

## The role of AI-powered chatbots in customer service for improving online conversion performance: A systematic review

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### Abstract

AI-powered chatbots have become a prominent component of online customer service, but existing evidence remains divided across service quality, customer experience, and conversion-related research. This systematic literature review synthesizes 30 empirical studies on how chatbot features influence customer engagement, customer satisfaction, purchase intention, and online conversion-related outcomes. Searches were conducted in Google Scholar, ResearchGate, and ScienceDirect on January 25, 2026, and studies were selected using predefined inclusion and exclusion criteria. The review found that personalization, responsiveness, availability, and problem-solving capability were the most frequently examined chatbot features. These features were generally associated with stronger customer satisfaction and engagement, which in turn supported purchase intention and conversion-related intention. However, the evidence for actual conversion performance remains limited because many studies rely on intention-based measures rather than observed sales, registration, booking, or transaction data. The review contributes by organizing the evidence around chatbot features, customer outcomes, conversion proxies, and gaps in theory, method, and measurement. Future research should use longitudinal, cross-cultural, and behavioral data to test whether chatbot-enabled service improvements translate into measurable online conversion performance.

**Keywords:** Chatbots; Conversational Artificial Intelligence; Customer Engagement; Customer Satisfaction; Online Conversion Performance; Purchase Intention.

### Introduction

In the post-2020 digital services landscape, firms that have adopted artificial intelligence into their platforms and services are recognizing that the quality of customer service has a direct impact upon business performance (Uzoka et al., 2024). Because the customers of many firms interact with those companies online, the firms typically aim to find methods of improving the quality of the service that they offer to

those online customers (Misischia et al., 2022). As the number of customers that interact with a firm online has increased, many of those companies have turned to digital technologies to reduce the burden of providing customer support and service to those customers (De Andrade & Tumelero, 2022; Rossmann et al., 2020). One form of digital technology that is becoming increasingly common in customer service departments is the use of AI-powered chatbots to automate some of the customer service functions of a company (Ramki et al., 2024).

Despite the growing volume of research on AI chatbots, the available literature is fragmented across different research streams. While a few studies focus on evaluating the technical capabilities and automation features of chatbots, many others investigate the impact of chatbots on metrics related to customer satisfaction and purchasing intentions (Bakkouri et al., 2022; Misischia et al., 2022; Vergaray et al., 2023). A few other studies investigate the adoption of these chatbots and the quality of services they offer without considering the relationship between their features and metrics related to purchase or booking intentions (Bag et al., 2021; Pillai & Sivathanu, 2020; Ramki et al., 2024). Moreover, most studies on AI chatbots are limited to specific sectors and services (Graham et al., 2025; Limna & Kraiwanit, 2023; Żyminkowska & Zachurzok-Srebrny, 2025). Therefore, a systematic review of the literature on AI chatbots is necessary to determine how the features of these chatbots affect customer satisfaction, engagement, purchase intentions, and other metrics related to online conversions.

### **Conceptual and Theoretical Background of AI-Powered Chatbots in Online Customer Service**

The conceptual foundation of this study is based on the relationship between chatbot service features and customer-related outcomes in digital service environments. Prior studies commonly examine responsiveness, personalization, availability, problem-solving capability, and usability as features that may influence customer engagement and satisfaction. These outcomes may subsequently shape purchase intention, loyalty, reuse intention, and conversion-related performance. The framework therefore treats chatbot value as an empirical question rather than an assumption, because the strength of chatbot effects depends on service context, accuracy, customer trust, and the type of outcome being measured.

