



## **AI personalization in marketing management: Consumer trust and purchase behavior in social commerce**

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### **Abstract**

*The rapid diffusion of artificial intelligence (AI) in social commerce platforms has fundamentally transformed how brands engage consumers through personalized marketing interventions. Despite growing scholarly interest in AI-driven personalization, the mediating role of consumer trust between AI personalization mechanisms and actual purchase behavior remains insufficiently examined, particularly within the social commerce context of developing economies. This study investigates the effects of AI personalization and perceived personalization on consumer trust and subsequent purchase behavior, with privacy concern as a moderating variable. A quantitative approach using Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed with data collected from 287 active social commerce users in Indonesia. Results reveal that AI personalization and perceived personalization positively and significantly influence consumer trust, which in turn mediates the relationship with purchase behavior. Privacy concern exerts a significant negative effect on consumer trust. These findings extend the Personalization-Privacy Paradox theory to the social commerce context and offer actionable implications for marketers deploying AI-based personalization systems.*

**Keywords:** *AI personalization, consumer trust, privacy concern, purchase behavior, social commerce.*



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## **INTRODUCTION**

The convergence of artificial intelligence (AI) and social commerce has created a new frontier in consumer marketing, wherein algorithmic recommendation systems and behavioral targeting mechanisms are now integral features of major platforms such as Instagram Shopping, TikTok Shop, and Shopee. These systems leverage vast repositories of user-generated data to deliver hyper-personalized product recommendations, promotional content, and interactive purchasing experiences. As social commerce transactions reached an estimated global value of USD 1.3 trillion in 2023, the strategic deployment of AI personalization has emerged as a critical source of competitive differentiation for digital retailers (Statista, 2024). Yet, despite the ubiquity of these technologies, scholarly understanding of how AI personalization shapes consumer trust and how trust subsequently drives purchase behavior remains fragmented and theoretically underdeveloped.

Existing literature has largely examined personalization as a unidimensional construct, primarily focusing on algorithmic recommendation accuracy or interface customization without adequately distinguishing between the technical implementation of AI personalization and consumers' subjective experience of being personally acknowledged (Arora et al., 2021). This distinction is theoretically significant, as perceived personalization defined as a consumer's cognitive appraisal that marketing communications are tailored to their individual preferences may diverge substantially from the actual degree of algorithmic personalization deployed by the platform (Aguirre et al., 2022). Conflating these constructs has contributed to inconsistent empirical findings regarding the trust-personalization relationship across different cultural and technological contexts.

A further theoretical gap concerns the moderating role of privacy concern in the personalization-trust relationship. The Personalization-Privacy Paradox, initially articulated by Awad and Krishnan (2006), posits that consumers simultaneously desire personalized experiences and harbor anxieties about the surveillance and data exploitation that such personalization necessitates. Subsequent scholars

have offered conflicting evidence regarding whether privacy concern attenuates or eliminates the positive effects of personalization on trust, with findings appearing to be highly contingent on platform context, data sensitivity, and cultural disposition toward institutional trust (Zhao et al., 2022; Luo et al., 2023). The social commerce context characterized by social network integration, peer influence, and user-generated content introduces additional complexity by blending commercial intent with social interaction, thus potentially reshaping how consumers interpret and respond to AI-driven personalization.

Previous studies have predominantly examined personalization and trust dynamics in Western e-commerce environments, leaving a significant empirical gap regarding developing economy contexts such as Indonesia, where digital commerce adoption is rapid but institutional trust structures differ markedly from Western counterparts (Featherman & Hajli, 2022). Indonesia represents the world's fourth most populous nation and one of Southeast Asia's fastest-growing digital economies, with over 185 million active social media users and a social commerce penetration rate exceeding 47% as of 2024 (We Are Social, 2024). The behavioral dynamics governing AI personalization reception among Indonesian social commerce consumers thus constitute both an empirically underexplored and practically significant domain of inquiry.

This study addresses these gaps by developing and empirically testing an integrated theoretical model that examines the relationships among AI personalization quality, perceived personalization, privacy concern, consumer trust, and purchase behavior within the Indonesian social commerce context. Drawing on the Personalization-Privacy Paradox framework and Social Influence Theory, the model posits consumer trust as the critical mediating mechanism through which personalization dimensions translate into behavioral outcomes. The study employs PLS-SEM methodology to accommodate the complex, recursive structural relationships embedded within the proposed model.

