

Socio Technical Drivers of Impulse Buying in Live Streaming Fashionpreneurship

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ABSTRACT

This study addresses the rapid growth of live-streaming commerce in Indonesia and its impact on impulse buying behavior within emerging digital economies. **Integrating the Stimulus–Organism–Response (S-O-R) framework** with Socio-Technical Systems (STS) theory, this research aims to examine how socio technical stimuli streamer factors, platform affordances, and perceived brand value, influence consumers' emotional (shopping happiness) and cognitive (ongoing trust) states, which subsequently drive impulse buying. **A quantitative approach** was employed using survey data from 300 consumers who purchased local fashion products via Shopee Live and TikTok Shop. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess measurement validity and structural relationships. **The results** indicate that all hypothesized relationships are statistically significant. Socio-technical stimuli significantly influence both shopping happiness and ongoing trust, which in turn positively affect impulse buying, with shopping happiness emerging as the strongest predictor. **This study contributes** by offering an integrated socio-technical perspective on consumer behavior in live commerce and provides practical implications for enhancing engagement and trust. It also supports the Sustainable Development Goals (SDGs), particularly SDG 8 and SDG 9, by promoting sustainable digital commerce and empowering local fashion businesses through technology-driven innovation.

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1. INTRODUCTION

Live Streaming Commerce (LSC) has rapidly transformed the digital retail landscape by integrating real-time interaction, entertainment, and purchasing into a unified consumer experience. This transformation is particularly pronounced in fast-growing digital economies such as Indonesia [1], where mobile-first consumers and rapid platform adoption have accelerated the expansion of live commerce within the local fashion industry. In this context, live commerce not only facilitates instant purchasing decisions but also enhances social presence through dynamic, real-time engagement with streamers and influencers [2–4]. From a managerial perspective, this phenomenon reflects an evolving digital business strategy in which firms leverage interactive technologies and social engagement to influence consumer decision-making and co-create value.

As live commerce expands, it reshapes impulse buying into a socio technical behavior influenced by both technology and socio cultural factors, particularly in markets like Indonesia, where it also reflects

social identity and status [5–11]. This highlights its role beyond transactions in building engagement and long term brand relevance [12, 13]. However, existing studies often use linear approaches and separate social and technological factors, leaving a gap in understanding their integrated socio technical influence on emotional and cognitive responses that drive impulse buying [4, 14–16].

To address this gap, this study adopts an integrative theoretical approach by combining the Stimulus–Organism–Response (S-O-R) framework with Socio-Technical Systems (STS) theory. The S-O-R model provides a psychological mechanism in which external stimuli, including streamer attributes, platform features, and perceived brand value, influence internal states such as shopping happiness and ongoing trust, which subsequently drive impulse buying [3, 4]. Meanwhile, STS theory extends this perspective by conceptualizing live commerce as an interactive ecosystem in which social actors and technological infrastructures jointly enable value co-creation [17, 18]. By integrating these perspectives, this study advances existing literature by offering a more holistic understanding of impulse buying as a socio-technical phenomenon rather than a purely psychological response.

Employing survey data from Indonesian live commerce consumers and advanced PLS-SEM analysis, this research contributes both theoretically and practically. Theoretically, it provides a novel framework that explains impulse buying through socio-technical value co-creation mechanisms. Practically, it offers insights for brands, platform designers, fashionpreneurs, and policymakers in designing engaging, trustworthy, and sustainable digital commerce environments. Furthermore, this study aligns with the Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure), by supporting the development of inclusive and innovation-driven digital marketplaces.

2. LITERATURE REVIEW

The literature review in this study aims to synthesize prior research on impulse buying behavior within the context of live-streaming commerce by integrating both socio-technical and psychological perspectives. Specifically, it examines how social and technological factors jointly shape consumer experiences and decision-making processes. Drawing on STS theory and the S-O-R framework, this section provides a conceptual foundation to understand how external stimuli influence internal emotional and cognitive states, ultimately leading to impulse buying behavior.

2.1. Socio-Technical Stimuli in Live Commerce

Impulse buying, traditionally seen as an unplanned and emotion driven decision, becomes a more complex socio technical phenomenon in live streaming commerce due to real time interaction, technological features, and dynamic consumer brand relationships [4, 13, 19]. This indicates that impulse buying requires an integrated view of social and technological influences rather than purely psychological explanations [20].

