

CONSUMER ACCEPTANCE OF AI CHATBOTS IN MARKETING: REASSESSING AND EXTENDING TECHNOLOGY ACCEPTANCE MODELS

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Abstract

Artificial intelligence (AI), particularly AI-based chatbots, has transformed customer service interactions across multiple industries. However, a significant discrepancy exists between organizations' favorable attitudes toward AI implementation and consumers' potential resistance to these technologies. Employing a structured narrative review, this paper reviews, reassesses and categorizes established individual-level technology acceptance frameworks — specifically the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT/UTAUT2), and the Artificial Intelligence Device Use Acceptance (AIDUA) model — to explain consumer adoption of AI chatbots. While established antecedents such as perceived usefulness and effort expectancy remain relevant, the distinct nature of AI necessitates adapting these frameworks with emerging antecedents, notably anthropomorphism, perceived intelligence, trust, perceived risk, and authenticity. The paper further explores broader behavioral models (Theory of Reasoned Action, Theory of Planned Behavior) and macro-level perspectives (Diffusion of Innovations) to capture adoption patterns over time. Finally, directions for future research are outlined, emphasizing empirical validation of emerging antecedents and expanding inquiry to broader AI marketing applications such as dynamic pricing and AI-generated content.

Keywords: Artificial intelligence, technology acceptance, chatbots, customer service, marketing

JEL Classification: M30, M31, O33

1. Introduction

When applied to marketing, artificial intelligence (AI) technology presents the potential to automate and streamline a wide range of activities [17]. AI-based chatbots, in particular, have changed the nature of customer interactions and gained prominence across several industries (e-commerce, hospitality, fashion, healthcare, financial services) through their ability to automatically assist customers [21]. However, it is crucial for companies to consider consumer behavior before implementing them, since a discrepancy may exist between the firm's attitude toward AI and that of the customer. Survey results suggest that within companies and marketing departments, there is a favorable opinion toward AI adoption [9, 25, 34], but consumer reactions to the use of AI can still be negative [22, 23, 27].

To address the identified gap, this paper critically reviews and reassesses consumer-level technology acceptance models applied to AI chatbots. While established frameworks have historically explained the adoption of earlier marketing technologies such as e-commerce [13, 30], the distinct nature of AI necessitates adapting these models. By synthesizing and contrasting established antecedents with emerging, AI-specific factors, this review highlights the theoretical challenges and evolving paradigms surrounding consumer AI acceptance.

The remainder of this paper is structured as follows: section 2 details the structured narrative methodology, while section 3 contextualizes AI chatbot implementation in service interactions. Sections 4-6 analyze key individual-level frameworks (TAM, UTAUT/UTAUT2, and AIDUA), followed by a comparison between established and emerging antecedents in section 7. Section 8 presents macro-level and behavioral perspectives (TRA, TPB, DOI), and lastly section 9 concludes with theoretical implications, research limitations, and opportunities for future research.

2. Methodology

This study consists of a structured, narrative literature review that evaluates individual-level technology acceptance theories within the context of artificial intelligence (AI)-based marketing applications, specifically conversational agents and chatbots. Rather than conducting empirical testing, the methodology focuses on identifying, comparing, and synthesizing theoretical frameworks and their underlying constructs to map how established models are being extended to account for AI-specific characteristics.

To identify relevant literature, searches were conducted across academic databases (Web of Science, Google Scholar) targeting peer-reviewed journal articles and conference proceedings published in marketing, human-computer interaction and information systems. Search strings combined terms such as “artificial intelligence”, “chatbot”, “virtual assistant”, “service robot”, “customer service” and “technology acceptance”.

To ensure consistency, research papers were selected based on predefined conditions: (1) only theories and models addressing individual-level technology adoption were included; (2) organizational-level adoption frameworks, such as the Technology-Organization-Environment Framework (TOE) [35], were excluded; (3) marketing studies evaluating consumer-focused conversational AI across different service contexts were prioritized.

The extracted literature was synthesized using a comparative analytical approach. Established theories were reviewed based on their historical relevance to marketing technologies. Identified constructs across studies were organized either as *established antecedents* or *emerging antecedents*.