The central research questions guiding this investigation are: (1) To what extent do AI personalization quality and perceived personalization independently influence consumer trust in social commerce? (2) Does consumer trust mediate the relationship between AI personalization mechanisms and purchase behavior? (3) How does privacy concern moderate the personalization-trust relationship? By addressing these questions, the study contributes to both the theoretical development of AI-mediated marketing models and the practical optimization of personalization strategies in emerging digital markets.

## **RESEARCH METHODS**

This study adopts a quantitative, cross-sectional research design grounded in the positivist epistemological tradition. The selection of this design is predicated on the study's objective of empirically testing a theoretically derived structural model through the examination of covariance patterns across a representative sample of social commerce users. Cross-sectional data collection was deemed appropriate given the study's focus on contemporaneous attitudinal and behavioral states rather than longitudinal developmental trajectories. The target population was defined as Indonesian adults aged 18-45 years who had engaged in at least one purchase transaction via a social commerce platform (Instagram Shopping, TikTok Shop, or Shopee Live) within the six months preceding data collection. This age range was selected to capture the primary demographic segment demonstrating active social commerce engagement, consistent with demographic profiling conducted by IPSOS (2023). A purposive sampling technique supplemented by snowball referral procedures was employed to recruit respondents through university networks, professional communities on LinkedIn, and direct platform outreach. The final valid sample comprised 287 respondents, exceeding the minimum requirement of 208 cases calculated based on a statistical power of 0.80, significance level of 0.05, and medium effect size criterion (Cohen, 1992).

Data were collected using a structured, self-administered online questionnaire distributed via Google Forms between February and April 2026. The questionnaire comprised five principal measurement scales. AI Personalization Quality (AIP) was operationalized through six items adapted from Fan et al. (2021), assessing the perceived sophistication and relevance of algorithmic recommendation outputs. Perceived Personalization (PP) was measured using five items adapted from Aguirre et al. (2022), capturing consumers' subjective sense of individual recognition within platform interactions. Privacy Concern (PC) was assessed through four items derived from Malhotra et al. (2004), updated for the AI and social commerce context. Consumer Trust (CT) was measured using five items

adapted from McKnight et al. (2002), encompassing benevolence, integrity, and competence dimensions. Purchase Behavior (PB) was operationalized through four items adapted from Gefen et al. (2003), reflecting both purchase intention and actual transaction frequency. All items were rated on a five-point Likert scale anchored at 1 (Strongly Disagree) and 5 (Strongly Agree).

Prior to main data collection, a pilot study involving 42 respondents not included in the main sample was conducted to assess item clarity and scale reliability. Cronbach's alpha coefficients for all constructs exceeded the 0.70 threshold, supporting preliminary reliability. Content validity was established through expert review by three academic specialists in digital marketing and consumer behavior. The questionnaire was initially developed in English and subsequently translated into Bahasa Indonesia through forward-backward translation procedures to ensure conceptual equivalence.

Structural equation modeling using the Partial Least Squares approach (PLS-SEM) was selected as the primary analytical method, operationalized through SmartPLS 4.0 software. PLS-SEM was preferred over covariance-based SEM given its appropriateness for predictive, theory-building purposes, its robustness with non-normal data distributions, and its capacity to handle complex models with multiple mediating pathways (Hair et al., 2022). The analytical procedure followed the two-stage approach recommended by Anderson and Gerbing (1988), beginning with assessment of the measurement model (outer model) before evaluating the structural model (inner model). Mediating effects of consumer trust were assessed using bootstrapping procedures with 5,000 resamplings to generate bias-corrected confidence intervals for indirect effects.

**RESULTS AND DISCUSSION (Capital, bold , Times new romance 11 pt)**

**Respondent Profile**

The demographic composition of the sample is presented in Table 1. The sample was relatively balanced in terms of gender distribution, with female respondents constituting a slight majority. The predominance of the 22–29 age cohort reflects the primary social commerce user demographic in Indonesia, consistent with platform analytics reported by GWI (2024). A substantial proportion of respondents held undergraduate educational qualifications, and the majority reported monthly expenditures on social commerce platforms of between IDR 300,000 and IDR 900,000, indicating moderate but regular engagement with platform-based purchasing.