Live commerce functions as an interactive ecosystem where social elements such as streamer credibility and technological features like live chat and real time feedback work together to enhance trust, engagement, and user experience [10, 21–25]. Their interaction creates a co creation process that strengthens the role of a socio technical perspective in explaining consumer behavior [26].

Furthermore, perceived brand value serves as a critical linkage between social and technological dimensions [27, 28]. Beyond functional attributes such as product quality and price, brand value encompasses emotional and symbolic meanings derived from the live shopping experience [13, 29]. In this context, brands function as hybrid socio-technical entities that not only facilitate identity expression but also enhance experiential enjoyment and engagement [30]. This integrative perspective highlights the need to examine socio-technical stimuli as a unified construct in understanding impulse buying within live-streaming commerce [31].

2.2. The S-O-R Framework: Stimulus, Organism, and Response

The S-O-R model provides a robust theoretical foundation to explain the mechanisms underlying impulse buying behavior in live commerce. Within this framework, external stimuli influence internal organismic states, which subsequently drive consumer responses, particularly impulse purchasing [3, 4]. While prior studies have successfully applied the S-O-R framework to digital consumer behavior, they often treat stimuli as isolated factors, thereby overlooking the interconnected nature of socio-technical influences in live-streaming environments.

In live streaming commerce, socio technical stimuli such as streamer characteristics, platform affordances, and perceived brand value act as key drivers of emotional and cognitive responses [32, 33]. Positive

emotional experiences, reflected in shopping happiness, increase the likelihood of impulse buying [34–36]. At the same time, platform features enhance convenience, interactivity, and usability, which foster trust and reduce perceived risk [2, 4, 37–40]. The interaction between social and technological factors further strengthens both emotions and trust, creating a reinforcing mechanism that ultimately drives impulse buying [41–44]. This integrative perspective underscores the importance of combining S-O-R with STS theory to better capture the socio-technical processes underlying consumer behavior in live commerce. Consequently, this study proposes the following hypothesis:

- H1: Streamer factors positively influence shopping happiness.
- H2: Platform affordances positively influence shopping happiness.
- H3: Perceived brand value positively influences shopping happiness.
- H4: Streamer factors positively influence ongoing Trust.
- H5: Platform affordances positively influence ongoing Trust.
- H6: Perceived brand value positively influences ongoing Trust.
- H7: Shopping happiness positively influences impulse buying.
- H8: Ongoing Trust positively influences impulse buying.

The conceptual framework visually in Figure 1 summarizes research hypotheses, illustrating how socio-technical stimuli, organismic states, and consumer responses are interrelated, while highlighting the moderating role of conspicuous orientation in live-streaming commerce.

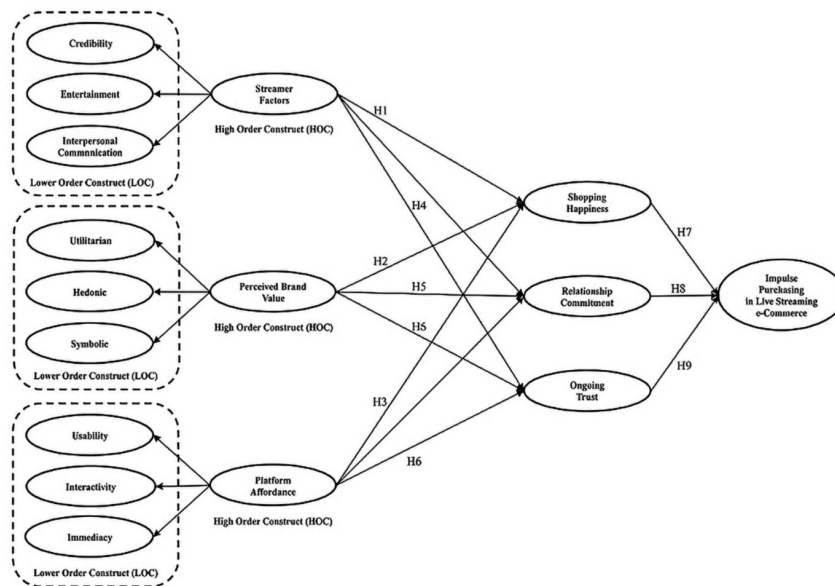


Figure 1. Conceptual Framework: A Socio-Technical Model Impulse Buying

As illustrated in 1, the conceptual framework of this study synthesizes the theoretical foundations discussed in the preceding literature by integrating the S-O-R framework with the STS perspective. The model illustrates how socio-technical stimuli, represented through higher-order constructs derived from multiple lower-order dimensions, influence consumers' internal states, namely shopping happiness and ongoing trust. These organismic states subsequently drive impulse buying behavior in live-streaming e-commerce contexts. In particular, the framework emphasizes the mediating role of ongoing trust as a cognitive mechanism that translates socio-technical interactions into behavioral outcomes. By structuring the relationships among

constructs into a hierarchical model, this study highlights the interconnected nature of social and technological factors in shaping consumer decision-making processes. Overall, the proposed framework provides a comprehensive representation of how impulse buying emerges from the dynamic interplay between external stimuli, internal psychological states, and behavioral responses in digitally mediated commerce environments.

