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## Article

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# The trust-driven path to consumer engagement behaviors: Exploring the role of streamer and platform characteristics in live-streaming E-commerce

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## ABSTRACT

Live-streaming e-commerce is revolutionizing online retail by fostering real-time consumer engagement, yet limited research explores how streamer and platform characteristics jointly influence trust and drive consumer engagement behaviors (CEB). This study examines how streamer attributes (beauty, humor, passion, expertise, and warmth) and platform features (interactivity and personalization) shape trust in streamers and products, subsequently affecting CEB dimensions, including augmenting, co-developing, influencing, and mobilizing. Using data from 682 respondents and analyzing with Structural Equation Modeling (SEM) via SmartPLS 4.0, the findings reveal that beauty and interactivity are pivotal for trust in streamers, while expertise and personalization are critical for trust in products. Trust in streamers emerged as the strongest predictor of CEB, emphasizing its role in fostering consumer loyalty and interaction. This research contributes to theory by integrating socio-technical perspectives with trust-based consumer engagement frameworks, offering a holistic understanding of trust to cultivate CEB. Practically, the study highlights the importance of employing streamers with strong interpersonal appeal and creating interactive, personalized shopping experiences to boost trust and engagement. The study advances live-streaming e-commerce by providing insights and presenting an original, trust-driven model for enhancing consumer engagement.

## 1. Introduction

Live streaming e-commerce has become a transformative force in the global digital economy, leveraging streamers with engaging characteristics to promote and sell products while fostering trust and influencing consumer decisions more effectively than traditional e-commerce platforms (Meng et al., 2021). In 2023, the global live streaming market was valued at USD 1.35 trillion, with a projected 12 % Compound Annual Growth Rate, potentially reaching USD 3.532 trillion by 2032 (Business Research Insights, 2024). A similar trend is evident in the U.S., where the industry generated USD 50 billion in 2023 (Statista, 2024). Indonesia mirrors this growth, emerging as Southeast Asia's largest live streaming market, with sales reaching USD 4.89 billion in 2022 (Dailysocial, 2022). The sector has become a cornerstone of Indonesia's digital economy, with Shopee Live dominating the market—preferred by 77 % of local brands and SMEs compared to TikTok Live's 19 %

(Jagat Review, 2024). These figures highlight the immense potential of live streaming e-commerce to drive consumer engagement and sales across diverse markets.

Despite the rapid expansion of live streaming, critical research gaps persist, particularly in understanding how streamer and platform characteristics cultivate trust and influence CEB. While trust has been identified as a pivotal factor driving CEB in Indonesia's live streaming landscape (Hsieh et al., 2024; Zhang et al., 2024; Honora et al., 2023), the specific elements of streamers or products that most effectively foster trust remain underexplored. Although previous studies have examined various dimensions of live streaming and CEB (Wang et al., 2024; Luo et al., 2024; Johnson, 2024; Guo et al., 2022; Kang et al., 2021; Wongkitrungrueng & Assarut, 2020), there is a notable lack of clarity regarding the interplay between streamer characteristics, trust, and CEB. Understanding whether trust in streamers or in the products they promote exerts a stronger influence on CEB is critical for addressing this

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research void.

While Guo et al. (2022) emphasized the role of perceived value in shaping behavioral intention through streamer characteristics, their study did not investigate how streamer-driven trust directly impacts CEB. Trust is particularly vital in live streaming, where consumers are unable to physically interact with products, making the trustworthiness of streamers and their endorsements a key determinant of engagement. Similarly, Wongkitrungrueng and Assarut (2020) underscored the importance of trust in both products and streamers as drivers of CEB but failed to explore specific CEB dimensions, such as augmenting, influencing, co-developing, and mobilizing. These dimensions are essential to fully capture the spectrum of CEB in live streaming contexts. Furthermore, prior research has largely overlooked the antecedents of streamer and platform characteristics that build trust, leaving gaps in understanding how trust can be strategically developed to enhance CEB. This gap calls for an integrated investigation of trust mechanisms and their impact on nuanced forms of CEB in live streaming environments.

Hsieh et al. (2024) demonstrated that trust in both streamers and products enhances CEB, yet their study overlooked the antecedent role of streamer and platform characteristics in building trust. Similarly, Zhang et al. (2023) highlighted attributes such as streamer experience and live streaming interactivity as influencers of consumer behavior but failed to address trust as a mediating factor linking these characteristics to CEB. This study bridges these gaps by identifying which streamer and platform characteristics most effectively build trust and determining their impact on CEB. Furthermore, it examines how trust in streamers and products influences CEB, pinpointing which type of trust has the greatest effect. By doing so, the research provides critical insights into the mechanisms driving trust and engagement in live streaming contexts.

The present study is distinct from prior studies by considering the joint and comparative effects of streamer and platform characteristics on trust and their role in triggering CEB. As Guo et al. (2022) and Wongkitrungrueng and Assarut (2020) hypothesize, the roles of streamer traits though, such as expertise or charisma or platform features, such as interactivity, are explored in independent ways. Nonetheless, this research adopts a more holistic perspective and looks to the way in which streamer and platform factors work together to foster trust and drive certain CEB dimension— augmenting, co-developing, influencing, and mobilizing. This integrated perspective clearly enhances our understanding of trust formation and delves into complex ways in which trust affects different engagement behaviors, which have been mostly overlooked in previous studies. In addition, this research both contributes to the discourse by investigating how trust in streams is different from trust in platforms, a gap that is rarely raised in existing literature. Hsiao and Chen (2021) consider the importance of the platform features such as interaction and personalization in establishing trust while they fail to distinguish the possibility of how distinct trust in streamers and trust in products are for the impact on the consumer behaviors. In this study, we fill that gap by comparing these types of trust and link them to specific CEB dimensions, providing both theoretical contributions to trust and engagement models as well as insights for practitioners. This research identifies which factors best promote trust and engagement, offering a detailed framework for increasing consumer engagement for live streaming e-commerce.

The contribution of this research to academics is to advance understandings of how streamer and platform characteristics collaborate to foster trust and drive CEB. Although prior work has emphasized the interactivity as an important driver of trust for streamers (Zhang, Huang, et al., 2022; Zhang, Liu, et al., 2022) and personalization as a key to enabling trust in products (Xue et al., 2020), the focus of prior work is on each of these in isolation. The fundamental gap leaves this space until this research fills it by looking at how interactivity and personalization collectively affect trust in streamers and product, separately, in order to bring a more thorough, combined perspective on trust transfer mechanism. This study extends the theoretical framework of trust in live

streaming beyond its transactional outcomes, by addressing trust's role in driving certain CEB dimensions, namely augmenting, influencing, co-developing and mobilizing.

Meanwhile, this study's contribution for practitioner includes insights towards optimizing live streaming e-commerce strategies to boost consumer trust and engagement. It posits how beauty — the least common trait across all four streamers — is one of the key factors in establishing trust alongside traits such as passion and humor among other influences in driving CEBs. From the platform perspective, interactivity and personalization drive the trust in products and, as a result, also impact product behaviors such as co-developing or augmenting behaviors. This dual focus means that practitioners get practical guidance on selecting and training streamers who can effectively build trust while investing in platform features like real time chat, gamification, and personalized content delivery. This research distinguishes between trust in streamers and trust in products, allowing marketers to coordinate investments to attract and engage with fans, help facilitate lasting relationships between them and brands, and, ultimately, create an edge over competitors in real time.

This study addresses two critical research questions to advance understanding of trust and CEB in live streaming contexts. The first question asks: *What are the most influential streamer and platform characteristics that foster trust in streamers and products?* Addressing this question elucidates the antecedents of trust, an area underexplored in prior research (Zhang et al., 2023; Yang et al., 2023; Guo et al., 2022). By identifying these characteristics, the study contributes to theory by clarifying how trust is cultivated and provides insights for streamers, platforms, and marketers to enhance trust-building strategies. The second question focuses on: *How does trust in streamers and products influence CEB, and which type of trust has the most significant impact?* This question investigates the specific role of trust (e.g., streamer vs. products) in shaping distinct CEB dimensions, including augmenting, influencing, co-creating, and mobilizing (Hsieh et al., 2024; Hsu & Hu, 2024; Wang et al., 2024; Guo et al., 2021; Wongkitrungrueng & Assarut, 2020). By addressing these questions, the research enriches theoretical frameworks of CEB, enhances understanding of trust's mechanisms within live streaming environments, and provides practical guidance for optimizing trust to maximize consumer engagement.

## 2. Literature review

### 2.1. Previous studies and gaps

Table 1 presents an overview of prior studies examining the determinants of CEBs through streamer and live streaming characteristics, with a particular focus on trust mechanisms. Hsieh et al. (2024) identified that personalization and visibility significantly enhance trust in products, while active control, synchronicity, two-way communication, and visibility build trust in streamers. Furthermore, their study revealed that trust in streamers directly influences trust in products and ultimately shapes CEBs. However, it did not delve deeply into the specific streamer and platform characteristics that act as antecedents of trust. Guo et al., 2022 examined streamer traits and found that beauty, expertise, humor, and passion significantly impact hedonic value, while warmth and expertise contribute to utilitarian value. Although they highlighted the role of streamer popularity in influencing watching intention, their findings did not extend to the impact of trust on purchase intention or broader CEB dimensions. Zhang, Huang, et al. (2022) and Zhang, Liu, et al. (2022) explored socio-technical enablers and their effects on trust in products and streamers but overlooked the complexities of interactions within live streaming ecosystems. Similarly, Zheng et al. (2023) demonstrated that social presence and interactivity influence flow, which drives continuous watching and purchase intentions, yet their study did not fully address the intricate interplay between these variables and trust. (See Table 2.)

