

Advances in Human Resource Management Research

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Artificial Intelligence-Based Advertising, Ad Personalization, and the Digital Shopping Experience: Their Impact on Consumer Trust Amid Privacy Concerns When Purchasing SME Products on TikTok Shop

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KEYWORDS	ABSTRACT
Keywords: AI-powered advertising; ad personalization; digital shopping experience; privacy concerns; consumer trust. Conflict of Interest Statement: The author(s) declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest. Copyright © 2025 AHRMR. All rights reserved.	Purpose: This study examines the effects of artificial intelligence-based advertising, ad personalization, and digital shopping experience on consumer trust, with privacy concerns as a mediating variable in purchases of MSME products on TikTok Shop. Research Design and Methodology: A quantitative associative-causal design with a cross-sectional survey was employed. Data were collected from 260 consumers who had purchased MSME products on TikTok Shop and had been exposed to personalized advertisements. Purposive sampling was applied, and the data were analyzed using PLS-SEM with SmartPLS 4. Findings and Discussion: AI-based advertising and ad personalization positively and significantly influence privacy concerns, while digital shopping experience negatively affects privacy concerns and positively affects consumer trust. Privacy concerns significantly reduce consumer trust, whereas AI-based advertising has no significant direct effect on trust. These findings support Privacy Calculus Theory, indicating that consumers balance personalization benefits against perceived data risks. Implications: MSMEs and TikTok Shop administrators should combine personalization with transparent data practices, stronger privacy protection, transaction security, and improved digital shopping experiences. Future studies should examine other platforms, consumer segments, and longitudinal settings.

Introduction

Artificial intelligence (AI) has fundamentally transformed the way companies design and implement marketing strategies. AI enables marketers to analyze massive amounts of consumer behavioral data in real time to make more precise marketing decisions, ranging from segmentation and targeting to message personalization (Huang & Rust, 2021). A literature review on the adoption of AI in customer relationship management also confirms that this technology is increasingly adopted for its ability to predict consumer needs more accurately than conventional marketing approaches (Chatterjee et al., 2020). This shift underpins the transformation from conventional digital advertising toward artificial intelligence-based advertising (AI-based advertising)—a form of marketing that relies entirely on the availability and processing of consumer data.

This transformation opens up significant opportunities, particularly for Micro, Small, and Medium Enterprises (MSMEs), which previously struggled to reach a wide audience with limited marketing resources. In Indonesia, MSMEs' use of AI has enabled personalized promotions, digital content optimization, and data-driven decision-making. However, its implementation is still hampered by limitations in digital literacy, human resources, and technological infrastructure (Santosa & Surgawati, 2024). Through social commerce platforms, MSMEs can now leverage recommendation algorithms, interactive content, and live shopping features to reach consumers with greater precision. Direct interaction between sellers and consumers via live streaming has been shown to play a crucial role in building consumer trust and engagement in social commerce (Wongkitrungrueng & Assarut, 2020), while general characteristics of social commerce—such as social interaction and community-based recommendations—also contribute to the development of consumer trust (Kim & Park, 2013).

TikTok Shop is the most tangible manifestation of this shift. Unlike conventional marketplaces that separate search, evaluation, and purchase, TikTok Shop integrates content, social interaction, algorithmic recommendations, advertising, and transactions into a single, cohesive ecosystem. Elements of social commerce—such as social interaction, transaction convenience, and creative content—have been shown to influence consumer purchasing decisions significantly (Riaz et al., 2021), and social media marketing in general has been shown to influence consumer purchasing decisions for both local and non-local brands (Hasan & Sohail, 2020). A cross-platform meta-analysis of social commerce further confirms that consumer trust consistently serves as a key determinant of purchase intent, regardless of the object of trust being measured—whether trust in the seller, the platform, or the community (Wang et al., 2022). It is this characteristic that makes the line between entertainment, recommendations, advertising, and commerce on TikTok Shop increasingly blurred compared to typical e-commerce platforms.

Ad personalization is one of the primary mechanisms driving the effectiveness of AI-based marketing. When ads are personalized based on behavioral data, the relevance of the message to consumer needs increases, which in turn can drive engagement and positive responses to the ads (Aguirre et al., 2015). Consumer trust in these personalized ads is heavily influenced by how companies manage and transparently communicate their use of such data (Bleier & Eisenbeiss, 2015). However, personalization does not always have a linear positive impact. A field study on personalized advertising campaigns found that click-through rates actually dropped sharply when consumers realized their personal data was being collected without explicit consent—a phenomenon known as the personalization paradox (Aguirre et al., 2015).

