Trust and Privacy Concern in AI-Powered Chatbot: A Conceptual Framework for Customer Purchase Intention in Malaysia Apparel SMEs

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ABSTRACT

Artificial intelligence (AI) technologies, particularly chatbots, are transforming customer service by enhancing efficiency, consistency, and personalization; however, their adoption within small and medium-sized enterprises (SMEs) in Malaysia's apparel sector remains limited despite the sector's critical contribution to the national economy. This conceptual paper investigates how AI-powered chatbots influence customer purchase intention by addressing three key service dimensions: 24/7 availability, response consistency, and personalized interactions, while positioning trust as a mediating mechanism and privacy concern as a moderating factor that together shape how customers perceive and respond to chatbot-driven services. Using a critical review of extant literature and theoretical foundations drawn from the Technology Acceptance Model, Service Quality Theory, and Expectation Confirmation Theory, the study develops a conceptual framework that advances three propositions linking chatbot attributes to purchase intention. The results of this theoretical synthesis suggest that chatbots can mitigate SMEs' operational constraints, improve customer satisfaction, and strengthen competitiveness in digital markets. The paper contributes theoretically by extending technology adoption and service quality discussions into the SME context, and practically by offering strategic insights for managers and policymakers seeking cost-effective digital transformation solutions. Finally, directions for future empirical research are outlined, including testing the framework across industries and cultural contexts to validate its applicability.

Keywords: Artificial Intelligence (AI); Chatbot; Small and Medium-Sized Enterprises (SME); Customer Purchase Intention; Technology Adoption.

INTRODUCTION

Artificial intelligence (AI) has increasingly transformed how businesses interact with consumers, reshaping expectations for immediacy, efficiency, and personalization. Among AI applications, chatbots have emerged as one of the most widely adopted tools in customer service. Chatbots are AI-driven conversational agents designed to simulate human interactions, provide real-time responses, and support decision-making processes across industries (Huang & Rust, 2021). In global markets, large corporations and e-commerce platforms have already deployed chatbots to deliver round-the-clock support, automate repetitive tasks, and enhance customer satisfaction. The growing sophistication of natural language processing (NLP) and machine learning has enabled chatbots to move beyond scripted interactions to provide contextualized and personalized responses that can influence consumer trust, loyalty, and purchase intention (Grewal, Roggeveen, & Nordfält, 2020; Kim & Lee, 2021).

In recent years, scholars have noted that AI adoption has not only optimized operations but also created strategic opportunities for firms to compete in digital ecosystems (Xu, Liu, & Gursoy, 2020). Nevertheless, while the potential of AI chatbots has been well documented in developed economies and among large firms, their adoption within small and medium-sized enterprises (SMEs) has remained uneven. SMEs typically lack the scale,

financial resources, and specialized expertise needed to implement advanced digital technologies, leaving them more vulnerable to disruption and competitive pressures (Miraz, Chowdhury, & Akter, 2024). This discrepancy has opened a pressing research gap: understanding how AI chatbots can be effectively deployed in SMEs to improve customer outcomes, particularly in emerging markets.

In Malaysia, SMEs have been recognized as the backbone of the economy. They account for 97.4% of total business establishments, contribute 38.4% to gross domestic product (GDP), and provide nearly half of national employment (SME Corp Malaysia, 2023). Policymakers have positioned SMEs as central to Malaysia's digital transformation agenda under the Malaysia Madani framework, which emphasizes inclusivity, sustainability, and innovation (Ministry of Finance, 2023). Despite this policy push, many SMEs remain slow in adopting advanced digital technologies such as AI chatbots due to challenges of cost, skills, and readiness (Loo, Ramachandran, & Raja Yusof, 2023).

