodology was dominated by surveys (22.5%) exploring the perceptions and behaviors of AI chatbot users, followed by literature reviews (21.3%) to establish a foundation for AI chatbot performance data. Data analysis is used to test data objectively (19.3%), experiments (12.3%) are used to test cause-and-effect relationships, while case studies (10.3%) provide real-world

implementation context. System implementation (7.09%) focuses on developing technical solutions, and synthesis methods such as meta-analysis and model analysis (7.10%) build the theoretical foundation. This distribution indicates a balance between empirical validation, technical optimization, and understanding.

Interestingly, 45 studies examined chatbots that integrate both functions task-oriented and conversation-oriented. The emergence of this category marks an evolution in chatbot design that not only emphasizes effectiveness in task completion but also prioritizes conversational quality to enhance customer relationship management activities. This trend also reflects the direction of modern chatbot development, which seeks to balance functional needs with an interactive experience that resembles human communication. Meanwhile, only 13 studies did not explicitly define their category (undefined).

Table 3. Chatbot AI Types

Chatbot Types	Number of Papers
Task Orientation	50
Conversation Orientation	47
With both task-oriented and conversational aspects	45
Not defined	13

Source: Data Processed (2026)

Table 3 presents a classification of AI chatbot research in the context of e-commerce based on the primary functionalities examined. The analysis results indicate that task-oriented chatbots constitute the category with the highest number of studies, totaling 50. This type of chatbot is designed to perform specific tasks such as answering routine questions, assisting with transactions, or guiding users through service navigation. The dominance of this category reflects researchers' focus on operational efficiency and the achievement of practical goals within the e-commerce ecosystem. The second prominent category is conversation-oriented chatbots, with 47 studies. Unlike the previous type, these chatbots place greater emphasis on natural and emotional interaction, making them widely applied in customer service, light counseling, or as virtual companions. The high level of attention on this category highlights the importance of building a more personalized and human-centered user experience in digital interactions.

This relatively small proportion indicates that most recent research has established a clear classification framework for understanding and developing AI chatbot functionality, both from a technical perspective and in terms of user experience.

Table 4. AI Chatbot Application Domain

Domain Chatbot	Number of Papers
E-Commerce	49
Customer Relationship Management	41
Customer Service/Support	27
Customer Experience/Engagement	19
Digital Marketing	11
Multiple Domains or Undefined	8

Source: Data Processed (2026)

Table 4 shows the distribution of chatbot research across various domains. The analysis reveals that e-commerce is the most dominant domain, with 49 studies. This dominance reflects the industry's priority in adopting chatbots to support transaction automation, provide product recommendations, and facilitate the purchasing process. This strong position also underscores that chatbots are viewed as a strategic component in accelerating the growth of e-commerce-based digital services. In second place is customer relationship management with 41 studies, followed by the customer service/support domain with 27 studies. This underscores the important role of chatbots in helping companies handle customer inquiries, process complaints, and provide quick solutions automatically. The significant focus on

customer service indicates that user interaction and satisfaction remain top priorities in chatbot implementation.

Other areas, such as customer experience/ engagement (19 studies) and digital marketing (11 studies), still receive attention, albeit limited. Although the number is relatively small, the existence of research in these areas indicates that AI chatbots are beginning to be explored as tools to expand functionality from mere transactions and customer service to the development of marketing strategies, the enhancement of user experience, and the improvement of long-term loyalty. Meanwhile, the “multiple domains” and “undefined” categories were recorded in 8 studies. This small number indicates that most research has been directed toward specific, theme-aligned domains, making it easier to identify the focus of contributions and the practical relevance of AI chatbot implementation.

In this systematic literature review, one of the key steps taken was to identify the key variables contained in each of the analyzed articles. The purpose of this identification was to ensure that the research covered relevant aspects that directly contributed to the focus of the study, namely the strategies and success factors for implementing AI-CRM chatbots to improve customer retention among digital businesses. Each article was reviewed based on its abstract and main content, then classified into specific variable categories. This variable mapping serves to provide a structured framework for understanding the findings of previous research, as well as to help answer the research questions that have been formulated.