3. RESEARCH METHODS

This study employs a quantitative explanatory design to examine the drivers and consequences of impulse purchasing in Indonesia's live-streaming fashion commerce sector. The dual-theoretical foundation, combining the S-O-R framework and STS theory, guides the examination of how socio-technical stimuli shape both emotional and cognitive internal states and, subsequently, consumer responses.

3.1. Research Design and Context

This study adopts a cross-sectional survey design to examine Indonesian consumers' perceptions and behaviors related to impulse buying in live-streaming commerce. This approach is appropriate for capturing real-time behavioral tendencies within rapidly evolving digital environments. The proposed model integrates external socio-technical stimuli, including streamer characteristics, platform affordances, and perceived brand value, within the S-O-R framework, where shopping happiness and ongoing trust function as mediating organismic states that influence behavioral responses. The inclusion of STS theory further contextualizes these relationships by emphasizing the dynamic interaction among social actors and technological infrastructures in facilitating value co-creation in live commerce settings [2, 3]. The Indonesian context is particularly relevant due to its high adoption of mobile commerce and rapid growth of live-streaming platforms [45], making it a representative setting for examining emerging digital consumer behavior [46].

3.2. Sampling and Data Collection

The study targets Indonesian consumers who purchased local fashion products via live-streaming platforms such as Shopee Live and TikTok Shop, using purposive sampling to select those who made at least one impulse purchase in the past six months. Data were collected through online surveys distributed via social media and e-commerce communities. A pilot test with 30 participants was conducted, followed by 300 valid responses, meeting PLS-SEM requirements and the "ten times rule" as well as statistical power criteria [25, 47]. The sample reflects diverse demographics, enhancing representativeness and allowing potential generalization to similar digital commerce contexts.

3.3. Measurement Instrument

The survey instrument was designed based on the S-O-R and STS frameworks, measuring socio-technical stimuli through streamer factors, platform affordances, and perceived brand value, while shopping happiness and ongoing trust represent emotional and cognitive responses, and impulse buying as the outcome. All items were adapted from validated studies and measured using a seven-point Likert scale [2, 3, 29], with bilingual back-translation and expert review ensuring reliability and validity across contexts.

3.4. Data Analysis

Data analysis was conducted using SmartPLS 4.0, which is well-suited for complex research models involving hierarchical constructs and does not require strict normality assumptions [24, 48, 49]. This method is particularly appropriate for exploratory and prediction-oriented research, as well as for models incorporating both reflective and higher-order constructs [50].

The analysis follows a structured multi-stage approach. First, the measurement model was evaluated to assess reliability and validity, including internal consistency (Cronbach's alpha and Composite Reliability), convergent validity (Average Variance Extracted), and discriminant validity (Fornell-Larcker criterion and HTMT). Second, the structural model was assessed by examining collinearity (VIF), explanatory power (R^2), predictive relevance (Q^2), and the significance of path coefficients using bootstrapping with 10,000 resamples. Third, predictive performance was further evaluated using PLS-predict with the Cross-Validated Predictive Ability Test (CVPAT) procedure [48, 48].

In addition, mediation effects were examined to assess the indirect influence of socio-technical stimuli on impulse buying through shopping happiness and ongoing trust, thereby providing a deeper understanding of the underlying behavioral mechanisms.

4. RESULTS AND DISCUSSIONS

This section presents the empirical findings of the study, including descriptive statistics, measurement model evaluation, and structural model assessment. The analysis aims to provide a comprehensive understanding of respondent characteristics and to evaluate the proposed research model by examining the relationships between socio-technical stimuli, internal psychological states, and impulse buying behavior in live-streaming commerce [51].