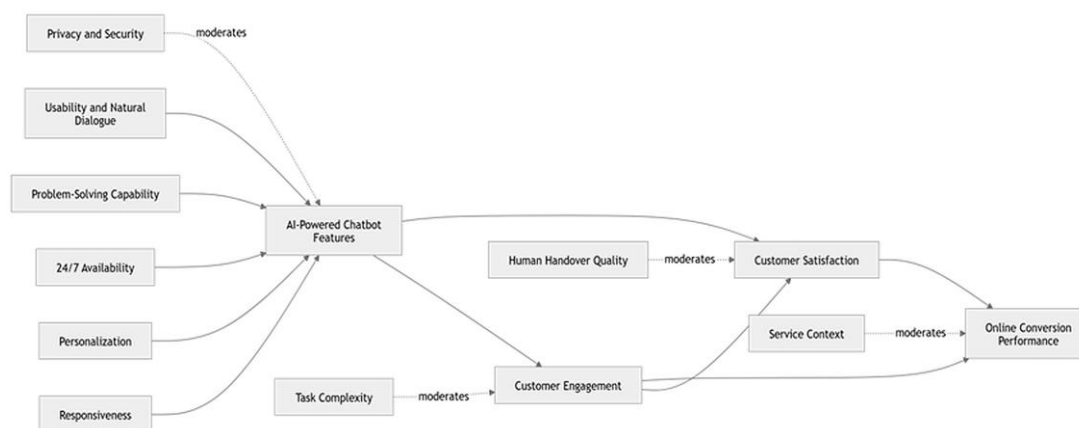
#### **Key Features of AI-Powered Chatbot**

Several characteristics of the quality of chatbot services are emphasized in the literature reviewed. Responsiveness refers not just to fast replies from the chatbot but also to providing appropriate levels of support throughout the customer journey. Chatbots can provide instant responses to customers' questions or requests, they do not require long downtimes to rest like human agents, and they can handle several customer requests simultaneously (Misischia et al., 2022; Uzoka et al., 2024). However, human agents will be more suitable for responding to emotionally sensitive or exceptional customer service requests. Therefore, chatbot responsiveness is beneficial only when speed is combined with accurate and useful information; otherwise, customers may become frustrated (Cordero et al., 2022; Kumar & Mishra, 2025). Personalization is another important feature because tailored responses and recommendations may improve customer

experience, although excessive personalization may reduce trust or create privacy concerns (Ghosh et al., 2024; Huseynov, 2023; Uzoka et al., 2024). Other service quality characteristics include 24/7 availability, problem-solving capability, natural language capability, usability, recommendation quality, and secure data management (Limna & Kraiwant, 2023; Saini et al., 2024; De Andrade & Tumelero, 2022; Hibban, 2025; Rossmann et al., 2020).

### Customer Engagement and Customer Satisfaction

Beyond the technological features of a chatbot system, it is also critical to understand the aspects of customer engagement and satisfaction with the chatbots. Customer engagement refers to the willingness of the customer to remain engaged in the interaction with the chatbot, while customer satisfaction is the evaluation of the success of the chatbot in fulfilling the customer's requested service (Akdemir & Bulut, 2024; Uzoka et al., 2024). These two constructs are different from one another yet related to one another. Customers are more likely to remain engaged in the interaction with a chatbot that is clear, useful, and supportive of their needs in comparison to one that does not possess these features (Adam et al., 2020; Graham et al., 2025). Customer satisfaction with the chatbot systems is correlated with the attributes of the chatbot that provide customers with accurate information, shortened waiting times, and smooth customer experiences with the company that implements the chatbots (Huseynov, 2023; Ngo et al., 2025; Uzoka et al., 2024). Overall, the attributes of a chatbot influence both customer engagement and satisfaction, which have significant impacts upon the company's conversion rates. The relationship among chatbot service features, customer engagement, customer satisfaction, service control, and online conversion performance is summarized in Figure 1.



**Figure 1. Proposed Conceptual Framework.**

### Online Conversion Performance

Online conversion performance is an important but still underdeveloped concept in the literature on AI-powered chatbots in customer service. In general, conversion refers to the completion of a customer action with a business objective, such as making a purchase, booking a service, subscribing, registering, or submitting an inquiry. However, within most chatbot studies, conversion is not measured through actual customer behavior, but through intention-based variables that capture the likelihood of customers taking such

actions. As a result, the current literature more often shows that chatbot implementation positively influences conversion-related intentions than that it directly improves observed conversion rates (Bag et al., 2021; Pillai & Sivathanu, 2020).

