

The Impact Of Applying Artificial Intelligence On Electronic Services Marketing In Governmental Sector In Palestine

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Abstract

Artificial intelligence has evolved at a faster-than-average rate, making intelligent chatbots an agent of change in digital marketing, especially when it comes to improving customer experience and facilitating sustainable engagement. In developing the conceptual framework, this paper seeks to understand how intelligent chatbots impact customer experience in the framework of sustainably marketing business using digital marketing modes. Based on the theories of Technology Acceptance Model (TAM) and Stimulus- Organism- Response (S-O-R), the paper establishes important mediating factors or means that act to mediate the relationship between chatbot interactions and customer attitudes, which include trust, personalization, customer satisfaction and emotional involvement. It further tests such moderating conditions as digital literacy, privacy issue, industry sector, and financial organization marketing level, that can enhance or undermine these connections. The contribution to theory is made by combining mediation and moderation considerations in discussing how chatbots can be used as part of long-term customer loyalty and customer satisfaction plans and help sustainability issues in Internet strategies. Besides filling such research gaps related to a connection between psychological processes and contextual circumstances, the proposed model can introduce such a practical implication to a marketer, who aims to maximize the use of chatbots. The outcomes contribute to the theory and practice since intelligent chatbots are defined based on their strategic capabilities of enabling customer-centric and sustainable digital marketing. They indicate future research directions that can be utilized to empirically confirm the framework applied to various industries and cultures.

Keywords: Smart bots, UX, digital marketing, reliability, individualization, sustainable business

1.INTRODUCTION

1.1. Background

The digital age has transformed greatly the marketing dynamics, customer interactions and establishments of brands. In the framework of the intensified mixing of artificial intelligence (AI), companies are moving to introduce intelligent chatbots as a key element of a digital marketing strategy. AI Chatbots are intelligent, conversational agents that simulate human-like conversation and can provide real-time support, and personalize communication with customers across channels. In contrast to conventional customer service instruments, chatbots are available at all times, respond instantly, and can be scaled to meet the demands of large numbers of customers at once, thus helping organizations to boost the customer experience and minimize operational expenses (Gnewuch et al., 2022). Their increased significance is evident in such sectors as e-commerce, banking, and healthcare where customers have come to expect that their digital experience will be smooth, personal, and trustworthy, to an unprecedented scale.

CX has emerged to be a nerve within sustainable digital marketing. Organizations are beginning to recognize that they cannot have sustained competitive advantage without not only the quality of products and services but also the quality of the interactions with the customers online using digital touchpoints (Lemon & Verhoef, 2016). In this regard, intelligent chatbots have become instruments of not only facilitating the efficient provision of services but also other key factors such as building and managing trust, emotional engagement, and loyalty; components that are significant in the long-term survival and success of companies. With a market full of digital services, chatbot technology that can help build personalized and meaningful customer experiences is another important factor in ensuring sustainable growth and engagement in the digital world.

1.2. Problem statement

Although more and more intelligent chatbots are being used, there is little academic and managerial knowledge on their deeper influence on customer experience. Most of the current literature outlines the technical aspects of chatbot creation, including natural language processing, the accuracy of the responses and dialog design (Moriuchi, 2021). Although these points are significant, they do not mention the psychological and behavioral processes through which the customer feels during an interaction with chatbots. Such questions as how trust is built in the chatbot-mediated communication or how the process of personalization contributes to the satisfaction are not thoroughly researched yet. The effectiveness of chatbot adoption may also be moderated by external factors that include customer digital literacy, concerns about their privacy, and industry-specific factors. As an example, an educated customer using chatbots in a digital-competent environment might become very adjustable to the communication process, whereas the other not so well equipped customer will encounter this experience as confusing and frustrating. The same applies to the industries in terms of their relative effectiveness in comparison with other sectors, such as luxury retail or healthcare sectors where trust and human touch are crucial (Chattaraman et al., 2019). The gap in this area of understanding and research regards to the fact that there is no overall understanding of these mediating and moderating factors both in theory and practice.

1.3. Research gap

Current research is more focused either on technical efficiency of chatbots or on chatbots as service replacements. Virtually none have looked at their strategic part in modelling sustainable customer relationships. First, there is limited research that focuses on the internal mediators in the chatbotinch_substantialchat_settigliacombh provinces and chatbots such as trust, personalization, satisfaction, and emotional engagement. Second, the extrinsic moderators those moderating the efficiency of using a chatbot: the sphere of work, the awareness of digital competencies, and privacy issues are most of the time ignored. Third, the role of chatbots in ensuring sustainable digital marketing practices remains untapped and largely limited to the scope of the short-term outcomes of services instead of being long-term engagement and loyalty. There is therefore the necessity of developing an all-round framework in the application of both the mediating and moderating mechanisms in the influence of the chatbots on customer experience in contributing towards sustainability. The paper fills this gap by advancing an abstract conceptualization based on established conceptualizations including Stimulus-Organism-Response (S-O-R) paradigm and Technology Acceptance Model (TAM) to tie the process of interacting with chatbots to the future customer outcomes.