4.1. Descriptive Statistics

A total of 300 valid responses were analyzed. The sample comprised 58% female and 42% male respondents, with a mean age of 27.4 years. The majority of participants were aged 18–24 (42%) and 25–34 (33%), reflecting a predominantly young and digitally engaged consumer segment. Shopee Live emerged as the most frequently used platform (62%), followed by TikTok Shop (29%). Approximately 84% of respondents reported purchasing local fashion products via live streaming within the previous six months, and 54% held a bachelor's degree. The demographic distribution indicates strong representation from urban and peri-urban regions, including Java, Sumatra, and Sulawesi, where access to higher education and digital infrastructure is more prevalent. This profile aligns with the characteristics of active live commerce users in Indonesia and supports the relevance of the sample for analyzing socio-technical consumer behavior in digital retail contexts.

Table 1. Descriptive Statistics of Respondents (N = 300)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Female	174	58.0
	Male	126	42.0
Age (years)	18–24	126	42.0
	25–34	99	33.0
	≥35	75	25.0
Mean Age	—	27.4	—
Main Live Commerce-Platform	Shopee Live	186	62.0
	TikTok Shop	87	29.0
	Others	27	9.0
Purchased Local Brands via Live Streaming (past 6 months)	Yes	252	84.0
	No	48	16.0
Highest Education	Bachelor's Degree	162	54.0
	Others	138	46.0
Area Representation	Java	186	62.0
	Outside Java	114	38.0

Source: Authors' Data (2025).

The descriptive statistics presented in Table 1 provide a comprehensive overview of the respondent profile, highlighting key characteristics of live-streaming commerce users in Indonesia. The sample is predominantly composed of young and digitally active consumers, with the majority aged between 18 and 34 years, reinforcing the relevance of this demographic in shaping live commerce trends. The higher proportion of female respondents suggests a stronger engagement of women in fashion-oriented live-streaming activities. Platform usage is dominated by Shopee Live and TikTok Shop, highlighting their key role in live commerce transactions. Most respondents have recently purchased local fashion brands, reflecting growing acceptance in digital markets, while their relatively high education level and location in areas with strong digital infrastructure support the sample's representativeness and the generalizability of the findings.

4.2. Measurement Model Evaluation

All constructs exhibit a high level of reliability, as evidenced by both Cronbach's alpha and composite reliability values consistently exceeding the recommended threshold of 0.70. Convergent validity is well established, with all AVE values surpassing 0.50, indicating that each construct adequately explains the variance of its indicators. Furthermore, discriminant validity is confirmed through satisfactory HTMT ratios and cross-loading results, demonstrating clear differentiation among constructs. The VIF values, ranging from 1.24 to 2.11, suggest that there are no significant multicollinearity concerns. Overall, these findings indicate that the constructs are not only empirically distinct but also theoretically aligned within the integrated S-O-R and STS framework.

Table 2. Measurement Model Assessment

Items	Measurement items	Outer Loadings	CA	ρ_a	CR	AVE
Lower-order reflective constructs						
Streamer Factors Credibility (LOC)			0.921	0.922	0.941	0.760
CRE1	I do believe that streamers are convincing	0.866				
CRE2	I do believe that streamers are reliable	0.886				
CRE3	I do believe that streamers are trusted	0.877				
CRE4	Streamers have expertise in apparel fashion	0.872				
CRE5	Streamers are credible sources for apparel purchasing decisions	0.859				
Entertainment (LOC)			0.939	0.953	0.803	0.939
ENT1	Streamer is entertaining	0.903				
ENT2	Streamer makes live shopping sessions enjoyable to watch	0.888				
ENT3	Streamer creates a fun atmosphere during live shopping	0.886				
ENT4	Streamer's presentation style keeps me interested throughout the live shopping session	0.917				
ENT5	Streamer is entertaining	0.886				
Interpersonal Communication (LOC)			0.937	0.938	0.952	0.799
IPC1	Streamer actively interacts through comments or chat	0.908				
IPC2	Streamer responds quickly to viewers' questions during live shopping sessions	0.892				
IPC3	Streamer communicates in an approachable way during live shopping	0.912				
IPC4	Streamer makes me feel personally acknowledged during live shopping interactions	0.873				
IPC5	Streamer communicates clearly with the audience during live shopping	0.884				
Platform Affordance Usability (LOC)			0.917	0.919	0.938	0.751
USA1	The live streaming e-commerce platform enhances my online shopping experience	0.871				
USA2	The platform delivers product details and personalized information	0.847				
USA3	The platform simplifies checkout by offering task-relevant transaction information	0.893				
USA4	The platform makes navigation during shopping sessions easy	0.860				
USA5	The platform is user-friendly for live shopping activities	0.861				
Interactivity (LOC)			0.909	0.910	0.932	0.734
INT1	The live streaming e-commerce platform enables two-way interaction with streamers	0.834				

