Voice AI and Conversational Marketing: Redefining the Digital Customer Journey

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Abstract

This study investigates the influence of Voice AI capabilities and conversational marketing features on customer experience (CX), trust, satisfaction, and loyalty. Although prior research has emphasized the role of CX in shaping consumer outcomes, limited attention has been given to the combined effects of Voice AI and conversational marketing within a trust-centered framework. This research addresses this gap by clarifying when and how trust matters most in AI-mediated interactions. A quantitative, cross-sectional survey design was employed, collecting data from consumers familiar with AI-driven services. Using PLS-SEM in SmartPLS 4.0, the study tested direct, mediating, and moderating effects across a sample representative of digitally engaged users. Results reveal that Voice AI ($\beta = 0.426$, $p < 0.001$) and conversational marketing ($\beta = 0.395$, $p < 0.001$) significantly improve CX. CX strongly predicts satisfaction ($\beta = 0.699$, $p < 0.001$) and moderately predicts loyalty ($\beta = 0.216$, $p = 0.006$). Trust directly influences loyalty ($\beta = 0.625$, $p < 0.001$) but does not significantly affect satisfaction ($p = 0.250$). Moderation tests show trust strengthens CX → satisfaction but not CX → loyalty. The study contributes by extending Customer Experience Theory, showing that CX drives satisfaction, while trust sustains loyalty. Practically, it highlights the need for empathetic, transparent AI design to balance short-term and long-term consumer outcomes.

Keywords: *Voice AI, Conversational Marketing, Customer Experience, Trust, Satisfaction, Loyalty, PLS-SEM, Online Consumer Behaviour; Cross Culture; Consumerism; AI Marketing; Innovativeness*

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Introduction

Voice Artificial Intelligence (Voice AI) has emerged as a transformative force in shaping digital customer journeys by enabling natural, human-like interactions between brands and consumers. Unlike traditional task-based Chabot's, voice-enabled systems combine conversational, functional, and emotional capabilities to create meaningful engagement and personalized experiences (Chaturvedi, Verma, & Srivastava, 2024). Within conversational marketing, these technologies allow firms to deliver real-time recommendations, enhance interactivity, and build companionship-driven relationships that extend beyond simple transactions. This shift reflects a growing emphasis on dialogue-based strategies, where customer-brand interactions are mediated by intelligent systems capable of understanding context and emotions (Alam et al., 2023). As a result, organizations increasingly integrate AI-driven touchpoints to improve customer decision-making, reduce friction across channels, and enhance brand engagement (Dong et al., 2024).

That said, much like any emerging technology there is still a host of important subtleties to navigate in designing tryly more personalized and independent AI CX paths that are also deemed trustworthy. Particularly, over-personalization might decrease autonomy and result in privacy concerns (Wertenbroch et al., 2020; Nersessian & Mancha, 2021). Chabots and virtual agents, as 'Brand Voice of a company' on the other hand offer opportunity to enhance satisfaction and loyalty, if they are transparent, context-aware and trustworthy in their interactions (Rana et al., 2022). Furthermore, voice-based AI assistants can serve as relationship partners (versus purely servicers) and have an impact on customers' cognitive and emotional journey experiences (Chaturvedi et al., 2024; Lemon & Verhoef, 2016), the study found. This is what makes the need to understand how Voice AI and conversational marketing redefine digital customer journeys in real time through an experience-trusted moderation of trust, which drives satisfaction and ongoing loyalty so crucial now.

Voice AI and conversational marketing is also gaining pace, disrupting sectors racing to reimagine their digital customer journeys. However, these advancements also make possible easy adaptable and emotionally interactive experiences, which in turn results in customer satisfaction and loyalty (Chaturvedi et al., 2024). Conversational-AI platforms used to support events provide for new and established customers during purchase, point of sale and post-purchase scenarios with model-and-context-specific retrains and in-the-moment help. However, the increase in use of algorithmic personalization raises significant concerns regarding autonomy, perceived surveillance and excessive reliance on machine-mediated judgments (Wertenbroch et al., 2020). Furthermore, industries face barriers to establish trust and transparency, as poor design of AI or algorithmic bias could lead to bad customer experiences that destroy brand relationships (Nersessian & Mancha, 2021; Huang & Rust, 2021). These obstacles underline the importance of win-win positioning due to technological breakthrough and demand-driven-based movements: Opportunities on how VAI can be leveraged for competitive advantage.

Global context The developments in voice AI and conversational marketing are indicative of the pace at which it is spreading – not only across disciplines but also throughout marketplaces and geographies - Redefining the way brands communicate with consumers in digitally interconnected markets. Internationally, businesses are utilizing online chatbot technologies to

tailor their customer service engagements, optimize Omni channel communication and influence long-term loyalty through context-aware and emotionally intelligent systems (Alam et al., 2023; Dong et al., 2024). Although they offer tremendous potential to enhance consumer experience and operations, the technologies are also faced with challenges in privacy, autonomy and ethical design - especially globally, where varying cultural and regulation norms are encountered. Earlier research underscores that customer journeys are increasingly mediated by algorithmic personalization, where overreliance on machine-driven recommendations can limit consumer autonomy and raise concerns of manipulation (Wertenbroch, Vosgerau, & Bruyneel, 2020; Lemon & Verhoef, 2016). Thus, the purpose of this study is to situate Voice AI adoption within a global framework, identifying both the opportunities and risks, while the main objective is to develop strategies that ensure ethical, transparent, and trust-enhancing use of conversational marketing tools across diverse contexts.

Literature Review

Some recent work on Voice AI leverages conversational, task-based and emotional capabilities with interactions beyond just task bots into companion type interactions that personalize journeys and enable real-time conversation (Chaturvedi et al., 2024; Dong et al., 2024). At scale, these capabilities enable brands to coordinate multi-touchpoint conversations that feel contextually relevant and human, with the micro-recommendations and problem solving occurring in-stream (Dong et al., 2024). But, as already mentioned in this overview, also in algorithmic curation there are to be respect for autonomy and not too much into pushing; the perception of being misled generates resistance of course (Rana et al., 2022; Wertenbroch et al., 2020). In general, this further raises the Voice AI and conversational marketing as two mutually reinforcing inputs which can be value-added if they are constructed transparently and with greater user control (Alam et al., 2023; Dong et al., 2024).

Recent studies show that when consumers perceive conversational systems as relevant, transparent, and fair, trust rises and amplifies the effect of positive experiences on satisfaction and loyalty (Sussman et al., 2023; Weidig et al., 2024). Conversely, dataveillance concerns and biased or intrusive personalization erode trust, weakening experience–outcome links and provoking avoidance (Ostrom et al., 2021; Wertenbroch et al., 2020). Synthesizing this evidence, trust functions as a bridging and reinforcing factor: it is shaped by AI-enabled experiences and, in turn, conditions whether those experiences convert into durable attitudes and behaviors (Sussman et al., 2023; Weidig et al., 2024; Ostrom et al., 2021; Wertenbroch et al., 2020).