The apparel industry represents a particularly relevant case for examining AI adoption. As one of the fastest-growing segments of Malaysia's SME sector, apparel businesses are highly exposed to digital shifts through online retailing, social commerce, and cross-border e-commerce. Consumers in this sector demand immediate responses to queries about size, availability, material, and delivery, as well as personalized recommendations that reflect style preferences. Yet SMEs in apparel have often struggled to provide consistent, reliable, and timely service because they depend heavily on human agents who are limited by working hours, prone to fatigue, and inconsistent in quality (Huang, Behnam, & Keyvan, 2018). These service gaps have been linked to shopping cart abandonment, low conversion rates, and weak customer retention (Mogaji, Olaleye, & Ukpabi, 2021). The inability of apparel SMEs to meet such expectations underscores the urgency of exploring AI-enabled solutions that can bridge these gaps.

Although there is a growing body of literature on chatbots, much of it has concentrated on technical design, operational efficiency, or consumer acceptance in large organizations (Xu et al., 2020; Kim & Lee, 2021). Fewer studies have investigated SMEs, and even fewer have focused on the apparel sector in developing economies such as Malaysia. Existing research has also tended to examine adoption drivers, such as cost, perceived usefulness, and organizational readiness (Sharma et al., 2022), rather than downstream consumer behavior. There remains limited theorization on how chatbot attributes, such as service availability, consistency of responses, and personalization, shape customer purchase intention within SME contexts.

This paper has therefore sought to address these gaps by developing a conceptual framework that links AI chatbot features to customer purchase intention in Malaysian apparel SMEs. Specifically, the framework has focused on three attributes: (1) 24/7 availability, (2) response consistency, and (3) personalization. These constructs have been selected because they represent both consumer expectations in digital commerce and persistent pain points in SME service delivery. By drawing on established theories, including the Technology Acceptance Model (TAM), Service Quality Theory, and Expectation Confirmation Theory, this framework has synthesized insights from AI adoption and consumer behavior literatures to advance new propositions on chatbot impacts, introducing trust as a mediating mechanism that connects chatbot service attributes to purchase intention, and privacy concern as a moderating factor that shapes the strength of this relationship.

The novelty of this research lies in shifting the analytical focus from adoption determinants to consumer behavioral outcomes in the SME sector. While prior studies have emphasized why SMEs adopt or resist AI technologies, this study has highlighted how chatbot attributes may drive purchase intention, a critical outcome for competitiveness and sustainability in the apparel industry. By concentrating on Malaysia, the study has further contributed to filling the geographic gap in AI adoption research, which has been dominated by evidence from Western or large-firm contexts.

The significance of this paper has been both theoretical and practical. Theoretically, it has extended technology adoption and service quality frameworks into the underexplored terrain of SMEs in emerging economies. Practically, it has offered strategic insights for SME managers on deploying chatbots as cost- effective tools to overcome labor shortages, reduce operational inefficiencies, and meet consumer expectations. The framework has also aligned with national and international policy agendas, including Malaysia's Madani vision and the United Nations' Sustainable Development Goal 9, which emphasizes innovation, industry, and infrastructure.

By integrating these perspectives, the paper has demonstrated how SMEs in apparel can leverage AI chatbots not only to enhance customer purchase intention but also to contribute to broader economic resilience and sustainability.

LITERATURE REVIEW

The growing body of research on artificial intelligence (AI) in customer service has highlighted the transformative potential of chatbots in enhancing service quality, efficiency, and customer engagement. Over the past decade, scholars have examined chatbot adoption across diverse industries, demonstrating benefits such as cost reduction, 24/7 service provision, and increased personalization (Adam, Wessel, & Benlian, 2021; Kim & Lee, 2021). However, the literature remains fragmented, with many studies focusing on large corporations or developed economies, while small and medium-sized enterprises (SMEs) particularly in the apparel sector of emerging markets have received comparatively limited scholarly attention (Mogaji, Olaleye, & Ukpabi, 2021). Existing research has also tended to emphasize adoption drivers or technical development, while less effort has been devoted to systematically theorizing how specific chatbot attributes influence customer purchase intention.