INT2	I can ask questions and streamers respond promptly during live sessions	0.889				
INT3	I can get tailored information from streamers that meets my needs	0.894				
INT4	The platform supports real-time interaction between viewers	0.827				
INT5	The platform enables meaningful communication during live shopping sessions	0.838				
Immediacy (LOC)			0.913	0.913	0.935	0.741
IMM1	Product information is delivered instantly during live shopping sessions	0.837				
IMM2	My orders are addressed immediately during live shopping sessions	0.893				
IMM3	Live shopping supports immediate action on limited-time deals	0.862				
IMM4	Live shopping enables me to quickly obtain personalized information	0.870				
IMM5	Purchasing decisions can be made quickly during live shopping sessions	0.842				
Utilitarian (LOC)			0.935	0.939	0.950	0.793
UTI1	This local apparel brand helps me save time when shopping through live streaming.	0.877				
UTI2	I believe this local brand provides good value for the money.	0.897				
UTI3	This brand offers high-quality apparel products.	0.857				
UTI4	Buying from this local brand through live streaming is a convenient option.	0.913				
UTI5	Compared to other brands, this local apparel brand offers better deals.	0.907				
Perceived Brand Value						
Hedonic (LOC)			0.944	0.944	0.957	0.817
HED1	This local apparel brand makes me feel relaxed during live streaming.	0.878				
HED2	I enjoy shopping for this brand's products during live streams.	0.910				
HED3	Time seems to pass quickly when I'm watching this brand's live stream.	0.899				
HED4	Shopping for this brand through live streaming is fun and entertaining.	0.920				
HED5	Interacting with this brand during live streams helps me forget my worries.	0.913				
Symbolic (LOC)			0.944	0.945	0.957	0.818
SYM1	During livestream shopping, I feel like being fashionable.	0.914				
SYM2	This brand life gives me a sense of identity.	0.927				
SYM3	This brand improves how others see me.	0.892				
SYM4	This brand offers products that match my personal style.	0.897				
SYM5	I recommend this brand's live shopping to friends.	0.891				
Shopping Happiness			0.868	0.874	0.903	0.651
SHA1	Happy	0.783				
SHA2	Excited	0.813				
SHA3	Relax	0.821				
SHA4	More alive	0.812				
SHA5	Fun	0.805				

Ongoing Trust	Based on my previous experience purchasing products through live-streaming commerce, I believe that live-streaming commerce...	0.869	0.869	0.912	0.723
ONT1	... is trustworthy.	0.888			
ONT2	... is reliable.	0.883			
ONT3	... is capable of delivering quality brands and services.	0.886			
ONT4	... fulfills its promises.	0.732			
Impulse Buying	While watching live streaming shopping	0.968	0.968	0.975	0.885
IB1	... I buy apparel that I had not intended to purchase	0.922			
IB2	... I often buy things spontaneously	0.951			
IB3	... "I see it, I buy it" describes the way I buy apparel in live streaming shopping	0.940			
IB4	... I feel like buying more apparel than I need	0.947			
IB5	... I often buy things emotionally	0.943			
Higher-order reflective constructs assessment					
Streamer Factors (HOC)		0.920	0.926	0.949	0.862
LV scores - Credibility		0.936			
LV scores - Entertainment		0.937			
LV scores - Interpersonal Communication		0.913			
Platform Affordance (HOC)		0.887	0.892	0.930	0.815
LV scores - Usability		0.888			
LV scores - Interactivity		0.912			
LV scores - Immediacy		0.909			
Perceived Brand Value (HOC)		0.905	0.914	0.941	0.841
LV scores - Utilitarian		0.880			
LV scores - Hedonic		0.924			
LV scores - Symbolic		0.946			
Shopping Happiness		0.868	0.874	0.903	0.651
SHAP1		0.783			
SHAP2		0.814			
SHAP3		0.823			
SHAP4		0.812			
SHAP5		0.803			
Ongoing Trust		0.869	0.869	0.912	0.723
ONT1		0.887			
ONT2		0.884			
ONT3		0.887			
ONT4		0.731			
Impulse Buying		0.968	0.968	0.975	0.885
IB1		0.922			
IB2		0.951			
IB3		0.940			
IB4		0.947			
IB5		0.943			

Source: Authors' Data (2025).