Therefore, this process is a crucial step in ensuring that each analyzed article makes a meaningful contribution to the discussion and formulation of AI-CRM chatbot strategies. The results of this mapping indicate that each article is related to at least one key variable, confirming its relevance to the objectives of this study.

Table 5. Main Journal Article Search Results

No.	Author (Year)	Title	Journal	Research result
1.	Rapp, Amon, Curti, Lorenzo, and Boldi, Arianna (2021). doi: 10.1016/j.ijhcs.2021.102630 doi.org/10.1016/j.ijhcs.2021.102630	The human side of human-chatbot interaction: A systematic literature review of ten years of research on text-based chatbots.	International Journal of Human-Computer Studies 151 (102630).	AI chatbots demonstrate linguistic proficiency, emotional intelligence, openness, empathy, honesty, active listening skills, responsiveness, social orientation, and engagement (Rapp et al., 2021).
2.	J.S. Chen, L. Tran-Thien-Y, D. Florence (2021)). doi.org/10.1108/IJRDM-08-2020-0312	Usability and responsiveness of artificial intelligence chatbot on online customer experience in e-retailing	Int. J. Retail Distrib. Manag.	Chatbots can provide information that is available 24 hours a day, 7 days a week based on customer inquiries. Chatbots can also compile detailed information from various databases. This meets customers' need for prompt responses (Chen et al., 2021).
3.	D.L. Kasilingam, (2020). doi.org/10.1016/j.techsoc.2020.101280	Understanding the attitude and intention to use smartphone chatbots for shopping	Technol. Soc. 62,101280.	Chatbots have the ability to simplify complex information. Chatbots interact using more efficient words and phrases (thanks to supervised learning), and sometimes also provide options to help customers identify their needs (Kasilingam, 2020).
4.	A. Rese, L. Ganster, D. Baier (2020)). doi.org/10.1016/j.jretconser.2020.102176	Chatbots in retailers' customer communication: how to measure their acceptance?	J. Retailing Consum. Serv. 56, 102176.	AI chatbots can create recommendation systems based on customer profile data and history, enabling them to provide assistance tailored to each customer's profile (Rese et al., 2020).