This paradox lies at the heart of this study. On one hand, data-driven personalization can enhance relevance, convenience, and the consumer's shopping experience. On the other hand, the more accurate and personalized an ad is, the greater the likelihood that consumers will realize their behavior is being tracked and analyzed. Consumers' willingness to allow their data to be used for personalization is strongly influenced by the extent to which they feel they have transparency and control over that information (Awad & Krishnan, 2006), and consumer preferences between relevance and privacy in location-based personalization have also been shown to be inconsistent (Xu et al., 2011). Recent studies on AI-based personalization in both physical and online retail environments further confirm that consumer acceptance of personalization is highly dependent on context and perceptions of data control (Canhoto et al., 2023), while among younger consumers, privacy concerns have been shown to weaken the positive influence of AI-based consumer insights on purchasing behavior (Alsiehemy, 2025).

Privacy concerns are thus not merely an additional variable but a natural psychological consequence of the intensive use of consumer data in digital marketing. Consumers who perceive the collection and use of their data as unfair or non-transparent tend to develop distrust toward the parties managing that data (Culnan & Armstrong, 1999). The classic privacy-trust-behavioral intention model in e-commerce shows that individuals' perceptions of privacy—including notification, access, choice, and data security—are consistently linked to their level of trust in online service providers (Liu et al., 2005). These concerns, in turn, can influence consumers' evaluations of the credibility of both the platform and the businesses that use these personalization mechanisms.

Privacy concerns are closely linked to the development of consumer trust. When consumers perceive that their data is managed responsibly and transparently, privacy concerns tend to decrease, thereby increasing their trust and intention to continue interacting with AI-based marketing systems (Rana et al., 2023). Conversely, a lack of transparency in the use of AI can erode consumer trust and fuel skepticism about a company's intentions (Adiyanto, 2025). In the context of omnichannel retailing, consumer privacy concerns have also been shown to influence the intention to share information, with online trust mechanisms serving as mediators (Khoa & Thanh, 2025), while among digital natives, trust in technology, platform trust signals, and social influence collectively shape the intention to repurchase in social commerce (Khoa, 2025).

Theoretically, trust can be understood as the trusting party's willingness to make themselves vulnerable to another party's actions, based on the expectation that the other party will act in good faith, competently, and with integrity (Mayer et al., 1995). This definition is relevant to consumers' relationships with social commerce platforms as well as the SME sellers within them.

The digital shopping experience also plays a role in this dynamic. TikTok Shop offers an interactive, visual, social, and entertainment-driven shopping experience (entertainment-driven commerce), which has the potential to enhance consumer convenience and satisfaction. Consumers who evaluate the risks and benefits of adopting e-commerce technology tend to integrate perceptions of trust and risk into a broader framework of technology acceptance (Pavlou, 2003), while empirically validated measures of trust emphasize the importance of the dimensions of competence, benevolence, and integrity in shaping consumer trust in online vendors (McKnight et al., 2002). However, increasingly immersive and personalized shopping experiences also mean that more consumer behavioral data is being recorded and analyzed by systems—so the potential for heightened privacy concerns cannot simply be ignored. In other words, the influence of digital shopping experiences on privacy concerns and consumer trust cannot be assumed to be unidirectional and positive; rather, it needs to be empirically tested.

The Indonesian context reinforces the relevance of this issue. A study examining the relationship between trust and privacy concerns among Generation Z TikTok Shop users in Indonesia found that both cognitive and emotional trust significantly influence purchase intent. At the same time, data security factors also affect the level of consumers' privacy concerns (Putri et al., 2024). Another study on peer-to-peer sharing services also confirms that the antecedents and consequences of trust are contextual, necessitating re-examination on each digital platform with distinct characteristics (Agag & Eid, 2019). These findings underscore the urgency of re-examining the relationship among personalization, privacy, and trust, specifically in the context of TikTok Shop and MSME products in Indonesia.

To explain the dynamics of this trade-off, this study employs Privacy Calculus Theory as its primary theoretical framework. This theory explains that consumers essentially perform a rational calculation between the benefits gained (relevance, convenience, efficiency) and the risks incurred (loss of control over personal data, potential misuse of information) before they are willing to allow their data to be used in the personalization process (Dinev & Hart, 2006). It is this benefit-risk calculation that ultimately shapes the level of consumers' privacy concerns, which in turn influences their trust in platforms and businesses that use such data for marketing purposes—in line with findings that consumer decision-making on social commerce platforms is shaped by the interaction between online trust and risk perception (Lăzăroiu et al., 2020).