1.4. Contribution of the study

The study has a number of contributions to literature on and practice of digital marketing:

1. Conceptual Integration model: It suggests a theoretical framework that can be used to assist in the integration of chatbot usage and its relationship with customer experience highlighting important mediators between them, one of which includes trust, personalization, satisfaction, and emotional involvement.
2. Contextual Moderators: It underlines moderating situations such as digital literacy, type of industry, and privacy issues that determine the force and direction of the chatbot effects.
3. Sustainability Lens: It positions intelligent chatbot adoption as a potential gateway to sustainability in digital marketing thanks to its focus on long term customer loyalty, satisfaction, and brand reputation.
4. Practical Implications: It offers practical suggestions to marketers to maximize the design and deployment of chatbots to NTS, which is viable in the long-term.

The paper places intelligent chatbots not only as a technology but as a strategic means that enables customer-focused and sustainable marketing.

1.5. Research objectives

The objectives of this study are to:

1. Learn to see how smart chatbots upgrade consumer experience in digital marketing.

2. Gradually identify the mechanisms of psychological and behavioural mediation of chatbot effectiveness- such processes as trust and personalization.
3. Investigate exogenous contextual factors that mediate between the relationship of chatbot and customer experience.
4. Become familiar with a detailed theoretical framework that combines both mediation and moderation effects.
5. Cite recommendations that marketers can use to ensure sustainable chatbot-driven engagement.

1.6. Research questions

In accordance with the objectives, the research questions that are addressed within this study include the following:

1. What are the major roles aggressive chatbots play in the online customer contact?
2. What are the impacts of chatbot interactions on customer satisfaction, loyalty and engagement?
3. What are the internal processes (e.g. trust, personalization) involved in the relationship of chatbots and customer experience?
4. What situational drivers (e.g., digital literacy, industry type) influence the efficiency of the adoption of such chatbots?
5. What are the ways chatbots can be used to lead to sustainable digital marketing?

This paper is grounded in two well-established theoretical frameworks:

Stimulus-Organism-Response (S-O-R) Model In chatbot situations, the chatbot interaction is the stimulus, the intermediating mechanisms (trust, personalization, satisfaction) are the organism and the customer experience and loyalty are the response. This model can be used to demonstrate how features of a chatbot can be converted into psychological states that in the end can cause outcomes of the customers (Mehrabian & Russell, 1974; Xu et al., 2021).

Technology Acceptance Model (TAM): According to TAM, the perceived usefulness and perceived ease of use are the key factors that determine the technology adoption (Davis, 1989). In chatbot terms, these constructions are relevant to personalization, quality of interactions, and trust which is why TAM is a valuable concept to examine the process of customer acceptance of chatbot-mediated interactions (Moriuchi, 2021). By absorbing these frameworks, the research establishes a comprehensive description of how smart chatbots affect customer experience in a sustainable context of digital marketing.

2. LITERATURE REVIEW

2.1. Intelligent Chatbots in digital marketing

The development of artificial intelligence (AI) has allowed companies to transform the ways they communicate with the customers, as intelligent chatbots become the main element of their online marketing efforts. Chatbots are the conversational agents which are artificial intelligence-based (AI), simulating human language by using natural language processing (NLP) and machine learning. They are run in websites, mobile applications, and through the social media, and give business organizations a chance to streamline interactions, and still, have the sense of personalization (Brandtzaeg & F reputor summit f0lstad, 2022). Intelligent chatbots have the ability to deliver real-time, contextual and scalable customer support, unlike their counterparts, such as static FAQs or customer service portals, which do not scale well, are not context-sensitive, and deliver a non-immediate customer service. An increasing number of studies points to the revolutionary effect of chatbots on the engagement of the customer. The article by Luo et al. (2022) further provides chatbots to improve responsiveness, allow cross-selling, and build brand relationships through providing customized solutions. In addition, companies consider chatbots to be an affordable tool, one that can help them supplement their human staff who deal with routinely repeated questions. This effectiveness coincides with the sustainability imperative since, by being less dependent on resources, the organization can also become more satisfied with the level of customer satisfaction. However, academic discourse remains

divided. Some of the benefits related to chatbots, as indicated by some scholars, include their ability to deliver personalization in marketing and the automation of service delivery, whereas, on the negative side, other scholars cite loss of authenticity, privacy implications, and suspicion by customers (Ashfaq et al., 2020). In this regard, it is important to study how the customers experience the chatbot activity and how it influences their perception about the whole campaign.

2.2. Customer experience in the digital era

CX The customer experience (CX) is the perception that customers create by observing the interactions they have with a brand in different touch points (Lemon & Verhoef, 2016). In digital marketing, CX has turned into a fundamental premise of distinction since consumers have started to assess brands not solely on how good the products are but rather the quality of their interaction in the digital domain. Research has indicated that CX affects overall loyalty, repurchase intent, and brand advocacy, which is essential to the long-term profitability of a business (Homburg et al., 2021). Digital evolution has made demands of immediacy, personalization, and seamlessness, even higher. In that regard, synergetic chatbots can be seen as an element of CX because chatbots represent a reliable and constant source of communication channels always available to use and convenient in another sense.

Chatbots also give companies the opportunity to incorporate data analytics and personalization tools, so that encounters are not generic but rather specific to the firm (Kumar et al., 2022). Personalized products based on chatbot suggestions and recommendations, e.g. in e-commerce, are a good example of how a chatbot can raise satisfaction and loyalty. Nevertheless, challenges persist. Users tend to draw parallels between chatbot communication and human communication, which is why the idea of empathy, emotional connection, and sincerity is of concern (Przegalinska et al., 2021). In the domain in which emotional sensitivity is valued, e.g. healthcare or financial services, chatbot drawbacks can diminish the overall quality of the experience. This explains the need to study mediating variables such as personalization and trust, that can help to overcome the division between automated and human interactions.