Chatbots can reduce friction during the purchasing journey, help customers obtain relevant information, clarify product or service options, and maintain customer engagement throughout the decision process. In doing so, they may increase the likelihood that customers proceed toward desired actions (Misischia et al., 2022; Vergaray et al., 2023; Wahbi et al., 2023). Overall, the literature suggests that the influence of chatbots on online conversion is better understood as an indirect effect of improved service quality, rather than as a direct and consistently demonstrated increase in actual online sales or conversion rates (Bag et al., 2021; Pillai & Sivathanu, 2020; Misischia et al., 2022; Vergaray et al., 2023; Wahbi et al., 2023).

## Methodology

### Research objective and Questions

This study aims to systematically review the literature on AI-powered chatbots in online customer service by identifying the major chatbot features emphasized in prior studies, examining how these features influence customer engagement and customer satisfaction, assessing how engagement and satisfaction shape purchase intention and online conversion-related outcomes, and identifying the theoretical, methodological, and contextual gaps that remain in the literature.

The review was guided by the PICOC strategy, which is a framework used to define the Population, Intervention, Comparison, Outcome, and Context of a review question (Petticrew & Roberts, 2006). The PICOC elements used to structure the review questions are presented in Table 1. In this study, the population refers to AI-powered chatbots used in online customer service environments. The intervention refers to key chatbot features such as responsiveness, personalization, availability, and problem-solving capability. The comparison refers to differences across theories, methods, sectors, contexts, and findings in prior studies. The outcomes include customer engagement, customer satisfaction, purchase intention, and online conversion-related outcomes. The context refers to digital customer service environments. Guided by this framework, the study addresses the following questions:

RQ1. What key features of AI-powered chatbots have been emphasized in studies of online customer service?

RQ2. How do these chatbot features influence customer engagement and customer satisfaction?

RQ3. How do customer engagement and customer satisfaction affect purchase intention and online conversion-related outcomes?

RQ4. What theoretical, methodological, and contextual gaps remain in the literature on AI-powered chatbots in customer service?

**Table 1. PICOC strategy.**

| PICOC element  | Description in this study                                        |
|----------------|------------------------------------------------------------------|
| Population (P) | AI-powered chatbots used in online customer service environments |

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|                  |                                                                                                                                                      |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intervention (I) | Key chatbot features, particularly responsiveness, personalization, availability, and problem-solving capability                                     |
| Comparison (C)   | Differences across theoretical perspectives, methodological approaches, sectoral settings, regional contexts, and reported findings in prior studies |
| Outcome (O)      | Customer engagement, customer satisfaction, purchase intention, and online conversion-related outcomes                                               |
| Context (C)      | Digital customer service environments, including e-commerce, banking, hospitality, digital platforms, and related online service industries          |

### Research Design

The study used a systematic literature review (SLR) together with qualitative content analysis to investigate the role of AI-powered chatbots in providing online customer service and their effects on customer- and conversion-related outcomes. Using an SLR is appropriate for gaining an overview of the literature in new and developing fields of study and for recommending future research within those fields (Brignardello-Petersen et al., 2024; Paul et al., 2021; Snyder, 2019). This particular SLR topic encompasses several different fields of study, including those related to customer service, digital marketing, artificial intelligence, and consumer behavior online. Additionally, qualitative content analysis is appropriate for categorizing and understanding the literature that was surveyed (Elo et al., 2014; Krippendorff, 2019).

### Search Strategy

A literature search was performed on 25 January 2026 with the aim of finding studies regarding AI-powered chatbots in customer service and their influence on customer-related and conversion-related outcomes. The databases searched included Google Scholar, ResearchGate, and ScienceDirect, each of which contains research regarding artificial intelligence, business, e-commerce, customer service, customer relationship management (CRM) and online marketing. Search terms used during the search were broad terms related to the topic that were to be later narrowed to find appropriate studies to read for this literature review (Paul et al., 2021; Snyder, 2019). The terms that were used included the following: “chatbots,” “conversational artificial intelligence,” “customer service,” “online customer service,” “customer engagement,” “customer satisfaction,” “purchase intention,” and “online conversion performance.” The search string that was used was as follows: (“chatbot” OR “conversational artificial intelligence”) AND (“customer service” OR “online customer service”) AND (“customer engagement” OR “customer satisfaction” OR “purchase intention” OR “online conversion”). Only articles published in English and in peer-reviewed journals within the field of digital customer service industry were included in the search. The results of this search returned 7,420 articles, of which 7,234 were excluded during screening, leaving 186 articles for review.