Li and Han (2021) extended the discourse on CEBs by identifying

**Table 1**  
Previous Studies and Gaps.

Author (s)	Context	Dimensions used	Main Findings	Contribution of the Study
Hsieh et al., 2023	Live streaming e-commerce	Socio-technical system, trust in products, trust in streamers, augmenting, co-developing, influencing, and mobilizing	Personalization and visibility enhance trust in products; active control, synchronicity, and visibility enhance trust in streamers. Trust in streamers affects trust in products and CEBs.	Does not explore the streamer and platform characteristics
Guo et al., 2022	Live streaming e-commerce	Streamer characteristics utilitarian and hedonic values, popularity, watching intention, and purchase intention	Beauty, expertise, humor, and passion enhance hedonic value; warmth and expertise enhance utilitarian value; popularity influences watching intention but not purchase intention.	Does not explore the trusts and CEB
Zhang et al., 2022	Live streaming e-commerce	Socio & technical enablers trust in streamers, trust in products, live-streaming genre, and continuance intention	Socio and technical enablers affect trust in products and streamers.	Does not consider complexity of interactions.
Zheng et al., 2023	Live streaming e-commerce	Social presence, interactivity, optimal stimulus level, attractiveness, expertise, flow, continuous watching intention, and purchase intention	Social presence and interactivity affect flow. Flow affects continuous watching and purchase intention. Optimal stimulation level moderates interactivity.	Does not consider complexity of interactions.
Li & Han, 2021	Online interest communities	Goal pursuit, emotional attachment, augmenting, co-developing, influencing, mobilizing	Goal pursuit and emotional attachment are the key antecedent factors of CEBs. Gratifying-the self affects CEBs. The enabling and enriching-the-self influence CEBs	Focuses on online interest communities, which may differ from live streaming e-commerce contexts.
This study	Live streaming e-commerce	Beauty, warmth, expertise, humor, passion, trust in products, trust in steamer, augmenting, co-developing, influencing, and mobilizing	Beauty, humor, and interactivity affect trust in steamer. Expertise, passion, warmth, and personalization affect trust in products. Both trusts affect all CEBs	Provides a more comprehensive understanding of CEBs in live streaming

**Table 2**  
Sample demographics.

Measure	Category	F	%
Gender	Male	297	43.55
	Female	385	56.45
Marital Status	Single	392	57.48
	Married	290	42.52
Age Group	≤20 years old	119	17.45
	21–30 years old	316	46.33
	31–40 years old	155	22.73
	41–50 years old	50	7.33
	≥51 years old	42	6.16
Educational Background	High school and equivalent	195	28.59
	Diploma's degree	161	23.61
	Bachelor's degree	232	34.02
	Master's degree	81	11.88
	Doctoral degree	13	1.91
Livestreaming used	Shopee	301	44.13
	Tokopedia	163	23.90
	Lazada	110	16.13
	Bukalapak	85	12.46
	Tiktok	14	2.05
	Facebook	9	1.32

Notes: F, Frequency; %, Percentage.

goal pursuit and emotional attachment as key antecedents, emphasizing how gratifying-the-self, enabling-the-self, and enriching-the-self influence CEBs. While their findings contribute to understanding engagement behaviors, their study focused on online interest communities, which differ from live streaming e-commerce contexts. Collectively, prior research highlights the significance of trust in streamers and products but often fails to integrate or comprehensively explore the antecedents and mechanisms driving trust within live streaming environments. This study builds upon these gaps by investigating how streamer traits such as beauty, humor, and interactivity influence trust in streamers, while expertise, passion, warmth, and personalization shape trust in products. Furthermore, it examines how both forms of trust—streamer and product—impact all dimensions of CEB, including augmenting, co-developing, influencing, and mobilizing, thereby offering a more comprehensive framework for understanding CEBs in live streaming contexts.

### 2.2. Live streaming e-commerce in Indonesia

Indonesia's live streaming e-commerce market has evolved into a backbone of Southeast Asia digital economy, driven by high internet, social media penetration, and changing consumer behavior. It is likely to continue growing as its user base expands, and the number of platforms competing with each other also widens. Local brands and SMEs also trust Shopee Live the most (77 %) because of their robust features and wide reach, while TikTok Live is trusted by 19 % of respondents for reaching out to younger audiences as well as an influencer base of content (Jagat Review, 2024). Global forecasts estimate that live streaming commerce will be a major part of e-commerce portion, with countries like Indonesia playing a leading role in the adoption of this fast-growing retail channel (Statista., 2024). These are trends that demonstrate Indonesia's position as a regional leader able to use its digital ecosystem to reach out to a wide range of consumers.

In Indonesia, the attraction of live stream e-commerce is its ability to mix retail with real time interaction and entertainment together for diversified consumers. Flash sales and product demonstration is done through live streaming on platforms like Shopee and Tokopedia who utilize their ecosystems for impulse purchase and build trust through real time engagement (Dailysocial, 2022; Katadata, 2024). The TikTok and Instagram's landscape is further diversified in terms of allowing influencer led live stream campaigns that are especially attractive for younger shoppers who prefer buying on the basis of content rather than product (Guo et al., 2022; Yang et al., 2023). For its part, Lazada and

Bukalapak jump on the live streaming industry by providing specialized platforms that focus on a specific product category such as beauty and electronics in order to meet the specialized needs (Katadata, 2024; Zhai & Chen, 2023). As a dynamic ecosystem, live streaming e-commerce gives the flexibility of reaching different demographics dynamically while it has proven to be a powerful tool and medium for brands to connect emotionally with consumers as well as get them to complete their transactions.

Future outlook of live-streaming e-commerce in Indonesia is promising due to Indonesia's growing middle class, the growing rate of smartphone adoption, and the innovation in digital payments that continue to develop in Indonesia. By 2026, more than 30 % of Indonesia's total e-commerce revenue will come from live streaming sales (Katadata, 2024). Recently, to generate consumer value, platforms embracing new technologies have become popular: artificial intelligence for recommendation systems, augmented reality for digital shopping experiences, and games as a form of social engagement (Statista., 2024; Zhai & Chen, 2023). Such innovations, and the gradually intensified competition among the platforms, may also re-write the consumer experience and form the basis for continued growth of live streaming e-commerce. Exploring the reasons of Indonesia's success in employing live streaming as a retail channel provides key lessons for future research and business on the nature of digital interactivity, consumers' trust and changing markets.

### 2.3. The socio-technical systems theory

From its name, the socio-technical systems theory, as coined by Bostrom and Heinen (1977), posited that an information system is made of an interrelated combination of socio (i.e. human aspects such as interaction, communication, and relationship) and technical (i.e., technological process, tools, and competencies). In order for an information system to be successful, the combination of both social and technical is imperative (Ji et al., 2024; Sony & Naik, 2020). Prior works in live streaming paradigm have primarily investigated consumer behavior, including purchase intention, behavioral intention, and continuance intention (Ji et al., 2024; Zhang, Huang, et al., 2022; Zhang, Liu, et al., 2022; Guo et al., 2021;). Unlike other e-commerce modes, live streaming significantly requires the robust combination of socio and technical to success (Hsieh et al., 2024; Xue et al., 2023; Zhang, Huang, et al., 2022; Zhang, Liu, et al., 2022). The social attribute in live streaming comes from the interaction and communication between streamer-viewer and viewer-viewer, thereby allowing real time interpersonal connection (Jiang, Fan, Wang, Liu, & Lin, 2024; Guo et al., 2021). Concurrently, the technical aspect comes from the capacity to broadcast live audio visuals in order to help viewers visualize a product and give feedback real time, thereby allowing viewers to keenly see and engage with the product (Ji et al., 2024; Zhang, Huang, et al., 2022; Zhang, Liu, et al., 2022). Therefore, the socio-technical systems theory is gradually emphasizing more and more on the importance of social relations and technological features in live-streaming (Hsieh et al. 2024).

Preceding applications of the theory have predominantly focused on social factors including active control, synchronicity, and two-way communication, along with technical factors of personalization and visibility. However, these studies have revealed gaps in the relationship of these two systems, where only the technical system is associated with consumer behavior (Hsieh et al., 2024). On the contrary, Zhang, Huang, et al. (2022) and Zhang, Liu, et al. (2022) showed that both the socio and technical aspects significantly affect consumer behavior. To fill this gap, the present work explores the social of expertise, humor, beauty, warmth, and passion and technical aspects of personalization and interactivity simultaneously. As such, the present study uses the theory as a robust theoretical framework to understand trust and CEB in the live streaming context.

### 2.4. Customer engagement behavior

CEB includes voluntary actions undertaken by consumers to support a brand, rooted in psychological and relational connections with its products (Guo et al., 2021; Lim et al., 2022; Wongkitrungrueng & Assarut, 2020). Unlike transactional behavior, CEB reflects deeper emotional and cognitive engagement, often arising from sustained trust and loyalty. In the context of live streaming, where interactions are dynamic and real-time, CEB becomes even more critical as trust plays a pivotal role in shaping consumer decisions (Yan et al., 2023). Live streaming platforms amplify the relational aspects of CEB by fostering direct interactions between consumers, streamers, and products. These interactions encourage consumers to move beyond passive viewing to actively engage, whether by sharing experiences, promoting the brand to others, or providing feedback. As prior studies reveal, trust in streamers and products serves as a foundation for these behaviors, ultimately influencing both participation and purchasing behaviors (Qiu et al., 2021; Hsieh et al., 2024).