Table 2 presents the assessment of the measurement model for lower-order reflective constructs, including credibility, entertainment, interpersonal communication, and platform usability. The results indicate that all indicators have high outer loadings (above 0.70), demonstrating strong indicator reliability. The constructs show strong internal consistency, with CA, rho_a, and CR above 0.70, while AVE exceeds 0.50, con-

firming convergent validity. Overall, the measurement model is reliable and valid for further analysis.

Table 3. Discriminant validity (HTMT)

<i>First Stage HTMT</i>												
	CRE	ENT	HED	IMM	IB	INT	IPC	ONT	SHAP	SYM	USA	UTI
CRE	-	-	-	-	-	-	-	-	-	-	-	-
ENT	0.884	-	-	-	-	-	-	-	-	-	-	-
HED	0.766	0.749	-	-	-	-	-	-	-	-	-	-
IMM	0.789	0.776	0.678	-	-	-	-	-	-	-	-	-
IB	0.615	0.612	0.763	0.600	-	-	-	-	-	-	-	-
INT	0.684	0.713	0.608	0.823	0.551	-	-	-	-	-	-	-
IPC	0.828	0.841	0.691	0.719	0.558	0.653	-	-	-	-	-	-
OTR	0.857	0.781	0.802	0.791	0.718	0.734	0.756	-	-	-	-	-
SHAP	0.839	0.844	0.773	0.870	0.626	0.741	0.789	0.883	-	-	-	-
SYM	0.798	0.811	0.885	0.763	0.745	0.663	0.756	0.856	0.865	-	-	-
USA	0.709	0.713	0.565	0.763	0.379	0.787	0.631	0.686	0.780	0.657	-	-
UTI	0.756	0.754	0.741	0.726	0.657	0.683	0.753	0.717	0.718	0.795	0.626	-
<i>Second Stage HTMT</i>												
	IB	ONT	PBV	PA	SHAP	SF						
IB	-	-	-	-	-	-						
ONT	0.718	-	-	-	-	-						
PBV	0.803	0.882	-	-	-	-						
PA	0.574	0.830	0.830	-	-	-						
SHAP	0.626	0.883	0.875	0.896	-	-						
SF	0.646	0.865	0.817	0.865	0.830	-						

Source: Authors' Data (2025).

As shown in Table 3, all HTMT values for both the first-stage and second-stage constructs are below the commonly accepted threshold of 0.90, indicating that discriminant validity is established across all constructs. In both the first- and second-stage analyses, all constructs show acceptable discriminant validity, with HTMT values below the critical threshold. This confirms that each construct is distinct and free from multicollinearity or overlap.

4.3. Structural Model Assessment

The structural model in Figure 2 shows strong explanatory power, with streamer factors, platform affordances, and brand value significantly influencing shopping happiness ($R^2 = 0.690$) and ongoing trust ($R^2 = 0.699$), and explaining 63% of impulse buying ($R^2 = 0.63$), while all hypotheses are supported. The model is reliable with Q^2 values above zero (0.739, 0.681, 0.670) and a good fit indicated by $SRMR = 0.678$ (< 0.10). Robustness checks also confirm stable and unbiased results, supporting the S-O-R and STS model where socio-technical factors drive emotions and trust, leading to impulse buying and stronger symbolic brand value.