### Inclusion and Exclusion Criteria

To avoid repetition across the methodology, the eligibility criteria were applied as screening rules during full-text review. Studies were retained when they were published between 2019 and 2025, written in English,

appeared in peer-reviewed outlets, examined AI-powered chatbots in customer service contexts, and addressed at least one relevant construct, including responsiveness, personalization, availability, customer engagement, customer satisfaction, purchase intention, loyalty, reuse intention, or conversion-related outcomes. Studies published outside the 2019-2025 period were excluded, along with studies that were unrelated to chatbot-enabled customer service, non-English, non-peer-reviewed, non-empirical, or insufficiently connected to the review objectives.

### Screening and Selection Procedure

The procedure used to screen and select the studies for inclusion in this review followed a step-by-step procedure to ensure the replicability of the study. Initially, 186 records were obtained from the search. However, during the first screening stage, 82 of these studies were discarded based on their titles, abstracts, and keywords as they did not relate to the topic of AI-powered chatbots in the context of online customer service. In addition, 13 duplicate records were removed, leaving 91 articles for full-text review. At the next stage, 42 studies were excluded because they either did not investigate AI-powered chatbots in online customer service or did not report customer-related outcomes. A further 9 studies were excluded because they were theoretical rather than empirical. In the final stage, 10 additional articles were removed because they did not make a sufficient substantive contribution to the review objectives, following the structured selection approach discussed by Żymkowska and Zachurzok-Srebrny (2025). This left 30 studies for qualitative content analysis. The complete screening and selection process is presented in Figure 2.

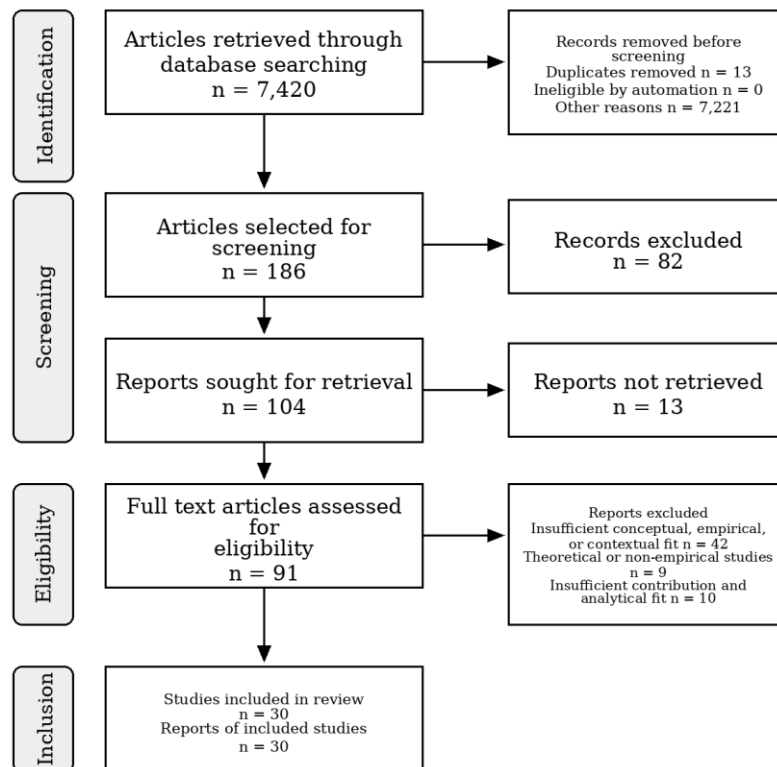


Figure 2. PRISMA 2020 flow diagram adapted for study screening and selection (Page et al., 2021).