Trust emerges as a central determinant of CEB, particularly in live streaming contexts where physical interactions with products are absent, and consumers rely heavily on the credibility of streamers and the perceived authenticity of products. Qiu et al. (2021) and Hsieh et al. (2024) demonstrated that trust drives consumer engagement by fostering activities such as sharing personal experiences, recommending products, and even collaborating on product improvements. These trust-based actions illustrate the multifaceted nature of CEB, which encompasses both relational and interactive dimensions of consumer behavior. Trust in streamers, in particular, is critical, as their charisma, expertise, and perceived authenticity often bridge the gap between consumers and brands. Additionally, trust in products complements this relationship by ensuring that consumers perceive value and reliability in their purchases. Together, these trust dimensions create a robust foundation for understanding how live streaming enhances consumer-brand interactions and fosters long-term engagement.

This study builds on Jaakkola and Alexander's (2014) framework to explore how consumers engage in live-streaming e-commerce through four key behaviors: augmenting, co-developing, influencing, and mobilizing. Augmenting happens when consumers add value by sharing testimonials or product demonstrations, helping others make informed decisions (Natarajan et al., 2024). Co-developing takes engagement a step further, where consumers actively shape product features by providing real-time suggestions via live chat, polls, or Q&A sessions (Shih et al., 2024). It shows that sellers frequently change color options, packaging, and product sizes based on user feedback. As a result, co-development has become a powerful and common method for driving customer engagement. Influencing comes into play when consumers persuade others through recommendations and comment interactions, reinforcing trust and purchase intent (Utami et al., 2022). Finally, mobilizing drives action by encouraging friends to join, share links, or participate in group buying deals, boosting brand reach and engagement (Shih et al., 2024).

These behaviors, such as sharing live streams, providing feedback, and influencing other viewers' purchase decisions, are closely linked to trust in both streamers and products. Trust acts as a critical mechanism that drives these behaviors by fostering positive interactions and viewer engagement during live broadcasts (Bolun et al., 2024). By linking these behaviors directly to trust in both streamers and products, the study clarifies the mechanisms through which streamer and platform characteristics drive engagement. Furthermore, the framework emphasizes the importance of authenticity and transparency, suggesting that higher perceived trustworthiness in streamers and products can amplify viewer participation. This holistic understanding provides valuable insights for marketers aiming to leverage live streaming as a dynamic tool for consumer connection and retention.

## 2.5. Trust

Trust in streamers and products has long been recognized as a foundational element in predicting CEB within the live streaming context (Hsieh et al., 2024; Jiang, Fan, Wang, Liu, & Lin, 2024; Chong et al., 2023). Trust in streamers is driven by their perceived authenticity, expertise, and ability to foster meaningful connections with their audience. Streamers act as intermediaries between the brand and consumers, where their charisma and credibility often determine the consumer's willingness to engage. On the other hand, trust in products arises from the perceived reliability, quality, and alignment of the product with consumer expectations. Together, these two dimensions of trust are pivotal in influencing consumers to participate, engage, and eventually purchase products. However, while trust in products and streamers has been widely examined, prior studies have often treated these constructs in isolation, failing to capture their interplay and how they jointly shape CEB (Zhang, Liu, et al., 2022; Wongkitrungrueng & Assarut, 2020).

To address this limitation, our study expands the traditional understanding of trust by clearly distinguishing streamer traits and product attributes as trust antecedents (Shih et al., 2024). This distinction aligns with trust formation theories in digital commerce, where trust in streamers develops through relational cues, while trust in products relies on expertise-driven credibility (Wongkitrungrueng & Assarut, 2020). Trust develops through specific streamer characteristics that shape how consumers perceive both the streamer and the product. Beauty, humor, and passion foster trust in streamers by making them more relatable and engaging (Ding et al., 2025). These traits create a sense of personal connection that makes viewers more likely to trust the streamer's intentions. Even without deep product knowledge, a streamer's ability to entertain and engage builds a level of comfort and credibility (Zhang, Huang, et al., 2022; Zhang, Liu, et al., 2022). On the other hand, expertise and warmth contribute to trust in products by signaling knowledge and sincerity (Li et al., 2022). Expertise reassures consumers that a streamer understands the product and its value. Warmth makes recommendations feel more genuine and less like a sales tactic. These differences show that trust in streamers comes from emotional connection, while trust in products is based on credibility and reliability (Zhang & Wang, 2024).

Beyond streamer traits, platform features shape trust by changing how consumers interact with both the streamer and the product (Chen et al., 2024). Interactivity builds trust in streamers by allowing viewers to ask questions and receive real-time responses (Kang et al., 2021). When a streamer provides direct and unscripted answers, they appear more transparent and authentic. This level of interaction reduces uncertainty and increases confidence in the streamer's credibility. Meanwhile, personalization strengthens trust in products by making recommendations feel relevant and tailored (Zhang, Huang, et al., 2022; Zhang, Liu, et al., 2022). When a product aligns with personal preferences, it feels more reliable and easier to trust. These differences highlight why trust in streamers is built through engagement and authenticity, while trust in products comes from relevance and perceived quality. By investigating these characteristics, the study provides a more comprehensive model that explains how trust evolves and influences CEB in live streaming. This approach bridges existing gaps in the literature and highlights the multifaceted nature of trust in live streaming, where both the human (streamer) and transactional (product) elements contribute synergistically to consumer engagement. Ultimately, this enriched understanding of trust enables a deeper CEB analysis, offering theoretical advancements and practical implications for streamers, platforms, and marketers.

## 2.6. Hypothesis

### 2.6.1. Streamer characteristics and trust

Live streaming has revolutionized the shopping experience by enabling buyers to interact with sellers in real time without visiting

physical stores (Gao et al., 2023; Guo et al., 2022; Yang et al., 2023). Within this context, streamers play a critical role as the primary facilitators of customer engagement, using their performance to influence consumer perceptions and behaviors (Clement et al., 2020). Streamer characteristics—such as appearance, expertise, warmth, passion, and humor—have been identified as significant determinants of trust in both streamers and the products they promote (Guo et al., 2022; Hou et al., 2020). However, while these characteristics contribute to fostering trust, gaps remain in understanding how they specifically influence CEB in live streaming. Trust, both in the streamer and the product, often serves as a critical barrier to higher conversion rates despite consumers' initial interest in the product (Hsieh et al., 2024). Therefore, this study integrates streamer and platform factors to uncover the antecedents of trust and their subsequent impact on CEB.

Trust depends on whether consumers evaluate the streamer as a person or the product being promoted (Chen et al., 2024). When assessing a streamer, trust is built through social perception and emotional connection. Traits like beauty, humor, and passion make the streamer more engaging and relatable (Guo et al., 2022). These characteristics strengthen parasocial relationships, making viewers feel personally connected even if they have never met the streamer (Tang et al., 2024). A beauty influencer with an energetic and humorous style may seem more trustworthy because they feel authentic and approachable (Tian & Frank, 2024). However, when evaluating a product, consumers look for credibility and reliability rather than personal appeal. Expertise and warmth play a crucial role in this. Expertise reassures consumers that the streamer understands the product. Warmth makes recommendations feel genuine rather than purely sales-driven (Gao et al., 2023; Li et al., 2022).

Among these characteristics, beauty—a streamer's physical appearance—has been shown to significantly shape consumer behavior and purchase decisions (Wu et al., 2023; Zheng et al., 2023). Research suggests that consumers are more likely to perceive attractive individuals as credible and persuasive, which enhances their willingness to engage with the message being delivered (Alboqami, 2023). In live streaming, the visual appeal of streamers captures viewers' attention and influences their trust. Even when a product's information is accurate, an attractive streamer is often perceived as more credible, reinforcing trust and encouraging purchase decisions. This suggests that beauty serves not only as a peripheral cue but also as a critical factor in establishing trust in streamers. Based on this reasoning, the following hypothesis is proposed:

**H1a.** *Beauty positively affects trust in streamers.*

Humor, defined as the ability to amuse and entertain, plays a pivotal role in establishing relationships and fostering interpersonal connections (Hou et al., 2020). In the context of live streaming, humor is not merely a means of entertainment but serves as a strategic tool to create an engaging and relaxed atmosphere that enhances the bond between viewers and streamers (Johnson, 2024; Yang et al., 2023). Humorous streamers capture the audience's attention, alleviate boredom, and make the viewing experience more enjoyable, leading to sustained engagement. Importantly, humor also reduces psychological barriers between streamers and viewers, making the communication feel more personal and authentic. This emotional connection persuades viewers to actively participate in the session and view the streamer as approachable and trustworthy. Humor, therefore, functions as a relational cue that not only increases attention but also cultivates trust in the streamer, ultimately influencing consumer behavior. Based on this reasoning, the following hypothesis is proposed:

**H1b.** *Humor positively affects trust in streamers.*

Passion, characterized by an intense affective state accompanied by cognitive and behavioral expressions of personal value, is another critical factor in fostering trust (Chen et al., 2009). Passionate streamers demonstrate their commitment through dedicated schedules, patient

interactions, and a consistent focus on engaging their audience. This behavior signals reliability and authenticity, both of which are central to building trust. For instance, when streamers patiently address viewer queries and exhibit enthusiasm in delivering their content, viewers perceive them as not only knowledgeable but also genuinely invested in the live-streaming experience. This perception reinforces the viewers' belief in the streamer's credibility and reliability, which are essential components of trust. Passion, thus, serves as a multidimensional cue that combines emotional arousal with practical dedication, enhancing the overall trust viewers place in streamers. Accordingly, the following hypothesis is proposed:

**H1c.** *Passion positively affects trust in streamers.*

Expertise, defined as a streamer's knowledge, experience, and qualifications in promoting products, is a critical determinant of trust in the online shopping context (Hsieh, 2023; Li & Peng, 2021). Unlike offline shopping, where consumers can physically evaluate products, live streaming relies heavily on the streamer's ability to provide accurate and detailed product information to reduce consumer uncertainty. The absence of physical interaction often creates confusion or skepticism among consumers, which can be mitigated through the expertise of the streamer. Expert streamers who demonstrate deep knowledge of the products they promote not only resolve consumer doubts but also enhance the perceived credibility of the product itself. By addressing specific concerns and offering well-informed answers, expert streamers build a foundation of trust, encouraging viewers to rely on their recommendations. This dynamic underscores the pivotal role of expertise in fostering trust in products within live streaming environments. Based on this reasoning, the following hypothesis is proposed:

**H2a.** *Expertise positively affects trust in products.*

Warmth, a construct rooted in social desirability and interpersonal appeal, reflects traits such as sincerity, kindness, friendliness, and trustworthiness (Zhang, Liu, et al., 2022). In live streaming, the warmth conveyed by streamers plays a vital role in shaping the emotional bond between viewers and streamers. Friendly and sincere interactions signal good intentions, making viewers feel valued and respected. This perception of authenticity enhances trust, as consumers are more likely to believe that warm and approachable streamers will provide honest and complete product information. Moreover, warmth fosters a sense of connection and reassurance, reinforcing the belief that the products endorsed by the streamer are reliable and of good quality. By integrating emotional and relational cues, warmth significantly contributes to building trust in products promoted during live streaming. Accordingly, the following hypothesis is proposed:

**H2b.** *Warmth positively affects trust in products.*

### 2.6.2. Platform characteristics and trust

Research highlights interactivity and personalization as key factors in live streaming that build trust in streamers and products, respectively (Zhang, Liu, et al., 2022; Xue et al., 2020). Interactivity strengthens trust in streamers by enabling real-time communication and emotional exchanges, while personalization reduces uncertainties about products by addressing individual consumer preferences. These features play a crucial role in making live streaming more effective by enhancing tailored experiences and dynamic engagement. This study aims to explore how these two factors work together to build trust, providing insights into improving live streaming strategies.

Platform interactions influence whether trust is placed in the streamer or the product. Interactivity strengthens trust in streamers by enabling real-time engagement, allowing viewers to ask questions and receive direct responses (Kang et al., 2021). For example, if a tech reviewer demonstrates a product and immediately answers technical questions, their transparency increases trust (Liu et al., 2022). In contrast, personalization enhances trust in products by making

recommendations feel more relevant to individual needs (Alimamy & Gnoth, 2022). If a live-streaming platform suggests skincare products based on a viewer's past interests, they are more likely to trust the product's suitability (Chen et al., 2024). These differences show how trust formation is shaped by social engagement for streamers and perceived reliability for products, creating a structured distinction in the research model.

Interactivity allows streamers to exchange emotions and information with viewers in real time, which directly impacts trust (Zhang, Liu, et al., 2022). Live streaming stands out from other e-commerce formats because it offers instant communication through live chats and immediate feedback. Streamers who respond promptly and effectively create a transparent and engaging environment, which reassures viewers and builds credibility. Xue et al. (2020) found that this interactive process not only organizes accurate product information but also encourages viewers to trust the streamer. By fostering direct and meaningful interactions, streamers make viewers feel more involved and confident in their decisions. Based on this, the following hypothesis is proposed:

**H3a.** *Interactivity positively affects trust in streamers.*

Personalization alters content and product recommendations to match the preferences of individual viewers, which plays a vital role in building trust in products (Zhang, Liu, et al., 2022). Live streaming often creates uncertainty because consumers cannot physically examine products, but personalization addresses this challenge. By showing products that align with viewers' interests, platforms demonstrate attentiveness to their needs. Xue et al. (2020) argue that viewers feel more confident and trusting when platforms customize content to meet their expectations. This personalized approach makes the products appear credible and suitable, even in a virtual shopping environment. With these insights, the following hypothesis is proposed:

**H3b.** *Personalization positively affects trust in products.*

### 2.6.3. Trust and CEB

This study focuses on trust in streamers and products, which reflects the consumer's perception of the streamer as honest and dedicated to offering value-added products without exploiting viewers (Zhang, Liu, et al., 2022). In the fast-paced environment of live streaming, where sessions are brief, viewers often lack the opportunity to conduct extensive product research. As a result, they must rely on their own knowledge and the information provided by the streamer. Trust in streamers becomes crucial in addressing this knowledge gap, as it reassures consumers that the information received is accurate and reliable. Similarly, trust in products ensures that viewers perceive the product's quality as authentic and trustworthy. Together, trust in streamers and products underpins various forms of CEBs in live streaming, enabling consumers to act beyond passive consumption.

Trust in streamers plays a crucial role in fostering various customer engagement behaviors (CEBs) in live streaming, including augmenting, co-developing, influencing, and mobilizing. Augmenting behavior involves consumers sharing their knowledge, experiences, and time to help other viewers understand the product better (Japutra et al., 2022). Trust in streamers encourages viewers to actively participate by posting comments, writing reviews, and endorsing recommendations through likes and shares (Wongkitrungrueng & Assarut, 2020). This relational engagement amplifies the streamer's influence and builds a stronger consumer community by spreading valuable insights and information. Similarly, co-developing behavior arises when viewers, motivated by trust in their streamer, contribute ideas and feedback to improve the products they purchase (Shih et al., 2024). For instance, viewers may propose new features or enhancements, demonstrating a deeper level of commitment fostered by trust. This active participation strengthens the connection between the consumer and the streamer, turning viewers into collaborators in product development.

In addition, influencing behavior highlights the ability of consumers

to act as advocates who shape the preferences and perceptions of others (Jaakkola & Alexander, 2014). Trusted streamers wield significant persuasive power, encouraging viewers to adopt their recommendations and share them within their social networks (Shih et al., 2024). This trust-driven advocacy promotes behavioral and attitudinal shifts, where satisfied viewers endorse the streamer’s opinions and actively influence peers to try the products. Finally, mobilizing behavior captures the actions consumers take to rally others around the streamer or product (Japutra et al., 2022). Trust in streamers motivates viewers to promote live streams by recommending them to friends, endorsing the channel, and participating in campaigns. This ripple effect of trust not only increases viewership and product adoption but also reinforces the streamer’s credibility and influence within the community. Together, these behaviors illustrate the multifaceted role of trust in streamers as a driver of meaningful consumer engagement. Therefore, this study proposes:

**H4.** *Trust in streamers positively affects customer engagement behaviors, including augmenting (H4a), co-developing (H4b), influencing (H4c), and mobilizing (H4d).*

Trust in products encourages a range of CEBs that extend beyond mere purchase decisions. Trust serves as a foundation for augmenting behavior, where consumers actively share their experiences and insights to benefit others. This behavior arises from a belief in the product’s reliability, prompting consumers to write reviews, leave comments, and post on social media platforms (Japutra et al., 2024). Trust reduces hesitation and allows consumers to articulate their positive interactions, thereby endorsing the product and helping potential buyers make informed decisions. Similarly, co-developing behavior emerges when consumers collaborate with brands to enhance or refine products. Trust motivates consumers to share constructive feedback, recommend modifications, and engage in activities aimed at improving the product (Roy et al., 2018). This sense of shared responsibility highlights how trust transforms consumers into active contributors to product development, reflecting their confidence in the brand.

Additionally, consumers with strong product trust exhibit influencing behavior, where they advocate for the product within their networks. Trust empowers consumers to share recommendations, endorse the product in conversations or online spaces, and encourage others to purchase (Sashi, 2012). Trusted products instill a sense of pride and

reliability, motivating consumers to act as informal ambassadors and amplify the product’s market presence. Lastly, mobilizing behavior involves rallying others to support or use the product, driven by trust in its quality and performance. Consumers who trust a product are more likely to promote it through word-of-mouth, participate in promotional activities, and even defend it against criticism (Japutra et al., 2024). This deeper emotional and cognitive investment signifies a commitment to ensuring the product’s success, reflecting trust’s pivotal role in mobilizing collective consumer action.

**H5.** *Trust in products positively affects customer engagement behaviors, including augmenting (H5a), co-developing (H5b), influencing (H5c), and mobilizing (H5d).*

All the hypotheses proposed in this study are displayed in Fig. 1 below: (See Fig. 2.)

