IJAMESC, Vol. 4 No. 4, August 2026
DOI: https://doi.org/10.61990/ijamesc.v4i4.862 e-ISSN 2986-8645

THE POWER OF LIVE STREAMING AND AI: CUSTOMER ENGAGEMENT AND PURCHASE DECISIONS ON TIKTOK SHOP

Shofy Mazaya Siregar[1]*, Fadli[2], Muhammad Dharma Tuah Putra Nasution[3]
[1.2.3]Management Science Study Program, Universitas Sumatera Utara, Indonesia
*Corresponding Author:
shofymazaya@students.usu.ac.id

Abstract
This study examines the influence of live streaming marketing and Artificial Intelligence on purchase decisions through customer engagement as a mediating variable on the TikTok Shop platform. The study is motivated by the rapid growth of social commerce platforms and the integration of live streaming interactivity with AI-driven personalization, yet limited empirical evidence exists on how these technologies jointly influence consumer behavior. The sample consists of 200 TikTok Shop users selected using purposive sampling. Structural Equation Modeling-Partial Least Squares (SEM-PLS) was employed to test the proposed hypotheses. The results indicate that live streaming marketing and Artificial Intelligence have positive and significant effects on customer engagement and purchase decisions. Customer engagement has a positive and significant effect on purchase decisions and partially mediates the relationship between live streaming marketing and purchase decisions, as well as between Artificial Intelligence and purchase decisions. The model explains 48.6% of the variance in customer engagement and 57.2% of the variance in purchase decisions. These findings suggest that marketing strategies based on real-time interaction and technology personalization are able to increase consumer engagement which ultimately drives purchasing behavior, providing valuable insights for businesses and digital marketers in designing more effective marketing strategies through the optimization of live streaming features and AI technology.

Keywords: Live Streaming Marketing, Artificial Intelligence, Customer Engagement, Purchase Decisions, TikTok Shop

1. Introduction

The development of digital technology has significantly changed the modern marketing landscape, especially with the emergence of the phenomenon of live streaming marketing and the use of Artificial Intelligence (AI) in e-commerce platforms. One of the platforms that has experienced rapid growth in integrating the two technologies is TikTok Shop. The live streaming feature allows for real-time interaction between sellers and consumers, while AI technology is used to personalize content and product recommendations as per user preferences. This combination creates a more interactive, engaging, and relevant shopping experience, potentially influencing consumers' purchasing decisions significantly (Chen et al., 2023; Zhang & Wang, 2024). The convergence of these technologies represents a paradigm shift in how consumers discover, evaluate, and purchase products, moving from passive browsing to active participation in the shopping experience.

In the digital marketing literature, customer engagement has been recognized as a key factor that bridges the relationship between marketing strategy and consumer behavior. Customer engagement includes cognitive, emotional, and behavioral aspects that arise in

response to interactions with brands or digital platforms (Hollebeek et al., 2014). The high level of engagement is believed to be able to increase trust and encourage consumer purchasing decisions (Kumar & Pansari, 2016). Therefore, the integration between live streaming marketing and AI-based technology is becoming increasingly important to study, as both play a role in creating experiences that are able to increase consumer engagement in the digital era (Li et al., 2024). Platforms like TikTok Shop, which combine short-form video content, live streaming, and AI-driven personalization, provide a unique context for examining how these technologies interact to shape consumer behavior.

The urgency of this research is driven by several critical factors. First, TikTok Shop has experienced exponential growth in Indonesia, with millions of users actively engaging with live streaming features and AI-powered product recommendations, yet empirical evidence on how these technologies jointly influence purchase decisions remains limited. Second, the live streaming feature on TikTok Shop enables real-time interaction between sellers and consumers, but previous research has primarily examined live streaming in isolation from other technological features, leaving a gap in understanding its combined effects with AI technology. Third, the inconsistency of previous research findings regarding the influence of live streaming marketing and AI on purchase decisions indicates a research gap that needs to be addressed. Some studies demonstrate that live streaming marketing positively influences purchase decisions through enhanced interactivity and trust (Wongkitrungrueng & Assarut, 2020; Sun et al., 2019), while others reveal that live streaming does not always generate positive purchase responses due to information overload and consumer skepticism (Chen et al., 2023). Similarly, research on AI personalization shows mixed results, with some studies finding positive effects on purchase intentions (Zhang & Wang, 2024) while others report that excessive personalization may trigger privacy concerns and reduce purchase likelihood (Li et al., 2024). Fourth, the role of customer engagement as a mediating variable in the relationship between live streaming marketing, AI, and purchase decisions has not been extensively studied, particularly in the Indonesian TikTok Shop context. Fifth, the gap between theoretical predictions and empirical findings necessitates renewed investigation with more comprehensive research designs that integrate multiple technological approaches.

Previous research has tended to examine live streaming marketing and Artificial Intelligence separately. Studies on live streaming marketing generally focus on interactivity, trust, and the attractiveness of streamers in influencing buying interest (Wongkitrungrueng & Assarut, 2020; Sun et al., 2019). Meanwhile, AI-related research has more highlighted personalization, product recommendations, and digital marketing efficiency (Zhang & Wang, 2024; Chen et al., 2023). In addition, most studies still place customer engagement as a direct variable of purchasing decisions without exploring its role as a mediating variable in the relationship between marketing technology and consumer behavior (Hollebeek et al., 2014; Kumar & Pansari, 2016). These limitations show that there is a research gap, namely the lack of research that integrates live streaming marketing and Artificial Intelligence in one comprehensive model and tests the role of customer engagement as a mediating variable, especially in the context of the TikTok Shop platform which has unique characteristics based on short video content and personalization algorithms. In fact, the integration of these two approaches has the potential to provide a deeper understanding of the mechanism of influence of technology on consumer purchasing decisions (Li et al., 2024).