**Table 1. Respondent Demographic Profile**

<b>Demographic</b>	<b>Category</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
Gender	Male	132	46.0
	Female	155	54.0
Age	18–21 years	54	18.8
	22–29 years	141	49.1
	30–37 years	72	25.1
	38–45 years	20	7.0
Education	Senior High School	38	13.2
	Undergraduate (S1)	183	63.8
	Postgraduate (S2/S3)	66	23.0
Monthly Spend	< IDR 300,000	47	16.4
	IDR 300,000–900,000	139	48.4
	IDR 901,000–1,500,000	71	24.7
	> IDR 1,500,000	30	10.5

**Measurement Model Assessment**

The measurement model was evaluated through assessments of indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Table 2 presents the composite reliability (CR) and average variance extracted (AVE) values for all constructs. All indicator loadings exceeded the recommended threshold of 0.70, with the exception of two items that were retained as their removal did not substantially improve AVE values. Composite reliability values ranged from 0.872 to 0.941, all surpassing the 0.80 benchmark (Hair et al., 2022). AVE values ranged from 0.597 to

0.721, all exceeding the 0.50 threshold required to demonstrate convergent validity (Fornell & Larcker, 1981). Discriminant validity was confirmed through the Heterotrait-Monotrait (HTMT) ratio criterion, with all inter-construct HTMT values falling below the conservative threshold of 0.85, indicating adequate construct distinctiveness.

**Table 2. Measurement Model Results**

<b>Construct</b>	<b>Indicator</b>	<b>Loading</b>	<b>CR</b>	<b>AVE</b>
<b>AIP</b>	AIP1: The platform recommends products that genuinely match my taste	0.821	0.904	0.657
	AIP2: AI suggestions on this platform are highly relevant to my preferences	0.847		
	AIP3: The personalization algorithm anticipates my needs accurately	0.803		
	AIP4: AI-curated content saves me time in product discovery	0.779		
<b>PP</b>	PP1: I feel that this platform treats me as an individual	0.834	0.893	0.626
	PP2: The content I see reflects my personal interests very well	0.806		
	PP3: I perceive this platform's recommendations as personally directed at me	0.792		
<b>PC</b>	PC1: I am concerned about how my data is used by this platform	0.841	0.872	0.631
	PC2: I worry that my personal information may be misused	0.796		
	PC3: Data collection on this platform makes me uncomfortable	0.773		
<b>CT</b>	CT1: I believe this platform acts in my best interest	0.852	0.941	0.721
	CT2: I trust that this platform handles my data responsibly	0.871		
	CT3: I am confident in the integrity of this platform's operations	0.844		
<b>PB</b>	PB1: I frequently purchase products recommended by AI on this platform	0.818	0.897	0.685
	PB2: AI recommendations have increased my purchase frequency	0.839		
	PB3: I intend to continue purchasing via personalized social commerce platforms	0.825		
	PB4: I recommend personalized platforms to others based on my trust in them	0.811		

*Note: AIP = AI Personalization Quality; PP = Perceived Personalization; PC = Privacy Concern; CT = Consumer Trust; PB = Purchase Behavior; CR = Composite Reliability; AVE = Average Variance Extracted.*

**Research Conceptual Model**

The structural relationships proposed in this study are depicted in Figure 1. The model posits AI Personalization Quality (AIP) and Perceived Personalization (PP) as primary exogenous variables operating through Consumer Trust (CT) as the central mediating mechanism to influence Purchase

Behavior (PB). Privacy Concern (PC) is modeled as a negative direct predictor of Consumer Trust, reflecting the tension embedded within the Personalization-Privacy Paradox. A direct effect pathway from AIP to PB is also hypothesized (H5) to assess whether trust fully or partially mediates this relationship.