No.	Author (Year)	Title	Journal	Research result
5.	Kasilingam, Dharun Lingam. (2020)). https://doi.org/10.1016/j.techsoc.2020.101280	Understanding the attitude and intention to use smartphone chatbots for shopping.	Technology in Society 62 (101280).	AI chatbots improve customer sentiment through humorous content (Kasilingam, 2020)
6.	Ashfaq, Muhammad, Yun, Jiang, Yu, Shubin, and Correia Loureiro, Sandra Maria. (2020) (2020). doi.org/10.1016/j.tele.2020.101473	I, Chatbot: Modeling the determinants of users' satisfaction and continuance intention of AI-powered service agents.	Telematics and Informatics 54 (101473).	AI chatbots can handle requests for information, searches, complaints, returns, exchanges, refunds, and so on (Ashfaq et al., 2020).
7.	Xu, Yingzi, Shieh, Chih-Hui, van Esch, Patrick, and Ling, I-Ling. (2020) (2020). doi.org/10.1016/j.ausmj.2020.03.005 .	AI customer service: Task complexity, problem-solving ability, and usage intention.	Australasian Marketing Journal 28 (4): 189–199.	The AI chatbot stores data for future requests (Xu et al., 2020).
8.	Chung, Minjee, Ko, Eunju, Joung, Heerim, and Kim, Sang Jin. (2020). doi.org/10.1016/j.jbusres.2018.10.004	Chatbot e-service and customer satisfaction regarding luxury brands.	Journal of Business Research 117: 587–595.	AI chatbots store and archive data from conversations, purchase histories, and other activities (Chung et al., 2020).
9.	G. Calderini, S. Jaf, and K. McGarry (2022). doi.org/10.3390/info13010041 .	A literature survey of recent advances in chatbots	Information, vol. 13, no. 1, p. 41	The latest developments in the field of AI chatbots, including their applications, challenges, and limitations, as well as the evolution of chatbot technology (Calderini et al., 2022).
10..	M. MaryLincy, M. Abisha, G. AgnesJenitha, and P. BabyShola, (2023). doi.org/10.46382/mjbas.2023.7208	Flutter based chatbot for tourism	Medit. J. Basic Appl. Sci., vol. 7, no. 2, pp. 56–67.	Development of an AI chatbot to enhance the travel experience by providing information, assisting with the booking process, and offering recommendations tailored to individual needs (MaryLincy et al., 2023).
11.	O. Cherednichenko and F. Muhammad, (2023)). doi.org/10.1007/978-3-031-42941-5_53	Recommender chatbot as a tool for collaborative business intelligence in tourism domain	In Proc. Eur. Conf. Adv. Databases Inf. Syst. Cham, Switzerland: Springer, pp. 604–611.	The use of AI chatbots is recommended as a tool to help travelers compare information and make informed decisions by leveraging their conversational capabilities (Cherednichenko & Muhammad, 2023).
12.	Ngai, E.W.; Lee, M.C.; Luo, M.; Chan, P.S.; Liang, T. (2021). doi.org/10.1016/j.elerap.2021.101098 .	An intelligent knowledge-based chatbot for customer service.	Electron. Commer. Res. Appl. 50, 101098.	Better customer engagement by tailoring the experience to user preferences, thereby increasing satisfaction (Ngai et al., 2021).
13.	Hu, P., Lu, Y., (2021). doi.org/10.1016/j.chb.2021.106727	Dual humanness and trust in conversational AI: a person-centered approach	Computers in Human Behavior 119, 106727.	The proper use of AI chatbots understands consumers' intentions and needs; A chatbot's comprehension abilities, which are similar to those of humans, can consistently understand consumers' intentions (Hu et al., 2021).
14.	Jiang, Y., Yang, X., Zheng, T., (2023). doi.org/10.1016/j.chb.2022.107485	Make chatbots more adaptive: dual pathways linking human-like cues and tailored response to trust in interactions with chatbots.	Computers in Human Behavior 138, 107485.	AI chatbots can effectively meet expectations of competence by demonstrating the ability to complete tasks effectively, helping to simplify tasks, functioning reliably, and providing competent guidance (Jiang et al., 2023).
15.	Sands, S., Ferraro, C., Campbell, C., et al., (2021). doi.org/10.1108/JOSM-06-2019-0203	Managing the human–chatbot	J. Serv. Manag. 32 (2),	AI chatbots can create a “warm” atmosphere during service

No.	Author (Year)	Title	Journal	Research result
		divide: how service scripts influence service experience.	246–264.	interactions, are able to build good relationships with customers, and make customers feel comfortable interacting with them (Sands et al., 2021).
16.	Lubbe, I., & Ngoma, N. (2021)). https://doi.org/10.4102/sajim.v23i1.1299	Useful chatbot experience provides technological satisfaction: An emerging market perspective.	South African Journal of Information Management, 23(1), 1-8.	The benefits provided by AI chatbots in the customer relationship experience and how that experience influences user satisfaction in a market context. This experience predicts consumer satisfaction levels, leading to the conclusion that marketers should allocate resources, infrastructure, and time to the development of service technologies, including chatbots, which play a crucial role in creating strategies that can enhance the user experience (Lubbe & Ngoma, 2021).
17.	Misischia, C.V., Poecze, F., & Strauss, C. (2022). doi.org/10.1016/j.procs.2022.03.055	Chatbots in customer service Their relevance and impact on service quality.	Procedia Computer Science, 201(1), 421-428.	An overview of the features and functions of customer service chatbots; Furthermore, this study makes an additional contribution by introducing two categories of chatbot objectives: “Service performance improvement” and “Meeting customer expectations,” concluding that chatbots possess characteristics such as: reliability, personality, empathy, and open interaction that improve quality, so that the perceived entertainment positively influences customer attitudes, as well as boosting the tool’s productivity as a CRM (Misischia et al., 2022).
18.	Selamat, M.A., & Windasari, N.A. (2021). doi.org/10.1016/j.techsoc.2021.101685	Chatbot for SMEs: Integrating customer and business owner perspectives.	Technology in Society, 66, 101685.	This study describes four chatbot functions considered crucial in SMEs: receptionist chatbots; simple actions to understand consumer activity; human-to-human interaction; and personalized recommendations. The findings indicate that the presented AI chatbot prototype is perceived as more engaging and useful than traditional chatbots, thereby influencing consumer purchase intent in customer relationship management (Selamat & Windasari, 2021).
19.	Libai, B., Bart, Y., Gensler, S., Hofacker, C. F., Kaplan, A., Kötterheinrich, K., & Kroll, E. B. (2020). doi.org/10.1016/j.intmar.2020.04.002	Brave New World On AI and the Management.	Journal of Interactive Marketing, 51 (1), 44-56.	This study presents an analysis of the impact of technology on consumer communication, examining the role of AI in transforming customer acquisition and retention processes, and concludes that while technology does make a contribution—such as