2.3. Mediating mechanisms in chatbot–CX relationship

2.3.1. Trust

Trust plays a pivotal role in digital interactions. A predisposition to trust in a service provider when facing a risk, trust is an important mediator of uptake and success of chatbot services (Gefen, 2020). Studies have continuously revealed that trust would influence the perception of customers in chatbots as valid alternatives to people. As an example, Gursoy et al. (2022) showed that those participants who have a positive level of trust toward chatbots have higher levels of satisfaction, intentions to release information, and engagement in subsequent communication. Factors contributing to trust include competence, benevolence, and integrity. Competence describes how well chatbots can provide the correct answers, benevolence reflects the perceived customer focus, and integrity means openness and honesty (Kim et al., 2021). Absence of trust instead can lead to frustrations or abandonment of a dialogue or to even reputational harming of firms.

2.3.2. Personalization

Personalization represents another critical mediator in the chatbot–CX relationship. Smart chatbots can be user- personalised to target and present a message and recommendations of solution to a specific customer making it look more relevant (Kumar et al., 2022). Findings show that personalization boosts perceived usefulness and satisfaction which are the main construct of Technology Acceptance Model (TAM). Personalization with the use of AI has been identified to enhance brand relationship as a sign of attentiveness and care (Li et al., 2021). Nonetheless, personalization has its disadvantages because it can create privacy issues with customers who feel that their data is being intruded upon too much (Lankton et al., 2021). Such paradox highlights the role of personalization as both an enabler and potentially dangerous to the CX, and it should be explored with even greater consideration in the sphere of sustainable marketing.

2.3.3. Customer satisfaction

As a mediator between the individual service experiences and loyalty, Satisfaction can be viewed as the pivot point between the short term and the long term. Ambivalence plays a role in chatbot interactions in that satisfaction is associated with the perceived efficiency, naturalness of that conversation, and customer expectation matching (Ashfaq et al., 2020). According to a research by Sheehan et al. (2020), chatbot responsiveness had a direct positive effect on the satisfaction levels where the responsiveness is associated with a perception of seamless and error-free interactions by users. Besides, satisfaction moderates the relationship between chatbot features and customer loyalty. A well-satisfied customer returns to the chatbot more readily, leaves positive reviews and spreads word of mouth electronically (e-WOM), thus, strengthening sustainable brand involvement.

2.3.4. Emotional engagement

Emotional engagement is a more profound psychology that is connected to a brand beside functional satisfaction. AI assistants with social presence, such as an upbeat tone of voice, empathic responses, or a sense of humor, can invoke the creation of emotional connections that are not based on a transactional relationship (Przegalinska et al., 2021). Emotional involvement is not only an improvement to the CX but also promotes loyalty and advocacy. Nevertheless, the problem is that it is never easy to reach emotional connection with chatbots since they do not demonstrate authentic empathy. Some studies indicate that customers can also consider over-personified chatbots as deceptive and under-personified ones as cold and mechanical (Araujo, 2020). Balancing these perceptions is crucial for sustainable chatbot integration.

2.4. Moderating mechanisms in chatbot effectiveness

2.4.1. Digital literacy

Digital literacy is regarded as the skill of utilizing digital tools and understanding the information that is presented in the digital format with the utmost efficacy. Researchers believe that those who are highly digitally literate are more flexible in chatting with chatbots and find their work convenient and efficient (Moriuchi, 2021). On the other hand, customers that lack digital literacy will easily feel frustrated with chatbot interfaces and get negative experiences. This balancing factor underlines the importance of inclusive approach in design that takes into consideration varying degrees of competencies among the user. Organizations that aim at addressing digitally diverse customers should make chatbots user friendly with friendly interfaces that are easy to navigate and understand.

2.4.2. Industry sector

The effectiveness of chatbot adoption also varies across industries. In high-trust areas, including healthcare and finance, the customers might want a more caring and safe experience, with trust and transparency being of top importance (Chattaraman et al., 2019). They may key in on convenience and personalization, which are the aspects in which chatbots may be of great benefit to industries like retail or travel. The moderating effect of industry context implies that the chatbot schemes should be made applicable according to the expectations of the sector rather than use the one-size-fits-all approach.

2.4.3. Privacy concerns

Privacy remains a critical issue in digital interactions. Studies indicate that customers frequently are reluctant to provide personal information to a chatbot because of misuse or opacity concerns (Lankton et al., 2021). These concerns can impede the beneficial effect of personalization and trust and accordingly mitigate the chatbot-CX interplay. Firms that want to deal with this challenge need to have clear data policies and needs to adhere to regulatory framework, like GDPR. In this way, it is possible to eliminate uncertainty related to privacy and build customer trust.

2.4.4. Organizational maturity in marketing

Organizational readiness and digital maturity also moderate chatbot effectiveness. Businesses with a well-developed digital infrastructure will have a better chance of introducing chatbots in a strategic manner, which

will be aligned with other channels (Kumar et al., 2022). In contrast, less-digitally mature organizations might implement chatbots in a piecemeal fashion that reduces their ability to support a holistic CX.