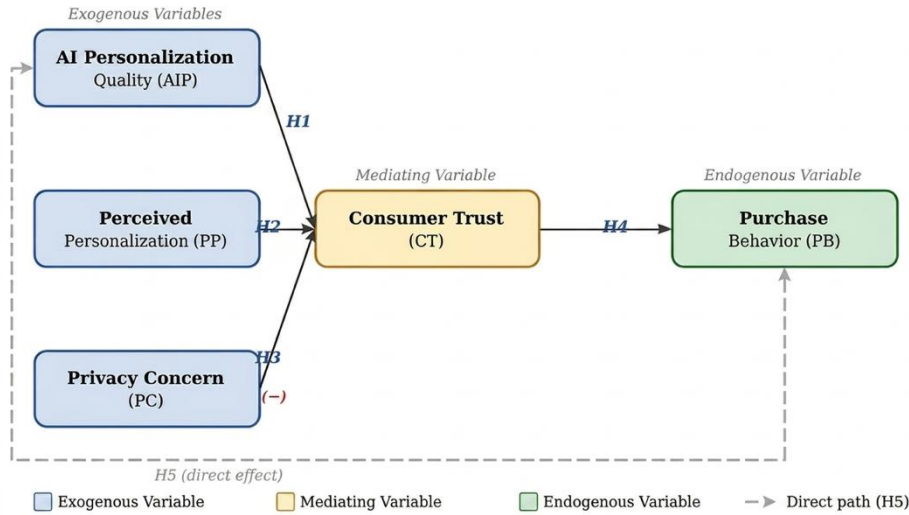


Figure 1. Conceptual Research Model: AI Personalization, Consumer Trust, and Purchase Behavior

### Structural Model and Hypothesis Testing

Following confirmation of adequate measurement model properties, the structural model was evaluated using 5,000 bootstrap resamplings to compute path coefficients, t-statistics, and 95% bias-corrected confidence intervals. The results of hypothesis testing are presented in Table 3. The structural model demonstrated satisfactory explanatory power, with the R<sup>2</sup> value for Consumer Trust at 0.613, indicating that the exogenous variables collectively explain 61.3% of the variance in trust. The R<sup>2</sup> value for Purchase Behavior was 0.571. Predictive relevance (Q<sup>2</sup>) values, assessed via blindfolding, were 0.441 for Consumer Trust and 0.387 for Purchase Behavior, both exceeding zero and confirming the model's predictive validity (Hair et al., 2022).

Table 3. Structural Model: Hypothesis Testing Results

H	Path	$\beta$	SE	t-stat	p-value	Decision
H1	AIP → Consumer Trust (CT)	0.341	0.062	5.500	0.000	Supported
H2	PP → Consumer Trust (CT)	0.287	0.058	4.948	0.000	Supported
H3	PC → Consumer Trust (CT)	-0.214	0.051	4.196	0.000	Supported
H4	CT → Purchase Behavior (PB)	0.512	0.049	10.449	0.000	Supported
H5	AIP → Purchase Behavior (PB)	0.143	0.061	2.344	0.019	Supported
Indirect Effects	AIP → CT → PB	0.175	0.000			Partial Mediation
	PP → CT → PB	<b>0.147</b>	<b>0.000</b>			<b>Full Mediation</b>

Note:  $\beta$  = standardized path coefficient; SE = standard error; t-statistics based on 5,000 bootstrap resamplings;  $p < 0.05$  considered significant.

Hypothesis 1, positing that AI Personalization Quality positively influences Consumer Trust, was supported ( $\beta = 0.341$ ,  $p < 0.001$ ). This finding is theoretically consistent with Fan et al. (2021), who demonstrated that algorithmic accuracy in product recommendation constitutes a significant antecedent of platform trustworthiness by signaling institutional competence and benevolent intent. From a theoretical perspective, when consumers perceive that an AI system has accurately modeled their preferences and delivers relevant outputs consistently, they attribute this accuracy to the platform's capability and good faith, thereby elevating trust perceptions. This result extends previous findings to the social commerce context, where the integration of social signals with AI recommendations may amplify the trust-generating effects of personalization accuracy by adding a layer of social validation.

The support for Hypothesis 2 ( $\beta = 0.287$ ,  $p < 0.001$ ), establishing perceived personalization as a significant positive predictor of consumer trust, carries particular theoretical significance. The distinct effect of perceived personalization beyond the actual algorithmic quality captured by the AIP construct suggests that consumers' subjective sense of being individually recognized operates as an independent mechanism influencing trust. This aligns with self-concept theory, wherein communications that affirm the consumer's sense of individual identity engender reciprocal positive affect and trust toward the communicating entity (Aguirre et al., 2022). The finding implies that even platforms with moderate algorithmic sophistication may generate substantial trust by ensuring that their interfaces communicate individualization cues effectively.