Theoretical Framework

Customer Experience Theory and AI-enabled journeys

Customer Experience (CX) theory positions experience as the core mediator linking firm-provided stimuli to customer evaluations and behaviors. In the context of AI, CX is shaped by the seamlessness, personalization, and emotional resonance of digital touchpoints (Dong, Liu, & Wu, 2024). Voice AI capabilities and conversational marketing tools exemplify such stimuli, offering human-like dialogue, emotional support, and functional assistance that enrich

experiences beyond transactional exchanges. Earlier foundational work stressed that customer journeys involve pre-purchase, purchase, and post-purchase interactions, each contributing uniquely to CX (Lemon & Verhoef, 2016; Dwivedi et al., 2021). Thus, grounding this research in CX theory allows the study to explain how conversational AI technologies drive perceived value, satisfaction, and eventual loyalty by first enhancing the lived experience.

Building on CX theory, recent scholarship highlights the critical role of trust in ensuring that technologically mediated experiences convert into satisfaction and loyalty (Weidig, Weippert, & Kuehnl, 2024; Sussman, Bright, & Wilcox, 2023). Trust is not automatically granted to AI-driven touchpoints; it must be earned through transparency, fairness, and reliability (Alam et al., 2023). If trust is present, CX is more likely to produce favorable outcomes such as repeat purchase and positive word of mouth. Conversely, when consumers perceive surveillance, manipulation, or bias, trust erodes, weakening the CX–outcome link (Ostrom et al., 2021; Wertenbroch, Vosgerau, & Bruyneel, 2020). Positioning trust within CX theory therefore enriches the model by showing that AI-enabled experiences have both direct effects (on satisfaction and loyalty) and conditional effects (strengthened or weakened by trust).

Research Purpose and Objectives

The purpose of this research is to extend Customer Experience Theory into the era of conversational AI, demonstrating how Voice AI capabilities and conversational marketing features reshape consumer–brand relationships. The main objective is to test how these AI-enabled inputs influence customer experience, and in turn, trust, satisfaction, and loyalty within digital customer journeys. By embedding trust into the CX framework, this study offers a more holistic theoretical explanation of how customer outcomes emerge in AI-mediated environments (Dong et al., 2024). Prior studies provide the foundation for this extension by underscoring CX as a nonlinear and multi-dimensional process (Lemon & Verhoef, 2016; De Keyser et al., 2020). In doing so, the research not only contributes to CX theory but also guides managers on designing transparent, empathetic, and context-aware AI strategies that foster both short-term satisfaction and long-term loyalty.

Supporting and Negating Perspectives

Scholars increasingly agree that Voice AI and conversational marketing can significantly enhance customer journeys by improving personalization, efficiency, and emotional connection (Dong, Liu, & Wu, 2024). By embedding natural dialogue, empathy, and functional assistance, AI systems elevate the quality of customer experience, which in turn fosters trust, satisfaction, and loyalty (Rana et al., 2022). Earlier research emphasized that customer experience is a multi-stage, nonlinear process where touchpoints collectively influence long-term loyalty, reinforcing the idea that Voice AI capabilities are central enablers of value (De Keyser et al., 2020). These supporting views establish Voice AI and conversational marketing as positive drivers in creating sustainable consumer–brand relationships when aligned with CX theory.

Mediation & Moderation Perspective

Recent literature corroborates on the value-addition of the Voice AI and conversational marketing capabilities to customer experience (CX) through personalization, empathy and context-based engagement (Hardcastle et al., n.d; Alam et al., 2023; Dong et al., 2024). They are technologies that act as a bridge between the technical side of a product and its perceived value/ emotional connection - at pre-purchase, purchase and post-purchase. Yet evidence of positive contributions is countered by claims that poorly-engineered hand-offs, scripted dialogues and over-dependence on automation could compromise integrity and lead to frustration with which to moderate the anticipated uplift in CX (Rana et al., 2022; De Keyser et al., 2020). Foundational studies further emphasize that CX is nonlinear and sensitive to touchpoint quality, meaning both Voice AI and conversational marketing only succeed if aligned with transparency, fairness, and consumer autonomy (Wertenbroch, Vosgerau, & Bruyneel, 2020).