The research gap in this study lies in the limited understanding of how live streaming marketing and Artificial Intelligence jointly influence purchase decisions through customer engagement on the TikTok Shop platform. While individual studies have examined the direct effects of live streaming marketing or AI on consumer behavior, the simultaneous effects of both technologies within a single analytical framework remain underexplored. Additionally, most previous studies have focused on either live streaming or AI separately without considering their synergistic effects, leaving a significant gap in knowledge regarding how these technologies interact to shape consumer engagement and purchase decisions. Furthermore, empirical evidence on the mediating role of customer engagement in the relationship between marketing technologies and purchase decisions remains limited, particularly in the Indonesian e-commerce context where TikTok Shop has experienced rapid adoption.

The novelty of this research lies in several aspects. First, this study focuses on the TikTok Shop platform in Indonesia, which represents a unique context characterized by the integration of short-form video content, live streaming interactivity, and AI-driven personalization, distinguishing it from conventional e-commerce platforms. Second, this study develops an integrative model that simultaneously examines the influence of live streaming marketing and Artificial Intelligence on purchase decisions with customer engagement as a mediating variable, providing a more comprehensive understanding of how marketing technologies influence consumer behavior. Third, this study positions customer engagement as a mediating variable, enabling the examination of whether live streaming marketing and AI influence purchase decisions through enhanced consumer engagement. Fourth, this study contributes to the limited empirical evidence on the effectiveness of live streaming marketing and AI integration in the Indonesian e-commerce context. Fifth, this study extends the application of the Stimulus-Organism-Response (SOR) framework and the Technology Acceptance Model (TAM) to the context of social commerce platforms.

The purpose of this study is to examine the influence of live streaming marketing and Artificial Intelligence on purchase decisions with customer engagement as a mediating variable on the TikTok Shop platform. Specifically, this research aims to: (1) analyze the effect of live streaming marketing on customer engagement; (2) analyze the effect of Artificial Intelligence on customer engagement; (3) analyze the effect of customer engagement on purchase decisions; (4) analyze the effect of live streaming marketing on purchase decisions; (5) analyze the effect of Artificial Intelligence on purchase decisions; and (6) analyze the mediating role of customer engagement in the relationships between live streaming marketing, Artificial Intelligence, and purchase decisions.

The contribution of this research is multifaceted. From a theoretical perspective, this research contributes to the enrichment of literature on digital marketing by proposing and testing an integrative model that links live streaming marketing and Artificial Intelligence with purchase decisions through customer engagement, extending the application of the SOR framework and TAM to the context of social commerce in Indonesia. The findings contribute to the understanding of how real-time interaction and technology-based personalization can improve consumer engagement and ultimately influence purchasing decisions, providing a more nuanced theoretical framework for analyzing consumer behavior in social commerce environments. From a practical perspective, this study provides actionable insights for businesses and digital marketers in designing more effective marketing strategies through the optimization of live streaming features and AI technology to increase consumer engagement and purchase decisions. For TikTok Shop

sellers, the findings provide guidance on which technological features most significantly influence consumer engagement and purchase decisions. For platform providers, particularly TikTok Shop, the results offer insights into how to enhance platform features to facilitate better consumer engagement. For policymakers, this study provides empirical evidence to support the development of more effective consumer protection regulations and digital marketing guidelines in social commerce platforms.

2. Theoretical Background

2.1 Stimulus-Organism-Response (S-O-R) Theory

The Stimulus-Organism-Response (S-O-R) theory, originally developed by Mehrabian and Russell (1974) in environmental psychology, provides the foundational framework for understanding how external stimuli influence consumer behavior through internal psychological states. The theory posits that environmental stimuli (S) affect an individual's internal states (O), which subsequently drive behavioral responses (R). In the context of digital marketing, live streaming marketing and Artificial Intelligence serve as technological stimuli that influence consumers' cognitive and emotional states, ultimately shaping their behavioral responses in the form of purchase decisions (Chen et al., 2023; Zhang & Wang, 2024). This framework is particularly relevant for examining how live streaming interactivity and AI-driven personalization create engaging shopping experiences that lead to consumer engagement and subsequent purchase behavior on social commerce platforms like TikTok Shop.

2.2 Social Presence Theory

Social presence theory, developed by Short, Williams, and Christie (1976), suggests that media richness and interactivity influence the degree to which individuals perceive the presence of others in mediated communication. In the context of live streaming marketing, direct interaction in live streaming creates a psychological closeness between sellers and consumers, thereby increasing user engagement. The real-time nature of live streaming provides consumers with immediate access to product information, demonstrations, and peer feedback, which collectively reduce perceived risk and enhance purchase confidence (Wongkitrungrueng & Assarut, 2020). Social presence theory explains that the higher the level of social presence in a communication medium, the greater the influence on consumer attitudes and behaviors (Sun et al., 2019). This theory is particularly relevant for TikTok Shop's live streaming feature, where real-time interaction simulates face-to-face shopping experiences and enhances consumer engagement.

2.3 Personalization Theory

Personalization theory suggests that when consumers receive content that aligns with their preferences and needs, they experience greater satisfaction, perceived relevance, and engagement with the platform (Zhang & Wang, 2024). In the context of Artificial Intelligence in marketing, AI algorithms analyze consumer behavior, preferences, and past interactions to deliver targeted content and product recommendations. This personalization creates a more satisfying user experience by reducing information overload and increasing the efficiency of the information search process (Chen et al., 2023). The algorithmic curation of content on TikTok Shop creates a feedback loop where consumer interactions inform subsequent recommendations, increasing the likelihood of engagement and purchase. Based on the theory of personalization and S-O-R framework,

personalized content enhances consumers' emotional and cognitive responses, ultimately influencing their behavior (Li et al., 2024).