This review therefore synthesizes and critically evaluates prior scholarship to identify how three chatbot features; 24/7 availability, response consistency, and personalization, have affect customer behavior, particularly purchase intention. These themes have been selected because they represent the most commonly cited service quality dimensions in the literature, as well as the most pressing challenges faced by SMEs in digital service delivery. By organizing the literature along these dimensions, the review highlights convergent and divergent findings, methodological limitations, and unaddressed gaps that justify the development of the conceptual framework proposed in this paper.

The review is structured as follows. First, it examines studies on 24/7 availability, emphasizing its role in ensuring service continuity and convenience but also discussing its limitations. Second, it reviews evidence on response consistency, considering both the positive impact of reliable information and the risks of automated uniformity. Third, it evaluates research on personalization, which have been recognized as key drivers of engagement and trust in digital service contexts, while also highlighting trust as a mediating mechanism through which personalized interactions influence purchase intention, and privacy concern as a moderating factor that can strengthen or weaken this relationship depending on customers' perceptions of data use and security. Finally, the review turns to customer purchase intention, synthesizing studies that link chatbot attributes to behavioral outcomes while noting unresolved contradictions and contextual gaps. Together, this synthesis provides the theoretical foundation for the propositions advanced in this study and underscores the novelty of applying these insights to Malaysian apparel SMEs.

chatbot availability

A prevailing theme within the scholarly discourse emphasizes that continuous, round-the-clock service accessibility constitutes one of the most distinctive and consequential advantages of chatbot technology. Studies in e-commerce and retail services have demonstrated that continuous availability enhances perceived service convenience, reduces customer frustration, and lowers the likelihood of shopping cart abandonment (Mogaji et al., 2021). Adam et al. (2021) confirmed that 24/7 access contributes to perceptions of reliability and responsiveness, particularly in digital commerce contexts where customers expect immediate assistance.

Yet, more recent research has highlighted the nuances of availability. Wang, Chen, and Park (2025) found that constant availability, if not matched with rapid response times, can actually generate dissatisfaction. This aligns with emerging human–AI interaction studies showing that customers penalize bots that are always "on" but too slow to respond. In other words, availability without timeliness may erode perceived usefulness. Furthermore, demographic studies reveal that younger consumers place higher value on immediate access, while older consumers show more tolerance for service delays, suggesting segment- specific effects.

Despite these insights, SME-focused evidence remains scarce. Most studies have been conducted in large corporations or platform-based e-commerce contexts, leaving unanswered how 24/7 availability affects purchase intention in resource-constrained SMEs, particularly in the apparel industry where customer inquiries often

involve complex and time-sensitive product decisions.

Response consistency

Consistency of responses has been strongly linked to perceptions of service reliability and trust. Chatbots, leveraging centralized knowledge bases, can provide uniform and accurate responses across multiple interactions (Huang, Behnam, & Keyvan, 2018). This uniformity reduces cognitive effort and minimizes customer confusion, particularly when dealing with product specifications or return policies. Chen, Zhang, and Li (2025) demonstrated that consistent responses significantly improved customer evaluations of service quality, which in turn influenced their intention to remain loyal to an online store.

However, scholars have also warned of the paradox of automated consistency. Ferraro, Pirolo, and Sorrentino (2024) argued that while automation minimizes human error, it also risks amplifying systematic errors if the knowledge base contains incorrect information. Moreover, over-scripted and excessively uniform responses may appear rigid and robotic, diminishing customer engagement. Zhang, Wang, and Li (2024) provided evidence that transparency cues, such as justifying response delays or

clarifying limitations, can buffer negative reactions to inconsistencies, suggesting that some degree of adaptive flexibility is desirable.

The literature thus converges on the view that procedural consistency (e.g., policies, pricing, delivery terms) is critical for building trust, but interactional flexibility (e.g., tone and empathy) should be preserved to humanize the experience. Yet few studies have disentangled these sub-dimensions to examine their unique contributions to purchase intention, representing a gap especially relevant for SMEs where consistent service quality remains a challenge.