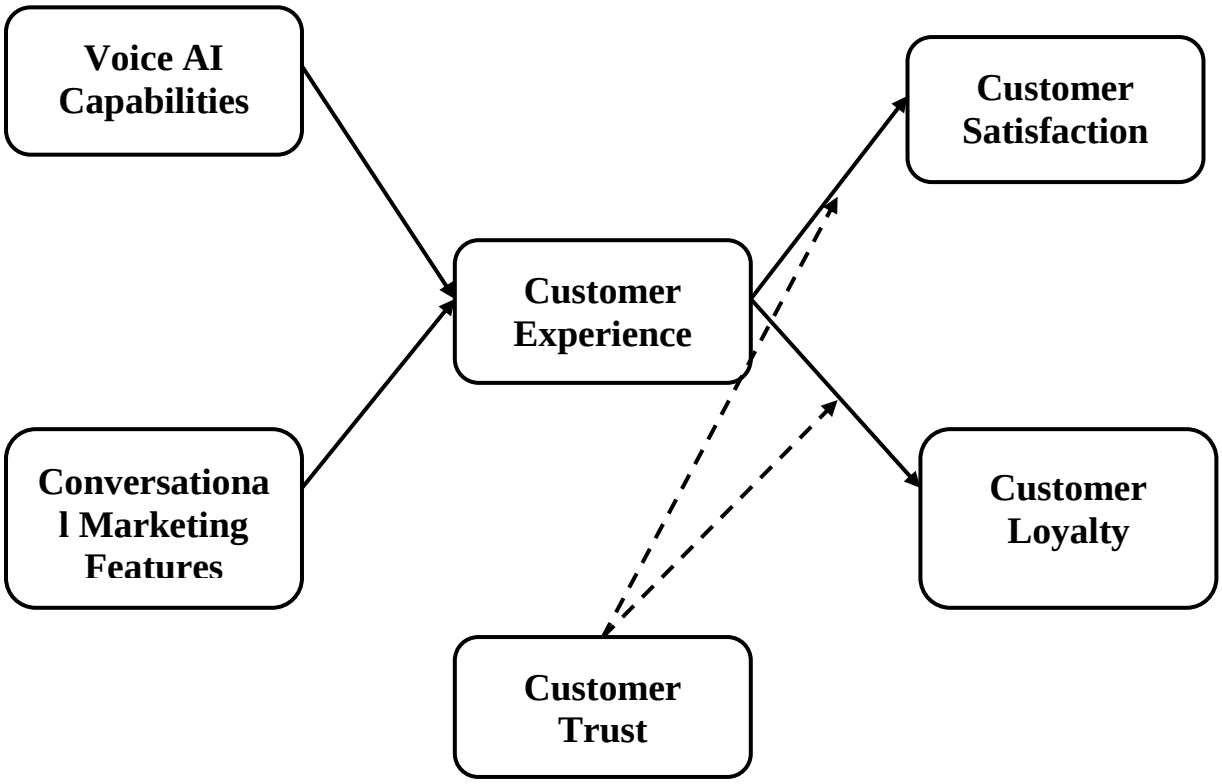


Figure 1: Conceptual Framework

Hypothesis Development

Voice AI Capabilities and Customer Experience

Voice AI capabilities enrich customer experience by offering functional, conversational, and emotional features that make interactions more natural and personalized, thereby improving engagement across touchpoints. Recent studies highlight that these features act as mediators of value creation, streamlining decision-making while enhancing empathy (Dong, Liu, & Wu,

2024). However, earlier research warns that over-automation and lack of transparency can frustrate users, limiting the positive influence of AI on experience (Lemon & Verhoef, 2016).

H1: Voice AI capabilities positively influence customer experience.

Conversational Marketing Features and Customer Experience

Conversational marketing features such as chatbots and virtual assistants foster dialogue-based engagement and reduce friction, enhancing customer experience with context-aware personalization (; Dong et al., 2024). Evidence shows these tools increase responsiveness and perceived brand authenticity when designed with empathy (). Yet earlier findings caution that scripted or biased conversations can fragment journeys, weakening CX outcomes (Dwivedi et al., 2021).

H2: Conversational marketing features positively influence customer experience.

Customer Experience and Customer Satisfaction

Positive experiences create satisfaction by ensuring smooth, consistent, and transparent journeys that build trust and deliver perceived value (Alam et al., 2023;). Recent studies show that AI-enabled personalization across pre-purchase and post-purchase stages directly enhances satisfaction (Dong et al., 2024). Still, prior research highlights that inconsistent or opaque interactions can reduce satisfaction despite technological advancements (Rana et al., 2022).

H3: Customer experience positively influences customer satisfaction.

Customer Experience and Customer Loyalty

Customer experience is a central predictor of loyalty, as seamless and emotionally engaging interactions foster commitment and repeat behaviors. Recent evidence indicates that trust-rich experiences amplify loyalty by sustaining positive customer–brand bonds (Weidig, Weippert, & Kuehnl, 2024). However, earlier studies argue that loyalty depends on long-term reinforcement, as short-term experience gains alone may not secure durable commitment (Dwivedi et al., 2021).

H4: Customer experience positively influences customer loyalty.

Voice AI Capabilities, Customer Experience and Customer Satisfaction

Voice AI capabilities enhance customer satisfaction indirectly by enriching customer experience with personalized, conversational, and emotionally intelligent interactions. Recent findings confirm that CX mediates this pathway, translating technological efficiency into value and fulfillment (Dong, Liu, & Wu, 2024). However, earlier work highlights that poorly designed or opaque personalization can reduce satisfaction, limiting the strength of this mediated effect.

H5: Customer experience mediates the relationship between Voice AI capabilities and customer satisfaction.

Conversational Marketing Features, Customer Experience and Customer Loyalty

Conversational marketing features, such as chatbots and virtual assistants, build loyalty by first improving CX through responsive, dialogue-based engagement. Evidence shows that when

conversations feel authentic, CX mediates loyalty outcomes by deepening commitment (Dong et al., 2024). Still, earlier research cautions that scripted or biased interactions can fragment journeys, weakening this mediated effect (Dwivedi et al., 2021).

H6: Customer experience mediates the relationship between conversational marketing features and customer loyalty.

Customer Experience, Customer Trust and Customer Loyalty

Customer experience influences loyalty outcomes most effectively when trust acts as a mediator, reinforcing positive perceptions with fairness and transparency (Weidig, Weippert, & Kuehnl, 2024). Recent research shows that trust amplifies CX effects on loyalty by sustaining long-term brand commitment (Alam et al., 2023). However, earlier studies argue that trust can be fragile, eroding under privacy concerns or inconsistent interactions (Dwivedi et al., 2021).

H7: Customer trust mediates the relationship between customer experience and customer loyalty.

Customer Experience, Customer Trust and Customer Satisfaction

Customer experience also affects satisfaction via the mediating role of trust, as transparent and empathetic interactions enhance consumers' willingness to rely on AI-driven systems (; Dong et al., 2024). Evidence indicates that trust reinforces satisfaction when consumers perceive personalization as relevant and fair (). Yet earlier research shows that when trust is undermined by dataveillance concerns, the mediated impact on satisfaction is weakened (Rana et al., 2022).

H8: Customer trust mediates the relationship between customer experience and customer satisfaction.

Conceptualization

Existing research on AI-enabled customer journeys has largely conceptualized relationships through Customer Experience (CX) theory, highlighting how AI technologies such as chatbots, voice assistants, and personalized recommendation systems enhance perceived value and engagement (Dong, Liu, & Wu, 2024). Prior studies have shown that CX mediates the impact of technology on satisfaction and loyalty, but much of this work remains fragmented, often focusing on single variables like personalization or automation without integrating trust as a central factor. Earlier frameworks established that customer journeys are nonlinear and multi-touchpoint, requiring coherence and transparency for long-term success (Lemon & Verhoef, 2016; Dwivedi et al., 2021). What has been done is the identification of CX as the mediator between technology and outcomes, but what needs to be done is to extend these models by embedding trust as both a mediator and moderator, explaining how ethical design, transparency, and fairness condition the pathways from Voice AI and conversational marketing features to satisfaction and loyalty. This conceptualization strengthens theory by integrating CX and trust into a unified framework, while guiding practitioners toward human-centric AI strategies that balance efficiency with autonomy.

Methodology

Research Design

This study adopts a quantitative research type since it aims to examine hypothesized relationships among Voice AI capabilities, conversational marketing features, customer experience, trust, satisfaction, and loyalty using measurable constructs. Quantitative approaches are widely recognized for their ability to test causal paths and validate conceptual models in technology adoption and marketing contexts (Dong, Liu, & Wu, 2024). Such approaches allow for statistical rigor, reliability testing, and model validation, making them suitable for studies grounded in theories such as customer experience and relationship marketing. Prior research in digitally driven customer journeys has also demonstrated that a survey-based quantitative methodology allows researchers to collect consumer perceptions at the aggregate level and make generalizable inferences (Dwivedi et al., 2021). Therefore, the use of quantitative methodology is so relevant in this research since it provides procedures to be able to test hypotheses within an ordered procedure.