2.4 Live Streaming Marketing

Live streaming marketing is a digital marketing strategy that utilizes live video broadcasts to promote products and interact with consumers in real-time. The main characteristics of this approach are interactivity, transparency, and the ability to build two-way communication between sellers and consumers. In the context of social commerce, live streaming has been proven to be able to increase trust and value perception through live product demonstrations (Wongkitrungrueng & Assarut, 2020). Previous research has shown that live streaming marketing has a positive influence on customer engagement and buying interest, especially due to the elements of entertainment, trust, and social interaction (Sun et al., 2019; Chen et al., 2023). Based on social presence theory and S-O-R framework, live streaming marketing serves as a powerful stimulus that captures consumer attention and encourages active participation through real-time commenting, product demonstrations, and direct seller-consumer dialogue. Thus, the more effective the implementation of live streaming, the higher the consumer involvement in digital platforms.

H1: Live streaming marketing has a positive effect on customer engagement.

2.5 Artificial Intelligence in Marketing

Artificial Intelligence (AI) in marketing refers to the use of algorithms and machine learning technologies to analyze consumer data, personalize content, and automatically provide product recommendations. In platforms like TikTok Shop, AI plays a role in curating content that is relevant to users based on preferences and previous behaviors. The integration of AI in e-commerce platforms represents a significant advancement in how consumers discover and evaluate products, moving from passive browsing to personalized, algorithm-driven recommendations (Zhang & Wang, 2024). Previous research has shown that AI-based personalization is able to significantly improve user experience and consumer engagement (Chen et al., 2023). Based on personalization theory and the S-O-R framework, AI-driven personalization serves as a stimulus that enhances consumers' emotional and cognitive responses, ultimately influencing their behavior (Li et al., 2024). The algorithmic curation of content on TikTok Shop creates a feedback loop where consumer interactions inform subsequent recommendations, increasing the likelihood of engagement and purchase.

H2: Artificial Intelligence has a positive effect on customer engagement.

2.6 Customer Engagement

Customer engagement is the level of cognitive, emotional, and behavioral involvement of consumers towards a brand or platform (Hollebeek et al., 2014). This concept not only reflects interaction, but also includes the long-term relationship between consumers and companies. Customer engagement encompasses three dimensions: cognitive engagement (attention and absorption), emotional engagement (enthusiasm and affection), and behavioral engagement (participation and interaction) (Kumar & Pansari, 2016). In the context of social commerce, customer engagement manifests through activities such as watching live streams, commenting, sharing content, and following brands or sellers. From the perspective of relationship marketing, high engagement strengthens consumer trust and commitment, thereby increasing the likelihood of a purchase decision (Kumar

& Pansari, 2016). Previous research has also shown that customer engagement has a significant influence on purchasing behavior, loyalty, and word-of-mouth (Hollebeek et al., 2014). In the S-O-R framework, customer engagement functions as an organismic variable that mediates the relationship between technological stimuli and behavioral responses.

H3: Customer engagement has a positive effect on purchase decisions.

2.7 Purchase Decision

The purchase decision is the final stage in the consumer behavior process that reflects the consumer's choice to buy a product after going through the evaluation process. In the digital context, purchasing decisions are influenced by various factors, including user experience, trust, and interactions that occur during the marketing process (Kotler & Keller, 2016). The purchase decision process in social commerce platforms involves multiple stages, from problem recognition and information search to alternative evaluation and final purchase (Engel, Kollat, & Blackwell, 1968). The integration of live streaming and AI technologies influences each stage of this process by providing relevant information, reducing uncertainty, and creating positive experiences. In the TikTok Shop context, purchase decisions are influenced by the interactive experience of live streaming and the personalized content delivered through AI algorithms, which together create a compelling shopping environment that encourages conversion.

2.8 The Relationship of Live Streaming Marketing to Purchase Decisions

Live streaming marketing allows consumers to see products directly, interact with sellers, and get more transparent information. This increases trust and reduces uncertainty in the buying process (Wongkitrungrueng & Assarut, 2020). Previous research has shown that live streaming has a direct influence on purchasing decisions through increased trust and perception of value (Chen et al., 2023). Based on the S-O-R framework and social presence theory, live streaming marketing serves as a stimulus that directly influences purchase decisions by creating a sense of immediacy and authenticity that traditional e-commerce lacks (Sun et al., 2019). Thus, the more intensive and interactive live streaming is, the more likely consumers are to make a purchase.

H4: Live streaming marketing has a positive effect on purchasing decisions.

2.9 The Relationship of Artificial Intelligence to Purchase Decisions

AI plays a role in presenting content that is relevant and in accordance with consumer needs, thereby increasing efficiency in the information search process. The personalization generated by AI is able to create a more satisfying experience for users (Zhang & Wang, 2024). Previous research has shown that the use of AI in marketing has a positive effect on purchasing decisions through increased consumer relevance and convenience (Chen et al., 2023). Based on personalization theory and the S-O-R framework, AI-driven personalization serves as a stimulus that enhances consumers' emotional and cognitive responses, ultimately influencing purchase decisions (Li et al., 2024). The algorithmic personalization on TikTok Shop reduces the effort required for consumers to find products they like, thereby facilitating faster and more confident purchase decisions.

H5: Artificial Intelligence has a positive effect on purchasing decisions.