Based on the above discussion, four research gaps can be identified, underscoring the urgency of this study. First, the variable gap—previous research on AI-based advertising and personalization has largely focused on purchase intention or ad effectiveness (Aguirre et al., 2015; Riaz et al., 2021), while the formation of consumer trust as a result of a benefit-risk trade-off remains relatively under-explored. Second, the mechanism gap—most studies address the question of “whether” AI and personalization influence trust, but few have posited privacy concerns as a psychological mechanism explaining how that influence arises (Culnan & Armstrong, 1999; Rana et al., 2023). Third, the context gap—research on personalization and privacy is largely conducted in e-commerce or conventional brick-and-mortar retail contexts (Canhoto et al., 2023). Although there have been preliminary studies on TikTok Shop in Indonesia (Putri et al., 2024), research specifically linking it to SME products within

the Privacy Calculus framework remains limited. Fourth, the paradox gap—personalization can be a source of both benefits and risks simultaneously (Aguirre et al., 2015; Xu et al., 2011; Alsiehem, 2025)—so the question of under what conditions AI-based marketing actually increases trust and under what conditions it decreases it still requires further empirical testing. Based on these gaps, this study aims to analyze the influence of AI-based advertising, ad personalization, and the digital shopping experience on consumer trust, and to test the role of privacy concerns as a mechanism explaining these relationships among consumers who purchase SME products through TikTok Shop. The novelty of this study lies in integrating AI-based advertising, ad personalization, and the digital shopping experience to explain consumer trust, positioning privacy concerns as a mechanism that reflects the trade-off between the benefits of personalization and the risks of privacy in the context of SME-based social commerce. This context has rarely been studied empirically in an integrated manner. This study is expected to provide a theoretical contribution to the development of Privacy Calculus Theory in the context of social commerce, as well as a practical contribution to MSMEs and platform providers in designing AI-based marketing strategies that maintain consumer trust and privacy comfort.

Literature Review

This study uses Privacy Calculus Theory to explain consumer considerations when interacting with data-driven digital marketing. This theory holds that consumers evaluate the benefits obtained and the privacy risks they must bear before being willing to provide or allow the use of personal information. These benefits can be in the form of ad relevance, ease of product search, transaction efficiency, and a more personalized shopping experience. Instead, perceived risks include loss of control, activity tracking, and possible misuse of data (Dinev & Hart, 2006). Consideration of benefits and risks is becoming increasingly important in the context of TikTok Shop as the platform integrates social media, algorithmic recommendations, entertainment content, advertising, and transactions. Consumers can have a more relevant shopping experience while realizing that their digital activity shapes the content they receive. This condition creates a paradox: consumers want personalized services but are also concerned about the use of their personal information (Awad & Krishnan, 2006; Xu et al., 2011).

Artificial intelligence-based advertising is a form of marketing communication that uses algorithms to analyze behavior, predict needs, and tailor messages to consumer characteristics. AI allows companies to segment and make marketing decisions faster and more accurately (Huang & Rust, 2021). In customer relationship management, AI technology is also used to predict needs and improve the relevance of interactions between companies and consumers (Chatterjee et al., 2020). For MSMEs, AI-based advertising offers an opportunity to reach consumers more effectively despite limited marketing resources. Its use can help MSMEs optimize content, recognize market preferences, and improve promotion efficiency (Santosa & Surgawati, 2024). However, the accuracy of recommendations can make consumers aware that their behavior is being monitored. A lack of explanation of the data-use process can increase privacy concerns and reduce trust in advertising and platforms (Adiyanto, 2025). Thus, the effectiveness of AI-based advertising is determined not only by technological sophistication but also by the transparency and security of data management.

Ad personalization refers to customizing messages, offers, and ad delivery times based on individual preferences and behaviors. Personalization can increase the relevance of information and make it easier for consumers to find products that suit their needs. However, these benefits are always related to the use of personal data. Aguirre et al. (2015) explain that consumers can react negatively when they learn that their information is being collected without adequate consent or transparency. This phenomenon is known as the personalization-privacy paradox. Consumers want relevant recommendations but reject data collection practices they consider excessive. Consumers' willingness to accept personalization is greatly influenced by information transparency and control over personal data (Awad & Krishnan, 2006). Xu et al. (2011) also show that consumers' preferences for personalization do not always align with their attitudes towards privacy. Therefore, ad personalization can heighten privacy concerns, especially when ad accuracy creates the perception that platforms are monitoring consumer activity. Trust is an important factor in reducing the negative impact of personalization. Bleier and Eisenbeiss (2015) emphasized that personal advertising is more effective

when delivered by a trusted party. Rana et al. (2023) also show that personalization, privacy, and trust are closely related to the acceptance of AI-based marketing. Thus, personalization needs to be carried out through a process that is transparent and secure, and that gives consumers control.