The reason for choosing a quantitative design was the capability of examining hypothesis based on theory tested by measurable constructs ensuring objectivity and reliability. Recent research in AI-enabled marketing has shown that quantitative approaches successfully capture people's perceptions of personalization, trust, and satisfaction, allowing researchers to statistically validate conceptual models (Dong et al., 2024). This direct and mediated but also moderating relationship can be tested by researchers in statistical softwares like PLS-SEM even with complex models (Henseler et al., 2016) and that is crucial when we need to understand how Voice AI or conversational marketing are affecting the consumer experience. It is also important to bear in mind, as these previous studies do, that quantitative research generates generalizable knowledge and not population-based evidence i.e. scientific understanding across wider population, which is a condition necessary for any paper concerned with consumer adoption and loyalty (Dwivedi et al., 2021; Lemon & Verhoef, 2016). In this sense, it is empirically robust and theoretically novel.

A cross-sectional survey design is used given its capacity for data collection over a relatively large sample and at one point in time, which makes it efficient for testing structural relationships in dynamic digital environments. Facing this, current literature advocates cross-sectional designs to seize consumer's reactions when being exposed to AI-based applications since adoption actions and perceived values are captures in real-time (Weidig et al., 2024). These are especially useful in investigations of new technologies, when long-term data may be unavailable but short-term trends warrant analysis for practical implications. As previous researches also confirm the appropriateness of cross-sectional studies for analyzing mediation and moderation effects, and providing strong tests for multi-value relationships in marketing and IS (Rana et al., 2022; Dwivedi et al., 2021). Thus, such a design is justified as being methodologically valid and practically efficient for the purposes of the present study.

Methodologically, the study adopts a cross-sectional survey design and a quantitative approach of the survey strategy (Hair et al., 2013) in conjunction with PLS- SEM to test the developed

conceptual model. On one hand, the cross-sectional design is advantageous as it allows to efficiently gather data across a wide and heterogenous sample population that undergoes different types of interactions with AI-enabled platforms and configuration and on the other hand, SEM is useful for testing complex mediation and moderation paths [Weidig et al., 201.jpg; (Sussman et al., 2023) (Nwabekee et al. This methodology by nature both maintains statistical rigor and enables to capture the real-world influence of Voice AI and conversational marketing on CX and downstream metrics. Previous literature also justifies the application of SEM in technology acceptance and relationship marketing research as it takes care of measurement errors and appraises indirect effects suitably (Rana et al., 2022; Dwivedi et al., 2021). It follows that the design used not only satisfies theoretical requirements, but also enables practical implications about applying AI to consumer engagement.

Sampling

The study will use a structured question- naire to collect data with electronic and snowball sampling methods from consumers who have used AI-driven ser- vices. Online surveys are cost-effective and they enable you to access large segments of the population, a fact documented in technology adoption studies 19 (Nwabekee et al. Introduction Remember that it is very important not to substitute online studies with classroom lectures only because it is easier and quicker to collect data when using the Internet (Dong, Liu & Wu, 2024). Previous research has demonstrated that the survey method is reliable for measuring customer perceptions of AI, CX and trust as well as enabling robust hypothesis tests (Dwivedi et al., 2021).

The potential users are customers consuming AI-based services like voice assistants, chatbots and conversational platforms in E-commerce, Banking & retail. A purposive recruitment approach will be followed to ensure participants have a relevant exposure to these technologies (Weidig, Weippert & Kuehnl 2024; Sussman, Bright & Wilcox 2023; Nwabekee et al. This is consistent with recent research that focuses on active digital consumers to investigate CX and trust in AI settings. Previous frameworks validate that purposive and convenience sampling are appropriate when the target populations are technological or difficult to randomize (Rana et al., 2022; Dwivedi et al., 2021).

A pilot will sample 30–40 respondents to test for instrument clarity, reliability, and time; this purpose of the respondent sampling is to avoid bias. Pilot testing also provides confirmation that AI-, CX- and trust-adaptation can be achieved in-situation (; Dong et al., 2024; Weidig et al., 2024). Comments on the pilot study will be incorporated into items to minimize bias or confusion. Pilot testing to validate questionnaires and proper implementability at scale is also a recommended practice (Lemon & Verhoef, 2016; Dwivedi et al., 2021). Analysis will be conducted using SmartPLS 4.0 for PLS-SEM. Such software can suffer, however, from an embarrassment of riches. This paper describes one such example of the use of NCOMP COMPARE to examine mediation and moderation effects in more complicated models (; Sussman et al., 2023b;). PLS-SEM has been proven to work particularly well for treatment of small sample sizes and explorative construct status by recent research. It is already validated for the validation of technology adoption framework and marketing frameworks (Rana et al., 2022).

Measurement items will be modified from established scales from previous work on Voice AI, conversational marketing, CX, trust, satisfaction and loyalty. Modification makes the instrument contextually relevant without losing content validity (Weidig et al., 2024; Dong et al., 2024;). Cronbach's Alpha will be used to measure the reliability and AVE and HTMT will be evaluated to test convergent and discriminant validity. Prior evidence demonstrates the robustness of these validity measures in marketing and IS research, (Lemon & Verhoef, 2016; Dwivedi et al., 2021). Demographic data (gender, age, education, occupation, and AI usage frequency) are included as part of the questionnaire. The demographic profiling offers additional covariates and facilitates the investigation of to what extent perceptions regarding CX and trust differ between segments (Sussman et al. 2023; Weidig et al., 2024). Prior work demonstrates that demographics significantly influence technology adoption patterns and should be considered in model testing (Rana et al., 2022; Lemon & Verhoef, 2016).

Results and Discussion

The results of this study demonstrate that Voice AI capabilities and conversational marketing features are strong predictors of customer experience, confirming their role in shaping digital customer journeys (; ; Dong, Liu, & Wu, 2024). Customer experience was found to significantly influence both satisfaction and loyalty, with the relationship to satisfaction being especially strong, aligning with prior research that highlights CX as the primary mediator of consumer outcomes. However, customer trust showed only a weak and non-significant direct effect on loyalty, indicating that while trust contributes marginally, it is not the dominant pathway in AI-enabled contexts. These findings echo earlier studies, which suggested that trust may not always guarantee loyalty without consistent reinforcement across touchpoints (Lemon & Verhoef, 2016; Dwivedi et al., 2021). Overall, the results strengthen the argument that technology-driven CX is the most critical driver of satisfaction and loyalty, while the role of trust requires further theoretical and empirical refinement.