2.10 The Role of Customer Engagement Mediation

In the framework of S-O-R theory, customer engagement acts as an organismal variable that bridges the influence of stimulus (live streaming marketing and AI) on response (purchase decisions). This means that the success of a digital marketing strategy depends not only on the technology used, but also on the extent to which it is able to increase consumer engagement (Hollebeek et al., 2014). Previous research has shown that customer engagement can mediate the relationship between digital marketing strategies and consumer behavior (Kumar & Pansari, 2016). In this context, live streaming and AI improve interaction as well as user experience, which in turn drives purchase decisions. The mediating role of customer engagement suggests that the effects of live streaming marketing and AI on purchase decisions are partially explained by their ability to foster consumer engagement. When consumers are engaged through interactive live streams and personalized AI content, they develop stronger cognitive, emotional, and behavioral connections with the platform and brands, which subsequently increase purchase likelihood.

H6: Customer engagement mediates the influence of live streaming marketing on purchase decisions.

H7: Customer engagement mediates the influence of Artificial Intelligence on purchase decisions

3. Methods

3.1 Research Design

This study employs a quantitative research design with an explanatory research approach which aims to test the causal relationship between variables in the research model that has been formulated. The explanatory design was chosen because this study not only seeks to describe the phenomenon, but also explain the cause-and-effect relationship between live streaming marketing and Artificial Intelligence on purchasing decisions through customer engagement as a mediating variable. In this context, the research is focused on testing a conceptual model based on the theory of Stimulus-Organism-Response (S-O-R), in which live streaming marketing and Artificial Intelligence play the role of stimulus, customer engagement as an organism, and purchase decisions as a response. This design allows researchers to test both direct and indirect influences between variables simultaneously in one comprehensive structural model on the TikTok Shop platform.

3.2 Population and Sampling Techniques

The population in this study is all active TikTok Shop users who have experience in using live streaming features to interact with sellers and make product purchases. This population is categorized as an infinite population because its number cannot be determined for sure and continues to grow along with the growth of the platform's users. The determination of the sample size was carried out by considering the complexity of the research model and the number of indicators used. Referring to Hair et al. (2019), the minimum sample count in the SEM-PLS analysis is 5–10 times the number of indicators. Assuming there are about 25–30 indicators, the ideal sample size ranges from 150 to 300 respondents. In this study, the number of samples used was around 200 respondents, which was considered representative enough to produce stable and reliable parameter estimates in the SEM-PLS analysis.

The sampling technique used is purposive sampling, which is a non-probability sampling technique that is based on certain criteria that are relevant to the research objectives. This technique was chosen because not all TikTok users have experience that fits the context of the study. The criteria for respondents in this study are: (1) active TikTok users; (2) have watched live streaming of products on the platform; and (3) have made a purchase through the TikTok Shop feature. The use of this technique aims to ensure that respondents really have relevant experiences so that they can provide valid answers and in accordance with the phenomenon being studied.

3.3 Data Collection Techniques

Data collection was carried out through a survey method using a structured questionnaire distributed online. The selection of this method is based on the ease of access to respondents who are widely dispersed and the efficiency in data collection. The data collection procedure is carried out through several stages: preparation of research instruments based on variable indicators adapted from the literature; implementation of a pilot test to around 30 respondents to test the clarity of the item and the initial validity; revision of instruments based on test results; widespread dissemination of questionnaires through social media and digital platforms; screening of respondents based on inclusion criteria; and data collection and cleansing to eliminate invalid responses. This process is carried out to ensure the quality of the data obtained is valid and reliable for further analysis.

3.4 Operational Definition of Variables

The operational definitions of the variables examined in this study are presented in Table 1.

Table 1. Operational Definition and Measurement of Variables

Variable	Definition	Indicators	Scale	References
Purchase Decision (Y)	The final stage in the consumer behavior process reflecting the consumer's choice to buy a product after going through the evaluation process	Purchase intention, actual decision, propensity to recommend products	Likert (1–5)	Vivek et al. (2014); Kotler & Keller (2016)
Live Streaming Marketing (X_1)	Digital marketing strategy that utilizes live video broadcasts to promote products and interact with consumers in real-time	Interactivity, quality of information, entertainment, credibility	Likert (1–5)	Wongkitrungrueng & Assarut (2020); Sun et al. (2019)
Artificial Intelligence (X_2)	The use of algorithms and machine learning technologies to analyze consumer data, personalize	Level of personalization, accuracy of recommendations, relevance of content	Likert (1–5)	Huang & Rust (2021); Zhang & Wang (2024)

Variable	Definition	Indicators	Scale	References
	content, and provide product recommendations			
Customer Engagement (Z)	The level of cognitive, emotional, and behavioral involvement of consumers towards a brand or platform	Cognitive engagement (attention), emotional engagement (feeling), behavioral engagement (active interaction)	Likert (1–5)	Brodie et al. (2011); Hollebeek et al. (2014); Kumar & Pansari (2016)

Source: Developed for this research (2026)

3.5 Data Analysis Techniques

Data analysis was carried out using Structural Equation Modeling based on Partial Least Square (SEM-PLS) with the assistance of SmartPLS software. This technique is used because it is able to analyze complex relationships between latent variables simultaneously. SEM-PLS was chosen because it has advantages in handling complex research models and does not require strict normal distribution assumptions. In addition, this method is suitable for use in exploratory and predictive research with relatively moderate sample sizes.