Hypothesis 3 was supported, confirming that privacy concern exerts a significant negative effect on consumer trust ( $\beta = -0.214$ ,  $p < 0.001$ ). This finding substantiates the Personalization-Privacy Paradox in the social commerce context, demonstrating that consumers' anxiety about data exploitation attenuates the trust benefits otherwise generated by personalization quality. Importantly, the magnitude of the privacy concern effect (-0.214) is smaller than both personalization path coefficients, suggesting that while privacy concern constitutes a meaningful trust inhibitor, it does not negate the net positive influence of AI personalization on trust within this sample. This nuanced finding refines the paradox narrative by indicating that for Indonesian social commerce consumers, the experiential benefits of personalization may cognitively outweigh privacy anxiety in shaping trust judgments a pattern that may reflect lower baseline institutional privacy awareness relative to Western consumer populations (Zhao et al., 2022).

The strong support for Hypothesis 4 ( $\beta = 0.512$ ,  $p < 0.001$ ) establishes consumer trust as the most powerful direct predictor of purchase behavior in the model, explaining a larger proportion of behavioral variance than either personalization antecedent directly. This finding aligns with social exchange theory, wherein trust serves as the relational lubricant facilitating behavioral commitment under conditions of vulnerability and uncertainty inherent in online commercial transactions (Gefen et al., 2003). In the social commerce context, where financial risk is amplified by the informal nature of social media-based transactions, trust's centrality as a behavioral determinant becomes especially pronounced.

Hypothesis 5, examining the direct effect of AI Personalization Quality on Purchase Behavior independent of trust, was also supported ( $\beta = 0.143$ ,  $p < 0.05$ ), though with considerably smaller magnitude than the trust-mediated pathway. The mediation analysis revealed that consumer trust partially mediates the AIP–PB relationship and fully mediates the PP–PB relationship. This asymmetry in mediation patterns is theoretically informative: while AI personalization quality influences purchase behavior through both direct utility facilitation (reduced search costs, increased recommendation relevance) and trust building, perceived personalization's effect on behavior appears to operate entirely through trust, confirming that the experiential dimension of personalization is primarily relational rather than utilitarian in its behavioral implications. These findings collectively support a process model in which trust is the predominant explanatory mechanism linking AI-driven personalization to commercial outcomes in social commerce environments.

## CONCLUSION

This study investigated the structural relationships among AI personalization quality, perceived personalization, privacy concern, consumer trust, and purchase behavior among Indonesian social commerce users, employing PLS-SEM methodology with a sample of 287 respondents. The empirical

evidence confirms that both AI personalization quality and perceived personalization exert significant positive influences on consumer trust, which in turn constitutes the dominant predictor of purchase behavior. Privacy concern operates as a meaningful negative constraint on trust formation, thereby partially attenuating the trust-building effects of personalization while not eliminating the net positive personalization-trust relationship. Consumer trust was found to partially mediate the AI personalization quality-purchase behavior relationship and fully mediate the perceived personalization-purchase behavior pathway, establishing trust as the central behavioral mechanism through which AI-driven personalization exerts its commercial influence.

The theoretical contributions of this study are threefold. First, it extends the Personalization-Privacy Paradox framework from traditional e-commerce to the social commerce context, demonstrating its continued relevance while identifying nuanced differences in the relative weighting of personalization benefits versus privacy costs in trust formation. Second, it establishes an empirically validated distinction between AI personalization quality and perceived personalization as independent constructs with differential mediation patterns, contributing conceptual precision to the personalization literature. Third, it advances understanding of trust as a mediating mechanism in AI-augmented marketing systems within developing economy contexts, where institutional trust configurations differ from those prevailing in Western markets.

From a managerial perspective, the findings suggest that digital marketers deploying AI personalization in social commerce environments should prioritize simultaneous investment in algorithmic sophistication and the communication of individualization cues within platform interfaces. Transparent data governance practices and clearly articulated privacy policies are critical for mitigating the trust-attenuating effects of privacy concern, particularly as regulatory scrutiny of AI data practices intensifies across Southeast Asian markets. Platforms that successfully establish high consumer trust may expect substantially elevated purchase frequency and platform loyalty, given the dominant path coefficient linking trust to behavioral outcomes.

This study is not without limitations. The cross-sectional design precludes causal inference, and future research should employ longitudinal or experimental designs to establish temporal precedence in the proposed relationships. The sample, drawn from Indonesian urban consumers with relatively high educational attainment, may limit generalizability to rural populations or other national contexts. Future studies should also explore the moderating roles of AI literacy and regulatory environment on the personalization-trust relationship, as these factors are likely to become increasingly salient as AI governance frameworks develop across the ASEAN region.

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