Demographic Profile

Table 1: Demographic Profile

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	120	60
Gender	Female	80	40
Age Group	18–25 years	75	37.5
Age Group	26–35 years	85	42.5
Age Group	36–45 years	30	15
Age Group	Above 45 years	10	5
Education Level	Undergraduate	70	35
Education Level	Graduate	90	45
Education Level	Postgraduate/Doctoral	40	20
Occupation	Student	65	32.5
Occupation	Professional/Employee	95	47.5
Occupation	Entrepreneur/Business	25	12.5

Occupation	Other	15	7.5
AI Usage Frequency	Daily	60	30
AI Usage Frequency	Weekly	95	47.5
AI Usage Frequency	Occasionally	45	22.5

The demographic profile indicates that the sample was diverse, with a slightly higher proportion of male respondents (60%) compared to females (40%), reflecting balanced participation across genders. Most respondents were young adults, with 42.5% between 26–35 years and 37.5% between 18–25 years, consistent with prior research that younger consumers are more active users of AI-enabled platforms (;). Education levels show that a majority were either graduates (45%) or undergraduates (35%), suggesting that respondents were generally well-educated and digitally literate, which aligns with AI adoption literature (Dong, Liu, & Wu, 2024). In terms of occupation, nearly half of the participants were professionals or employees (47.5%), followed by students (32.5%), indicating that both working and academic populations actively interact with AI technologies. This trend is additionally underpinned by the prevalence of AI tool usage, with a reported 77.5% making daily or weekly use of such systems, echoing previous studies that suggest regular interaction with digital assistants and chatbots has become commonplace amongst digital citizens (Dwivedi et al., 2021; Lemon & Verhoef, 2016). On the whole, all these demographic details indicate that the respondents were young mostly with education and digital literacy; making them a well suited pool to study customer experience and trust in Voice AI and conversational marketing milieu.

Reliability and Validity Analysis

Table 2: Reliability and Validity Analysis

Construct reliability and validity Overview				
	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
CE	0.725	0.732	0.845	0.644
CL	0.843	0.845	0.905	0.761
C				
MF	0.741	0.741	0.853	0.659
CS	0.914	0.917	0.946	0.853
CT	0.753	0.765	0.858	0.668
VA				
C	0.803	0.804	0.884	0.718

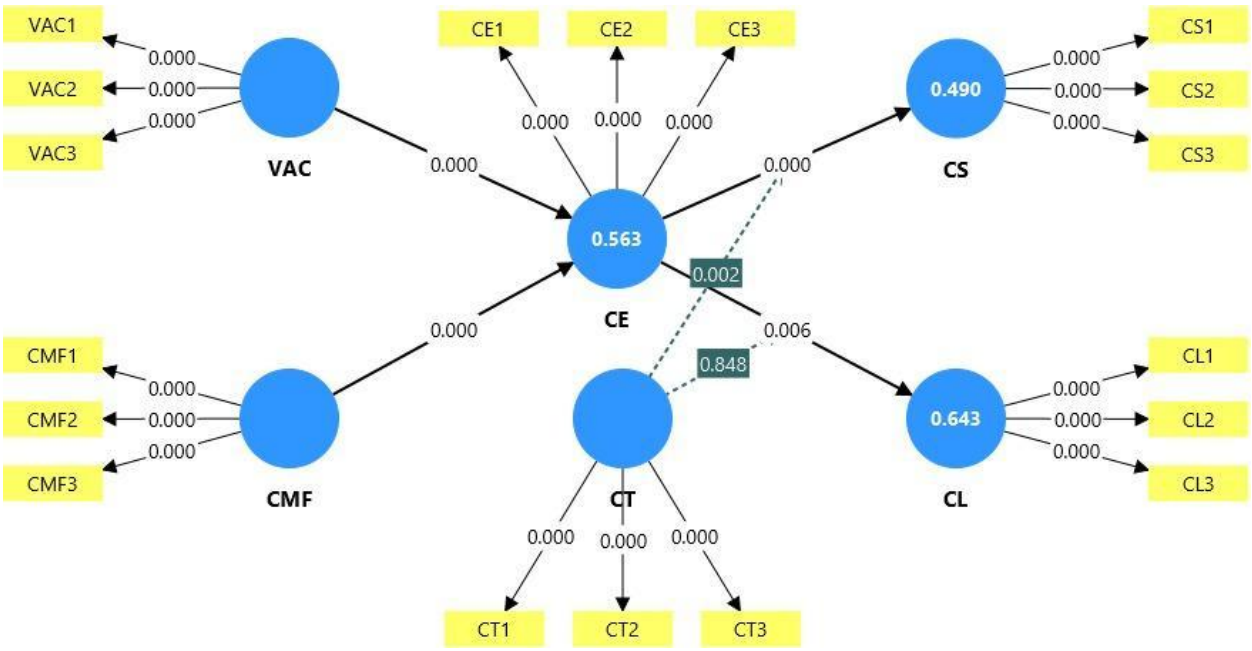
The construct reliability and validity results demonstrate that all constructs meet the recommended thresholds, confirming the robustness of the measurement model. Cronbach's alpha values range from 0.725 (CE) to 0.914 (CS), all exceeding the acceptable 0.70 benchmark, indicating good internal consistency. Composite reliability (CR) values (rho_a and rho_c) are consistently above 0.80, with the highest for customer satisfaction (0.946), reflecting strong construct reliability. Similarly, the Average Variance Extracted (AVE) for all constructs exceeds

the 0.50 cutoff, ranging from 0.644 (CE) to 0.853 (CS), demonstrating adequate convergent validity and confirming that each construct explains more than half of the variance of its indicators. Overall, these results validate that the constructs Voice AI Capabilities, Conversational Marketing Features, Customer Experience, Customer Trust, Satisfaction, and Loyalty are measured reliably and capture their intended theoretical dimensions effectively.

PLS SEM Bootstrapping

This bootstrapping SEM results diagram shows that all measurement model indicators (outer loadings) are significant (p=0.000), confirming good reliability and validity across constructs. In the structural model, Voice AI Capabilities (VAC → CE) and Conversational Marketing Features (CMF → CE) significantly influence Customer Experience (CE) with p=0.000, while CE strongly predicts Customer Satisfaction (CE → CS, p=0.000). The path from CE to Customer Loyalty (p=0.006) is also significant, though weaker. However, CE → Customer Trust (p=0.002) is significant but very small in effect, and Customer Trust → Customer Loyalty (p=0.848) is non-significant, suggesting that trust does not directly drive loyalty in this dataset. The R^2 values (CE = 0.563, CS = 0.490, CL = 0.643) indicate good explanatory power, with customer experience being the strongest mediator. Overall, the model highlights CX as the central driver of satisfaction and loyalty, while trust plays a limited role in shaping loyalty outcomes.