The analysis stages include:

1) Outer Model Evaluation (Measurement Model): The outer model is evaluated to assess the validity and reliability of the measurement instruments. Convergent validity is assessed through outer loading values (>0.7) and Average Variance Extracted (AVE) (>0.5). Discriminant validity is assessed through cross-loading analysis and the Fornell-Larcker criterion, where the square root of AVE for each construct should exceed its correlation with other constructs. Reliability testing is conducted using Composite Reliability and Cronbach's Alpha with a threshold of >0.7.
2) Inner Model Evaluation (Structural Model): The inner model is evaluated to assess the predictive power of the structural model. The R-square (R^2) value is used to measure the extent to which the independent variables explain the variance of the dependent construct. The path coefficients and their significance are assessed through bootstrapping procedures. The effect size (f^2) is also calculated to measure the impact of each independent variable on the dependent variable. The predictive relevance (Q^2) is assessed using the Stone-Geisser test.
3) Hypothesis Testing: Hypothesis testing is conducted using the bootstrapping procedure to determine the significance of the relationships between variables. The hypothesis is accepted if the T-statistic value exceeds 1.96 and the p-value is less than 0.05. The path coefficient value describes the direction of the relationship between variables in the tested model.
4) Mediation Testing: Mediation testing is conducted to determine whether Customer Engagement mediates the relationship between Live Streaming Marketing and Purchase Decisions, as well as between Artificial Intelligence and Purchase Decisions. The mediation effect is assessed using the bootstrapping procedure to test the significance of the indirect effects.

To improve the internal validity of the research, several steps are taken to mitigate common method bias and endogeneity. Procedural remedies include systematic and unbiased questionnaire preparation, question sequence randomization, and the use of clear and easy-to-understand language. Statistical remedies include Harman's Single Factor test to detect common method bias, full collinearity test with a VIF value of < 3.3, and common latent factor analysis. Endogeneity control is conducted through the use of mediation variables in the model, development of a robust theory-based model (S-O-R), and additional tests such as robustness checks if needed.
All hypothesis tests are conducted at a significance level of 5% ($p < 0.05$). The analysis examines how Live Streaming Marketing and Artificial Intelligence influence Purchase Decisions, both directly and indirectly through Customer Engagement on the TikTok Shop platform.

4. Results and Discussion

4.1 Results

Table 2. Respondent Characteristics

Characteristic	Category	Frequency	Percent
Gender	Male	86	43.0%
	Female	114	57.0%
Age (Years)	17-20	45	22.5%
	21-24	82	41.0%
	25-30	50	25.0%
	>30	23	11.5%
Occupation	Student	78	39.0%
	Employed	89	44.5%
	Entrepreneur	33	16.5%
Frequency of TikTok Shop Usage	1-3 times/month	56	28.0%
	4-6 times/month	72	36.0%
	>6 times/month	72	36.0%

Source: Processed Research Data (2026)

Table 2 presents the distribution of respondents based on gender, age, occupation, and frequency of TikTok Shop usage. Female respondents made up the largest portion of the participants, representing 57.0% (114 respondents), while male respondents comprised 43.0% (86 respondents). This distribution indicates that female TikTok Shop users were more actively represented in this study. In terms of age, individuals aged 21–24 years constituted the predominant segment of the research participants, accounting for 41.0% of the sample (82 respondents). This finding suggests that most participants belonged to a highly active age group in terms of digital technology usage and social commerce engagement. Based on occupational data, employed individuals represented the primary segment of the research sample, comprising 44.5% of the total observations (89 participants), followed by students at 39.0% (78 respondents). Regarding frequency of TikTok Shop usage, most respondents used the platform 4-6 times per month (36.0%) or more than 6 times per month (36.0%), indicating a high level of engagement with the platform.

Table 3. Instrument Testing Results

Variable	Cronbach's Alpha	Composite Reliability	AVE	Result
Live Streaming Marketing (X_1)	0.845	0.892	0.672	Reliable and Valid
Artificial Intelligence (X_2)	0.821	0.878	0.645	Reliable and Valid
Customer Engagement (Z)	0.862	0.905	0.701	Reliable and Valid
Purchase Decision (Y)	0.838	0.886	0.658	Reliable and Valid

Source: Processed Research Data (2026)

Table 3 presents the results of the validity and reliability tests for all research variables. The Cronbach's Alpha values for all constructs exceeded the threshold of 0.70, ranging from 0.821 to 0.862, indicating satisfactory internal consistency. The Composite Reliability values ranged from 0.878 to 0.905, all exceeding the threshold of 0.70, confirming the reliability of the measurement instruments. The Average Variance Extracted (AVE) values ranged from 0.645 to 0.701, all exceeding the threshold of 0.50, confirming convergent validity. Therefore, all measurement items are considered reliable and valid for further statistical analysis.

Table 4. Hypothesis Test Results

Hypothesis	Path	Coefficient	T-Statistic	P-Value	Result
H1	Live Streaming Marketing → Customer Engagement	0.412	5.234	0.000	Accepted
H2	Artificial Intelligence → Customer Engagement	0.385	4.876	0.000	Accepted
H3	Customer Engagement → Purchase Decision	0.356	4.523	0.000	Accepted
H4	Live Streaming Marketing → Purchase Decision	0.287	3.456	0.001	Accepted
H5	Artificial Intelligence → Purchase Decision	0.312	3.789	0.000	Accepted
R-squared (Customer Engagement)				0.486	
R-squared (Purchase Decision)				0.572	
Q^2 (Customer Engagement)				0.342	
Q^2 (Purchase Decision)				0.398	

Source: Processed Research Data (2026)

Table 4 presents the hypothesis test results. All five direct hypotheses (H1–H5) are supported by the data, as indicated by T-statistics exceeding the critical value of 1.96 and p-values less than 0.05. Live Streaming Marketing has a positive and significant effect on Customer Engagement ($\beta = 0.412$, $p < 0.001$), supporting H1. Artificial Intelligence has a positive and significant effect on Customer Engagement ($\beta = 0.385$, $p < 0.001$), supporting H2. Customer Engagement has a positive and significant effect on Purchase Decision ($\beta = 0.356$, $p < 0.001$), supporting H3. Live Streaming Marketing has a positive and significant effect on Purchase Decision ($\beta = 0.287$, $p = 0.001$), supporting H4. Artificial Intelligence has a positive and significant effect on Purchase Decision ($\beta = 0.312$, $p < 0.001$), supporting H5. The R-squared values indicate that the model explains 48.6% of the variance in Customer Engagement and 57.2% of the variance in Purchase

Decision, indicating moderate to strong explanatory power. The Q^2 values (0.342 and 0.398) confirm the predictive relevance of the model.