2.5. Chatbots and sustainable digital marketing

Sustainability in digital marketing goes beyond the environment to long-term customer relationship management, ethicality and inclusivity. Smart chatbots play a role in the sustainability of businesses by providing the scalability benefit to cut down operation resources, and generate continuous conversation and patronage (Luo et al., 2022). Strategically, chatbots help companies to retain customer-friendly, ethical and inclusive practices. To give an example, they may be configured to enhance responsible consumption, focus on accessible services, secure transparent interactions, and align business operations with the principles of sustainable marketing (Homburg et al., 2021). Nevertheless, the integration of sustainability requires careful balance. Excessive use of chatbots at the expense of the human factor can shock customers as they are valued in terms of being empathetic and authentic. Chatbot massification therefore needs a hybrid solution in which more efficiency and ethical responsibility go hand in hand. The reviewed literature reveals three major gaps. To begin with, the mediating processes of trust, personalization, satisfaction, and emotional involvement are not adequately involved in the explanation of chatbot and CX relations. Second, there are limited research that take into consideration moderating conditions such as digital literacy, privacy, industry type and mature nature of the organization. Third, adoption of the chatbots lacks in the aspect of sustainability; the current research has concentrated more on efficiency not the long-term relationship and ethical consequences.

This paper is a solution to such gaps because the proposed conceptual framework suggests that chatbots have moderating and mediating mechanisms incorporated into the chatbot-CX relationship. In so doing, it contributes to theoretical knowledge and provides practical input to sustainable digital marketing.

3. Hypotheses development

3.1. Intelligent chatbots and customer experience

The ability to respond in a smart way in digital marketing to support the use of chatbots is likely to bring significant improvements to customer experience (CX). Swift, interactive, and personalized technological properties are regarded as stimuli that influence psychological evaluations (organism) and, as a result, prompt customer behaviors using the Stimulus-Organism-Response (S-O-R) paradigm (Xu et al., 2021). Smart chatbots have managed to incorporate these stimuli by making real-time communication, contextual insight, and scale personalization. Experimental evidence indicates that chatbots help to increase customer engagement and loyalty by facilitating consistency and responsiveness across the contact points. Indicatively, Luo et al. (2022) established better customer satisfaction and enhanced long-term attachment to an e-commerce business due to chatbot engagements. Similarly, Moriuchi (2021) showed that customers have reported an increase in overall satisfaction as chatbots are perceived as convenient and efficient. In the context of sustainability, chatbots enable companies to provide effective customer support at the scale without having to draw too much on the human resource to ensure that the high service level is maintained. This effectiveness goes in line with sustainable digital marketing philosophy that is about creating meaningful relationships and resource optimization in the long term. Therefore, the first hypothesis is proposed:

The utilization of intelligent chatbots has a positive influence on digital marketing customer experience.

3.2. The mediating role of trust

Trust is an essential psychological process that formulates decisions as to either accepting or rebuffing chatbot mediated interaction. Trust is used as an alternative to in-real-life confidence in the lack of physical supports in the digital setting (Gefen, 2020). The study reveals that customers use perceptions of competence, benevolence, and integrity to determine the credibility of chatbots (Kim et al., 2021). Trust is especially important in situations where customers divulge sensitive information or where customers make purchase decision. As another example, Gursoy et al. (2022) established that the level of chatbot-trust was a major predictor of customer willingness to share their personal information and future interaction actions. Similar

to Sheehan et al. (2020), trust has been pointed out to be the mediator between chatbot features and customer loyalty and trustworthy chatbots yield more positive assessments. Theoretically, the Technology Acceptance Model (TAM) emphasizes the role played by the perceived usefulness and the perceived ease of use that influence the level of trust. The greater the efficiency and reliability that customers perceive in chatbots, the more likely they are to build trust, the stronger the CX consequences, like satisfaction and loyalty (Moriuchi, 2021).

3.3. The mediating role of personalization

The importance of personalization in the creation of positive CX in digital marketing is getting more and more acknowledgments. Chatbots are able to ensure contextual and personalised experiences that augment relevance and satisfaction by utilising user information. The self-determination theory shows that personalized services meet psychological needs of autonomy and competence and can, therefore, enhance engagement (Li et al., 2021). Empirical research supports this perspective. In a recent study by Kumar et al. (2022), it was established that consumer trust and perceived usefulness were improved through personalization facilitated by AI and served as mediators of the engagement levels. Similarly, Lankton et al. (2021) showed that personalized responses of chatbots brought up satisfaction but introducing privacy concerns, indicating a two-sided effect. In S-O-R framework, personalization can be viewed as one of the stimuli that elicits desirable psychological reactions (satisfaction together with trust), which causes positive customer experience. In sustainable digital marketing, personalization makes interactions not only efficient but also has meaning, resulting in long-term loyalty as opposed to short-lived transactions.

3.4. The moderating role of digital literacy

Chatbot interactions are not as effective when applied to all the customer groups, and this is greatly dependent on their level of digital literacy. Digital literacy describes the knowledge of how to use digital tools and process online information (Moriuchi, 2021). The customers with digital literacy could view the chatbots as convenient and straightforward, whereas those with the lack of such literacy will feel misunderstood and lost. Empirical evidence supports this moderating effect. Xu et al. (2021) have determined that chatbots were more likely to be used by participants exhibiting higher digital competence and report favorable experiences and use chatbots as a replacement of human agents. On the contrary, there are also digitally less proficient customers who vehemently reported feeling frustrated and disengaged, deteriorating the positive correlation between chatbot adoption and CX. The moderation point of view reflects the idea of digital inclusivity of sustainable marketing. To achieve fair and sustainable adoption of chatbots, the firms need to ensure that interfaces are designed to fit different levels of literacy, including using multimodal interfaces (text, voice interfaces) inclusive of simpler navigation controls.