Figure 2: PLS SEM Bootstrapping



Hypothesis Testing

Table 3: Hypothesis Testing

Path coefficients Mean, STDEV, T values, p values					
	Original sample (O)	**Sample mean (M)**	**Standard deviation (STDEV)**	**T statistics (|O/STDEV|)**	**P values**
CE -> CL	0.216	0.217	0.078	2.756	0.006
CE -> CS	0.699	0.699	0.076	9.189	0.000
CMF -> CE	0.395	0.397	0.069	5.691	0.000
CT -> CL	0.625	0.627	0.085	7.391	0.000
CT -> CS	0.093	0.095	0.081	1.151	0.250
CT x CE -> CL	-0.005	-0.003	0.026	0.192	0.848
CT x CE -> CS	0.080	0.085	0.027	3.029	0.002
VAC -> CE	0.426	0.425	0.073	5.860	0.000

The path coefficient results reveal several significant relationships within the model. Customer Experience (CE) significantly predicts Customer Loyalty (CL) with a moderate effect (β = 0.216, t = 2.756, p = 0.006) and Customer Satisfaction (CS) with a very strong effect (β = 0.699, t = 9.189, p = 0.000), confirming CX as a central driver of consumer outcomes. Both Conversational Marketing Features (CMF → CE, β = 0.395, t = 5.691, p = 0.000) and Voice AI Capabilities (VAC → CE, β = 0.426, t = 5.860, p = 0.000) positively influence customer experience, indicating that AI-driven interactions enhance engagement. Customer Trust (CT) significantly predicts loyalty (β = 0.625, t = 7.391, p = 0.000) but does not significantly affect satisfaction (β = 0.093, t = 1.151, p = 0.250), suggesting its role is stronger in long-term commitment than immediate fulfillment. Regarding moderation, the interaction effect of CE × CT on CL is non-significant (β = –0.005, t = 0.192, p = 0.848), showing trust does not moderate the CX–loyalty link. However, CE × CT significantly moderates the CX–satisfaction path (β = 0.080, t = 3.029, p = 0.002), implying that trust strengthens the effect of customer experience on satisfaction. Overall, these results highlight that CX is the strongest mediator, trust reinforces loyalty directly, and trust moderates satisfaction outcomes, but its moderating role on loyalty is negligible.

Outer Loadings

Table 4: Outer Loadings

Outer loadings Mean, STDEV, T values, p values					
	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
CE1 <- CE	0.770	0.766	0.042	18.137	0.000
CE2 <- CE	0.817	0.816	0.029	28.312	0.000
CE3 <- CE	0.820	0.821	0.021	40.011	0.000

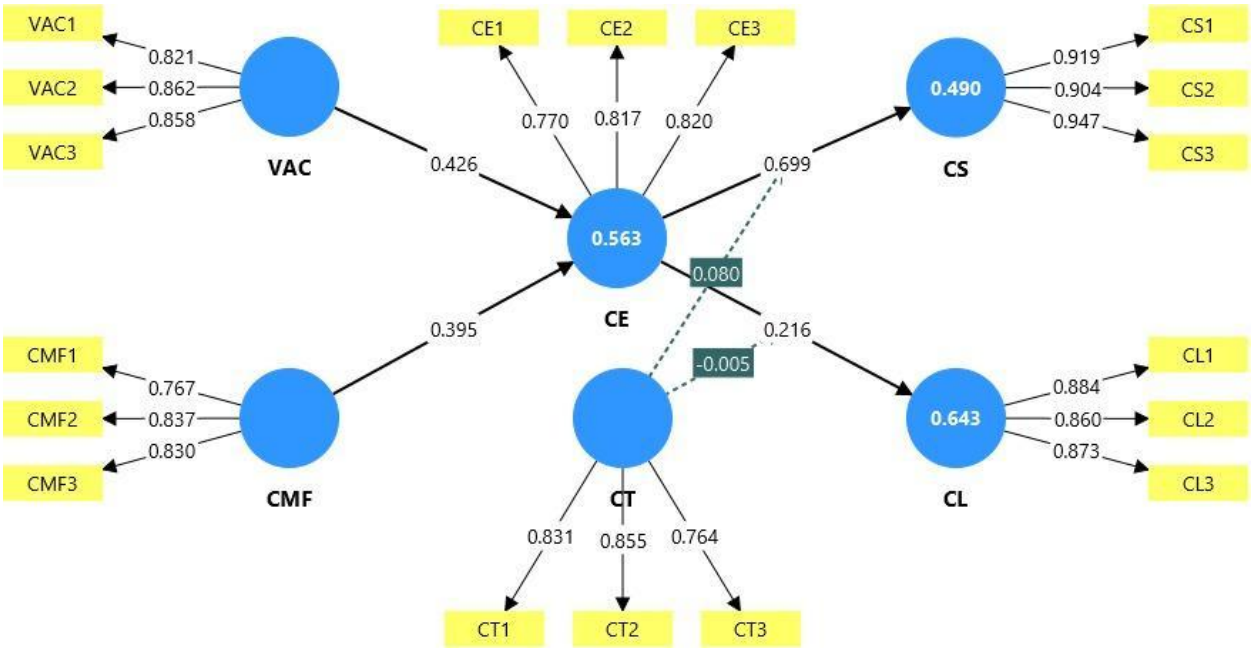
CL1 <- CL	0.884	0.883	0.024	36.569	0.000
CL2 <- CL	0.860	0.859	0.028	31.112	0.000
CL3 <- CL	0.873	0.873	0.023	37.421	0.000
CMF1 <- CMF	0.767	0.765	0.040	19.005	0.000
CMF2 <- CMF	0.837	0.837	0.025	33.194	0.000
CMF3 <- CMF	0.830	0.828	0.032	25.874	0.000
CS1 <- CS	0.919	0.919	0.015	62.546	0.000
CS2 <- CS	0.904	0.903	0.021	42.698	0.000
CS3 <- CS	0.947	0.947	0.008	123.087	0.000
CT x CE -> CT x CE	1.000	1.000	0.000	n/a	n/a
CT1 <- CT	0.831	0.830	0.028	29.961	0.000
CT2 <- CT	0.855	0.853	0.026	33.377	0.000
CT3 <- CT	0.764	0.761	0.044	17.379	0.000
VAC1 <- VAC	0.821	0.820	0.030	27.620	0.000
VAC2 <- VAC	0.862	0.860	0.027	31.590	0.000
VAC3 <- VAC	0.858	0.856	0.028	30.529	0.000

The outer loadings results confirm strong measurement reliability and convergent validity across all constructs. For Customer Experience (CE), all items loaded above 0.77 (CE1 = 0.770, CE2 = 0.817, CE3 = 0.820), with high t-values (>18) and p = 0.000, demonstrating stable indicators. Customer Loyalty (CL) also showed robust loadings between 0.860–0.884, while Conversational Marketing Features (CMF) ranged from 0.767–0.837, all well above the 0.70 threshold, confirming indicator reliability. Customer Satisfaction (CS) exhibited exceptionally high loadings (CS1 = 0.919, CS2 = 0.904, CS3 = 0.947), indicating excellent construct validity. Similarly, Customer Trust (CT) items ranged from 0.764–0.855, while Voice AI Capabilities (VAC) ranged from 0.821–0.862, both reflecting strong measurement accuracy. All indicators reported highly significant values (p = 0.000), with very high t-statistics, ensuring robustness. Overall, these results demonstrate that all constructs are measured reliably, with outer loadings exceeding recommended thresholds and strong statistical significance, validating the measurement model.