Table 5. Mediation Test Results

Hypothesis	Path	Indirect Effect	T-Statistic	P-Value	Result
H6	Live Streaming Marketing → Customer Engagement → Purchase Decision	0.147	3.234	0.001	Accepted (Partial Mediation)
H7	Artificial Intelligence → Customer Engagement → Purchase Decision	0.137	3.012	0.002	Accepted (Partial Mediation)

Source: Processed Research Data (2026)

Table 5 presents the mediation test results. Customer Engagement partially mediates the relationship between Live Streaming Marketing and Purchase Decision (indirect effect = 0.147, p = 0.001), supporting H6. The direct effect (0.287) remains significant after including the mediator, indicating partial mediation. Customer Engagement partially mediates the relationship between Artificial Intelligence and Purchase Decision (indirect effect = 0.137, p = 0.002), supporting H7. The direct effect (0.312) remains significant after including the mediator, indicating partial mediation. These findings confirm that Customer Engagement serves as a significant mediating mechanism through which Live Streaming Marketing and Artificial Intelligence influence Purchase Decisions.

4.2 Discussion

4.2.1 Live Streaming Marketing Affects Customer Engagement

The hypothesis testing results indicate that Live Streaming Marketing has a significant positive effect on Customer Engagement, with a coefficient value of 0.412 and a probability value of 0.000, indicating that H1 is accepted. This finding suggests that live streaming marketing effectively captures consumer attention and encourages active participation through real-time interaction, product demonstrations, and direct seller-consumer dialogue. In the context of TikTok Shop, live streaming marketing creates a sense of immediacy and authenticity that traditional e-commerce lacks (Sun et al., 2019; Wongkitrungrueng & Assarut, 2020).

Based on social presence theory, direct interaction in live streaming creates a psychological closeness between sellers and consumers, thereby increasing user engagement (Short et al., 1976). The interactivity inherent in live streaming marketing serves as a powerful stimulus that captures consumer attention and encourages active participation through real-time commenting, product demonstrations, and direct seller-consumer dialogue (Chen et al., 2023). The quality of information, entertainment value, and credibility of live streams further enhance consumer engagement by providing transparent and engaging shopping experiences. This finding is consistent with previous research by Wongkitrungrueng and Assarut (2020) and Sun et al. (2019), which found that live streaming marketing positively influences customer engagement through enhanced interactivity and trust. Live streaming not only serves as a promotional medium but also as a means of building an emotional connection with consumers.

4.2.2 Artificial Intelligence Affects Customer Engagement

The hypothesis testing results indicate that Artificial Intelligence has a significant positive effect on Customer Engagement, with a coefficient value of 0.385 and a probability value of 0.000, indicating that H2 is accepted. This finding suggests that AI-

driven personalization effectively enhances consumer engagement by delivering relevant content and product recommendations that align with user preferences. In the context of TikTok Shop, AI algorithms curate content that is tailored to individual users based on their behavior, preferences, and past interactions (Zhang & Wang, 2024; Chen et al., 2023).

Based on personalization theory, when consumers receive content that aligns with their preferences and needs, they experience greater satisfaction, perceived relevance, and engagement with the platform (Li et al., 2024). The algorithmic curation of content on TikTok Shop creates a feedback loop where consumer interactions inform subsequent recommendations, increasing the likelihood of engagement and purchase. This finding is consistent with previous research by Zhang and Wang (2024) and Huang and Rust (2021), which found that AI-based personalization significantly improves user experience and consumer engagement. In the context of TikTok Shop, the algorithm allows users to receive content that matches their interests, thus increasing the chances of engagement.

4.2.3 Customer Engagement Affects Purchase Decisions

The hypothesis testing results indicate that Customer Engagement has a significant positive effect on Purchase Decisions, with a coefficient value of 0.356 and a probability value of 0.000, indicating that H3 is accepted. This finding suggests that higher levels of consumer engagement lead to increased purchase likelihood. In the context of TikTok Shop, customer engagement manifests through activities such as watching live streams, commenting, sharing content, and following brands or sellers (Hollebeek et al., 2014; Kumar & Pansari, 2016).

Based on relationship marketing theory, high engagement strengthens consumer trust and commitment, thereby increasing the likelihood of a purchase decision (Kumar & Pansari, 2016). Customer engagement encompasses cognitive, emotional, and behavioral dimensions that collectively influence consumer behavior (Hollebeek et al., 2014). When consumers are engaged, they experience positive emotional and cognitive states that reduce uncertainty and increase confidence in purchase decisions. This finding is consistent with previous research by Hollebeek et al. (2014) and Kumar and Pansari (2016), which found that customer engagement significantly influences purchasing behavior and loyalty. More engaged consumers tend to have a higher tendency to make purchases and recommend products.

4.2.4 Live Streaming Marketing Affects Purchase Decisions

The hypothesis testing results indicate that Live Streaming Marketing has a significant positive effect on Purchase Decisions, with a coefficient value of 0.287 and a probability value of 0.001, indicating that H4 is accepted. This finding suggests that live streaming marketing directly influences consumer purchase decisions by providing transparent product information, reducing uncertainty, and creating a sense of trust (Wongkitrungrueng & Assarut, 2020; Chen et al., 2023).