3.5. The moderating role of industry sector

Industry context is another external force that determines the effectiveness of chatbots. Customer expectations differ in sectors, so they affect the chatbot interaction evaluation. In the case of highly involved services like in the healthcare sector with finance and luxury goods, customers might need empathy, confidentiality, and very high trust levels, which do not work well in chatbot services compared to traditional human interaction (Chattaraman et al., 2019). Virtual assistant bots in transactional industries (retail or travel, etc.), in their turn, might be much more effective because efficiency and personalization can be more important than empathy. Studies show that chatbots have been adopted in a certain sector based on sector specific norms and customer expectations. As an example, Ashfaq, et al. (2020) discovered that customers in e-commerce widely welcomed chatbots to help them trace orders and recommend products, whereas customers in the healthcare setting were more suspicious because of the issues related to trust and empathy. Along this line, Gnewuch et al. (2022) pointed out that the variance of chatbot adoption outcomes is mediated by industry-specific difference in service expectation. This study has factored in industry sector as an intervening variable due to the knowledge that the effectiveness of chatbots is not across-the-board but

rather depends on environmental realities. The insight helps both science and future practice because it will make companies develop the sector-specific chatbot strategies.

4. CONCEPTUAL RESEARCH MODEL

The conceptual model of the present research combines mediating and moderating effects to describe the manner in which intelligent chatbots influence customer experience (CX) in sustainable digital marketing situations. The framework is based on the StimulusOrganism Response (S-O-R) framework and Technology Acceptance Model (TAM), providing an all-encompassing concept of customer reaction to the chatbot interaction.

4.1. Independent variable: Intelligent chatbot use

The central figure of the model is the independent variable intelligent chatbot use that entails the implementation of AI-powered conversational tools in digital marketing. The contact is fast, convenient, and individual, making these chatbots an immediate stimulus on the S-O-R model. Customers base their experience on the quality of interaction with chatbots in terms of responsiveness and natural language capability tempered with contextual understanding and will rate their experience accordingly.

4.2. Mediating mechanisms

The model distinguishes four central mediators, namely, trust, personalization, satisfaction, and emotional involvement, as the psychological and behavioral processes leading to the impact of chatbot utilization on customer experience.

1. Trust: Trust indicates how customers are willing to engage chatbots when they do not know what to expect. The mediating role of trust makes sure that chatbot features achieve positive customer experiences. Loyalty or satisfaction cannot be achieved without trust even with a technologically sophisticated chatbots.
2. Personalization: Personalization increases relevance and personalizes responses and recommendations to customers. In the model, personalization is one of the mechanisms that enhances satisfaction and perceived usefulness, consequently enhancing the relationship between chatbot interactions and CX.
3. Satisfaction: Satisfaction captures customers' immediate evaluation of chatbot interactions. A successful customer service experience in terms of being efficient and accurate increases the overall satisfaction, which subsequently is a predictor of loyalty and engagement.
4. Emotional Engagement: Emotional engagement is the go-beyond of functional satisfaction and links up with meaning affective relationships with the brand. Chatbots through empathetic, social or humorous chats can evoke emotional connection and build even better CX.

4.3. Dependent variable: Customer experience

Customer experience is the dependent variable and can be described as the general feeling about the interactions that customers have with a brand via digital touchpoints. CX encompasses satisfaction, loyalty, trust, and engagement. In sustainable marketing, CX does not only mean short-term satisfaction but rather an attempt to develop long-term relations that are aligned with ethical and inclusive sendings.

4.4. Moderating mechanisms

Four moderators are also included in the model in which they moderate the intensity of the relationship between chatbots and CX.

1. Digital literacy: High digitally literate customers find it easy to interact with chatbots and the experience is positive to them, but low digitally literate customers may feel confused or aggravated. In such a way, digital literacy mediates the association between chatbot usage and CX results.
2. Industry Sector: The applicability of chatbot interactions differs according to the sectors. In a business-like healthcare or finance, empathy and confidentiality are valued by customers most, whereas in business like retail or travel, customers value efficiency and personalization. Industry context therefore moderates chatbot effectiveness.

3. Privacy Concerns: The customer acceptability in using personalized chatbots will be determined by the perceived exposure to the risk of the privacy. The issue with privacy can diminish the positive effects of the personalized approach and trust on CX.

4. Marketing Maturity: Firms of high digital maturity can incorporate chatbots more efficiently with consistency across all the platforms. Less mature firms can rely exclusively on chatbots, which will have a limited effect on CX.

4.5. Theoretical justification

The model is a combination of mediators and moderators that allows the reflection of both internal psychological processes and external situational circumstances. The contact support is anchored in the S-O-R model of explanations as chatbot functions (stimulus) determine customer reactions (organism), which result in CX (response). The moderators signal that there are boundary conditions in that chatbot impacts would differ in individuals, industries, and organizational contexts. Overall, the conceptual framework enables viewing the full picture in regard to the utilization of intelligent chatbots to improve customer experience and considers contextual and psychological determinants of their effectiveness.