Personalization

Personalization has become a defining factor in consumer evaluations of chatbot service quality. Whang, Song, Lee, and Choi (2022) showed that tailored chatbot messages increase customer perceptions of ease and understanding, which positively affect purchase intention. Similarly, Zhang, Li, and Wang (2024) found that personalized recommendations significantly improved receptivity, particularly when they aligned with prior browsing histories. These findings underscore personalization as a pathway to engagement and trust.

Contradictions have also emerged. Ding, Li, and Xu (2024) observed that while anthropomorphic cues often enhance personalization, they can also trigger privacy concerns, reducing trust. Over- personalization may thus backfire, especially when customers suspect intrusive use of personal data. Despite growing evidence, SME-specific studies remain limited, and little is known about how personalization–timeliness synergies operate under SME constraints in the apparel sector.

Customer purchase intention

The literature examining the direct impact of chatbots on purchase intention has expanded since 2020, with most studies highlighting positive effects mediated through trust, satisfaction, and perceived usefulness. Kim and Lee (2021) confirmed that personalization enhances satisfaction and trust, which subsequently increase purchase intention. Adam et al. (2021) argued that chatbot-enabled convenience reduces perceived effort, indirectly supporting purchase decisions. Chen et al. (2025) further identified chatbot service quality dimensions as antecedents of both switching and purchase behaviors.

Nonetheless, contradictions persist. Ferraro et al. (2024) warned that when chatbots are perceived as overly robotic or incompetent, they can undermine trust and reduce intention to purchase. Some evidence also suggests that while consumers appreciate efficiency, they disengage when empathy is lacking, reflecting a tension between automation and human-like warmth. Importantly, the causal mechanisms linking specific chatbot attributes to purchase intention remain under-theorized, as most studies examine adoption broadly without disaggregating features such as availability, consistency, and timeliness.

Moreover, empirical work has been dominated by developed market contexts, often within multinational corporations or platform ecosystems. The SME apparel context in Malaysia where firms face acute resource constraints and consumers expect both affordability and high service quality remains largely unexamined. Addressing this gap is crucial, as SMEs are disproportionately affected by their ability (or inability) to convert customer engagement into purchase intention.

Trust as mediator

Trust has long been recognized as a central determinant of consumer behavior in online and technology-mediated exchanges. In chatbot interactions, trust functions as a psychological mechanism that reduces uncertainty and perceived risk, thereby bridging service quality perceptions and purchase intention (Kim & Lee, 2021). Empirical evidence consistently demonstrates that chatbot attributes such as availability, consistency, and personalization do not directly influence purchase behavior; instead, their effects are largely mediated through trust (Chen, Zhang, & Li, 2025). For instance, personalization that aligns with customer preferences fosters perceptions of empathy, which enhances trust and, in turn, increases purchase likelihood (Whang, Song, Lee, & Choi, 2022). Similarly, consistent and transparent responses have been shown to reinforce reliability, another cornerstone of trust in digital interactions (Huang, Behnam, & Keyvan, 2018).

However, studies also reveal contradictions. Ferraro, Pirolo, and Sorrentino (2024) argued that while automation can build reliability, it may simultaneously erode trust if perceived as excessively robotic or lacking empathy. Zhang, Wang, and Li (2024) further suggested that transparency cues, such as admitting limitations or justifying delays, can preserve trust when service consistency falters. These findings imply that trust is not an automatic outcome of chatbot service but must be actively nurtured through a balance of accuracy, adaptability, and relational warmth.

Despite its prominence, trust has rarely been theorized as an explicit mediator in SME contexts, particularly in emerging economies. Most prior research has been situated in large corporate or platform- based e-commerce ecosystems, overlooking how SMEs where brand equity and consumer familiarity are often weaker, rely disproportionately on trust to secure purchase intentions. This represents a key research gap that justifies the inclusion of trust as a mediating construct in this framework.