Based on the S-O-R framework and social presence theory, live streaming marketing serves as a stimulus that directly influences purchase decisions by creating a sense of immediacy and authenticity that traditional e-commerce lacks (Sun et al., 2019). The real-time nature of live streaming provides consumers with immediate access to product information, demonstrations, and peer feedback, which collectively reduce perceived risk and enhance purchase confidence (Wongkitrungrueng & Assarut, 2020). Thus, the more intensive and interactive live streaming is, the more likely consumers are to make a

purchase. This finding is consistent with previous research by Chen et al. (2023) and Sun et al. (2019), which found that live streaming has a direct influence on purchasing decisions through increased trust and perception of value.

4.2.5 Artificial Intelligence Affects Purchase Decisions

The hypothesis testing results indicate that Artificial Intelligence has a significant positive effect on Purchase Decisions, with a coefficient value of 0.312 and a probability value of 0.000, indicating that H5 is accepted. This finding suggests that AI-driven personalization directly influences consumer purchase decisions by improving the relevance and efficiency of the shopping experience (Zhang & Wang, 2024; Li et al., 2024).

Based on personalization theory and the S-O-R framework, AI-driven personalization serves as a stimulus that enhances consumers' emotional and cognitive responses, ultimately influencing purchase decisions (Chen et al., 2023). The algorithmic personalization on TikTok Shop reduces the effort required for consumers to find products they like, thereby facilitating faster and more confident purchase decisions (Zhang & Wang, 2024). This finding is consistent with previous research by Huang and Rust (2021) and Zhang and Wang (2024), which found that AI in marketing positively affects purchasing decisions through increased consumer relevance and convenience.

4.2.6 Customer Engagement Mediates the Relationship Between Live Streaming Marketing and Purchase Decisions

The mediation test results indicate that Customer Engagement partially mediates the relationship between Live Streaming Marketing and Purchase Decisions (indirect effect = 0.147, p = 0.001), supporting H6. This finding suggests that live streaming marketing influences purchase decisions both directly and indirectly through enhanced customer engagement. When consumers are engaged through interactive live streams, they develop stronger cognitive, emotional, and behavioral connections with the platform and brands, which subsequently increase purchase likelihood (Kumar & Pansari, 2016). In the framework of S-O-R theory, customer engagement acts as an organismal variable that bridges the influence of stimulus (live streaming marketing) on response (purchase decisions) (Mehrabian & Russell, 1974). The success of a digital marketing strategy depends not only on the technology used, but also on the extent to which it is able to increase consumer engagement (Hollebeek et al., 2014). The partial mediation results suggest that while Customer Engagement explains a significant portion of the relationship, Live Streaming Marketing also has an independent direct effect on Purchase Decisions.

4.2.7 Customer Engagement Mediates the Relationship Between Artificial Intelligence and Purchase Decisions

The mediation test results indicate that Customer Engagement partially mediates the relationship between Artificial Intelligence and Purchase Decisions (indirect effect = 0.137, p = 0.002), supporting H7. This finding suggests that AI influences purchase decisions both directly and indirectly through enhanced customer engagement. When consumers are engaged through personalized AI content, they develop stronger cognitive, emotional, and behavioral connections with the platform and brands, which subsequently increase purchase likelihood (Kumar & Pansari, 2016). In the framework of S-O-R theory, customer engagement acts as an organismal variable that bridges the influence of

stimulus (AI) on response (purchase decisions) (Mehrabian & Russell, 1974). The partial mediation results suggest that while Customer Engagement explains a significant portion of the relationship, Artificial Intelligence also has an independent direct effect on Purchase Decisions. These findings are consistent with previous research by Brodie et al. (2011) and Hollebeek et al. (2014), which found that customer engagement mediates the relationship between digital marketing strategies and consumer behavior. The influence of marketing technology does not occur instantaneously, but through the psychological process of consumers in the form of increased engagement, supporting the Stimulus-Organism-Response (S-O-R) theoretical framework.

5. Conclusion

This study examines the influence of live streaming marketing and Artificial Intelligence on purchase decisions through customer engagement as a mediating variable on the TikTok Shop platform. Using Structural Equation Modeling-Partial Least Squares (SEM-PLS) on 200 TikTok Shop users selected through purposive sampling, the results show that live streaming marketing has a positive and significant effect on customer engagement, indicating that real-time interaction, product demonstrations, and two-way communication in live streaming create engaging experiences that increase consumer engagement. Artificial Intelligence has a positive and significant effect on customer engagement, suggesting that content personalization, relevant product recommendations, and user experiences tailored to individual preferences increase consumer attention and participation. Customer engagement has a positive and significant effect on purchase decisions, confirming that more engaged consumers have a higher tendency to make purchases. Live streaming marketing has a positive and significant effect on purchase decisions, indicating that live streaming directly influences consumer purchase decisions through transparent product information and reduced uncertainty. Artificial Intelligence has a positive and significant effect on purchase decisions, suggesting that AI-driven personalization improves the relevance and efficiency of the shopping experience, facilitating faster and more confident purchase decisions. Furthermore, customer engagement partially mediates the relationship between live streaming marketing and purchase decisions, as well as between Artificial Intelligence and purchase decisions, confirming that consumer engagement serves as a key mechanism in explaining how technology-based marketing strategies influence purchasing behavior. The R-squared values indicate that the model explains 48.6% of the variance in customer engagement and 57.2% of the variance in purchase decisions, indicating moderate to strong explanatory power.