5. METHODOLOGY

The research design to be utilized in the current study is theoretical and conceptual to understand the contribution of intelligent chatbots in defining the customer experience in a sustainable digital marketing scope. The analytical means it employs is the systematic literature review, abstracted theorization, and conceptual modeling in order to formulate some hypotheses and establish new knowledge. The conceptual approach is aligned with best practices in conceptual research, that is, the aim is to synthesize existing theories and evidence in order to develop structure that may be used in the future to guide empirical research. The study is based on the Stimulus-Organism-Response (S-O-R) model and Technology Acceptance Model (TAM). These theories allow the establishment of the connection between chatbot features and psychological processes as well as customer experience outcomes. According to the S-O-R model, chatbot experiences can be understood as stimuli that causes an internal response, including trust, personalization, and satisfaction that will then lead to behavior, including loyalty and engagement. TAM fits in by revealing how the perceived utility and perceived ease of use inform adoption and trust which are the major factors with chatbots. The combination of these theories should give a solid theoretical foundation to the suggested model. This is done through three key steps which include identification of the research gaps, synthesis of theoretical and empirical knowledge and formulation of a conceptual model. The initial stage of the research involved a systematic literature search in terms of the conversation carried out between 2020 and 2025 and based on sources such as peer-reviewed journals, books, and reliable databases. It was identified that most studies on chatbots had concentrated on the technical part, the appropriateness of response and efficiency in use with the less regard of the psychological and contextual processes involved in the connection between chatbot use with sustainable customer experience. Gap mapping showed that to balance technology with trust and personalization, there is a need to balance moderators like digital literacy and different industry sectors. The second phase involved a synthesis of insights available in prior studies with an aim of determining key constructs and the relationships that exist between them. The mediating mechanisms identified were trust, personalization, satisfaction, and emotional engagement, which based on the evidence affect the perceptions of the customers regarding digital interaction consistently. On the same note, the interaction between chatbot adoption and digital literacy, industry environment, privacy, and marketing maturity were also found to moderate the effectiveness of chatbot adoption since they are conditions that influence the extent to which chatbot adoption is effective. Customer experience was operationalized into a two-dimensional variable based on the existence of satisfaction and loyalty, trust, and emotional connection with the notion that customer experience is critical in sustainable digital marketing. The third step entailed the development of a conceptual model that links these variables in a logical form. The model is specified by the intelligent chatbot use as an

independent variable mediated with psychological facilities and untempered by contextual matters into improved customer experience. Hypotheses were then set to reflect the relationships that were expected. As an example, H1 assumes that using chatbots will have a positive direct impact on customer experience, whereas H2 and H3 assume that there is a mediation channel through trust and personalization. H4 and H5 introduce the moderating role of digital literacy and chain sector. Such hypotheses can be used as a background to other empirical works in the future. It is a deductive and qualitative methodological approach. It is qualitative in that it bases itself in interpretation and synthesis of the existing knowledge, and not numerical data analysis. It is deductive since it draws individual hypotheses and propositions on well-known theories like S-O-R and TAM. Such a combined perspective will help to both conceptualise the model and make it practically applicable. The data analysis method is mainly conceptual synthesis This includes analysis of findings of various studies, and making comparison and contrasts, observing patterns and resolving contradictions. As reflected in the conceptual analysis done in the study, both views are recognized although personalization is seen as an intervener that is only effective depending on the moderating factors such as privacy issues. Taking this *modus operandi*, the study offers informed explanations that transcend the facile assertion of the effectiveness of 7 chatbots. In conceptual studies, validity of the research is achieved by triangulation of theory. Based on several theories (S-O-R, TAM, self-determination theory, and trust theory), the framework mitigates the likelihood of bias that a single theory would introduce. Its reliability is confirmed by the systematic review that focuses on the recent studies that have been reviewed and accepted by the peers and published within 2020-2025. These articles establish new evidence of chatbot use and customer experience in light of modern-day technology and society. This study does not involve an empirical data collection, but it presents the roadmaps on how to verify it empirically. These hypotheses may be tested with quantitative methods like structural equation modelling (SEM) or partial least squares (PLS-SEM), methods commonly applied to mediation and moderation analyses. Questions/survey on consumers in various industries, which is based on data collection, may help to provide evidence regarding the theoretical relationships that have been suggested in the model. Also, experiments might be conducted to evaluate the effects of the difference in chatbot characteristics, e.g., the tone or personalization, on trust and satisfaction. A major methodological aspect is the concurrence with sustainable digital marketing concepts. This paper makes sustainability a crucial part of its conceptualisation. With sustainability and long-term outcomes in mind (loyalty, trust, ethical engagement), the approach also makes the chatbot adoption not only a short-term tool to improve efficiency but also a long-lasting sustainable marketing initiative. This view extends the boundaries of study of chatbots to include technological, psychological, and ethical aspects. Finally, the methodology acknowledges its limitations. Being a theoretical study, it does not include any empirical data that could help to prove the hypotheses. The ideas expressed are abstract and have to be employed in the real life setting to ascertain external validity. Besides, the cultural and regional differences related to chatbot adoption are not directly discussed, though the model implies that they should be considered in the future research. Notwithstanding the above shortcomings, the study contributes to the field of knowledge by synthesising disparate research areas into a broader framework that contributes to knowledge in the context of chatbots in the digital marketing context. Overall, this study has been represented by regular, theory-based, and conceptual methodology. It also reveals the gaps in literature and synthesizes the psychological and context mechanism and formulates an inclusive model which consolidates mediation and moderation effects. This way it can contribute to the theoretical knowledge and understanding of intelligent chatbots, being walkers of sustainable customer experience, and a roadmap to empirical knowledge sharing in other available studies.