The digital shopping experience is a consumer's evaluation of the entire interaction while using the platform, from searching for information to completing transactions. On TikTok Shop, the experience is shaped by ease of navigation, the integration of entertainment and transactions, the quality of information, consumer reviews, live broadcasts, and interactions with sellers. The characteristics of social commerce can increase trust because consumers get information, social recommendations, and opportunities to interact before making a purchase (Kim & Park, 2013). The live streaming feature allows sellers to explain products and respond to questions directly, thereby increasing consumer engagement and trust (Wongkitrungrueng & Assarut, 2020). An easy, informative, and transparent shopping experience can also reduce uncertainty and perceived risk. According to Pavlou (2003), acceptance of electronic commerce is shaped by the interaction between technological convenience, trust, and risk perception. Therefore, a positive digital shopping experience is expected to reduce privacy concerns and increase consumer trust.

Privacy concerns are consumers' perceptions of the potential loss of control and misuse of personal information. These concerns arise when consumers judge that the process of data collection, storage, or use is not carried out transparently and fairly. Culnan and Armstrong (1999) explain that the perception of procedural fairness in the management of personal information plays an important role in the formation of trust. When consumers do not receive adequate notice, choice, and protection, their trust in service providers tends to decline. The privacy-trust-behavior model shows that privacy concerns are closely related to trust and intention to use electronic services (Liu et al., 2005). In the context of TikTok Shop, data security also plays a role in shaping privacy concerns and consumer purchasing behavior, especially in the younger generation (Putri et al., 2024). Privacy concerns can thus serve as a psychological mechanism explaining how the use of AI, ad personalization, and digital shopping experiences affect consumer trust.

Trust is consumers' willingness to accept vulnerability based on the expectation that the other party has capability, integrity, and goodwill (Mayer et al., 1995). In electronic commerce, trust encompasses the belief that sellers and platforms can deliver on their promises, maintain transaction security, provide accurate information, and protect consumers' interests (McKnight et al., 2002). Trust becomes even more important when consumers are unable to inspect products and interact directly with sellers. In social commerce, trust can be built through social interaction, product information, reviews, seller reputation, and the quality of the platform experience (Kim & Park, 2013). Wang et al. (2022) emphasized that trust is an important determinant of purchase intent on social commerce platforms. In the context of TikTok Shop, trust is also influenced by information security and consumer perception of privacy protection (Putri et al., 2024). Therefore, trust is determined not only by the effectiveness of advertising but also by the ability of platforms and sellers to provide a secure, transparent, and consistent experience.

Previous studies have discussed AI-based advertising, personalization, digital shopping experiences, privacy, and trust. However, some studies still test these relationships separately and focus more on purchase intent or ad effectiveness. Research integrating these three digital marketing factors to explain trust through privacy concerns remains limited, especially regarding the purchase of MSME products on TikTok Shop. This study places privacy concerns as a mechanism that represents the trade-off between the benefits and risks of data use. AI-based advertising and personalization can increase relevance while also raising awareness of data tracking. Meanwhile, a positive shopping experience can reduce uncertainty and strengthen trust. The integration broadens the application of Privacy Calculus Theory in social commerce. It provides a basis for explaining how AI-based marketing can build or even erode consumer trust in MSME products on TikTok Shop.

Research Design and Methodology

This study employs a quantitative approach with a causal-associative design to examine the causal relationships among artificial intelligence-based advertising, ad personalization, and the digital shopping experience and consumer trust—both directly and through privacy concerns as a mediating

variable. Data were collected via a cross-sectional survey, which involves collecting data from all respondents at a single point in time. This design was chosen because the study aims to examine patterns of relationships and mediation mechanisms among variables, rather than observe behavioral changes over time. Data analysis was conducted using Structural Equation Modeling-Partial Least Squares (SEM-PLS), which is suitable for testing models with five variables and for simultaneously testing both direct and indirect relationships, without requiring strict assumptions of multivariate normality. The study subjects were active TikTok users who had purchased MSME products through TikTok Shop. The sample was selected using purposive sampling, with the following criteria: (a) at least 18 years of age; (b) having been exposed to AI-based or personalized ads or recommended content on TikTok, either through the For You Page or sponsored ads; (c) having purchased MSME products via TikTok Shop at least twice in the past six months; and (d) being aware that the ads or product recommendations they see are tailored to their digital activity on the app. The third and fourth criteria were used to ensure that respondents had sufficient transaction experience and cognitive awareness of the personalization mechanism, so that their responses would reflect real experiences rather than merely general perceptions of TikTok Shop. The sample size was determined following the 10-times rule in PLS-SEM—that is, 10 times the maximum number of structural paths leading to a single construct—and was confirmed through a power analysis (G*Power). Based on this guideline, this study targeted a sample of 200 to 300 respondents. Data were collected using a closed-ended questionnaire with a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), structured around the indicators for each variable as presented in Table 1. The questionnaire began with screening questions to ensure respondents met all sample criteria before proceeding to the main items. The questionnaire items were adapted from instruments used in previous studies on personalization, privacy, and online consumer trust, and then tailored to the linguistic context and shopping experience on TikTok Shop. Before being used for primary data collection, the instrument underwent content validity review by two experts in digital marketing and was then pilot-tested with 30 respondents to ensure readability and the internal consistency of each statement item. The main data collection was conducted online via an electronic questionnaire link distributed through social media (Instagram, TikTok, and online community groups) using the snowball sampling technique, as the population of MSME product buyers on TikTok Shop lacks a defined sampling frame.