3. AI Chatbots in Customer Service

AI-based chatbots (a type of virtual assistant designed specifically to simulate human conversations) can now be used to significantly transform the customer experience [16]. This technology, along with closely related ones such as other types of virtual assistants and robots, affects the entire shopping journey by curating personalized product recommendations pre-purchase, negotiating real-time dynamic pricing during transactions, and offering automated feedback and usage alerts post-purchase [16]. However, it is not guaranteed that the consumer is willing to accept this innovation. One study adequately portrays this problem by showing that when a chatbot's AI identity was disclosed at the start of a conversation, purchase conversion rates dropped by nearly 80% [23]. This was not the case when the AI kept its identity concealed. Other studies show that highly humanoid robots and interactive AI service agents trigger discomfort, reduced service evaluations, and increased physical distance between the customer and the machine [27]. In specific fields such as healthcare services, consumers exhibit strong resistance to AI even when explicitly told AI outperforms human doctors [22]. These findings highlight the importance of understanding the acceptance process from a customer's perspective.

While each study mentioned beforehand does manage to identify a certain mechanism behind this reoccurring rejection, the lack of a unified acceptance model can be noticed. This raises the following question: is there an existing theory or a conceptual model that could be applied to different AI usage scenarios? Marketing has already seen models such as the Technology Acceptance Model (TAM) being used to study emerging technologies across a wide variety of domains which could potentially be applied in this context as well [28]. The following have been identified in the literature:

4. The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) considers two main antecedents: (1) perceived usefulness, which indicates the extent to which people believe that a certain technology will contribute to improving their activities, and (2) perceived ease of use, which determines whether they consider it easy or difficult to use [7]. Interest in applying TAM to marketing technologies has only grown in this decade, seeing a huge rise in popularity around 2020 due to an accelerated progress in

digital transformation [28]. It has been utilized in banking, education, healthcare, SMEs, e-government services and, more recently, it is one of the ways to study AI as well. The authors conclude that it remains a valid model for marketing. TAM has been used to study customer acceptance of AI-based chatbots in customer service [5, 31].

5. The Unified Theory of Acceptance and Use of Technology (UTAUT/UTAUT2)

The Unified Theory of Acceptance and Use of Technology (UTAUT) was formulated by synthesizing eight prominent theories from technology acceptance literature and suggests that an individual's decision to use a technology is influenced by several factors: (1) performance expectancy, (2) effort expectancy, (3) social influence, (4) facilitating conditions, and (5) individual factors such as gender, age, experience, and voluntariness of use [36]. In addition to the antecedents of the original theory, a later revision named UTAUT2 adds three more: (1) price value, (2) habit, and (3) hedonic motivation [37]. An extended meta-UTAUT framework has been used to examine both user-centric and system-centric acceptance factors, along with the moderating effect of social self-efficacy [3].

6. Artificial Intelligence Device Use Acceptance (AIDUA)

Artificial Intelligence Device Use Acceptance (AIDUA) is a model specifically designed to analyze the acceptance process of AI devices within services. It encompasses a three-stage process (two appraisal stages and one outcome stage) driven by: (1) performance expectancy, (2) effort expectancy, (3) social influence, (4) hedonic motivation, (5) anthropomorphism, and (6) emotions elicited by the interaction [12]. The context in which AIDUA is applied currently remains the one originally envisioned: services [12, 20, 33]. In recent research, the AIDUA model has been used to explain the acceptance of chatbot-based services [18].

7. AI chatbot acceptance: established vs. emerging antecedents

Table 1 encompasses all the antecedents identified. Antecedents found in foundational theories, and applied across various technological contexts over time, were designated as "established antecedents." "Emerging antecedents" refer to those from studies published in the last six years that propose adapting previous models to better align with the characteristics of AI. Researchers can thus approach AI acceptance in two ways: (1) by using the theories in their original form, along with their established antecedents, or (2) by adding new antecedents that account for factors specific to AI technology.