### **Coding and Analysis**

Following the selection of the final set of 30 studies, each article was analyzed using qualitative content analysis. The initial coding of each article included variables such as bibliographic information, publication year, country of publication, the sector in which the chatbot was implemented, the theoretical framework of the research study, the research method, the data analysis method, the features of the chatbot, the features related to the customers, and the features related to the conversion rates of the businesses that implemented the chatbots. These codes were established based upon the research questions for each study, but were further refined during the reading of each of the articles. Codes were used to determine the number of publications that included each of these variables, as well as to interpret the relationship between the features of the chatbots and their outcomes in relation to the customers and the conversion rates of those businesses. These findings will be presented in tables and text to provide both an overview of the studies and to indicate the areas in which the studies were lacking.

## **Results**

### **Articles by Year of Publication**

The distribution of the articles published yearly shows an increase in the number of publications discussing AI-powered chatbots and customer service. Prior to 2021, the number of included studies was relatively low, with only one study published in 2019, three published in 2020, and two published in 2021. However, the number of studies included increased from 2022 onward, with five publications published in 2022, five in 2023, six in 2024, and eight in 2025. Overall, 80% of the articles that were reviewed were published between 2022 and 2025. These figures indicate growth in research output on AI-powered chatbots in customer service, although the publication trend alone does not prove adoption levels, customer acceptance, or business impact. Those issues are interpreted in the discussion section by connecting the publication trend with the substantive findings of the reviewed studies. The yearly distribution of the reviewed articles is shown in Table 2.

**Table 2. Articles Published by Year**

| <b>Year</b> | <b>Articles published</b> | <b>Percentage</b> | <b>Cumulative Percentage</b> |
|-------------|---------------------------|-------------------|------------------------------|
| 2019        | 1                         | 3                 | 3                            |
| 2020        | 3                         | 10                | 13                           |
| 2021        | 2                         | 7                 | 20                           |
| 2022        | 5                         | 17                | 37                           |
| 2023        | 5                         | 17                | 54                           |
| 2024        | 6                         | 20                | 74                           |
| 2025        | 8                         | 26                | 100                          |
| Total       | 30                        | 100               |                              |

### **Theories**

The theories and concepts that were used in the various reviewed studies on customer interactions with AI chatbots were drawn from different theoretical and conceptual models. As shown in table 3, 15 of the 30 included research studies did not report the use of any explicit theoretical framework within their research. Within the remaining 15 studies, the Technology Acceptance Model (TAM) was utilized in six studies, the Unified Theory of Acceptance and Use of Technology (UTAUT) was utilized in two studies, Social Response Theory was utilized in one study, the Stimulus-Organism-Response (S-O-R) theory was utilized in one study, Service-Dominant Logic was utilized in one study, and the Information System Success Model was utilized in one study. Additionally, three studies utilized a conceptual framework that was not directly related to any of the aforementioned theories, such as a framework regarding service automation or digital marketing. Thus, these results indicate that the use of theoretical models in the research of chatbot and customer service interactions is still developing in the current literature, and that there is a need for additional research that utilizes and develops such theories in the future.

**Table 3. Theories utilized in review of literature.**

| Theories utilized                                          | Articles published |
|------------------------------------------------------------|--------------------|
| Technology Acceptance Model (TAM)                          | 6                  |
| Unified theory of acceptance and use of technology (UTAUT) | 2                  |
| Service-Dominant Logic                                     | 1                  |
| The Commitment-Trust Theory                                | 1                  |
| A Customer Experience (CX) framework                       | 1                  |
| The Commitment and Consistency theory                      | 1                  |
| Social Response Theory                                     | 1                  |
| The Stimulus-Organism-Response (S-O-R) theory              | 1                  |
| The Information System Success Model                       | 1                  |
| No explicit theoretical framework                          | 15                 |
| Total                                                      | 30                 |

## Research Contexts

Table 4 indicates that the 30 studies reviewed in this research span multiple continents, showing that AI chatbot research has been conducted across different regional and sectoral settings. Studies were performed in Europe (Adam et al., 2020; Bird & Lotfi, 2024; Doherty & Curran, 2019; Graham et al., 2025; Illescas-Manzano et al., 2021; Marcinekova et al., 2025; Mischia et al., 2022; Rossmann et al., 2020), Asia (Akdemir & Bulut, 2024; Bag et al., 2021; Hibban, 2025; Huseynov, 2023; Kumar & Mishra, 2025; Limna & Kraiwanit, 2023; Meng et al., 2025; Ngo et al., 2025; Pillai & Sivathanu, 2020; Ramki et al., 2024; Saini et al., 2024; Vebrianti et al., 2025), North America (Ghosh et al., 2024; Jain, 2025; Uzoka et al., 2024), South America (Cordero et al., 2022; De Andrade & Tumelero, 2022; Gonçalves et al., 2022; Vergaray et al., 2023), and Africa (Akinyemi et al., 2023; Bakkouri et al., 2022; Wahbi et al., 2023). The distribution is not balanced: Asia and Europe account for a large share of the reviewed studies, while North America and