No.	Author (Year)	Title	Journal	Research result
				improvements to existing procedures—the results have not yet met expectations, meaning that its contribution has not yet reached a high level (Libai et al., 2020).
20.	D. Escobar-Grisales, J.C. Vásquez-Correa, J.R. Orozco-Arroyave, (2024). doi.org/10.1007/s11042-023-14896-y	Evaluation of effectiveness in conversations between humans and chatbots using parallel convolutional neural networks with multiple temporal resolutions.	Multimed. Tools Appl. 83(2) 5473–5492.	The AI chatbot evaluates the effectiveness of conversations between humans and chatbots using parallel convolutional neural networks with multiple temporal resolutions (Escobar-Grisales et al., 2024).
21.	Panjaitan, H. Y., Masnita, Y., & Kurniawati, K. (2023). doi.org/10.21456/vol13iss1pp78-87	Adding Intelligence Level Variables to Chatbots to Influence User Trust in Health Teleconsultation Applications.	J. Sistem Info. Bisnis, 13(1), 78–87.	Several service factors that positively and significantly influence the implementation of online AI chatbots (Panjaitan et al., 2023).
22.	Yamini Dwivedi, Angel Kurde (2024).(2024). doi.org/10.55041/ijssrem37873	AI-Driven Innovation in CRM: Exploring the Potential of Generative Models for Customer Experience Optimization	International Journal Of Scientific Research In Engineering and Management, vol. 08, no. 10, pp. 1–4, Oct. 2024	Generative AI chatbots in CRM leverage personalization, automation, and predictive analytics to enhance the customer experience. AI chatbot models can streamline interactions, improve customer segmentation, and optimize operational efficiency in customer relationship management. (Y. Dwivedi & Kurde, 2024).
23.	Marian Ileana, Pavel Petrov, Vassil Milev (2025)). doi.org/10.3390/iot6020024	Optimizing Customer Experience by Exploiting Real-Time Data Generated by IoT and Leveraging Distributed Web Systems in CRM Systems	Preprints (Basel), p. 11.	The integration of IoT and AI chatbots with CRM enables real-time data processing to enhance the customer experience. Distributed web systems improve scalability, responsiveness, and security, enabling more personalized and efficient customer relationship management (Ileana et al., 2025).
24.	Erawan, Y., Yusnita, A. and Adytia, P., (2024). https://repository.wicida.ac.id/6031/	Design of Auto-Reply Chatbot on Whatsapp to Support The STMIK WICIDA Campus Information Center.	Jurnal Sebatik	An AI-CRM-based auto-reply chatbot on WhatsApp can improve the efficiency of campus information services by responding to student inquiries quickly, accurately, and around the clock, thereby reducing the workload of information center staff and increasing user satisfaction (Erawan, 2025).
25.	Ardiansyah, R.H., Sulaksono, A.G., Studi, P., Informasi, S., Informasi, F.T. and Malang, U.M. (2023)). doi.org/10.26905/jisad.v1i1.9858	Customer service based on Natural Language Processing through chatbots on messaging applications.	Jurnal JISAD, pp.29–37.	AI chatbots in messaging apps can improve customer service efficiency by providing accurate and prompt automated responses to user requests, thereby reducing wait times, easing the workload on support teams, and significantly enhancing customer relationship management (Ardiansyah & Sulaksono, 2023).