Table 1. Identified antecedents

Theory/Model	Established antecedents	Emerging antecedents
TAM	Perceived usefulness, perceived ease of use [7]	TAM antecedents + Trust, perceived risk, perceived information, system and service quality [5] TAM antecedents + Technological anxiety, trust, anthropomorphism, perceived intelligence [31]

UTAUT/ UTAUT2	Performance expectancy, effort expectancy, social influence, facilitating conditions, individual factors (gender, age, experience, voluntariness of use) [36] UTAUT + Hedonic motivation, price value, habit [37]	UTAUT antecedents + Perceived intelligence, perceived anthropomorphism [3]
AIDUA	Social influence, hedonic motivation, anthropomorphism, performance expectancy, perceived effort expectancy, emotion [12]	Personalization, anthropomorphism, competence, warmth, empathy, need for human interaction [18]

Source: Author

8. Other perspectives: behavioral theories and the Diffusion of Innovations theory

In addition to theories regarding technology use, there are also those that can be used to explain an individual's general behavior. The Theory of Reasoned Action (TRA) suggests that behavior is preceded by the intention to act, which is determined by the attitude toward the behavior (positive or negative evaluation) and subjective norms (the perception of social pressure) [11]. The Theory of Planned Behavior (TPB) extends TRA by adding a third factor: perceived behavioral control (the belief that a given behavior can be performed) [2]. In marketing, both theories have previously been used, for example, to study consumer purchase intention [8, 10, 19, 29]. In the context of AI, a contextualized TRA has been utilized to study the factors that positively influence customer experience when interacting with AI-based voice assistants [4].

It is important to note that the theories and models discussed so far predict technology acceptance at an individual level. An alternative, macro-level perspective is provided by the Diffusion of Innovations (DOI) theory, which is frequently found in marketing literature. Between 1991 and 2006, 31% of references to these theories pointed to marketing journals [26], with the theory being used, for example, to forecast the adoption rate of a new product or service. DOI encompasses the process that occurs when people adopt an innovation: initially, a small number of individuals begin to spread the emerging novelty until the rest of the population, influenced by the former, also comes to accept the idea [32]. The adoption process is influenced both by the characteristics of the technology (providing a relative advantage over alternatives, compatibility with existing processes, simplicity, trialability, and observability) and by those of the users (socioeconomic factors, personality variables such as curiosity and open-mindedness, communication behaviors, prior practices, felt needs, or individual innovativeness) [15].

9. Conclusions, limitations and further research

TAM and UTAUT remain relevant in the context of AI-based customer service, even though they are adapted to capture the unique aspects of this technology. The AIDUA model has also emerged, which could represent a new standard for AI acceptance research in the future. Among

the identified emerging antecedents, *anthropomorphism* is most frequently found, which suggests that it is an important factor. This finding is in line with a meta-analysis that demonstrates a positive relationship between anthropomorphism and the intention to use for both virtual agents (such as chatbots) and physical robots [6].

However, even though the utility of the mentioned models has been proven, research on consumer acceptance of artificial intelligence should not be constrained by them. Other relevant antecedents have also been identified. For example, a chatbot's perceived authenticity and the perceived risk of using it have also been proven to affect user acceptance [24]. Moderating effects should be considered too, such as the customer's need for interaction with a service employee [1].

Additionally, this paper is limited by its objective to identify a minimal number of established models and studies related to consumer AI usage. It does not address reactions to a brand implementing AI in other aspects of its marketing activities. Consumers may be exposed, for instance, to a brand's AI-generated content. Past research indicates that reactions to such practices can be mixed, with some consumers rejecting AI content due to a preference for human-made content [14].

Future research should empirically test the models discussed, validating newly proposed antecedents such as anthropomorphism, perceived authenticity, and the moderating role of the need for human interaction. Furthermore, researchers are encouraged to expand their studies beyond conversational agents and customer service by examining consumer perceptions of broader marketing applications: AI-generated content, dynamic pricing algorithms, automated personalization, etc. Finally, applying macro-level frameworks like DOI could offer deeper insight into how consumer adoption and resistance evolve over time across different market segments.

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