Africa are less represented. This imbalance suggests that future research should test chatbot outcomes across a wider range of cultural, regulatory, and market contexts.

**Table 4. Geographical areas in the review of literature**

| Articles by Region  | No of Articles | Percentage | Cumulative Percentage |
|---------------------|----------------|------------|-----------------------|
| Central Europe      | 4              | 13         | 13                    |
| East Asia           | 1              | 3          | 16                    |
| North America       | 3              | 10         | 26                    |
| Northwest Africa    | 2              | 7          | 33                    |
| South America       | 4              | 13         | 46                    |
| South Asia          | 5              | 17         | 63                    |
| Southeast Asia      | 4              | 14         | 77                    |
| Southwestern Europe | 1              | 3          | 80                    |
| West Africa         | 1              | 3          | 83                    |
| Western Asia        | 2              | 7          | 90                    |
| Western Europe      | 3              | 10         | 100                   |
| Total               | 30             | 100        |                       |

## Research Methods

Table 5 summarizes the research methodologies used in the reviewed empirical studies. Quantitative methods were the most common, appearing in 15 of the 30 studies (50%). These studies mainly measured customer perceptions, intentions, and service outcomes through surveys or structured data. Mixed methods were used in 11 studies (37%), allowing researchers to combine numerical evidence with qualitative interpretation. Qualitative methods were used in four studies (13%), indicating that fewer studies explored customers' lived experiences, perceived risks, or detailed explanations for chatbot acceptance and rejection. The distribution suggests that the field has developed a strong measurement orientation, but more qualitative and mixed methods research is needed to explain why chatbot features succeed or fail in specific customer service contexts.

**Table 5. Research methodologies employed in the reviewed empirical research**

| Research Methodologies | No of Articles | Percentage | Cumulative Percentage |
|------------------------|----------------|------------|-----------------------|
| Quantitative           | 15             | 50         | 50                    |
| Qualitative            | 4              | 13         | 63                    |
| Mixed                  | 11             | 37         | 100                   |
| Total                  | 30             | 100        |                       |

### Data Analysis Method

Table 6 presents the different analytical methods used in each of the reviewed studies. The most common method in the reviewed studies was the PRISMA method, which was utilized in 10 studies (33%). The second most common method was structural equation modeling (SEM), which was used in five studies (17%). Partial least squares SEM was used in four studies (13%). Triangulation was utilized in four studies (13%), indicating that some researchers utilize multiple analytical methods in their efforts to understand the topic of chatbots and their use in customer service. Other methods that were used in only two studies (7%) each were content analysis, Microsoft Excel, and Statistica 12. In three studies, the data analysis method was not explicitly reported. The variety of methods used in each of the studies indicates the growing sophistication of the researchers in the field (Lim, 2024). However, the relatively low number of different methods indicates the early developing nature of the field overall.

**Table 6. Data analysis method employed in the reviewed empirical research**

| Data Analysis Method                                         | No of Articles | Percentage | Cumulative Percentage |
|--------------------------------------------------------------|----------------|------------|-----------------------|
| Sequential Data Triangulation Approach                       | 4              | 13         | 13                    |
| Content Analysis                                             | 2              | 7          | 20                    |
| Microsoft Excel and Statistica 12                            | 2              | 7          | 27                    |
| Partial Least Squares Structural Equation Modeling (PLS-SEM) | 4              | 13         | 40                    |
| PRISMA                                                       | 10             | 33         | 73                    |
| Structural Equation Modeling (SEM)                           | 5              | 17         | 90                    |
| Not explicitly reported                                      | 3              | 10         | 100                   |
| Total                                                        | 30             | 100        |                       |