Privacy concern as moderator

Alongside trust, privacy concern has emerged as a critical determinant of consumer acceptance of AI- powered services. Privacy concern reflects customer apprehension about how personal data is collected, stored, and used, and has been found to moderate relationships between service perceptions and behavioral intentions (Ding, Li, & Xu, 2024). In chatbot contexts, excessive personalization or data-driven recommendations can raise suspicions of intrusive surveillance, thereby weakening the trust–purchase intention link (Meng, Li, & Zhang, 2025).

Evidence shows that consumers differ significantly in their privacy thresholds. Some segments, particularly digital natives, are more comfortable sharing information in exchange for personalized services, while others disengage when they perceive an erosion of autonomy or data security (Wang, Chen, & Park, 2025). Over-personalization, therefore, may backfire by triggering privacy concerns that override the benefits of convenience or personalization (Zhang, Li, & Wang, 2024).

Yet, empirical studies that explicitly test privacy concern as a moderator remain scarce. Most research treats privacy as a standalone barrier to adoption rather than a boundary condition that shapes existing relationships. This omission is particularly problematic in SMEs, where limited resources may hinder robust data governance practices, potentially heightening consumer apprehensions. By introducing privacy concern as a moderating factor, this study addresses an important theoretical gap and acknowledges that even in the presence of trust, consumer hesitation can persist when privacy risks are salient.

CONCEPTUAL FRAMEWORK AND PROPOSITIONS

Building on the foundations of the Technology Acceptance Model (TAM), Service Quality Theory, and Expectation Confirmation Theory (ECT), this study proposes an extended conceptual framework that explains

how AI-powered chatbot attributes; availability, response consistency, and personalization; affect customer purchase intention in Malaysian apparel SMEs. The novelty of this framework lies in introducing trust as a mediating mechanism and privacy concern as a moderating boundary condition, thereby providing a more nuanced understanding of consumer decision-making in digital service contexts.

The relationship between chatbot availability and customer trust

Availability reflects the capacity of chatbots to provide continuous service, addressing customer queries at any time of day. This constant accessibility enhances perceptions of responsiveness and usefulness, which are central to trust formation. Empirical studies confirm that service availability reduces uncertainty and enhances reliability perceptions, thereby strengthening trust (Adam, Wessel, & Benlian, 2021; Wang, Chen, & Park, 2025). For SMEs with limited human resources, chatbot availability signals competence and dependability, both of which are antecedents of consumer trust.

Proposition 1 (P1): The availability of AI-powered chatbots positively influences customer trust in apparel SMEs.

The relationship between chatbot response consistency and customer trust

Response consistency refers to the uniformity and accuracy of chatbot replies across interactions. Consistency provides customers with reliable information and reduces ambiguity, reinforcing perceptions of credibility. Previous research shows that consistency in service delivery is strongly associated with higher trust and satisfaction (Huang, Behnam, & Keyvan, 2018; Chen, Zhang, & Li, 2025). However, automated systems also risk amplifying errors if the knowledge base is inaccurate (Ferraro, Pirolo, & Sorrentino, 2024). Transparency cues, such as acknowledging system limitations, can mitigate these risks (Zhang, Wang, & Li, 2024). For apparel SMEs, consistent responses about product availability, sizes, and delivery timelines are vital for building consumer trust.

Proposition 2 (P2): The response consistency of AI-powered chatbots positively influences customer trust in apparel SMEs.

The relationship between chatbot personalization and customer trust

Personalization captures the chatbot's ability to tailor interactions and recommendations to individual customer needs, including size guidance, style suggestions, and past purchase references. Personalized service demonstrates attentiveness and empathy, both of which foster stronger trust in digital interactions (Kim & Lee, 2021; Whang, Song, Lee, & Choi, 2022). When personalization is delivered effectively and promptly, it signals care and relevance, enhancing trust. Nonetheless, excessive personalization can raise privacy concerns, which may undermine trust if perceived as intrusive (Ding, Li, & Xu, 2024). For SMEs, responsible personalization that balances relevance with privacy assurance is critical to trust formation.