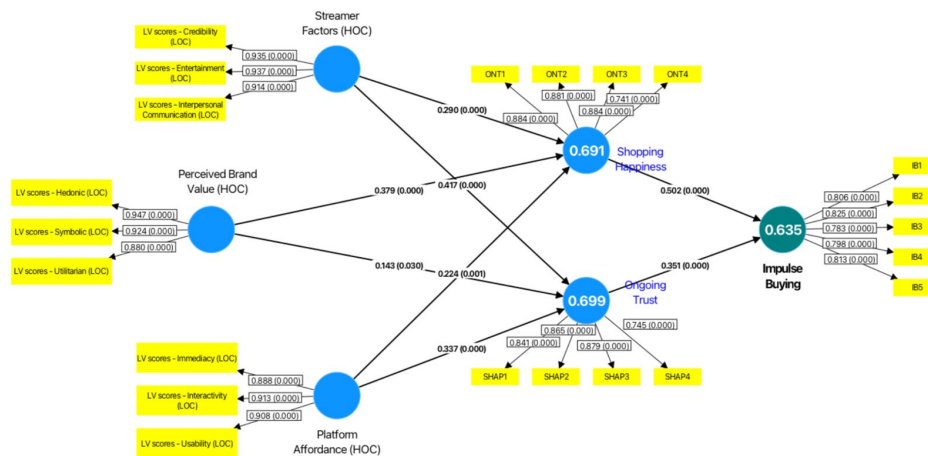


Figure 2. Structural Model Assessment

All hypothesized relationships were statistically significant ($p < 0.05$) in Figure 2, with the organism-to-response pathways exhibiting the most pronounced effects. In particular, the most substantial effects emerged in the organism-to-response pathways shopping happiness $\rightarrow$ Impulse purchase ($\beta = 0.41$). The following summary in Table 4 shows the complete results:

Table 4. Structural Model Results

Pathway	β	T Value	P Value	Result
Streamer $\rightarrow$ Shopping Happiness	0.290	3.334	0.000	Supported
Brand Value $\rightarrow$ Shopping Happiness	0.379	4.627	0.000	Supported
Platform $\rightarrow$ Shopping Happiness	0.224	3.115	0.001	Supported
Streamer $\rightarrow$ Ongoing Trust	0.417	5.236	0.000	Supported
Brand Value $\rightarrow$ Ongoing Trust	0.143	1.876	0.030	Supported
Platform $\rightarrow$ Ongoing Trust	0.337	4.070	0.000	Supported
Shopping Happiness $\rightarrow$ Impulse Buying	0.502	9.015	0.000	Supported
Ongoing Trust $\rightarrow$ Impulse Buying	0.351	5.861	0.000	Supported

Source: Authors' Data (2025).

The analysis in Table 4 revealed that all hypothesized relationships were statistically significant ($p < 0.05$). The most substantial effects emerged in the organism to response pathways (shopping happiness $\rightarrow$ Impulse purchase, $\beta = 0.502$). These findings validate the theoretical sequence of stimulus $\rightarrow$ organism $\rightarrow$ response, while also emphasizing the reinforcing role of socio-technical components [4, 13].

To assess the predictive validity of the proposed model, a comparative prediction analysis was conducted by benchmarking the PLS-SEM model against a naïve indicator average (IA) model and a linear regression model (LM). The results in Table 5 show that the PLS-SEM model significantly outperformed the indicator average benchmark across all endogenous constructs, as evidenced by negative average loss differences and statistically significant p-values ($p < 0.001$).

Table 5. Predictive Ability of the Model

Variable	PLS-SEM vs. Indicator average (IA)		PLS-SEM vs. Linear model (LM)	
	Average Loss	Dif- P-Value	Average Loss	Dif- P-Value
Impulse Purchase	-739569,686	0,000	198378,428	0,000
Ongoing Trust	-448337,228	0,000	96477,851	0,000
Shopping Happiness	-503448,841	0,000	46798,164	0,009
Overall	-577307,132	0,000	120384,323	0,000

Source: Authors' Research, 2025

The finding shown in Table 5 indicates that the proposed model provides substantial predictive relevance beyond simple baseline predictions. Compared with the linear model, the PLS-SEM model exhibited higher prediction loss, suggesting that linear relationships capture a considerable portion of the predictive variance. Nevertheless, given the theoretical complexity of the model, including latent constructs, interaction effects, and socio-technical mechanisms, the PLS-SEM approach remains appropriate for theory testing and explanation rather than pure prediction.

4.4. Discussion

This study provides empirical support for the integrated S-O-R and Socio-Technical Systems framework in explaining impulse buying and its symbolic meaning in Indonesia's live-streaming fashion commerce. The findings underscore the central role of socio-technical stimuli, namely, streamer characteristics, platform affordances, and perceived brand value in shaping both affective (shopping happiness) and cognitive (ongoing Trust) internal states. These internal organismic states subsequently drive impulse buying behavior, reflecting a sequential pathway from external stimulus to meaning-laden consumer response.

The considerable impact of streamer credibility, entertainment, and interpersonal communication highlights the social dimension of live commerce [52], corroborating previous studies that demonstrate streamers function as emotional catalysts, fostering engagement and Trust [10, 13]. At the same time, the technical

affordances provided by platforms such as usability, interactivity, immediacy, and secure payment systems, create a digital environment that encourages impulsive decisions by reducing perceived risk and increasing shopper confidence [24, 25]. These results validate the notion that technological and social subsystems are mutually reinforcing, shaping shopper experience in ways not possible in traditional or even standard e-commerce settings.