### Key AI-powered chatbot features identified in the reviewed studies

The reviewed studies show that effective chatbots are most commonly defined by three core features: responsiveness, personalization, and availability (De Andrade & Tumelero, 2022; Uzoka et al., 2024). Responsiveness refers to the chatbot's ability to reply quickly, reduce customer waiting time, and handle multiple inquiries simultaneously. However, having high speed is not enough; the level of responsiveness is valuable only if the chatbot also provides accurate and useful solutions to the customers' problems. Another important attribute of chatbots is the degree of personalization that is provided to the customers. Personalization creates a better experience for customers who interact with chatbots (Ghosh et al., 2024; Huseynov, 2023). However, providing personalized services to customers may create discomfort with some users. Another important attribute of chatbots is availability around the clock outside of standard business hours (Limna & Kraiwanit, 2023; Saini et al., 2024). Additionally, other attributes that may improve the overall effectiveness of chatbots include the cost efficiency of employing chatbots, the consistency of the service quality that they can provide for customers, and their learning capability (Akdemir & Bulut, 2024; Hibban, 2025; Ngo et al., 2025).

**Customer-related and conversion-related outcomes identified in the reviewed studies**

While the findings do indicate that many of the reasons for implementing AI chatbots into business websites are related to the concept of online conversion, the studies actually provide limited information regarding whether the implementation of these chatbots has had any effect upon actual conversion rates (Vergaray et al., 2023). Most studies that discuss online conversion in the context of chatbots examine aspects of the customer experience, satisfaction, engagement, purchase intention, and intention to convert, rather than the actual number of customers that performed the conversion to purchase the products or services of the company (Gonçalves et al., 2022). As such, while these results can provide some indication of the potential benefit of implementing chatbots into websites, they do not provide conclusive evidence of the impact that such chatbots can have upon the conversion rates of those websites (Pillai & Sivathanu, 2020).

### **Discussion**

The findings of this systematic literature review provide a coherent response to the four research questions and clarify how AI-powered chatbots contribute to customer service and online conversion-related outcomes.

Synthetically, the reviewed evidence supports a feature-outcome-conversion pathway rather than a simple direct-effect model. Chatbot features first shape perceived service quality and customer experience; these perceptions then influence satisfaction and engagement; and those customer outcomes support purchase intention or conversion-related intention. The main scholarly contribution of this review is therefore the identification of the gap between frequently reported intention-based benefits and the limited evidence on observed conversion performance.

Regarding RQ1, the studies generally indicate that the most important features of chatbots are those relating to responsiveness, personalization, availability, and problem-solving capability (Misischia et al., 2022; Uzoka et al., 2024; Ghosh et al., 2024; Huseynov, 2023; Limna & Kraiwanit, 2023; De Andrade & Tumelero, 2022).

In relation to RQ2, each of these features was generally found to be associated with improvements in customer engagement and satisfaction - but only in the instances in which the customers perceived the feature as being useful and accurate. For instance, fast responsiveness from the chatbot does not necessarily translate to improved customer satisfaction unless the information provided by the chatbot is relevant to the customers' questions (Akdemir & Bulut, 2024; Adam et al., 2020; Graham et al., 2025; Uzoka et al., 2024). For RQ3, most studies indicated that improvements in customer engagement and satisfaction were associated with improvements in both purchase intention and conversion-related intention from customers. However, research in relation to actual online conversion rates indicated fewer results (Bag et al., 2021; Pillai & Sivathanu, 2020; Vergaray et al., 2023; Wahbi et al., 2023).

Finally, regarding RQ4, several theoretical, methodological, and contextual gaps remain in the existing literature. First, many studies lack a clearly stated theoretical framework: after aligning the coding matrix with the final reference list, 15 of the 30 reviewed studies were coded as having no explicit theoretical

framework. This weak or unclear theoretical framing limits the ability of the literature to explain why particular chatbot features influence satisfaction, engagement, purchase intention, or conversion-related outcomes. Second, the evidence is methodologically concentrated around quantitative surveys and review-based studies, with fewer qualitative, experimental, longitudinal, or behavioral-data approaches. Third, the measurement of conversion is often indirect, because many studies use purchase intention or reuse intention rather than observed sales, booking, registration, or transaction data. Fourth, the regional distribution remains uneven, with stronger representation from Asian and European contexts and fewer studies from North America and Africa (Akdemir & Bulut, 2024; Misischia et al., 2022; Graham et al., 2025; Ramki et al., 2024; Snyder, 2019). These gaps show that the literature is growing but still requires stronger theoretical grounding, broader methods, and more direct business-performance evidence.

