



Impact of Artificial Intelligence in E-Commerce: Perceived Risk Structures, The Privacy Paradox, and Online Impulsive Buying Behavior Among Vietnamese Consumers

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ABSTRACT

This study investigates how Artificial Intelligence (AI) reshapes consumer decision-making in Vietnamese e-commerce by examining perceived risk structures, the personalization-privacy paradox, and AI-induced online impulsive buying. Using a Grounded Theory approach, 45 in-depth interviews were conducted with active online shoppers aged 18–35 across major platforms such as Shopee, Lazada, and TikTok Shop. Through open, axial, and selective coding, the study identifies four core mechanisms: algorithmic stimuli, privacy anxiety, trust calibration, and emotion-driven impulse buying. Findings reveal that despite heightened privacy concerns, digital nudges and hyper-personalized AI recommendations override cognitive resistance, triggering impulsive purchases. The study proposes a conceptual framework and offers ethical AI strategies for Vietnamese e-commerce platforms.

INTRODUCTION

The rapid expansion of the digital economy and continuous advancements in data science have fundamentally transformed the operational landscape of the global online retail sector (Wang et al., 2025). Within e-commerce ecosystems, Artificial Intelligence (AI) has evolved from a mere technical support tool into a core strategic driver that determines a firm's competitive advantage by optimizing user experience (Babatunde et al., 2022). By leveraging deep learning models and big data analytics, modern e-commerce platforms can capture, process, and interpret user digital footprints in real time (Ojika et al., 2023). This mechanism enables hyper-targeted content distribution, tailored product recommendations, and dynamic pricing models (AI-driven personalization) that align precisely with the immediate needs and psychological states of individual shoppers (Rahman, 2026).

In Vietnam, major e-commerce ecosystems such as Shopee, Lazada, and particularly TikTok Shop are witnessing aggressive AI integration designed to accelerate conversion rates and sales volume. The convergence of automated personalization features, live streaming commerce, and algorithmic recommendation loops has created a frictionless shopping environment that continuously triggers the consumption impulses of young consumer segments (Wang et al., 2025). However, the pervasive nature of AI systems—which constantly monitor, store, and analyze sensitive user inputs, including search histories, geolocation, scrolling behaviors, and even voice data—has triggered heightened levels of perceived risks among consumers (Tao et al., 2024).

This phenomenon brings the "personalization-privacy paradox" to the forefront of contemporary marketing literature. This paradox represents an internal cognitive conflict where consumers desire the convenience and accuracy of AI recommendations but simultaneously resist and push back against the invasive data extraction practices required to power these algorithms (Vu et al., 2026). As algorithmic anxiety escalates, consumers tend to establish defensive mechanisms or alter their purchasing decision-making processes (Tao et al., 2024). Interestingly, within Vietnam's pragmatic consumer culture and rapid digital shift, many users continue to engage in online impulse buying despite being fully aware of privacy vulnerabilities, largely driven by digital nudges deployed by agentic AI (Choubey & Chakraborty, 2026).

While international literature extensively discusses the technical capabilities of AI, empirical qualitative research that deconstructs the perceived risk structures and the psychological negotiation processes of consumers in emerging economies like Vietnam remains scarce. To bridge this literature gap, this study addresses three critical questions:

1. What are the core dimensions of the perceived risk structures among Vietnamese online consumers when interacting with AI applications in e-commerce?
2. What psychological processes govern the relationship between the privacy paradox, algorithmic trust, and online impulse buying?
3. What managerial strategies and technologies should businesses deploy to balance commercial efficiency with technological ethics?

By adopting a Grounded Theory approach, this study develops an empirical conceptual framework that contributes new theoretical insights to digital consumer behavior literature while offering actionable managerial implications for platform developers in Vietnam.

LITERATURE REVIEW

AI-Driven Personalization and the S-O-R Framework in E-Commerce

AI-driven personalization represents a paradigm shift from traditional market segmentation techniques. Next-generation AI systems, conceptualized as Agentic AI, possess autonomous interaction capabilities that shape user choice architectures through digital nudging mechanisms (Choubey & Chakraborty, 2026). The classic Stimulus-Organism-Response (S-O-R) framework serves as a robust theoretical lens to explain this behavior (Rahman, 2026). In AI-enabled e-commerce, environmental Stimuli comprises highly accurate algorithmic recommendations, tailored promotional messaging, and interactive Generative AI Word-of-Mouth (AI WOM) (Ma et al., 2026). These environmental cues directly act upon the consumer's internal Organism, triggering affective states, cognitive calculus, and trust calibration. The ultimate Response manifests as either system adoption or online impulse buying behavior – a rapid, unplanned purchase decision driven by immediate emotional arousal and a temporary lapse in cognitive self-regulation (Choubey & Chakraborty, 2026; Rahman, 2026).