No.	Author (Year)	Title	Journal	Research result
26.	M.Ikhsan, Dila Marta Putri, Siti Nurjanah, Asde Rahmawati ⁴ , Fahrizal, Bastul Wajhi Akramunnas (2025). doi.org/10.55606/jtmei.v4i1.4820	Implementation of Chatbot Technology as an Information Media at Universitas Negeri Medan	Jurnal Teknik Mesin, Industri, Elektro dan Informatika, Vol. 4, No. 1	The implementation of an AI-CRM chatbot as an information channel at Medan State University has improved the speed and accuracy of campus information services, facilitated interaction between students and staff, and reduced the workload of the service center, thereby enhancing communication effectiveness and user satisfaction (M Ikhsan et al., 2025).
27.	Syarifatul Ummah, Dwi Rolliawati, Anang Kunaefi, Andhy Permadi (2024)). doi.org/10.24269/jkt.v8i2.2978	Chatbot Development as a Tourist Attraction Introduction in Selingkar Willis Using Rule-based	Komputek Vol 8 (2)	The rule-based chatbot developed to identify tourist attractions in the Selingkar Willis area is effective in enhancing the user experience by providing accurate and timely information (Ummah et al., 2024).

Source: Data Processed (2026)

Discussion

How do AI chatbots in e-commerce contribute to customer relationship management by improving service quality?

There are concerns regarding the generalizability of the findings, as people from different cultures may have varying conceptions and expectations regarding trust in interactions between humans and chatbots. For example, trust dynamics can be influenced by culturally specific norms, values, and communication styles that shape how users perceive and interact with AI systems (Liu et al., 2024). AI chatbots can also evoke feelings in users; negative emotions may arise due to unmet expectations, which often lead to a breakdown in communication (Rapp et al., 2021). However, the study indicates that self-disclosure and empathy must be enhanced to improve the enjoyment of conversations by fostering closer relationships between the two interacting parties. Successful interactions and satisfactory service performance are the result.

In fact, engagement, trust, and satisfaction are key factors in determining service quality, which means chatbots will perform better. AI chatbots can offer customers a more personalized shopping experience if they can replicate all the characteristics of “human-like” interactions (Holzwarth et al., 2006). The ability of AI chatbots to mimic human-like interactions—such as showing empathy and providing natural responses—plays a crucial role in enhancing customer comfort and creating a positive experience during interactions with the technology.

AI chatbots can identify customer issues using keywords and provide structured solutions. In addition, the database that serves as a source of information is constantly updated and expanded, enabling faster and more detailed resolution of customer issues. Chatbots are excellent problem-solving tools (Kaplan & Haenlein, 2019) because of all their features (Kaplan & Haenlein, 2019). These AI chatbot services in e-commerce can significantly improve customer relationship management and service quality, enabling faster and more thorough resolution of customer issues.

Research (Ngai et al., 2021) shows that knowledge-based intelligent chatbots can improve customer service in an innovative application within the e-commerce sector. This system relies on a specialized knowledge base that continuously evolves to provide better support over time. The knowledge base categorizes customer knowledge into six categories: knowledge about customers, knowledge from customers, knowledge for customers, product reference information (such as social media comments), knowledge confirmed from trusted sources (such as manuals), and previously confirmed knowledge awaiting human expert review.

According to research (Kumar, Rajan, Venkatesan, et al., 2019), Personalized interactions make customers feel valued and important, which fosters an emotional connection with the brand. These positive, personalized experiences boost customer satisfaction and make them more likely to remain loyal. Conversely, when customers feel that a brand understands and anticipates their needs, their loyalty increases. AI chatbots help companies develop personalized services, which is difficult for human

agents to consistently provide to a broad customer base. Additionally, AI chatbots are highly reliable in providing accurate information and resolving customer issues. When customers realize they can trust the chatbot to provide the right answers and efficient solutions, they are more likely to interact with the brand more frequently, thereby strengthening the quality of service.