### **Further Research Directions**

Based on the findings of this study, there are several directions for future research. Future studies can investigate the process by which organizations implement and redesign service processes following the adoption of chatbots. It will also be interesting to investigate how these service processes vary across different cultures. Future studies can use qualitative or mixed methods to investigate the reasons why customers accept or reject service from chatbots. It will also be interesting to investigate the differences between customer satisfaction, engagement, adoption, purchase intention, purchase rate, and loyalty. Overall, future research will focus on creating chatbots that are not just adopted by customers but that become an integral part of customer experience. Additionally, as chatbots become more sophisticated in their services, studying aspects like privacy, fairness, transparency, explainability, accountability, and the handoff between chatbots and customer service agents will become more important in the development of these services.

### **Theoretical Implications**

The review suggests several theoretical implications for future research on AI chatbots. The majority of current chatbot research relies upon theories of technology acceptance and service quality. Hence, future research should aim to provide theoretical explanations for customer satisfaction, engagement, and purchase intention with chatbots. Furthermore, future research should aim to provide clear distinctions between the concepts of technology adoption, service quality, customer experience, behavioral response, organizational performance, and the factors that impact each of these concepts.

### **Evidence Gap Analysis and Expected Research Trend**

The evidence gap analysis shows that the literature has moved from describing chatbot adoption toward examining how chatbot features influence customer outcomes. However, the next stage of research should focus on stronger synthesis, stronger theoretical grounding, and more direct testing of business performance. The reviewed studies suggest a pathway in which chatbot features such as responsiveness, personalization, availability, and problem-solving capability improve service quality, which then supports satisfaction, engagement, purchase intention, and conversion-related intention. Yet two major gaps remain. First, a substantial number of studies do not clearly report a theoretical framework, which makes it difficult to build cumulative explanations across studies. Second, the literature makes limited use of actual conversion metrics, such as sales completion, booking completion, subscription, registration, repeat purchase, or customer retention. The likely future trend is shifting from research based on the intention of customers to research that combines the opinions of customers with analytics and experiments. This would allow researchers to determine if the improvements to the service that are provided by these chatbots actually lead to improvements in the conversion rate of the companies that implement these bots.

### **Limitations**

Several limitations to this study should be made apparent. First, the majority of the databases that were utilized to find studies with published content in English had limited the search to only specific databases. Second, while the study did utilize the PRISMA 2020 model to locate and review the included studies, no effort was made to perform a risk of bias assessment of those studies or to perform a meta-analysis of the findings of the included studies. Third, only a limited selection of variables from the chatbots were reviewed, limiting the studies to examining the impact of those specific features while excluding other potential variables. Finally, most of the studies utilized intention-based data rather than data measuring the actual conversion of the businesses utilizing those chatbots.

### **Conclusions**

This systematic review of the literature on AI-powered chatbots in online customer service has clarified the role of these chatbots and their impact on various outcomes. The majority of reviewed studies indicate that the features of AI chatbots that are most often discussed include responsiveness, personalization, availability, and problem-solving capability. Each of these features is generally associated with better outcomes in relation to customer satisfaction, customer engagement, purchase intention, and the intention of the customer to convert. Thus, AI chatbots appear to be able to contribute to positive online customer service experiences and, indirectly, to online conversion outcomes of those customers. However, most of the existing literature on these chatbots is limited in that many of the studies did not employ theories to frame

their models, utilized only quantitative or review methods to gather their data, represented only a few regions of the world, and only utilized proxy indicators of the online conversion outcomes of customers rather than actual online conversion data. Future research in this area should incorporate theoretical models, employ diverse research methods, and test for the impact of AI chatbots upon actual online conversion outcomes.

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