Proposition 3 (P3): The personalization of AI-powered chatbots positively influences customer trust in apparel SMEs.

The Mediating Role of Trust in Shaping Customer Purchase Intention

Trust plays a pivotal role as a mediator between chatbot attributes and purchase intention. Customers are more likely to convert interactions into purchases when they perceive the service provider as trustworthy. Trust reduces perceived risk, increases satisfaction, and facilitates decision-making in uncertain digital environments (Kim & Lee, 2021; Chen et al., 2025). In the apparel SME context, where product fit and quality concerns often deter online purchases, trust becomes the key mechanism through which chatbot service attributes translate into purchase intention.

Proposition 4 (P4): Customer trust positively influences purchase intention in apparel SMEs and mediates the relationship between chatbot attributes (availability, response consistency, personalization) and purchase intention.

The Moderating Role of Privacy Concern in the Trust–Purchase Intention Relationship

While trust fosters purchase intention, the strength of this relationship may vary depending on privacy concern. Customers with high privacy concerns may hesitate to act on trust due to fears of data misuse or intrusive personalization (Ding et al., 2024). Conversely, customers with low privacy concerns are more likely to translate trust into actual purchase intention. Thus, privacy concern acts as a moderator, weakening or strengthening the effect of trust on purchase decisions.

Proposition 5 (P5): Privacy concern moderates the relationship between customer trust and purchase intention, such that the relationship is weaker when privacy concern is high and stronger when privacy concern is low.

The Conceptual Framework Diagram

Figure 1: The conceptual framework diagram
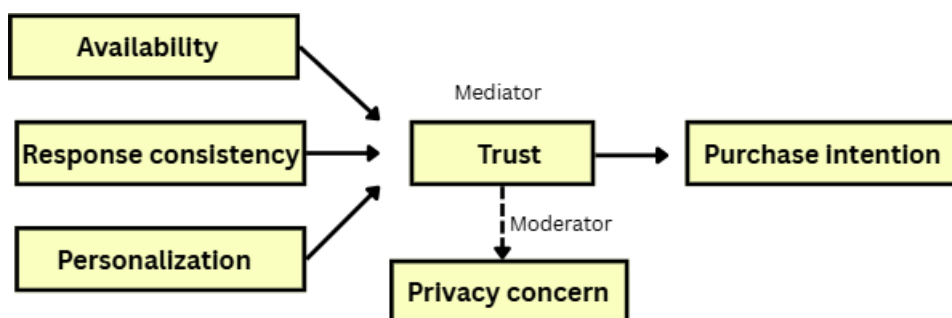
This framework integrates direct effects (relationship between independent variables and trust), mediation (mediating roles of trust toward purchase intention), and moderation (Privacy Concern), offering a multi-level explanation of how chatbot features influence consumer decision-making in SMEs.

DISCUSSION

This study has developed a conceptual framework that explains how AI-powered chatbot attributes; availability, response consistency, and personalization can shape customer purchase intention in Malaysian apparel SMEs. The framework introduces trust as a mediator and privacy concern as a moderator, extending existing models of technology adoption and consumer behavior. The inclusion of these relational mechanisms distinguishes this paper from prior research, which has primarily emphasized direct adoption or satisfaction outcomes (Sharma, Singh, & Tiwari, 2022; Adam, Wessel, & Benlian, 2021).

Contribution to Theory

The first theoretical contribution is the extension of the Technology Acceptance Model (TAM). Traditional TAM studies have explained how perceived usefulness and ease of use drive adoption (Venkatesh & Davis, 2020). This study advances TAM by showing that availability, consistency, and personalization do not simply influence adoption but work through trust to affect purchase intention. Trust thus becomes a mediating mechanism linking service attributes to consumer behavior.