The results further indicate that shopping happiness exerts the most potent effect on impulse purchasing, exceeding even that of cognitive Trust. This finding supports the idea that emotional engagement and hedonic value are the main reasons why people buy things they did not plan to in entertainment-rich, immersive settings. For Indonesia's Gen Z and Millennial consumers, live commerce platforms are more than just places to buy things, they are also places to feel good and connect with their value. The high explanatory power of the model for impulse purchase demonstrates the importance of capturing both psychological and socio-technical dimensions in consumer research.

5. MANAGERIAL IMPLICATIONS

This study provides practical implications for local fashion brands, platform developers, and digital marketers in optimizing impulse buying within live-streaming commerce. Brands should prioritize recruiting and training streamers with strong credibility, communication skills, and entertainment value, as they act as key connectors between brands and consumers. Effectively communicating brand value through engaging product narratives can enhance both emotional engagement and trust, ultimately driving impulse purchases. In addition, platforms should incorporate interactive and immersive features such as multi-angle product displays, live polls, and real-time discounts to enhance shopping happiness, the strongest predictor of impulse buying.

Maintaining consumer trust is essential and can be achieved through transparent product information, clear return policies, and interactive elements such as real-time testimonials and Q&A sessions. Policymakers and industry associations should also support capacity-building programs for MSMEs and live-stream hosts, particularly in ethical marketing and digital content creation. This is important as impulse buying, while beneficial for sales, may also lead to excessive consumption. The study also acknowledges its limitations, including the use of cross-sectional and self-reported data, which may affect causal interpretation and introduce bias.

Future research should adopt longitudinal approaches and behavioral data to improve validity and capture dynamic consumer behavior over time. Expanding research across different cultural contexts and product categories will enhance generalizability. Further theoretical integration and exploration of emerging technologies such as AI, augmented reality, and virtual influencers can deepen understanding of consumer behavior in live-streaming environments. Additionally, future studies should examine both positive and negative outcomes of impulse buying, including consumer well-being, to support more responsible and sustainable development of live-streaming commerce.

6. CONCLUSIONS

This study advances the understanding of impulse buying in live-streaming commerce, particularly in the context of Indonesia's fashion sector, by offering an integrative explanation that combines empirical evidence with theoretical development. The findings demonstrate that socio-technical stimuli namely streamer characteristics, platform affordances, and perceived brand value jointly shape both affective (shopping happiness) and cognitive (ongoing trust) states, which subsequently drive impulse buying behavior. Notably, shopping happiness emerges as the most influential predictor, reinforcing the central role of affective mechanisms in digitally mediated consumption. These results extend the Stimulus–Organism–Response (S-O-R) framework by embedding it within a socio-technical context, thereby highlighting the dynamic interplay between human interaction and technological affordances.

From a theoretical perspective, this study contributes to the literature by integrating the S-O-R framework with Socio-Technical Systems (STS) theory, offering a multidimensional lens to explain consumer behavior in emerging digital environments. Unlike prior studies that treat technological and social factors separately, this research demonstrates their interdependent and reinforcing roles in shaping emotional and cognitive responses. The findings also enrich the discourse on impulse buying by reframing it not merely as spontaneous behavior but as a meaning-laden process associated with emotional engagement, identity expression, and symbolic consumption in live-streaming contexts.

From a managerial standpoint, the findings underscore the importance of designing emotionally en-

gaging and socially interactive live-streaming environments. Platform managers should enhance real-time interactivity and immersive features, while streamers must cultivate credibility, entertainment value, and responsive communication to foster both trust and enjoyment. Additionally, digital marketers are encouraged to emphasize symbolic and experiential brand value to strengthen consumer attachment and stimulate impulse purchasing. These insights highlight that successful live-streaming commerce strategies require the alignment of technological design, social interaction, and emotional engagement. Overall, this study provides a comprehensive socio-technical perspective that bridges theory and practice, offering valuable insights for both academic research and the evolving digital commerce industry.

7. DECLARATIONS

7.1. About Authors

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7.2. Author Contributions

Conceptualization: HS; Methodology: ES; Software: KK; Validation: KK and ES; Formal Analysis: KK and HS; Investigation: KK; Resources: HS; Data Curation: HS; Writing Original Draft Preparation: KK and ES; Writing Review and Editing: HS and ES; Visualization: HS; All authors, KK, HS, and ES, have read and agreed to the published version of the manuscript.

7.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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7.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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