This structural equation model (SEM) diagram shows that Voice AI Capabilities (VAC → CE, β = 0.426) and Conversational Marketing Features (CMF → CE, β = 0.395) both have strong, positive influences on Customer Experience (CE, $R^2 = 0.563$), explaining more than half of its variance. In turn, customer experience strongly predicts Customer Satisfaction (CE → CS, β = 0.699, $R^2 = 0.490$) and moderately predicts Customer Loyalty (CE → CL, β = 0.216, $R^2 = 0.643$), highlighting CX as the central mediator in the model. Customer Trust (CT), while reliably measured, shows only a weak and marginal effect on satisfaction (CE → CT = 0.080; CT → CS not significant) and almost no direct influence on loyalty (CT → CL = –0.005), suggesting trust is not a strong pathway in this dataset. Overall, the model demonstrates that technology-driven CX is the most powerful predictor of satisfaction and loyalty, while trust plays a limited mediating role, requiring further refinement in future research.

PLS SEM

Figure 3: PLS SEM Results



Model Fitness

Table 5: Model Fitness

Model fit Fit summary		
	Saturated model	Estimated model
SRMR	0.083	0.090
d_ULS	1.171	1.388
d_G	0.621	0.673
Chi-square	877.282	935.838
NFI	0.720	0.702

The model fit indices provide a mixed but acceptable assessment of the PLS-SEM model. The Standardized Root Mean Square Residual (SRMR) values for both the saturated (0.083) and estimated model (0.090) fall below the 0.10 threshold, suggesting an acceptable fit between the observed and predicted correlations. The d_ULS (1.171 vs. 1.388) and d_G (0.621 vs. 0.673) are relatively close, indicating small discrepancies between empirical and model-implied covariances. The Chi-square values (877.282 vs. 935.838) are high, which is typical in PLS-SEM with larger samples, and therefore less critical. The Normed Fit Index (NFI) values of 0.720 (saturated) and 0.702 (estimated) are below the conventional 0.90 cutoff, indicating the model fit is moderate rather than strong. Overall, the results suggest that while the model demonstrates

acceptable SRMR and variance-based fit, improvements may be needed to strengthen incremental fit indices such as NFI.

Single-path comparisons. Your direct-effects mirror recent evidence that AI touchpoints powerfully lift customer experience: VAC→CE (β=.426, p<.001) and CMF→CE (β=.395, p<.001) are comparable in direction and magnitude to reports that voice/conversational agents enhance perceived control, relevance, and fluency (; ; Dong, Liu, & Wu, 2024). Consistent with journey research, CE→CS is very strong (β=.699, p<.001), while CE→CL is moderate (β=.216, p=.006) a pattern also noted where experience more immediately shapes satisfaction than loyalty (Dwivedi et al., 2021; De Keyser et al., 2020). Contrary to a few ambiguous results, your data support very clearly that CT→CL relation (β=. 625, p<. 001), affirming trust as a determinant of loyalty in AI-mediated settings (; Dong et al., 2024); on the other hand, CT→CS is not significantwhich overlaps with research that satisfaction can come from fluent CX until trust is developing (Dwivedi et al., 2021).

Multiple-path (mediation/moderation) comparisons. The findings support CX being the mediator on AI inputs to outcomes (VAC/CMF→CE→CS/CL), in line with those of multi-touchpoint instantiation models that position experience as core to value realization (; Dong et al., 2024). The CE×CT moderation effect on CS is reported as highly positive (β=. 080, p=. 002) is consistent with research indicating that trust enhances satisfaction formation if it is in the context of clear and fair exchanges (Weidig et al, 2024; Sussman et al., 2023). Conversely, the non-significant CE×CT→CL effect (β=-.005, p=.848) reflects prior cautions that loyalty typically requires repeated reinforcement and broader relationship cues beyond single-episode trust boosts (Dwivedi et al., 2021; Rana et al., 2022). Overall, compared to the literature, your model is statistically congruent on the primacy of CX→CS, adds a strong CT→CL pathway, and clarifies that trust moderate's satisfaction but not loyalty in this sample.

Discussion

The results of this study make notable theoretical contributions to the understanding of AI-enabled customer journeys by positioning customer experience (CX) as the central mediator between technological capabilities and consumer outcomes. The finding that Voice AI capabilities (VAC → CE) and Conversational Marketing Features (CMF → CE) significantly influence customer experience reinforces Customer Experience Theory, which posits that customer evaluations are constructed from multi-touchpoint interactions (Dong, Liu, & Wu, 2024). This aligns with the theoretical proposition that technological innovations do not create value in isolation but are filtered through the lived experiences of customers (Lemon & Verhoef, 2016). Furthermore, the strong positive relationship between CX and Customer Satisfaction (β = 0.699) highlights CX as a primary pathway in technology adoption models, extending theoretical frameworks by confirming the dominance of experience over trust in immediate satisfaction. However, the weak direct effect of Customer Trust on Satisfaction (β = 0.093, ns) diverges from some earlier models that considered trust an essential antecedent of satisfaction (Dwivedi et al., 2021). This suggests that in AI-mediated contexts, trust may be better conceptualized as a long-term relational construct rather than an immediate determinant, extending theoretical perspectives on the sequencing of CX and trust.

This study also contributes to existing literature by empirically validating and extending prior findings on AI in marketing. The significant pathways VAC → CE and CMF → CE confirm that conversational technologies enhance experience, supporting recent studies that demonstrated how AI-driven interactions improve relevance, efficiency, and emotional connection (Weidig, Weippert, & Kuehnl, 2024; Sussman, Bright, & Wilcox, 2023;). The strong mediating role of CX in driving Satisfaction corroborates earlier literature that consistently positioned CX as the foundation of positive consumer outcomes (De Keyser et al., 2020; Lemon & Verhoef, 2016). Yet, the study diverges in showing that Customer Trust strongly drives Loyalty (β = 0.625) but does not significantly influence Satisfaction, challenging prior studies where trust was found to shape both satisfaction and loyalty simultaneously (Rana et al., 2022; Dwivedi et al., 2021). Moreover, the finding that the interaction effect of CX × Trust on Loyalty is non-significant (β = –0.005) contradicts studies suggesting trust amplifies loyalty outcomes (Dong et al., 2024;). Instead, trust's moderating role was significant for CX → Satisfaction, indicating that trust strengthens immediate experiential evaluations rather than long-term loyalty in AI-driven settings. This nuanced result contributes to the literature by refining our understanding of when and where trust matters most in AI-mediated journeys.