Second, this study extends Service Quality Theory by demonstrating how SERVQUAL dimensions; responsiveness, reliability, and empathy, operate in AI-enabled contexts through the development of trust. Availability maps to responsiveness, consistency maps to reliility, and personalization maps to empathy, but these qualities only influence purchase intention when customers trust the chatbot and its provider (Chen, Zhang, & Li, 2025). The novelty lies in positioning trust as the missing link between chatbot service quality and consumer behavior.

Third, the study introduces privacy concern as a moderating factor, refining both TAM and ECT. Prior studies

have recognized that over-personalization can create privacy risks (Ding, Li, & Xu, 2024). This framework formalizes privacy concern as a boundary condition that weakens the trust–purchase link: even when trust is established, high privacy concerns can suppress purchase intention. By integrating privacy concern into the model, the framework advances boundary-spanning theorization in chatbot adoption research, offering a nuanced understanding of consumer decision-making.

Finally, compared with earlier frameworks that emphasized direct adoption determinants (e.g., TAM- based models) or continuance satisfaction (ECT-based models), this paper offers a multi-layered, conditional explanation of purchase behavior: (i) chatbot attributes influence trust, (ii) trust mediates purchase intention, and (iii) privacy concern moderates this mediated path. This integrative approach represents a substantive advancement in theorizing AI-driven consumer behavior in SMEs.

Contribution to Practice

At the policy level, this framework aligns closely with Malaysia's Madani vision and the United Nations' Sustainable Development Goal 9 (SDG 9: Industry, Innovation, and Infrastructure), both of which emphasize inclusive innovation and sustainable digital transformation. As SMEs account for approximately 97.4% of Malaysia's business establishments, they are fundamental to national economic growth and employment (SME Corp Malaysia, 2023). Despite this, the digital adoption rate among SMEs remains uneven, and privacy concerns continue to deter both business owners and consumers from fully embracing AI-based tools.

To address these challenges, policymakers should not only provide incentives for chatbot adoption but also integrate trust-building and privacy assurance mechanisms into national digitalization strategies. Government-backed training and awareness programs can equip SME owners and employees with the technical and ethical competencies required to design trustworthy chatbot systems and manage customer data responsibly. Furthermore, regulatory frameworks that clearly define standards for data privacy, consent, and transparency would help reduce consumer apprehension and encourage responsible AI adoption.

Additionally, public–private partnerships can play a pivotal role in ensuring accessibility and affordability. By collaborating with technology providers, policymakers can facilitate the development of SME-specific chatbot solutions that are both cost-effective and compliant with data protection standards. Embedding trust and privacy considerations into Malaysia's broader digital transformation agenda would not only support the responsible integration of AI technologies but also advance the goals of inclusivity and resilience outlined in the Madani vision. In doing so, Malaysia can foster an ecosystem where SMEs are not only technologically equipped but also socially trusted, thereby contributing to the realization of SDG 9's call for sustainable industrialization and innovation-driven growth.

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CONCLUSION

This conceptual paper proposes an integrated framework explaining how AI-powered chatbots influence customer purchase intention in Malaysian apparel SMEs. Grounded in the Technology Acceptance Model (TAM), Service Quality Theory, and Expectation Confirmation Theory (ECT), the study identifies 24/7 availability, response consistency, and personalization as key chatbot attributes that enhance purchase intention through the mediating role of trust. Privacy concern is introduced as a moderating factor that conditions the strength of the trust–purchase relationship, thereby extending existing adoption and service quality models.

The framework contributes theoretically by linking technological and psychological dimensions of chatbot interactions, and practically by guiding SMEs to design trustworthy, privacy-conscious digital experiences. Future research should empirically validate this model through quantitative methods such as structural equation modeling, with potential extensions across industries and cultural contexts. Longitudinal and qualitative studies could further explore how trust and privacy perceptions evolve over time, offering a richer understanding of responsible AI adoption and its role in sustainable SME digital transformation.

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