**3. Methods**

**3.1. Operationalization and measures**

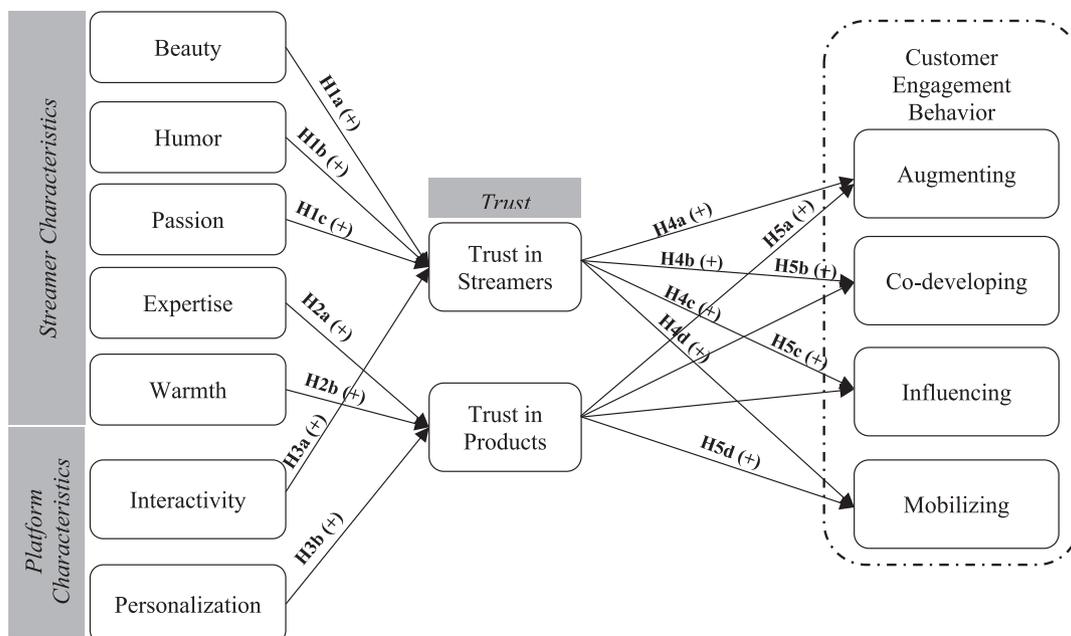
This study operationalizes variables by defining, measuring, and ensuring internal consistency of key constructs. The observed constructs include streamer characteristics (beauty, humor, passion, expertise, and warmth), live streaming characteristics (interactivity and personalization), trust (in products and streamers), and customer engagement behaviors (augmenting, co-developing, influencing, and mobilizing). Items for these constructs are measured using a 7-point Likert scale ranging from “strongly disagree” to “strongly agree.”

**3.1.1. Beauty**

Beauty is defined as the streamer’s facial appearance, which influences consumer behavior and sales outcomes (Guo et al., 2022; Zheng et al., 2023). This study measures beauty using three items adapted from Guo et al. (2022): (1) The streamer is beautiful (handsome), (2) The streamer is physically very attractive, and (3) The streamer is very good-looking.

**3.1.2. Humor**

Humor is defined as the ability to be amusing or entertaining, which effectively fosters relationships with others (Hou et al., 2020). This study



**Fig. 1.** The study’s proposed conceptual framework.

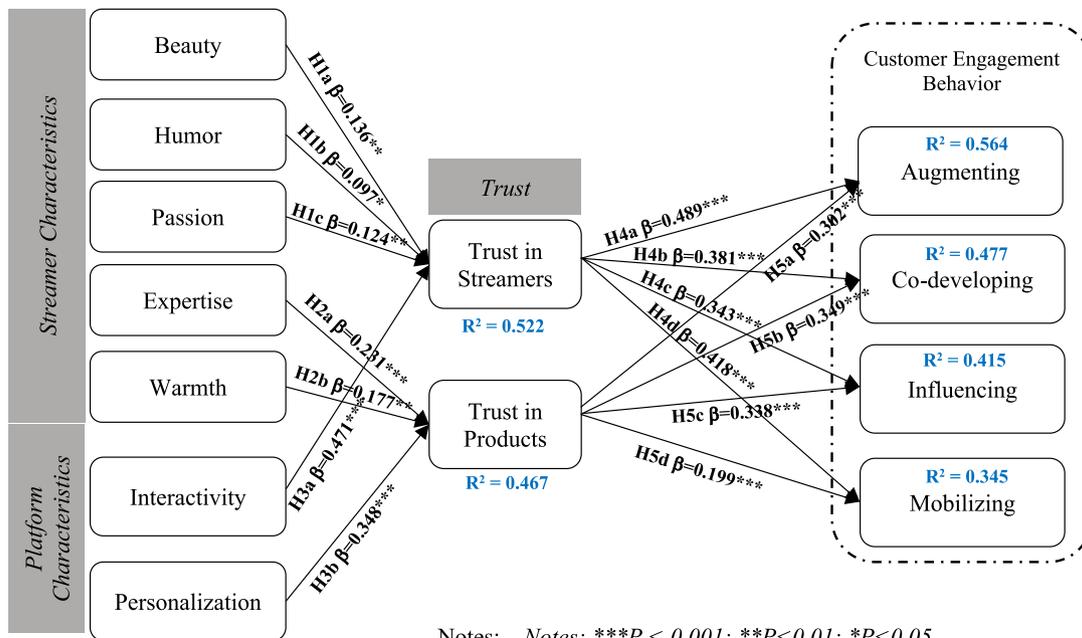


Fig. 2. Hypothesis Summary.

measures humor using three items adapted from Hou et al. (2020) and Guo et al. (2022): (1) The streamer is funny, (2) The streamer is humorous, and (3) The streamer is amusing.

3.1.3. Passion

Passion is defined as an intense emotional state accompanied by cognitive and behavioral expressions of high personal value, characterized by positive emotional arousal (Guo et al., 2022). This study measures passion using three items adapted from Guo et al. (2022): (1) The streamer’s face lights up when speaking, (2) The streamer exhibits energetic body movements, and (3) The streamer uses varied tone and pitch when talking.

3.1.4. Expertise

Expertise is defined as a streamer’s knowledge, experience, qualifications, and achievements in promoting products (Guo et al., 2022; Hsieh, 2023; Li & Peng, 2021). This study measures expertise using three items adapted from Li and Peng (2021): (1) The streamer is an expert, (2) The streamer appears experienced in live streaming sales, and (3) The streamer demonstrates considerable expertise in the field of live streaming.

3.1.5. Warmth

Warmth is defined as the perceived good intent of a person, characterized by traits such as sincerity, kindness, morality, trustworthiness, and friendliness (Zhang, Huang, et al., 2022; Zhang, Liu, et al., 2022). This study measures warmth using four items adapted from Guo et al. (2022): (1) The streamer is very warm, (2) The streamer is sincere, (3) The streamer is friendly, and (4) The streamer is trustworthy.

3.1.6. Interactivity

Interactivity refers to the platform’s ability to facilitate real-time engagement and communication between streamers and viewers (Zhang, Liu, et al., 2022). It reflects the effectiveness of platform-provided tools that enhance user interaction, such as live chat, reaction buttons, polling features, and interactive Q&A sessions (Kang et al., 2021). This study measures interactivity using four items adapted from Ma et al. (2022): (1) The platform enables real-time chat that facilitates communication between viewers and streamers, (2) The platform provides interactive features such as polls and live Q&A sessions to enhance

audience participation, (3) The platform allows users to engage with streamers through built-in reaction functions like likes, emojis, and virtual gifts, and (4) The platform’s interactive tools improve my ability to receive timely responses and relevant information during live streaming.

3.1.7. Personalization

Personalization refers to the platform’s ability to deliver tailored services and product recommendations based on consumer preferences and shopping behavior (Zhang, Liu, et al., 2022). Platforms enhance personalization by analyzing user preferences, previous interactions, and shopping interests to provide a more customized experience. This study measures personalization using four items adapted from Zhang, Huang, et al. (2022) and Zhang, Liu, et al. (2022): (1) The platform recommends alternative products that match my shopping preferences, (2) The platform provides tailored product information based on my purchase history and browsing behavior, (3) The platform helps me identify which product attributes best fit my needs by offering personalized suggestions, and (4) The platform customizes the shopping experience by displaying content and product recommendations relevant to my interests.

3.1.8. Trust in Products

Trust in products is defined as a general belief that the other party in the social exchange will act ethically and appropriately, specifically by providing good-quality products (Wongkitrungrueng & Assarut, 2020). This study measures trust in products using three items adapted from Wongkitrungrueng and Assarut (2020): (1) I think the products I order from live streaming will meet my expectations, (2) I believe I will be able to use the products as demonstrated on live streaming, and (3) I trust that the products I receive will match those shown during the live streaming session.

3.1.9. Trust in Streamers

Trust in streamers is defined as consumers’ belief that the streamer is reliable in offering good-quality products and will not exploit them (Wongkitrungrueng & Assarut, 2020; Zhang, Liu, et al., 2022). This study measures trust in streamers using four items adapted from Zhang, Liu, et al. (2022): (1) I believe in the information provided by the streamer during live streaming, (2) I trust the streamer on live

streaming, (3) I believe the streamer on live streaming is trustworthy, and (4) I do not think the streamer on live streaming would take advantage of me.

### 3.1.10. Augmenting

Augmenting is defined as the consumer's active participation in sharing knowledge, experiences, and time to enhance other consumers' understanding (Shih et al., 2024). This study measures augmenting using three items adapted from Li and Han (2021): (1) I share relevant knowledge by posting comments during e-commerce live streaming, (2) I share my previous experiences by posting content during e-commerce live streaming, and (3) I contribute my time and skills to live streaming shopping.

### 3.1.11. Co-developing

Co-developing is defined as the consumer's active contribution of knowledge, skills, and time to support the improvement and development of services (Shih et al., 2024). This study measures co-developing using two items adapted from Li and Han (2021): (1) I will provide ideas for improving live streaming shopping when needed, and (2) I will share my opinions on developing new services for live streaming shopping when necessary.

### 3.1.12. Influencing

Influencing is defined as the consumer's role in shaping the perceptions, knowledge, or preferences of other consumers (Li & Han, 2021). This study measures influencing using two items adapted from Li and Han (2021): (1) I use my experiences to influence others' views of live streaming shopping, and (2) I dedicate my time and skills to increasing others' awareness and understanding of live streaming shopping.