Table 1. Variables and Measurements

Variable	Code	Indicator	Primary References
Artificial Intelligence-Based Advertising	IA.1	Accuracy of user demand forecasts	(Aguirre et al., 2015; Bleier & Eisenbeiss, 2015)
	IA.2	Ad content update speed	
	IA.3	Interactivity of AI Features in Ads	
Ad Personalization	PI.1	Ad relevance based on personal preferences	(Awad & Krishnan, 2006; Xu et al., 2011)
	PI.2	Timing Relevance of Ad Impressions	
	PI.3	The availability of specific offers (tailored offers)	
Digital Shopping Experience	PB.1	Ease of navigation (ease of use)	(Wongkitrungrueng & Assarut, 2020; Kim & Park, 2013)
	PB.2	Integration of entertainment and transactions (shoppertainment)	
	PB.3	Availability of product information and transparency of reviews	
Privacy Concerns	KP.1	Perception of a loss of control over personal data	(Culnan & Armstrong, 1999; Dinev & Hart, 2006)
	KP.2	Concerns about the tracking of digital activity (surveillance)	
	KP.3	Concerns about data misuse by third parties	
Consumer Confidence	KK.1	Perception of the seller's/platform's integrity	(McKnight dkk., 2002; Mayer et al., 1995)
	KK.2	The ability of MSME products to meet expectations	
	KK.3	The desire to trade again (benevolence/trust retention)	

The data were analyzed using SEM-PLS with SmartPLS version 4, following a two-stage evaluation process. The first stage involved evaluating the measurement model (outer model), including examinations of convergent validity (factor loadings and average variance extracted), discriminant validity (the Fornell-Larcker criterion and the heterotrait-monotrait ratio), and construct reliability (composite reliability and Cronbach's alpha). The second stage involved evaluating the structural model (inner model), including the coefficient of determination (R^2) for the mediator and dependent

variables, predictive relevance (Q^2) via the blindfolding procedure, and effect size (f^2). Hypotheses regarding direct and indirect effects were tested using a bootstrapping procedure with 5,000 subsamples, with significance criteria of $t > 1.96$ and $p < 0.05$. The mediating role of privacy concerns was tested by analyzing specific indirect effects.

Findings and Discussion

Findings

Data collection was conducted among consumers who had experience shopping online on MSME platforms, with a total sample of 260 respondents ($N=260$). The descriptive demographic analysis aims to provide a comprehensive overview of the respondents' profiles based on the variables of Gender, Age, Education Level, and Duration of Use. Based on the data analysis, the majority of respondents in this study were women, totaling 170 (65.38%), while male respondents numbered 90 (34.62%). In terms of age range, the respondents were predominantly in the productive age group of 25-35 years, totaling 138 people (53.08%), followed by those under 25 years of age, totaling 88 people (33.85%). In terms of highest level of education, the majority of respondents held a bachelor's degree (S1) at 39.23%, and a high school/vocational school diploma at 35.38%. Meanwhile, in terms of experience or duration of use, the largest group reported 3-4 years, at 33.85%. A complete breakdown of the frequency distribution and percentages of the respondents' demographic characteristics is presented in Table 2.

Table 2. Respondent Demographics

Category	Sub-category	Frequency	Percentage	Total Frequency	Total Percentage
Gender	Female	170	65.38%	260	100%
	Male	90	34.62%		
Age	Under 25 years	88	33.85%	260	100%
	25 - 35 years	138	53.08%		
	Over 35 years	34	13.08%		
Education	High School/Vocational	92	35.38%	260	100%
	Diploma (III/IV)	48	18.46%		
	Bachelor's Degree	102	39.23%		
	Master's Degree	18	6.92%		
Work Duration	1 - 2 years	54	20.77%	260	100%
	2 - 3 years	62	23.85%		
	3 - 4 years	88	33.85%		
	Over 4 years	56	21.54%		