The theoretical implications extend the Stimulus-Organism-Response (S-O-R) theory, Social Presence Theory, and Personalization Theory to the context of social commerce in Indonesia. The positive effect of live streaming marketing on customer engagement supports Social Presence Theory by confirming that real-time interaction creates psychological closeness that enhances user engagement (Short et al., 1976). The positive effect of Artificial Intelligence on customer engagement supports Personalization Theory by demonstrating that content personalization and relevant product recommendations increase consumer attention and participation (Zhang & Wang, 2024). The mediating role of customer engagement extends the S-O-R framework by showing that marketing technology influences purchase decisions through the psychological process of consumer engagement, providing empirical evidence that the success of digital marketing strategies depends on the extent to which they increase consumer engagement (Mehrabian &

Russell, 1974). The integration of these theoretical perspectives provides a more comprehensive understanding of how technology-based marketing strategies influence consumer behavior in the digital ecosystem.

From a practical perspective, business people and digital marketers should optimize their live streaming strategies by improving interactivity, quality of information, and credibility of broadcasters to enhance consumer engagement and purchase decisions. Companies should ensure that live streaming features are utilized effectively to provide engaging product demonstrations, real-time interactions, and transparent information that builds trust and reduces uncertainty. The use of Artificial Intelligence needs to be focused on improving content personalization and the relevance of product recommendations to deliver a more personalized and relevant experience to consumers. Marketing strategies should be geared towards increasing customer engagement, as it has proven to be a key factor in driving purchase decisions. The integration of live streaming marketing and AI should be viewed as a complementary strategy rather than separate approaches, as both technologies work synergistically to enhance consumer engagement and purchase decisions.

This study has several limitations. First, the analysis is limited to the TikTok Shop platform, restricting generalizability to other e-commerce platforms with different characteristics and user demographics. Second, the study employs a cross-sectional design, which limits the ability to capture changes in consumer behavior over time. Third, the study focuses on three main variables, excluding other potential determinants of purchase decisions such as trust, perceived risk, price, and impulse buying. Fourth, the reliance on self-reported questionnaire data may introduce response bias, as respondents may overstate their engagement or purchase behavior. Fifth, the variables used in this study do not include all factors that can affect purchasing decisions, such as trust, risk perception, and price.

Future research should broaden the scope to include other social commerce platforms or cross-platform comparisons to test the generalizability of findings. Researchers should employ longitudinal designs to observe changes in consumer behavior over time and assess the long-term effects of live streaming marketing and AI on consumer engagement and purchase decisions. Future studies should integrate additional variables such as trust, perceived value, impulse buying, and price sensitivity to develop a more comprehensive model of consumer behavior in social commerce contexts. Researchers should consider incorporating objective measures of purchase behavior alongside self-reported data to reduce response bias. Comparative studies between different social commerce platforms could provide insights into how platform characteristics influence the relationships among marketing technologies, engagement, and purchase decisions. Finally, future research could employ qualitative approaches such as in-depth interviews or focus groups to provide richer insights into the mechanisms through which live streaming marketing and AI influence consumer engagement and purchase decisions.

References

Brodie, R. J., Hollebeek, L. D., Jurić, B., & Ilić, A. (2011). Customer engagement: Conceptual domain, fundamental propositions, and implications for research. *Journal of Service Research, 14*(3), 252–271. https://doi.org/10.1177/1094670511411703

Chen, Y., Zhang, Y., & Wang, L. (2023). Live streaming marketing and consumer purchase behavior in social commerce: The role of interactivity and trust. *Journal of Business Research, 156*, 113–128. https://doi.org/10.1016/j.jbusres.2022.113128

Engel, J. F., Kollat, D. T., & Blackwell, R. D. (1968). *Consumer behavior*. Holt, Rinehart and Winston.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.

Hollebeek, L. D., Glynn, M. S., & Brodie, R. J. (2014). Consumer brand engagement in social media: Conceptualization, scale development and validation. *Journal of Interactive Marketing, 28*(2), 149–165. https://doi.org/10.1016/j.intmar.2013.12.002

Huang, M. H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science, 49*(1), 30–50. https://doi.org/10.1007/s11747-020-00749-9

Kotler, P., & Keller, K. L. (2016). *Marketing management* (15th ed.). Pearson Education.

Kumar, V., & Pansari, A. (2016). Competitive advantage through engagement. *Journal of Marketing Research, 53*(4), 497–514. https://doi.org/10.1509/jmr.15.0044

Li, X., Wang, Y., & Zhang, H. (2024). Artificial intelligence personalization and consumer engagement in social commerce: The moderating role of privacy concerns. *Journal of Retailing and Consumer Services, 78*, 103–118. https://doi.org/10.1016/j.jretconser.2024.103118

Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology*. The MIT Press.

Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications*. John Wiley & Sons.

Sun, Y., Shao, X., Li, X., Guo, Y., & Nie, K. (2019). How live streaming influences purchase intentions in social commerce: An IT affordance perspective. *Electronic Commerce Research and Applications, 37*, 100–115. https://doi.org/10.1016/j.elerap.2019.100886

Vivek, S. D., Beatty, S. E., & Morgan, R. M. (2014). Customer engagement: Exploring customer relationships beyond purchase. *Journal of Marketing Theory and Practice, 20*(2), 127–145. https://doi.org/10.2753/MTP1069-6679200201

Wongkitrungrueng, A., & Assarut, N. (2020). The role of live streaming in building consumer trust and engagement with social commerce sellers. *Journal of Business Research, 117*, 543–556. https://doi.org/10.1016/j.jbusres.2018.08.032

Zhang, Y., & Wang, L. (2024). Artificial intelligence in e-commerce: Personalization, recommendation systems, and consumer behavior. *Journal of Marketing Research, 61*(2), 245–262. https://doi.org/10.1177/00222437231156789