The Personalization-Privacy Paradox and Algorithmic Anxiety

The personalization-privacy paradox remains a major theoretical barrier to sustainable e-commerce growth. Vu et al. (2026) define this as the psychological tension consumers experience when they realize that obtaining an optimized, time-saving shopping experience requires sacrificing personal data privacy. Excessive and opaque data harvesting by AI systems breeds "algorithmic anxiety," leading consumers to feel that their consumer autonomy is being compromised (Tao et al., 2024). Furthermore, Ma et al. (2026) demonstrate that consumer reactions to privacy risks are heavily conditional on product type. For hedonic products, consumers exhibit lower risk sensitivity and are more easily persuaded by multi-directional AI interactions. Conversely, for utilitarian products, shoppers demand higher technical accuracy and security, quickly initiating defensive mechanisms if they detect unauthorized data tracking.

The Dual-Path Model of Algorithmic Trust

To mitigate perceived privacy risks and facilitate purchasing behavior, trust acts as a critical mediating variable. In the AI era, Rahman (2026) introduced the Dual-Path Ethical Trust Model, which bifurcates consumer trust into two distinct dimensions:

- Cognitive Trust: Grounded in a rational assessment of the system's technical capability, utility, recommendation accuracy, and data accountability.
- Affective Trust: Built on perceived emotional security, privacy assurance, and the anthropomorphic warmth of human-AI interactions.

When perceived risks surge, affective trust is compromised first. To restore this trust structure, recent studies by Uchikoshi & Frank (2026) emphasize that firms cannot rely on superficial marketing rhetoric; instead, they must provide verifiable technical evidence of privacy ownership and metadata transparency to recalibrate consumer risk perceptions.

AI-Induced Impulsive Buying Behavior

Online impulsive buying has long been conceptualized as a spontaneous, emotionally driven purchasing act triggered by external stimuli and a temporary breakdown of self-regulation (Parboteeah et al., 2009; Shen & Khalifa, 2012). In digital environments, impulsive buying is amplified by interface design, product visibility, and contextual cues such as scarcity signals, countdown timers, and personalized promotions (Lim et al., 2022). The emergence of AI-driven personalization further intensifies these triggers by aligning recommendations with consumers' momentary psychological states, thereby increasing the likelihood of rapid, unplanned purchases. Recent studies highlight that AI systems particularly agentic AI create "hyper-frictionless" shopping environments where cognitive deliberation is minimized (Choubey & Chakraborty, 2026). Generative AI Word-of-Mouth (AI WOM) and algorithmic nudges enhance emotional arousal, especially for hedonic products, making consumers more susceptible to impulsive tendencies (Ma et al., 2026). Moreover, the personalization–privacy paradox interacts with impulsive buying: even when consumers recognize privacy risks, the immediate gratification offered by AI-driven recommendations often overrides long-term concerns (Vu et al., 2026).

In emerging markets such as Vietnam, impulsive buying is further shaped by cultural and contextual factors, including collectivistic conformity, social commerce trends, and the popularity of livestream shopping. These dynamics position AI not merely as a recommendation engine but as an active psychological catalyst that accelerates impulsive consumption.

METHODOLOGY

This study employs a qualitative research design rooted in a systematic Grounded Theory approach. This methodology is uniquely appropriate as it allows the researchers to discover and construct a conceptual framework directly from raw empirical data collected within the Vietnamese market, rather than imposing pre-existing Western theoretical models (Choubey & Chakraborty, 2026).

Sampling and Data Collection

Data was gathered through semi-structured in-depth interviews. Participants were selected using purposive sampling combined with snowball sampling to ensure data richness and demographic relevance.

The inclusion criteria required participants to:

- Be Vietnamese consumers aged between 18 and 35 (the demographic with the highest digital technology adoption rate).
- Shop on major e-commerce platforms (Shopee, Lazada, TikTok Shop) at least three times per month.

- Acknowledge awareness of AI-driven recommendations and have experienced online impulse buying (completing an unplanned purchase within five minutes of browsing).

A total of 45 in-depth interviews were conducted both in-person and online, with each session lasting between 45 and 75 minutes. Data collection was concluded at the 45th interview upon reaching theoretical saturation, meaning no new concepts or conceptual categories emerged from subsequent sessions. The interviews yielded over 350 pages of transcribed textual data.