An AI-powered chatbot, with its fast response times and automated replies, effectively meets customers' needs to minimize wait times in pre-sales scenarios (Kaplan & Haenlein, 2019). Chatbots can also help build customer trust by providing instant and accurate responses to questions about products, shipping policies, return options, and more. By providing immediate answers, AI chatbots help address these concerns, allowing customers to make the right decisions quickly (Y. K. Dwivedi et al., 2021). In addition, AI chatbots integrated with secure payment gateways that provide guidance during the checkout process will boost customer confidence in completing transactions; customers who feel secure and well-informed throughout their online shopping journey are more likely to make frequent purchases. By leveraging their ability to respond quickly, provide accurate information, and guide users through secure transactions, AI chatbots in e-commerce holistically improve service quality, which ultimately strengthens customer relationship management.

How does the implementation of AI chatbots contribute positively to improving customer relationship management on e-commerce platforms?

Perceived usefulness has a positive relationship with consumer attitudes toward brands promoted by AI chatbots (Zarouali et al., 2018). Perceived usability also positively influences the acceptance of AI chatbots in the retail industry (Rese et al., 2020). By integrating these two research findings, a high perceived usefulness of AI chatbots significantly enhances consumers' positive attitudes toward the promoted brand and accelerates the adoption of AI chatbot technology in the retail industry by increasing trust and service efficiency. AI chatbots are an emerging digital marketing strategy that businesses are increasingly adopting to adapt to the rapidly evolving world of digital services (Chung et al., 2020). With a focus on the marketing industry, the five main objectives of AI chatbots are interaction, entertainment, trends, personalization, and problem-solving; problem-solving can also be used to perform customer-related tasks. A study has shown that there is a positive correlation between AI chatbot functions and the accuracy and credibility of communication, as well as customer satisfaction.

The use of AI chatbots reduces recruitment costs and enhances customer interaction, which in turn boosts sales. This is due to the nature of chatbots as computer programs, meaning that AI chatbots can serve as many people as possible as long as the hardware and servers are sufficient. Compared to using human staff, AI chatbots can operate 24 hours a day, 7 days a week, ensuring no customers are missed due to service downtime caused by labor shortages. As a result, e-commerce businesses can reach more customers and reduce costs by scaling back staff to the minimum required to support the chatbot.

In e-commerce, AI chatbots are used to handle customer inquiries. Through the integration of feedback mechanisms, these chatbots begin to learn from interactions with customers. Over time, they start to recognize specific customer preferences and contexts, resulting in more accurate product recommendations and higher customer satisfaction (Bragaar et al., 2023). Meanwhile, AI chatbots, as a powerful complement to human agents, offer more convenient and efficient services to consumers. The alignment between the way AI chatbots present information and the nature of shopping tasks has a significant impact on consumers and the outcomes of their decision-making processes. As decision-making tools, the importance of AI chatbots is becoming increasingly prominent (Chen et al., 2021).

In the context of e-commerce applications, AI chatbots are deployed on marketplaces, where they serve as the primary tool for automated conversations with customers (Kostelnik et al., 2019) through indirect interfaces, such as mobile apps or websites, in order to generate more intelligent responses at the right time (Wirtz et al., 2019). AI chatbots enable more efficient and responsive customer interactions. They are the best way to implement CRM in the e-commerce sector, where they can enhance the effectiveness of customer relationship management systems by providing timely and accurate solutions to customers' needs and preferences.

The implementation of AI chatbots on e-commerce platforms positively contributes to improved customer relationship management by leveraging perceived usefulness to foster positive brand attitudes, enhance the accuracy and credibility of communications, and boost customer satisfaction through

interaction, entertainment, personalization, and efficient problem-solving, while also reducing operational costs and expanding 24/7 service coverage.