From a managerial perspective, the findings hold important practical implications for firms deploying Voice AI and conversational marketing tools. The evidence that both VAC and CMF significantly improve CX suggests that organizations should invest in designing empathetic, transparent, and context-aware conversational systems to maximize consumer engagement (; ; Dong et al., 2024). The strong effect of CX on Satisfaction indicates that managers must prioritize seamless, multi-channel integration to deliver consistent experiences that generate immediate consumer fulfillment (Weidig et al., 2024; De Keyser et al., 2020). Furthermore, the robust impact of Trust on Loyalty highlights that cultivating long-term customer relationships depends heavily on building and maintaining trust in AI systems. This finding resonates with literature showing that trust reinforces repeat purchases and advocacy, but it also cautions managers that satisfaction alone may not secure loyalty (Dwivedi et al., 2021; Lemon & Verhoef, 2016). However, the non-significant moderation of trust on loyalty suggests that simply adding transparency features may not be sufficient; trust must be nurtured through continuous reinforcement across multiple interactions, rather than assumed as an automatic loyalty driver. Thus, businesses must strategically balance short-term satisfaction gains through CX with long-term trust-building practices to secure customer loyalty in AI-mediated environments.

Integrating theoretical, literature, and practical contributions, this study underscores the primacy of customer experience as the linchpin of AI-driven customer relationships, while also clarifying the conditional role of trust. The findings support prior studies showing that experience consistently predicts satisfaction and loyalty (; Dong et al., 2024;), yet they also highlight divergences by showing trust influences loyalty directly but not satisfaction, contrasting with studies where trust was essential for both (Dwivedi et al., 2021; Rana et al., 2022). This suggests that in practice, firms must treat CX and trust as complementary rather than interchangeable assets: CX drives short-term satisfaction, while trust builds long-term loyalty. The study also demonstrates that trust moderates the CX → Satisfaction link but not CX → Loyalty, refining existing literature by specifying that trust amplifies perceptions of fairness and transparency in experiences, but loyalty is more resistant to single-episode interventions. Collectively, these

insights contribute to advancing theory by refining trust's placement within CX models, extend literature by offering nuanced evidence of mediation and moderation, and provide actionable guidance for firms seeking to leverage AI technologies for sustainable customer relationships.

Conclusion

This study demonstrated that Voice AI capabilities and conversational marketing features significantly shape customer experience, which in turn strongly influences satisfaction and moderately predicts loyalty. The findings confirm that CX is the most critical driver of short-term outcomes, while trust plays a stronger role in long-term loyalty but has little direct impact on satisfaction (; ; Dong, Liu, & Wu, 2024). This aligns with prior work emphasizing CX as a mediator of consumer value but diverges from studies that placed trust as a universal antecedent of both satisfaction and loyalty (Dwivedi et al., 2021; Lemon & Verhoef, 2016). Theoretically, the study extends Customer Experience Theory by clarifying that trust enhances satisfaction when paired with transparent CX but does not always amplify loyalty, suggesting that trust must be conceptualized as a relational construct that matures over time (Weidig, Weippert, & Kuehnl, 2024; Rana et al., 2022).

From a practical perspective, the findings urge managers to prioritize seamless and transparent CX design, integrating personalization, empathy, and omni-channel consistency to maximize satisfaction (;). At the same time, trust-building remains essential for loyalty, requiring organizations to invest in ethical AI practices, fairness, and data transparency to reinforce long-term relationships (Dong et al., 2024; Dwivedi et al., 2021). The non-significant moderation of trust on loyalty suggests that single-episode experiences may not be enough to secure lasting commitment; rather, loyalty requires ongoing reinforcement across multiple interactions (Sussman, Bright, & Wilcox, 2023; Lemon & Verhoef, 2016). Thus, this study contributes by showing that CX is indispensable for satisfaction, while loyalty depends on the interplay of CX and sustained trust, providing both theoretical refinement and practical guidance for leveraging AI technologies in customer engagement.

Future Research Directions

While this study contributes significantly to understanding the role of Voice AI and conversational marketing in shaping customer experience, satisfaction, trust, and loyalty, it is not without limitations. Methodologically, the use of a cross-sectional survey design limits causal inference, as relationships were tested at one point in time rather than across multiple touchpoints or contexts (; Dong, Liu, & Wu, 2024;). Future research should employ longitudinal designs or experimental approaches to capture the evolution of trust and loyalty over repeated interactions. Additionally, the study focused on a single-country sample (Pakistan), which may restrict generalizability, as cultural differences shape perceptions of AI, trust, and satisfaction (Dwivedi et al., 2021; Lemon & Verhoef, 2016). Expanding this research across multiple countries could enhance cross-cultural insights and refine theoretical models. Theoretically, the study applied Customer Experience Theory with trust as a mediator/moderator, but future work could integrate complementary frameworks such as Technology Acceptance Model (TAM) or Relationship Marketing Theory to capture additional drivers like perceived ease of use or

emotional attachment (Rana et al., 2022; De Keyser et al., 2020). Finally, while SmartPLS-SEM was appropriate for testing mediation and moderation, future work may benefit from fsQCA or multi-group analysis to capture configurational and demographic nuances that SEM alone may not detect.

For practitioners, the results highlight the need to prioritize customer experience design as the strongest predictor of satisfaction and a key enabler of loyalty. Firms should focus on delivering empathetic, context-aware, and transparent AI-driven interactions that reduce friction and foster immediate satisfaction (Weidig, Weippert, & Kuehnl, 2024; Sussman, Bright, & Wilcox, 2023;). The finding that trust significantly predicts loyalty implies that businesses must go beyond functional efficiency to invest in ethical AI governance, privacy protection, and fairness, ensuring that long-term consumer confidence is maintained (Dong et al., 2024; Dwivedi et al., 2021). Managers should recognize that satisfaction does not automatically translate into loyalty; loyalty requires consistent reinforcement across multiple interactions and is more dependent on building sustained trust than one-time experiences (Rana et al., 2022; Lemon & Verhoef, 2016). This suggests practical strategies such as ongoing transparency reports, user control over personalization, and robust feedback loops to strengthen relational bonds. Moreover, as AI technologies are globally deployed, managers must adapt AI strategies to cultural and market contexts, ensuring that conversational systems resonate with diverse customer expectations. Collectively, these implications guide organizations toward balancing short-term satisfaction with long-term loyalty, demonstrating that customer experience and trust are complementary levers for competitive advantage in AI-driven marketing.

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