Table 3. Outer Loading Results

Variable Name	M	X1	X2	X3	Y	Loading Value	Criteria	Info
X1.1		0.863				0.863	> 0.700	Valid
X1.2		0.804				0.804	> 0.700	Valid
X1.3		0.876				0.876	> 0.700	Valid
Y1					0.835	0.835	> 0.700	Valid
Y2					0.845	0.845	> 0.700	Valid
Y3					0.825	0.825	> 0.700	Valid
M1	0.850					0.850	> 0.700	Valid
M2	0.824					0.824	> 0.700	Valid
M3	0.842					0.842	> 0.700	Valid
X3.1				0.829		0.829	> 0.700	Valid
X3.2				0.862		0.862	> 0.700	Valid
X3.3				0.855		0.855	> 0.700	Valid
X3.1			0.828			0.828	> 0.700	Valid
X3.2			0.864			0.864	> 0.700	Valid
X3.3			0.857			0.857	> 0.700	Valid

The results of the convergent validity test showed that all indicators had outer loadings ranging from 0.804 to 0.876. These values exceeded the minimum threshold of 0.70; therefore, all indicators were deemed valid in reflecting their respective constructs. The indicators for construct X1 had outer loadings of 0.804-0.876; for construct X2, 0.828-0.864; for construct X3, 0.829-0.862; for construct M, 0.824-0.850; and for construct Y, 0.825-0.845. Thus, all indicators met the criteria for convergent

validity, and no indicators needed to be eliminated. This measurement model can then be used to test construct reliability, discriminant validity, and to evaluate the structural model.

Table 4. Final Result of Outer Loadings (After Elimination)

Construct Variable Name	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)	Evaluasi Reliabilitas	(AVE)
X1	0.807	0.826	0.885	0.720	Reliabel	Valid
X2	0.808	0.815	0.886	0.722	Reliabel	Valid
X3	0.808	0.821	0.885	0.721	Reliabel	Valid
M	0.790	0.791	0.877	0.704	Reliabel	Valid
Y	0.784	0.788	0.874	0.697	Reliabel	Valid

The reliability test results show that all constructs have Cronbach's alpha, composite reliability (rho_a), and composite reliability (rho_c) values above 0.70. The Cronbach's alpha values ranged from 0.784 to 0.808, the rho_a values ranged from 0.788 to 0.826, and the rho_c values ranged from 0.874 to 0.886. These results indicate that all constructs possess adequate internal consistency and are considered reliable. Furthermore, the average variance extracted (AVE) for all constructs ranged from 0.697 to 0.722, thus exceeding the minimum threshold of 0.50. Consequently, constructs M, X1, X2, X3, and Y are deemed to meet the criteria for reliability and convergent validity. This measurement model is suitable for use in the discriminant validity testing and structural equation modeling phases.

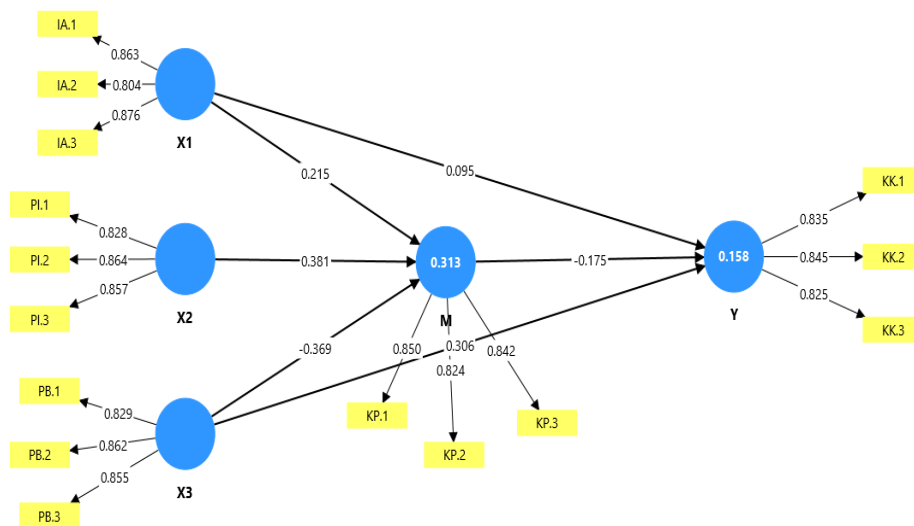


Figure 1. PLS-SEM model diagram (path model)