Data Analysis and Coding Procedures

The textual data were imported into NVivo qualitative analysis software and subjected to a rigorous three-stage coding process:

- Open Coding: Breaking down raw text into discrete concepts. Line-by-line analysis extracted initial meaningful codes regarding perceived risk, trust, and consumption impulses.
- Axial Coding: Grouping, organizing, and establishing structural relationships among open codes to form higher-level axial categories. This stage mapped the specific connections between algorithmic stimuli, psychological states, and behavioral responses.
- Selective Coding: Identifying the core category that unifies all axial dimensions, which was subsequently developed into a comprehensive conceptual framework.

To establish inter-coder reliability, two researchers coded the data independently, achieving Cohen's Kappa coefficient above 0.85. Member checking was also performed by sharing the preliminary thematic findings with five participants to validate the accuracy of the synthesized interpretations.

RESULTS

The thematic analysis of the qualitative data from 45 Vietnamese consumers reveals a dynamic psychological trajectory where users continuously negotiate risk and convenience when interacting with AI in e-commerce.

The Grounded Theory Coding Structure

Table 1. Grounded Theory Coding Structure and Categorization

Core Categories	Axial Codes	Exemplary Open Codes (Direct Consumer Quotes)	Cross-Reference Literature
Algorithmic Stimulus	Hyper-targeting-Digital nudging-Interactive GenAI WOM	- "I searched for a lipstick on Google, and immediately, TikTok Shop displayed that exact item with an exclusive discount" (Female, 22). - "The app constantly counts down the voucher expiration, giving me the feeling that I'll lose out if I don't checkout right now" (Male, 25).	Choubey & Chakraborty (2026); Ma et al. (2026)

Perceived Risk Structure	- Privacy anxiety- Loss of autonomy- Algorithmic bias	- "Sometimes it feels creepy because it seems like my phone is eavesdropping on my offline conversations just to push ads" (Female, 27). - "The algorithm locks me into a specific taste profile; I no longer see alternative product varieties" (Male, 21). - "I know the system tracks my data, but because it finds items so quickly and cheaply, I choose to overlook it" (Female, 24).	Tao et al. (2024); Vu et al. (2026)
	- Risk-benefit trade-off- Feature-based utility	- "I only trust a purchase if the shop itself has high ratings; I still double-check the AI's suggestions" (Male, 30). - "Watching an AI livestream avatar speak so naturally, combined with a pop-up voucher, made me buy instantly without thinking" (Female, 20).	
Trust Calculus & Calibration	- Emotion-led impulse buying- Compensatory consumption- Passive defense	- "I revoke location and microphone access for shopping apps because they feel overly intrusive" (Male, 29).	Rahman (2026); Tao et al. (2024)
Behavioral Outcome			Choubey & Chakraborty (2026); Babatunde (2022)

The Conceptual Framework

Based on the structural relationships between the axial categories, this study proposes a conceptual framework tracking the trust calibration process and impulse buying behavior under AI-driven e-commerce in Vietnam. The framework demonstrates that consumer behavior moves through three linear phases:

- Phase 1 (Environmental Stimuli): AI operates as an autonomous entity (Agentic AI), generating continuous digital nudges by embedding hyper-targeted recommendations into the user's choice architecture during emotionally vulnerable moments (Choubey & Chakraborty, 2026).
- Phase 2 (Internal Conflict): Consumers navigate the "Personalization-Privacy Paradox." A cognitive privacy calculus takes place. If cognitive trust (utility, speed) and hedonic motivation outweigh privacy anxieties, the consumer advances to the final phase (Rahman, 2026).
- Phase 3 (Behavioral Response): A failure in emotional self-regulation translates directly into online impulse buying. Conversely, if algorithmic anxiety dominates, consumers deploy defensive mechanisms, such as terminating the session or restricting app data permissions (Vu et al., 2026).

DISCUSSION

Theoretical Contributions

This study enriches the theoretical discourse on AI-enabled consumer behavior by integrating Grounded Theory with the S-O-R framework to explain how algorithmic stimuli translate into impulsive buying within emerging markets. The findings extend personalization-privacy paradox literature by demonstrating that trust calibration is a dynamic negotiation process rather than a static psychological state. Specifically, the dual-path trust mechanism—comprising cognitive trust (accuracy, utility) and affective trust (emotional comfort, privacy assurance)—operates as a compensatory filter that allows consumers to rationalize privacy intrusions in exchange for convenience. This contributes new insights to global privacy paradox theory by highlighting how cultural pragmatism and hedonic motivations shape risk perception and behavioral outcomes.

Cultural Insights

Vietnamese consumers exhibit a distinctive pattern of digital pragmatism: they willingly trade privacy for convenience, discounts, and social validation. Unlike Western consumers who often resist intrusive personalization, young Vietnamese shoppers perceive data tracking as an acceptable cost of participation in digital commerce. Collectivistic norms and social conformity amplify this tendency, especially in livestream shopping environments where peer influence and real-time interaction heighten emotional arousal. These cultural dynamics explain why AI-driven impulsive buying is particularly pronounced in Vietnam and underscore the importance of contextualizing global theories within local socio-cultural frameworks.