### 3.1.13. Mobilizing

Mobilizing is defined as the consumer's effort to rally other consumers to use services or purchase products (Japutra et al., 2022). This study measures mobilizing using two items adapted from Li and Han (2021): (1) I encourage others to buy products recommended by the streamers, and (2) I persuade my relatives and friends to purchase products through live streaming shopping.

## 3.2. Sampling technique and data collection

This study utilizes a survey method to investigate CEB, with a specific focus on trust transfers. A purposive sampling technique, within the framework of non-probability sampling, was adopted to ensure that the respondents met predefined eligibility criteria. The criteria required participants to (1) be male or female, (2) be at least 20 years old, (3) possess a minimum education level of high school or equivalent, and (4) have prior experience using Indonesia's live streaming platforms. This approach ensures the inclusion of individuals most relevant to the study's context. Data collection was conducted through an online survey designed using Google Forms, which was distributed across multiple social media platforms, including Instagram, Twitter, LINE, Facebook, and WhatsApp. The questionnaire was structured into three sections: eligibility screening questions, demographic information, and items assessing customer engagement behavior. Each item employed a 7-point Likert scale to capture the respondents' perceptions and behaviors with high granularity. Over a 4-month period (June to September 2024), the survey yielded 682 valid responses. This robust dataset provides a solid foundation for examining the dynamics of consumer engagement and the role of trust transfers in live streaming platforms. By targeting a diverse respondent pool and utilizing multiple distribution channels, the study achieves comprehensive coverage and meaningful insights into the consumer behaviors in Indonesia's live streaming market.

## 3.3. Analysis technique

The present study employed Structural Equation Modeling (SEM) using Smart-PLS 4.0 to analyze the data. SEM was chosen due to its suitability for exploratory research, particularly in examining complex relationships between variables (Hair et al., 2017a, 2017b). This approach enables the simultaneous modeling of both direct and indirect effects, offering a comprehensive understanding of latent constructs, such as CEB, and their interaction with observable variables. Since latent constructs cannot be directly measured, they were evaluated through observable indicators, including streamer and live streaming characteristics and the trust transfer mechanism (Falk & Miller, 1992).

The analytical process began by addressing Common Method Variance (CMV) to validate the constructs' reliability and validity. Validity was assessed by ensuring Average Variance Extracted (AVE) values were  $\geq 0.5$  and factor loadings  $\geq 0.7$  (Baumgartner & Weijters, 2021). Reliability was confirmed by verifying that Cronbach's Alpha (CA) and Composite Reliability (CR) values met the threshold of  $\geq 0.7$  (Hair et al., 2017). Discriminant validity was evaluated using the Fornell-Larcker criterion, requiring the square root of the AVE to exceed inter-construct correlation values, supplemented by a cross-loading matrix to ensure each construct's factor loadings were higher than their correlations with other constructs (Henseler et al., 2015). Finally, model fit was evaluated using metrics such as Goodness of Fit (GoF) and R-squared, culminating in hypothesis testing to complete the analysis. This rigorous analytical approach ensures the robustness and reliability of the study's findings.

## 4. Results

### 4.1. The sample

From the 682 respondents surveyed, 56.45 % were female, indicating a slightly higher representation of women compared to men (43.55 %). This demographic skew aligns with prior research suggesting that women are more active participants in live streaming shopping environments due to their heightened engagement in online retail platforms. Regarding marital status, 57.48 % of the respondents were single, reflecting a majority group potentially influenced by different consumption patterns compared to their married counterparts, who accounted for 42.52 %. In terms of age distribution, nearly half of the respondents (46.33 %) were between 21 and 30 years old, representing a strong presence of young adult consumers who are likely more tech-savvy and accustomed to digital shopping experiences. This trend suggests that live-streaming e-commerce is particularly appealing to young adults due to its interactive and visually engaging nature.

Shopee emerged as the most popular live streaming platform among respondents, used by 44.13 %, followed by Tokopedia (23.90 %) and Lazada (16.13 %). This dominance highlights Shopee's effectiveness in capturing consumer interest and providing a user-friendly platform that fosters trust and engagement. Other platforms like Bukalapak (12.46 %), TikTok (2.05 %), and Facebook (1.32 %) demonstrated comparatively lower usage, suggesting opportunities for these platforms to enhance their live streaming strategies to compete with market leaders. Regarding educational background, the majority of respondents held a bachelor's degree (34.02 %), while 28.59 % were high school graduates or equivalent. Advanced degree holders, including master's (11.88 %) and doctoral (1.91 %) qualifications, made up a smaller portion of the sample. This distribution reflects a diverse audience base, with varying levels of education influencing their engagement behaviors and trust in live streaming shopping.

### 4.2. Validity and reliability assessment

SEM was employed using Smart-PLS 4.0 to analyze the data for this study, ensuring a rigorous evaluation of the constructs' validity and

reliability. The analysis followed a systematic process to verify the quality and robustness of the measurement model. First, the factor loading values for each item were assessed, with all values exceeding the recommended threshold of 0.7, confirming strong indicator reliability (Hair et al., 2017). These results, presented in Table 3, demonstrate that the constructs effectively capture their respective dimensions.

Next, the Average Variance Extracted (AVE) values were evaluated to assess convergent validity, with all constructs achieving AVE values above the minimum requirement of 0.5 (Hair et al., 2017). This indicates that the latent constructs adequately explain the variance in their observed variables, as shown in Table 3. Additionally, internal consistency was examined through Cronbach's alpha (CA) and Composite Reliability (CR) values, both of which surpassed the threshold of 0.7, ensuring reliability across all constructs (Hair et al., 2017). These metrics confirm the stability and consistency of the constructs in capturing CEB within the study's framework. The comprehensive results presented in Table 3 highlight the measurement model's validity and reliability, providing a robust foundation for further hypothesis testing and structural analysis.

After confirming validity and reliability, the authors accessed discriminant validity after employing three approaches. First, the Fornell-Larcker criterion, which requires that the square root of the AVE be greater than the inter-construct correlation value. As seen in Table 4, all square root AVE values exceed the corresponding inter-construct correlation values, confirming discriminant validity. Second is the cross-loading matrix, which is a measure of discriminant validity. It is

**Table 3**  
Convergent Validity and Reliability.

Constructs	Items	FL	CA	CR	AVE
Augmenting	AB1	0.797	0.705	0.835	0.628
	AB2	0.792			
	AB3	0.789			
Beauty	BT1	0.811	0.711	0.840	0.639
	BT2	0.893			
	BT3	0.760			
Co-developing	CB1	0.841	0.703	0.851	0.741
	CB2	0.881			
Expertise	EP1	0.806	0.751	0.858	0.668
	EP2	0.856			
	EP3	0.788			
Humor	HR1	0.817	0.828	0.897	0.744
	HR2	0.917			
Influencing	HR3	0.851	0.733	0.851	0.741
	IB1	0.858			
	IB2	0.863			
Interactivity	IT1	0.754	0.799	0.869	0.624
	IT2	0.834			
	IT3	0.776			
	IT4	0.794			
Mobilizing	MB1	0.915	0.809	0.913	0.840
	MB2	0.918			
Passion	PS1	0.818	0.764	0.864	0.680
	PS2	0.875			
	PS3	0.777			
Personalization	PZ1	0.763	0.781	0.858	0.603
	PZ2	0.813			
	PZ3	0.748			
	PZ4	0.780			
Trust on Products	TP1	0.791	0.711	0.823	0.608
	TP2	0.796			
	TP3	0.751			
Trust on Streamers	TS1	0.745	0.779	0.857	0.600
	TS2	0.813			
	TS3	0.762			
	TS4	0.778			
Warmth	WR1	0.741	0.816	0.879	0.646
	WR2	0.881			
	WR3	0.831			
	WR4	0.753			

Note: FL: Factor Loading  $\geq 0.7$ ; CA: Cronbach Alpha  $\geq 0.7$ ; CR: Composite Reliability  $\geq 0.7$ ; AVE: Average Variance Extracted  $\geq 0.5$ .

said to be valid when the factor loading item value for one construct is higher than the correlation coefficient for other constructs. Table 5 depicts the results of the cross-loading matrix test in which all constructs have higher factor loadings than the correlation coefficients of other constructs. This suggests that each construct demonstrates robust discriminant validity. The HTMT ratio was assessed to evaluate discriminant validity, with a recommended threshold of 0.85 (Henseler et al., 2015). As shown in Table 4, most HTMT values are below 0.85, confirming strong discriminant validity among the constructs.

### 4.3. Model robustness testing

The structural model was evaluated by examining  $R^2$  values for each endogenous construct, which indicate the proportion of variance explained by the predictors. Following Falk and Miller's (1992) threshold of  $R^2 > 0.1$  for model viability, the results demonstrate strong explanatory power across constructs. Augmenting ( $R^2 = 0.564$ ), co-developing ( $R^2 = 0.477$ ), influencing ( $R^2 = 0.415$ ), and mobilizing ( $R^2 = 0.345$ ) are significantly explained by beauty, humor, passion, expertise, warmth, interactivity, personalization, trust in products, and trust in streamers. Additionally, trust in products ( $R^2 = 0.467$ ) is driven by expertise, warmth, and personalization, while trust in streamers ( $R^2 = 0.522$ ) is influenced by beauty, humor, passion, and interactivity. These results confirm the model's robustness in capturing relationships among variables and effectively explaining CEBs and trust mechanisms in live streaming contexts.