What are the findings of previous research on the implementation of AI chatbots in customer relationship management?

Some key features of AI chatbots for customers include their effectiveness in handling customer inquiries (Følstad & Skjuve, 2019) where AI chatbots use natural language processing and machine learning to answer customer questions quickly, accurately, and consistently. This directly reduces wait times, improves service accessibility, and creates a more personalized and efficient interaction experience, thereby increasing customer satisfaction in e-commerce. Therefore, AI chatbots must possess characteristics as close as possible to those of human agents if the goal is to create positive interactions between customers and the chatbot. Even if the technical requirements for an AI chatbot's success are met, it is not the technology itself that undermines its ability to interact, but rather a lack of human-like qualities. For example, a chatbot may fail to meet the user's language requirements, which can lead to negative emotions such as frustration due to a lack of understanding.

AI-powered chatbots play a crucial role in streamlining the customer journey in e-commerce, from initial interactions to the final transaction. These AI chatbots help eliminate barriers by answering questions instantly, guiding customers through the website, and facilitating quick access to information. This streamlined experience enhances user satisfaction, reduces decision-making time, and leads to higher conversion rates. For example, AI chatbots can help customers find specific products, provide recommendations, and assist with the checkout process. They can also answer common questions, reducing the need for customers to search for information on their own. This ease of use and reduced effort are crucial for boosting conversion rates, as a smooth, frictionless journey encourages customers to complete their transactions more quickly.

AI-powered chatbots also help boost sales conversion rates by reducing operational costs. AI chatbots enable companies to handle large volumes of customer inquiries without requiring significant human support, allowing businesses to allocate resources more effectively and focus on other areas that enhance the customer experience (Kumar, Rajan, Gupta, et al., 2019). By automating routine tasks and enabling self-service, chatbots allow businesses to improve efficiency, which can translate into higher conversion rates, as businesses can serve more customers simultaneously and meet their needs more effectively.

Most studies adopt a consumer-centered research perspective, focusing on the impact of intelligent chatbot functionality and anthropomorphism on the consumer experience during interactions (Haugeland et al., 2022) (Haugeland et al., 2022). Research focusing on the impact of the functionality and anthropomorphism of intelligent chatbot technology on the consumer experience in the context of meaningful AI interactions indicates that chatbot designs that are not only functionally efficient but also exhibit human-like traits such as empathy, consistent responses, and natural language significantly enhance user acceptance, trust, and satisfaction, thereby creating more authentic and satisfying interactions in digital services.

Based on the previous research discussed, the implementation of AI chatbots contributes to customer relationship management by increasing customer satisfaction through effective responses to inquiries, simplifying the e-commerce customer journey to boost conversion rates, and reducing operational costs; specifically, AI chatbots that are functional and exhibit human-like characteristics significantly enhance user acceptance, trust, and satisfaction.

5. Conclusion

This literature review indicates that AI chatbots are crucial for transforming customer relationship management (CRM) on e-commerce platforms, particularly by improving operational efficiency and service quality. AI chatbots enhance customer satisfaction and foster long-term engagement and loyalty through rapid response capabilities, personalized interactions, and 24/7 availability. These findings reinforce the theoretical notion that investing in customer-oriented AI technology can significantly improve brand relationships with consumers. Practically, this study suggests that to maximize the potential for proactive and personalized marketing, the development of AI chatbots should focus on more human-centered and empathetic designs with the ability to adapt to local language and cultural contexts which will also form the foundation of a robust CRM strategy in the digital age.

However, this study lacks direct empirical data on the use of AI chatbots across various e-commerce platforms, particularly in specific markets such as Indonesia, as it relies on existing literature reviews. Additionally, further research is needed on the deeper aspects of user adoption and the psychological effects of interacting with AI. Therefore, future research should include more in-depth empirical case studies, the integration of AI chatbots into broader CRM systems, and an analysis of AI's impact on long-term customer retention and loyalty. Further research could also focus on developing more advanced natural language processing models for non-standard Indonesian and finding ways to create AI chatbots that function effectively in multicultural and multilingual environments.

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