Figure 1 shows the results of estimating the measurement and structural models. In the measurement model, all indicators have outer loadings above 0.70. Indicators for construct X1 range from 0.804 to 0.876; for construct X2, from 0.828 to 0.864; for construct X3, from 0.829 to 0.862; for construct M, from 0.824 to 0.850; and for construct Y, from 0.825 to 0.845. These results indicate that all indicators adequately reflect their respective constructs and meet the criteria for convergent validity. In the structural model, X1 and X2 have positive effects on M, with path coefficients of 0.215 and 0.381, respectively. Conversely, X3 exhibits a negative influence on M with a path coefficient of -0.369. Among these three exogenous variables, X2 has the largest positive coefficient for M. The coefficient of determination for M, at 0.313, indicates that X1, X2, and X3 collectively account for 31.3% of the variation in M, while other factors outside the model explain the remaining 68.7%. Furthermore, the direct effect of X1 on Y is positive, with a coefficient of 0.095. Meanwhile, X3 and M have negative effects on Y, with coefficients of -0.306 and -0.175, respectively. The coefficient of determination for Y, at 0.158, indicates that the model's predictor constructs account for 15.8% of the variation in Y, while the remaining 84.2% is explained by other variables not analyzed. Overall, the model has a relatively weak explanatory power for Y. However, the direction and magnitude of the

path coefficients at this stage cannot yet be used to conclude whether the hypotheses are accepted. The significance of each relationship needs to be determined through bootstrapping results based on the t-statistic and p-value.

Table 5. Results of the Direct Effect Hypothesis Test (Path Coefficients)

Path of Influence (Path)	Original Sample (O)	T Statistics (O/STDEV)	P Values	Statement / Decision
X1 → M	0.215	4.103	0.000	Significant (Accepted)
X1 → Y	0.095	1.619	0.053	Not Significant (Rejected)
X2 → M	0.381	7.761	0.000	Significant (Accepted)
X3 → M	-0.369	6.981	0.000	Significant (Accepted)
X3 → Y	0.306	5.053	0.000	Significant (Accepted)
M → Y	-0.175	2.914	0.002	Significant (Accepted)

The results of hypothesis testing using the bootstrapping procedure indicate that five of the six path effects in the model are significant. X1 has a positive and significant effect on M, with a path coefficient of 0.215, a t-statistic of 4.103, and a p-value < 0.001. Thus, the hypothesis stating that X1 influences M is accepted. However, X1 does not have a significant effect on Y, as it has a path coefficient of 0.095, a t-statistic of 1.619, and a p-value of 0.053. Therefore, the hypothesis regarding the direct effect of X1 on Y is rejected. X2 has a positive and significant effect on M with a path coefficient of 0.381, a t-statistic of 7.761, and a p-value < 0.001. This coefficient represents the largest positive effect on M. Conversely, X3 has a negative and significant effect on M with a coefficient of -0.369, a t-statistic of 6.981, and a p-value of < 0.001. These results indicate that an increase in X3 tends to be followed by a decrease in M. Furthermore, X3 has a positive and significant effect on Y with a path coefficient of 0.306, a t-statistic of 5.053, and a p-value < 0.001. Meanwhile, M has a negative and significant effect on Y with a coefficient of -0.175, a t-statistic of 2.914, and a p-value of 0.002. Thus, the hypotheses regarding the effects of X2 on M, X3 on M, X3 on Y, and M on Y are accepted. Overall, X2 is the strongest positive predictor of M, while X3 has the greatest direct positive effect on Y. X1, however, is not able to directly explain changes in Y at the 5% significance level.

Discussion

The results of the study show that artificial intelligence-based advertising has a positive and significant effect on privacy concerns. These findings indicate that the more capable an AI system is at predicting needs, updating content, and displaying ads interactively, the greater consumers' awareness that their digital activities are being tracked and analyzed. The accuracy of AI-generated recommendations may be perceived as a benefit because it enhances ad relevance. However, it can also raise concerns about the collection and use of personal data. These findings align with the Privacy Calculus Theory, which explains that consumers weigh the benefits of personalization against the risks of losing control over their personal information before accepting the use of data-driven technologies (Dinev & Hart, 2006). These results also support Alsiehemly's (2025) view that the use of AI-based consumer insights can heighten awareness of privacy risks, particularly among younger consumers.

AI-based ads do not have a significant direct impact on consumer trust. These results indicate that the accuracy and sophistication of AI-powered ads are not yet sufficient to build trust in MSME sellers or TikTok Shop. Consumers not only evaluate the relevance of ads but also consider the transparency of data usage, the credibility of information, the integrity of sellers, and transaction security. Thus, AI technology serves more as a medium for delivering marketing messages than as a primary means of building trust. These findings reinforce the argument by Bleier and Eisenbeiss (2015) that the effectiveness of personalized ads can only enhance consumer response when accompanied by trust-building strategies. The lack of a significant direct effect also suggests that the relationship between AI-based ads and trust likely operates through privacy concerns. However, this mediating role still needs to be confirmed by testing specific indirect effects.