The second step in evaluating the structural model involved assessing model fit criteria. According to Hair et al. (2017), a model is considered satisfactory if the Standardized Root Mean Square Residual (SRMR) value is less than 0.05 or 0.08. The SRMR for this study was 0.079, meeting the threshold and confirming a satisfactory model fit. Additionally, other fit indices, including  $d_{ULS} = 7.278$ ,  $d_G = 1.547$ , and  $NFI = 0.650$ , further validated the model's adequacy, demonstrating its robustness and alignment with acceptable fit standards.

The present study also assessed the Goodness of Fit (GoF) to evaluate the overall reliability and effectiveness of the developed research model. GoF serves as a comprehensive metric that combines the model's explanatory power ( $R^2$ ) and its convergent validity (AVE) into a single measure. It is calculated by taking the square root of the product of the average  $R^2$  and the average AVE, providing an integrated view of the model's performance. This approach ensures a robust evaluation of the model's reliability, offering insights into its ability to explain the relationships among constructs effectively. The formula for calculating GoF is as follows:

$$GoF = \sqrt{AVE} \times \sqrt{R^2} = \sqrt{0.674 \times 0.465} = 0.559 \tag{1}$$

The Goodness of Fit (GoF) is evaluated based on specific thresholds: values below 0.10 indicate no fit, values between 0.10 and 0.25 represent a small fit, values between 0.25 and 0.36 suggest a moderate fit, and values above 0.36 indicate a high fit (Tenenhaus et al., 2005; Wetzels et al., 2009). The calculated GoF value for this study is 0.559, categorizing it as a high fit. This result demonstrates that the research model achieves a robust level of goodness of fit, reflecting its strong capacity to explain the relationships between constructs and meet excellent model fit criteria.

### 4.4. Hypothesis testing

The results of the hypothesis testing, presented in Table 6, confirm that all proposed hypotheses are supported, demonstrating the robustness of the model. Hypotheses H1a-c indicate that beauty, humor, and passion significantly influence trust in streamers, with path coefficients of 0.136 (T-value = 3.064), 0.097 (T-value = 2.081), and 0.124 (T-value = 2.658), respectively. These findings highlight the critical role of these streamer characteristics in fostering trust, underscoring the importance

**Table 4**  
Fornell-Larcker Criterion and HTMT.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Augmenting (1)	<b>0.793</b> 0.486												
Beauty (2)	(0.675)	<b>0.799</b> 0.745											
Co-developing (3)	(0.780)	(0.660)	<b>0.861</b> 0.553										
Expertise (4)	(0.755)	(0.705)	(0.704)	<b>0.817</b> 0.510									
Humor (5)	(0.658)	(0.778)	(0.606)	(0.778)	<b>0.863</b> 0.710								
Influencing (6)	(0.745)	(0.612)	(0.600)	(0.620)	(0.540)	<b>0.861</b> 0.562							
Interactivity (7)	(0.738)	(0.727)	(0.686)	(0.847)	(0.734)	(0.628)	<b>0.790</b> 0.679						
Mobilizing (8)	(0.896)	(0.428)	(0.860)	(0.481)	(0.430)	(0.541)	(0.485)	<b>0.916</b> 0.496					
Passion (9)	(0.664)	(0.769)	(0.651)	(0.819)	(0.856)	(0.631)	(0.878)	(0.447)	<b>0.824</b> 0.621				
Personalization (10)	(0.824)	(0.719)	(0.786)	(0.891)	(0.739)	(0.729)	(0.812)	(0.570)	(0.858)	<b>0.776</b> 0.689			
Trust on Products (11)	(0.841)	(0.688)	(0.690)	(0.835)	(0.705)	(0.756)	(0.819)	(0.705)	(0.808)	(0.860)	<b>0.779</b> 0.728		
Trust on Streamers (12)	(0.832)	(0.691)	(0.678)	(0.823)	(0.670)	(0.847)	(0.864)	(0.713)	(0.754)	(0.896)	(0.825)	<b>0.775</b> 0.575	
Warmth (13)	(0.744)	(0.717)	(0.718)	(0.824)	(0.752)	(0.613)	(0.798)	(0.504)	(0.839)	(0.851)	(0.799)	(0.795)	<b>0.804</b>

Notes: The diagonal and bold values are the square roots of AVE; The values in the parenthesis represents HTMT value with <0.85 is strong, < 0.90 moderate and < 0.95 weak.

of visual appeal, engaging personality, and emotional connection in live streaming environments. Similarly, hypotheses H2a-b confirm that expertise (path coefficient = 0.231, T-value = 4.945) and warmth (path coefficient = 0.177, T-value = 3.418) significantly affect trust in products, emphasizing the influence of knowledge, reliability, and social appeal in building consumer confidence in the promoted products.

Additionally, hypotheses H3a-b demonstrate that live streaming platform characteristics significantly shape trust mechanisms. Interactivity strongly affects trust in streamers (path coefficient = 0.471, T-value = 9.064), while personalization significantly impacts trust in products (path coefficient = 0.348, T-value = 6.636). These results underline the importance of responsive and personalized interactions in enhancing trust within live streaming contexts. Furthermore, hypotheses H4a-d establish that trust in streamers significantly influences customer engagement behaviors (CEBs), including augmenting (path coefficient = 0.489, T-value = 10.252), co-developing (path coefficient = 0.381, T-value = 6.724), influencing (path coefficient = 0.343, T-value = 6.648), and mobilizing (path coefficient = 0.418, T-value = 8.019). Similarly, hypotheses H5a-d confirm that trust in products drives augmenting (path coefficient = 0.302, T-value = 6.054), co-developing (path coefficient = 0.349, T-value = 6.206), influencing (path coefficient = 0.338, T-value = 6.438), and mobilizing (path coefficient = 0.199, T-value = 3.629).

**5. Discussion**

This study provides a comprehensive examination of how streamer and platform characteristics shape CEB in live streaming environments, with trust in streamers and products serving as central mediators. The findings highlight that beauty, humor, and passion significantly contribute to trust in streamers, demonstrating the critical importance of physical appeal, engaging personality, and enthusiasm in fostering consumer trust. These insights align with existing research, which emphasizes the role of visually appealing and charismatic streamers in establishing strong interpersonal connections with their audience (Hsieh et al., 2024; Johnson et al., 2024; Yang et al., 2023; Zhang S. et al., 2022). Similarly, expertise and warmth emerge as pivotal factors influencing trust in products, underscoring the value of knowledgeable

and sincere communication in building confidence in product quality (Hsieh et al., 2024; Hsieh, 2023; Liao et al., 2023; Li & Peng, 2021).

Platform characteristics, particularly interactivity and personalization, further enhance trust mechanisms by fostering meaningful interactions and personalized experiences for consumers. Interactivity facilitates real-time and responsive communication between streamers and viewers, which fosters a sense of reliability and connection, while personalization addresses individual preferences, making products more relevant and tailored to consumer needs. These findings support previous studies that highlight the significance of interactive and personalized features in live streaming platforms for cultivating trust (Zhang M. et al., 2022; Xue et al., 2020). Together, these characteristics create a robust framework for fostering trust, reinforcing the idea that consumer participation in live streaming is driven by a combination of interpersonal and platform-based dynamics.

Trust, as a mediating factor, significantly drives all four dimensions of CEB: augmenting, co-developing, influencing, and mobilizing. Trust in streamers plays a particularly prominent role, encouraging consumers to share their knowledge, provide suggestions for product improvements, recommend products to others, and mobilize participation within their networks. These behaviors highlight the centrality of interpersonal trust in fostering consumer engagement. Similarly, trust in products supports these behaviors by instilling confidence in the quality and functionality of the items being promoted. The stronger impact of trust in streamers compared to trust in products underscores the importance of interpersonal connections in live streaming contexts, consistent with findings in prior research (Qiu et al., 2021; Wongkitrungrueng & Assarut, 2020). This dual dynamic highlight how trust-based mechanisms create opportunities for sustained consumer participation and loyalty.

In addressing the research questions, the study identifies beauty as the most influential characteristic for building trust in streamers, while expertise emerges as the key determinant of trust in products. Among platform features, interactivity has the strongest impact on trust in streamers, and personalization is the most effective driver of trust in products. These findings also reveal that trust in streamers has a greater influence on engagement behaviors than trust in products, emphasizing the importance of interpersonal trust in driving consumer participation.