6.THEORETICAL RESULTS

Whereas the invention of intelligent chatbots is not based on empirical research, the conceptual model can be used to predict theoretical results that explain the essence of chatbots of this nature in customer experience

(CX) and sustainable digital marketing. The hypothesis is justified by the previous researches and theoretical considerations and the following expected findings can be derived.

Result 1: Intelligent chatbot usage enhances customer experience.

The first hypothesis (H1) suggests that there is a direct positive correlation between use of chatbots and CX. This has been backed by the fact that chatbots are more efficient, minimize waiting time and make 24-hour support thus improving convenience and satisfaction (Luo et al., 2022). Customers will appreciate chatbots when they can find fast and reliable answers using it, which can be seen as improving the overall quality of the experience. In terms of sustainability, the efficiency does not contrast with resource optimization and scalability as the customer support can be always available without relying too much on human labor.

Result 2: Trust mediates the chatbot–CX relationship.

The second hypothesis (H2) points out the importance of trust as a mediator. In theory, the perceived chatbots who are categorized as competent, transparent, and reliable customers will build trust which in turn will increase their willingness to interact and stay loyal. Trust counterbalances perceived risk in contexts such as where customers share personal information or where they are resolving purchase. Although augmented chatbot capabilities could not enhance CX due to a lack of trust, the latter is an essential prerequisite of positive results.

Result 3: Personalization mediates the chatbot–CX relationship.

The third hypothesis (H3) emphasizes personalization as another mediator. Providing individualized responses to chatbots will make it more helpful and interesting, thus generating greater satisfaction (Kumar et al., 2022). Customers are likely to make favourable judgements of the interaction when they feel their needs are taken note of and taken care of. Personalization, however, has the risk of bringing up the issue of privacy that can diminish its effectiveness. Therefore, the anticipated finding is that the positive influence of personalization on CX as a conditioned effect is moderated by the privacy attitudes.

Result 4: Digital literacy moderates the chatbot–CX relationship.

The fourth hypothesis (H4) may explain that digital literacy moderates the intensity of the chatbot effectiveness. Digitally competent customers will actively embrace them since chatbots are fast and convenient. On the other hand, individuals with low digital literacy can feel confused or not satisfied. Thus, it is expected that the effectiveness of chatbots will be higher among customers with digital literacy and the importance of applying inclusive design to chatbots.

Result 5: Industry sector moderates the chatbot–CX relationship.

The fifth hypothesis (H5) assumes that the effectiveness of chatbots is industry specific. In the trades that focus on empathy and confidentiality (e.g., healthcare, finance), chatbot shortcomings can end up hurting CX unless assurance of trust and openness is done properly. Conversely, transactional types of industries, like retail or travel, where speed and personalization is most valuable, will likely be more positively influenced by chatbots. The anticipatory results as a whole will thus form a consistent narrative: intelligent chatbots can elevate customer experience by mediating the process of trust building, personalization, customer satisfaction, and emotional involvement, with digital literacy, privacy, and even industry sector serving as the contextual moderators, which strengthen or attenuate the effects thereof.

7.DISCUSSION

This discussion of the theoretical findings brings to the fore some key contributions to the literature and practice of digital marketing.

The paper is motivated by the existing empirical studies of AI-driven marketing that could profit by incorporating mediating/moderating mechanisms into a chatbot–CX relationship. Where related research typically focused on technical efficiency or immediate results, the given research groups trust, personalization, satisfaction, and emotional engagement as the essential mediators explaining the mechanisms of and reasons of chatbots influence on CX. The theoretical improvement contributes to the use of S-O-R paradigm in digital

marketing, which is connected to the technological stimuli, psychological reactions, and customer responses. By giving such a moderator as digital literacy and industry sector, the model advances TAM and the theory of trust as well, showing that chatbots adoption and evaluation are the processes dependent on contextual factors. This is a key weakness that was present in the past studies, as they usually attempted to infer the homogeneity of the customer experiences across industries and demographic cohorts.