Ad personalization has a positive and significant effect on privacy concerns and is the strongest positive predictor of this construct. The more an ad aligns with a consumer's preferences, usage patterns, and personal needs, the more likely the consumer is to realize that the platform is using their digital activity history. This situation reflects the personalization-privacy paradox, a scenario in which the benefits of ad relevance and convenience coexist with growing concerns about the use of

personal data. These findings are consistent with Aguirre et al. (2015), who explain that personalization can elicit negative responses when consumers realize their information is being collected without adequate transparency and consent. These findings also support Awad and Krishnan (2006) and Xu et al. (2011), who assert that acceptance of personalization is strongly influenced by transparency and consumer control over personal data.

The digital shopping experience has a significant negative effect on privacy concerns. This means that the better the consumer experience using TikTok Shop, the lower their privacy concerns. Ease of navigation, the integration of entertainment and transactions, the completeness of product information, and the transparency of reviews can provide a sense of security and reduce perceived risk. A positive experience allows consumers to assess that the benefits of using the platform outweigh the potential risks of data disclosure. These results align with the “privacy calculus” framework, as consumers tend to accept data use when they receive relevant benefits and a reassuring transactional experience (Dinev & Hart, 2006). Interaction, convenience, and the information available within a “social commerce” environment can also foster a sense of security during the transaction process (Kim & Park, 2013; Wongkitrungrueng & Assarut, 2020).

The digital shopping experience also has a positive and significant effect on consumer trust. These findings indicate that an experience that is easy, enjoyable, informative, and transparent can strengthen consumers’ perceptions of the competence and integrity of both sellers and the platform. In the context of TikTok Shop, the integration of content, entertainment, social interaction, reviews, and transactions enables consumers to obtain more information to evaluate MSME products. These results support Kim and Park (2013), who found that the characteristics of social commerce play a role in shaping consumer trust. These findings are also consistent with Wongkitrungrueng and Assarut (2020), who emphasize that interactions in social media-based commerce can increase trust in sellers. Thus, the quality of the shopping experience is a more significant factor in shaping trust than the sophistication of AI-driven advertising alone. Privacy concerns have a significant negative impact on consumer trust. The stronger the perception of loss of control, activity tracking, and potential data misuse, the lower consumer trust in MSME sellers and TikTok Shop. These findings support Culnan and Armstrong (1999), who state that the perceived unfair use of personal information can reduce trust. These results are also consistent with the privacy-trust-behavior model proposed by Liu et al. (2005), which explains that data protection, choice, notification, and security play a crucial role in shaping trust in electronic services. Therefore, transparency in data collection, user consent, information security, and ease of controlling ad preferences are key to maintaining consumer trust. Overall, the study’s findings support the Privacy Calculus Theory by showing that TikTok Shop consumers simultaneously evaluate the benefits and risks of data-driven marketing. Personalization and AI-based ads increase privacy concerns, but a positive digital shopping experience can reduce them and boost trust. The R^2 value indicates that AI-based ads, ad personalization, and the digital shopping experience explain 31.3% of the variation in privacy concerns. In contrast, the model explains only 15.8% of the variation in consumer trust. The relatively low explanatory power regarding trust suggests that other factors, such as seller reputation, payment security, product quality, consumer reviews, service quality, and transaction protection, also influence trust. In practical terms, SMEs and TikTok Shop administrators need to balance AI-driven personalization strategies with transparent data use, clear consent mechanisms, protection of personal information, and a safe, easy shopping experience. Further testing of indirect effects is needed to confirm the role of privacy concerns as a mediator in the relationships among the study’s variables.

Conclusion

This study concludes that AI-based advertising, ad personalization, and the digital shopping experience play distinct roles in shaping consumers’ privacy concerns and trust regarding purchases of MSME products through TikTok Shop. AI-based advertising and ad personalization were found to increase consumers’ privacy concerns. Ad personalization was the factor with the strongest positive influence on privacy concerns. The more relevant and specific the ads consumers receive, the greater their awareness that the platform is using their digital activities and personal data. The digital shopping experience has a negative effect on privacy concerns and a positive effect on consumer trust.

This indicates that an easy, informative, interactive, and transparent shopping experience can reduce perceived privacy risks while strengthening trust in MSME sellers and TikTok Shop. Conversely, AI-based ads have no direct impact on consumer trust. Thus, the sophistication and precision of ads are not enough to build trust without transparency regarding data usage, transaction security, and a reassuring shopping experience. Privacy concerns negatively impact consumer trust. Therefore, MSMEs and platform operators need to balance the benefits of personalization with data protection by providing transparent information, obtaining consent for data use, strengthening security, and offering control over ad preferences. Testing for indirect effects is still needed to confirm the mediating role of privacy concerns in the relationships among the study's variables.

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