Practical Implications

The results reveal that AI-driven nudges, hyper-targeted recommendations, and interactive AI WOM significantly increase impulsive buying tendencies among Vietnamese consumers. E-commerce platforms should therefore adopt ethical AI strategies to balance commercial efficiency with consumer autonomy. Transparent recommendation logic, granular consent mechanisms, and algorithmic fairness audits can reduce perceived privacy risks and strengthen trust. Integrating blockchain-based metadata transparency may further enhance affective trust by giving users greater control over their data. For practitioners, designing “responsible nudges” that support informed decision-making—rather than exploiting cognitive vulnerabilities—will be essential for sustaining long-term consumer loyalty.

Managerial Strategy Matrix

Beyond the general practical implications discussed above, the findings of this study indicate that Vietnamese e-commerce platforms must adopt a more structured and technically grounded approach to managing AI-driven risks. While consumers demonstrate high tolerance for personalization, their trust remains fragile and easily disrupted by opaque data practices, intrusive nudging, or perceived algorithmic manipulation. Therefore, translating ethical AI principles into concrete operational strategies becomes essential for sustaining long-term engagement.

To support practitioners, this study synthesizes the empirical insights from Vietnamese consumers and aligns them with contemporary AI governance literature to propose a Managerial Strategy Matrix. This matrix outlines actionable interventions across key risk dimensions privacy, trust, and financial security—providing platforms with a practical roadmap for implementing responsible and culturally sensitive AI systems.

Table 2. Managerial Strategy Matrix for E-Commerce Platforms in Vietnam

Perceived Risk Dimension	Empirical Insights	Proposed Managerial Strategy	Technical & Theoretical Validation
Implicit Privacy Infringement	Consumers experience anxiety due to hyper-frequent ad retargeting, causing emotional fatigue.	- Implement granular, user-friendly opt-in/opt-out consent flows.	Vu et al. (2026); Tao et al. (2024)
		- Capping ad retargeting frequencies to minimize technical intrusiveness.	
Algorithmic Trust Deficit	Shoppers question the authenticity of GenAI reviews and fear price discrimination (dynamic pricing).	- Clarify the logic behind recommendations using simple text (e.g., "Recommended because you searched for Item A").	Rahman (2026); Choubey & Chakraborty (2026); Ma et al. (2026)
		- Conduct independent algorithmic fairness audits.	
Financial Data Security Risks	Users are hesitant to provide credit card or bank details to automated AI chatbots for processing orders.	- Integrate decentralized, blockchain-based security architectures. - Grant users data anonymity and privacy ownership over transactional metadata.	Uchikoshi & Frank (2026)

Closing Remark for Discussion

Overall, the findings highlight that AI-driven personalization in Vietnam operates within a unique socio-cultural context where convenience, social conformity, and hedonic motivations frequently outweigh privacy concerns. This underscores the need for e-commerce platforms to adopt ethical, transparent, and culturally sensitive AI strategies to maintain long-term consumer trust.

CONCLUSION

Theoretical Contributions

This study advances theoretical understanding of AI-driven consumer behavior by proposing a conceptual framework that links algorithmic stimuli, perceived risk structures, trust calibration, and impulsive buying. The integration of Grounded Theory with the S-O-R model offers a novel explanation of how consumers in emerging markets negotiate the personalization–privacy paradox. The dual-path trust mechanism identified in this study provides a refined lens for examining how cognitive and affective trust jointly mediates the relationship between AI personalization and behavioral outcomes.

Practical Implications

The findings highlight the need for e-commerce platforms to adopt ethical AI practices that prioritize transparency, privacy assurance, and user autonomy. Firms should implement clear data-use disclosures, reduce intrusive nudging, and provide user-friendly privacy controls. Blockchain-based security architectures may serve as a viable solution for enhancing data integrity and restoring consumer trust. For platform developers, designing AI systems that balance personalization with ethical responsibility will be critical for sustaining long-term engagement and reducing algorithmic anxiety.

Future Research Directions

Future studies should validate the proposed conceptual framework using large-scale quantitative methods such as PLS-SEM to examine causal relationships across diverse demographic groups. Comparative studies between urban and rural consumers, or across Southeast Asian markets, may reveal additional cultural moderators of AI-induced impulsive buying. Further research should also explore the effectiveness of emerging privacy-preserving technologies such as federated learning, edge computing, or blockchain—in mitigating privacy concerns while maintaining personalization accuracy.

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