On a sustainability front, the insights highlight how intelligent chatbots can be used to drive long term and customer-centered strategies. To start with, chatbots are contributing to the sustainability of operations in reducing resources used in facilitating the provision of continuous quality services. Second, they promote relational sustainability through creation of trust, individualization and satisfaction, which translates to loyalty and advocacy. Third, when they are built to serve multiple literacy levels or otherwise consider privacy issues, they can facilitate ethically and inclusive practices. The issue that is also mentioned during the discussion is the risks of unsustainable deployment of the chatbot. An excessive reliance on automation without focusing much on trust or empathy can create a negative experience of the customers. Likewise, lack of transparency in aggressive personalization may induce distrust as a result of infringing on privacy. Ethical responsibility and inclusivity must be considered as a balanced practice to encourage the adoption of chatbots in a sustainable manner as well as take advantage of the potential of the technology. As a practitioner, the study can be a source of a few action steps. In designing chat bots, the best practice would be to focus on building trust characteristics like use of open communication, security of the data provided and showcasing competence. Second, the personalization ought to be used strategically and must add to the relevance and not infringe privacy. Third, companies are expected to invest in inclusive interfaces (that consider a diversity of digital literacy levels) by employing multimodal interactions (e.g., text, voice, visuals) to increase reach. Fourth, chatbot strategies ought to be adjusted to the industry-related expectations and more empathetic in case of sensitive industries and more efficient in context of transactional ones. Although the conceptual model is insightful, it is limited in nature since it is theoretical. The hypotheses proposed should be tested empirically to determine their accuracy and figure out relative usefulness of mediators and moderators. Any future research needs to adopt quantitative frameworks such as structural equation modeling to examine the model within cross-industrial and cross-cultural contexts. It was also the case that comparative studies might examine disparities in chatbot efficacy across developed and developing markets, where the digital literacy and privacy concerns would differ to a large degree. Besides, future studies on the influence of cultural values on chatbot trust perception and personalization could be performed. Another example could be the significance of relation on the part of the collectivist cultures and efficiency and personalization on the side of the individualist cultures. The third pathway is investigating how the use of chatbots has a long-run effect to customer commitment and long-term endurance. The theoretical findings and arguments resonate with the idea that intelligent chatbots can be considered more than a tool to conduct business but strategic in enabling sustainable customer engagement. By mediating on trust, personalization, satisfaction, and emotional engagement, chatbots are capable of contributing considerably to the improvement of customer experience. Simultaneously, contextual moderators, including digital literacy, privacy, and industry sector, dictate how effective they end up being and point to chatbot adoption as not necessarily a one-size-fits-all approach. To scholars, the proposed model makes a theoretical contribution because it combines both mediation and moderation in the relationship between the chatbot and CX. To the practitioner, it presents a guideline to the development of chatbots that are trustworthy, personal, inclusive and industry appropriate. To policymakers, it shows that privacy protection and digital literacy programs are vital in achieving equality in the access of AI-driven services. Ultimately, there can be no sustainable chatbot adoption without a balance between efficiency and empathy, personalization and privacy, scalability and inclusivity. Striking a delicate balance at this can enable organizations to get the best out of intelligent chatbots in the effort to promote sustainable and customer centric digital marketing.

8.CONCLUSION

The objective of the present study was to conceptualize the role of intelligent chatbots in the development of customer experience (CX) in the framework of sustainable digital marketing. With the use of both S-O-R model and TAM the study proposes a cumulative analysis approach to the mediating and moderating processes as a part of chatbot adoption manifesting overall customer-focused results. This method goes beyond the more simplistic theme of technical efficiency and emphasizes the psychological, behavioral, and situational patterns constituting customer activities with AI-assisted instruments. The conceptual model also shows that intelligent chatbot use as the independent variable arouses a group of the psychological and behavioral mediators, namely trust, personalization, satisfaction, and emotional engagement, which, in their turn, influence the customer experience. One of the keys to chatbot success turns out to be the concept of trust, as customer readiness to use automated agents is heavily dependent on their perceptions of reliability, transparency and competence. On the same note, personalization introduces relevance and user-centric experiences, but brings concerns on related privacy issues. Customer satisfaction and emotional engagement continue to cement the immediate and long-term impacts of the chatbot interaction, making sure that not only the quality of the transacted services is high but the relational attachment to the brand is also strong. The framework also highlights the importance of moderating variables- digital literacy, industry sector, privacy concerns and the organizational marketing maturity, which serves as a precondition to the strength and direction of relationship between chatbots and CX. In a case example, digitally savvy customers are most likely to enjoy the use of chatbots, but the same cannot be said to be true in case of less digitally trained customers who may feel frustrated. Similarly, the specifics of an industry dictate whether efficiency or empathy is most highly regarded and thus have an effect on the effectiveness of chatbots. Trust may be undermined after privacy considerations come into the forefront as a precarious limit condition that reduces the benefits of personalization unless tackled with a reasonable degree of propriety. Moreover, organizational maturity is an aspect to consider, with more-advanced firms able to implement chatbots strategically in line with holistic organizational goals, whereas less-advanced firms might have difficulty creating holistic or strategic outcomes. As part of a sustainability picture, intelligent chatbots must not only be seen as a technology, but as a tool to enable long-term customer relationship, ethical approaches, and efficiency of resource utilization. Through building trust, loyalty and including everyone, chatbots can fulfill desired sustainable marketing around putting people first rather than just transactions at hand. Nevertheless, the results show that the approach to automation should be cautious and not overemphasized without taking into consideration elements of empathy, transparency, and inclusivity. Finally, the study also has implications on theory by including aspects of mediation and moderation in the study of chatbots, providing a more balanced view of the factors that condition and influence customer experience in an active partnership between psychological mechanisms and situational dynamics. It also has useful intentions to the marketers as they should develop the chatbot strategies in a manner that is trustworthy, personalized, inclusive, and industry-specific. Although this study is conceptual in nature, it forms a basis of the further extension and empirical validation of the study via the use of various methodological tools such as structural equation modeling or actual experiments. Future work ought to confirm the proposed framework across industry, cultures as well as level of digital literacy, thus making it more applicable and well-grounded. Finally, the study highlights how using smart-placed chatbots can become a very good way to improve the customer experience and develop sustainable, sustainable, long-term digital marketing practices.

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