**Table 5**  
Cross-Loadings Matrix.

	AU	BT	CD	EXT	HMR	INL	INT	MBL	PSS	PZ	TP	TS	WR
AB1	<b>0.797</b>	0.413	0.594	0.473	0.443	0.561	0.468	0.512	0.397	0.478	0.569	0.560	0.472
AB2	<b>0.792</b>	0.411	0.586	0.451	0.447	0.590	0.502	0.579	0.449	0.540	0.569	0.629	0.494
AB3	<b>0.789</b>	0.325	0.593	0.386	0.311	0.535	0.355	0.519	0.323	0.452	0.493	0.534	0.394
BT1	0.394	<b>0.811</b>	0.383	0.342	0.409	0.367	0.397	0.294	0.391	0.384	0.364	0.403	0.435
BT2	0.458	<b>0.893</b>	0.452	0.457	0.511	0.428	0.502	0.382	0.502	0.484	0.435	0.489	0.494
BT3	0.296	<b>0.678</b>	0.241	0.437	0.506	0.199	0.417	0.099	0.465	0.421	0.356	0.348	0.381
CB1	0.617	0.373	<b>0.841</b>	0.405	0.388	0.545	0.386	0.487	0.375	0.482	0.528	0.519	0.421
CB2	0.664	0.416	<b>0.881</b>	0.448	0.389	0.621	0.472	0.589	0.424	0.498	0.589	0.607	0.494
EP1	0.425	0.386	0.381	<b>0.806</b>	0.475	0.346	0.537	0.254	0.553	0.515	0.470	0.489	0.574
EP2	0.502	0.488	0.463	<b>0.856</b>	0.555	0.411	0.629	0.383	0.629	0.592	0.528	0.563	0.633
EP3	0.425	0.379	0.366	<b>0.788</b>	0.473	0.305	0.605	0.282	0.572	0.572	0.470	0.499	0.604
HR1	0.393	0.474	0.293	0.507	<b>0.817</b>	0.278	0.447	0.234	0.507	0.470	0.408	0.403	0.464
HR2	0.467	0.533	0.423	0.543	<b>0.917</b>	0.386	0.532	0.346	0.608	0.544	0.491	0.510	0.577
HR3	0.453	0.519	0.434	0.542	<b>0.851</b>	0.362	0.571	0.330	0.642	0.529	0.477	0.490	0.570
IB1	0.603	0.368	0.553	0.370	0.355	<b>0.858</b>	0.387	0.587	0.382	0.448	0.531	0.510	0.374
IB2	0.620	0.367	0.616	0.380	0.335	<b>0.863</b>	0.398	0.604	0.390	0.461	0.517	0.540	0.407
IT1	0.408	0.416	0.367	0.565	0.487	0.315	<b>0.754</b>	0.256	0.560	0.616	0.467	0.521	0.667
IT2	0.529	0.517	0.471	0.626	0.538	0.448	<b>0.834</b>	0.412	0.621	0.663	0.565	0.608	0.673
IT3	0.417	0.375	0.370	0.551	0.413	0.346	<b>0.776</b>	0.287	0.492	0.581	0.473	0.513	0.515
IT4	0.411	0.421	0.366	0.538	0.457	0.320	<b>0.794</b>	0.276	0.496	0.645	0.465	0.529	0.529
MB1	0.623	0.302	0.587	0.360	0.322	0.618	0.357	<b>0.915</b>	0.315	0.402	0.489	0.516	0.365
MB2	0.621	0.321	0.565	0.333	0.331	0.651	0.365	<b>0.918</b>	0.338	0.446	0.479	0.536	0.403
PS1	0.368	0.467	0.349	0.574	0.614	0.337	0.593	0.303	<b>0.818</b>	0.551	0.458	0.440	0.540
PS2	0.478	0.522	0.458	0.605	0.587	0.436	0.615	0.381	<b>0.875</b>	0.612	0.529	0.548	0.610
PS3	0.368	0.403	0.332	0.595	0.490	0.325	0.494	0.186	<b>0.777</b>	0.492	0.463	0.466	0.500
PZ1	0.467	0.402	0.416	0.533	0.498	0.387	0.662	0.320	0.522	<b>0.763</b>	0.482	0.518	0.567
PZ2	0.578	0.492	0.558	0.582	0.493	0.535	0.675	0.488	0.611	<b>0.813</b>	0.573	0.639	0.610
PZ3	0.425	0.401	0.358	0.505	0.430	0.350	0.541	0.275	0.457	<b>0.748</b>	0.447	0.498	0.530
PZ4	0.438	0.362	0.410	0.502	0.430	0.341	0.575	0.326	0.476	<b>0.780</b>	0.458	0.527	0.571
TP1	0.521	0.322	0.505	0.486	0.448	0.424	0.446	0.374	0.429	0.483	<b>0.791</b>	0.593	0.469
TP2	0.578	0.458	0.573	0.507	0.450	0.531	0.563	0.484	0.521	0.555	<b>0.796</b>	0.694	0.508
TP3	0.505	0.338	0.429	0.404	0.345	0.461	0.442	0.365	0.416	0.439	<b>0.751</b>	0.545	0.428
TS1	0.511	0.360	0.450	0.480	0.390	0.409	0.491	0.368	0.433	0.523	0.594	0.745	0.509
TS2	0.647	0.469	0.596	0.548	0.474	0.567	0.625	0.545	0.553	0.613	0.663	<b>0.813</b>	0.595
TS3	0.514	0.362	0.456	0.460	0.357	0.447	0.521	0.417	0.421	0.506	0.569	<b>0.762</b>	0.420
TS4	0.567	0.414	0.512	0.468	0.458	0.445	0.483	0.426	0.408	0.541	0.614	<b>0.778</b>	0.454
WR1	0.439	0.393	0.379	0.585	0.470	0.332	0.564	0.302	0.524	0.570	0.474	0.458	0.741
WR2	0.568	0.507	0.545	0.665	0.591	0.469	0.673	0.456	0.626	0.672	0.572	0.612	0.881
WR3	0.436	0.450	0.408	0.596	0.498	0.351	0.592	0.307	0.523	0.566	0.464	0.508	0.831
WR4	0.380	0.406	0.357	0.514	0.437	0.280	0.602	0.251	0.461	0.542	0.409	0.476	0.753

Notes: AU, Augmenting; BT, Beauty; CD, Co-Developing; EXT, Expertise; HMR, Humor; INL, Influencing; INT, Interactivity; MBL, Mobilizing; PSS, Passion; PZ, Personalization; TP, Trust in Products; TS, Trust in Streamer.

These insights offer valuable strategies for marketers and platform designers, suggesting that investments in training streamers and enhancing platform interactivity and personalization can significantly improve consumer engagement. By integrating these findings, the study not only advances theoretical understanding but also provides recommendations for optimizing live streaming as a dynamic and trust-based marketing channel.

## 6. Implications

### 6.1. Implication for theory development

The present study makes specific theoretical contributions to the extant literature on trust in live streaming commerce by conceptualizing trust as dual constructs—trust in streamers and trust in product—and shows how streamer and platform attributes drive customer engagement behaviors (CEB) such as augmenting, co-developing, influencing and mobilizing. Trust is viewed as the bedrock for engagement in this research, and a trust driven framework for digital commerce connecting the emotional and cognitive dimensions to consumer behavior is proposed. This work builds on the past behavioral intention research (Guo et al., 2022), the socio-technical system theory (Hsieh et al., 2024), the perceived value (Wongkitrungrueng & Assarut, 2020) and the consumer behavior (Zheng et al., 2023) research exploring the concept of trust as two separate constructs: trust in streamers and trust in products.

First, the research contributes to a better conceptualization of trust

by highlighting that the two dimensions of (trust in streamers and trust in products) can be connected with different trigger factors and lead to separate forms of engagement. We find that this trust is realized through relational attributes in streamers, including beauty, humor, and passion, impacting CEBs such as influencing and mobilizing. Streamers are authentic, reliable, and credible and allow consumers to build an emotional bond with streamers transforming passive viewers into active participants. Meanwhile, trust in products, driven by transactional attributes like expertise and personalization, engenders transactional engagement behaviors, including augmenting and co-developing, by assuring consumers of product reliability and quality. We find that trust reduces uncertainty and engenders confidence (both emotional and cognitive) that both the streamer and the product are worthy of their efforts, making consumers active contributors of knowledge, and positive feedback. This study reveals that consumer participation across the four CEB dimensions (Qiu et al., 2021; Wongkitrungrueng & Assarut, 2020) depends on trust as the critical mechanism.

Second, this work contributes to socio technical systems theory by explaining how social aspects (including streamer characteristics and social context), and technical aspects (interactivity and personalization) interact to foster trust. Video content is the bedrock of basis of streamer performance, but interactivity stands out as the most important driver of trust in streamers. Interactivity enables real time communication and relational bonds; it builds up emotional connection between streamers and their audience and fosters influencing and mobilization behaviors. Also, personalization becomes an important factor as a driver of trust in

**Table 6**  
Summary of Hypothesis Testing.

Hypothesis	$\beta$	T-Value	Bootstrapping CI 97.5 % (N = 5000)		Decision
			Min	Max	
H1a Beauty → Trust on Streamers	0.136**	3.064	0.051	0.224	Supported
H1b Humor → Trust on Streamers	0.097*	2.081	0.008	0.190	Supported
H1c Passion → Trust on Streamers	0.124**	2.658	0.035	0.217	Supported
H2a Expertise → Trust on Products	0.231***	4.945	0.137	0.325	Supported
H2b Warmth → Trust on Products	0.177**	3.418	0.076	0.279	Supported
H3a Interactivity → Trust on Streamers	0.471***	9.064	0.366	0.570	Supported
H3b Personalization → Trust on Products	0.348***	6.636	0.246	0.451	Supported
H4a Trust on Streamers → Augmenting	0.489***	10.252	0.395	0.582	Supported
H4b Trust on Streamers → Co-developing	0.381***	6.724	0.270	0.493	Supported
H4c Trust on Streamers → Influencing	0.343***	6.648	0.244	0.445	Supported
H4d Trust on Streamers → Mobilizing	0.418***	8.019	0.313	0.517	Supported
H5a Trust on Products → Augmenting	0.302***	6.054	0.205	0.401	Supported
H5b Trust on Products → Co-developing	0.349***	6.206	0.238	0.457	Supported
H5c Trust on Products → Influencing	0.338***	6.438	0.235	0.439	Supported
H5d Trust on Products → Mobilizing	0.199***	3.629	0.094	0.308	Supported

Notes: Significance level with \*\*\* $P < 0.001$ ; \*\* $P < 0.01$ ; \* $P < 0.05$ .

products, thus introducing a sense of uncertainty and transactional engagement behaviors, such as augment and co-develop, respectively. (Hsieh et al., 2024; Wongkitrungrueng & Assarut, 2020). This shows the crucial role of trust as ‘bridge’, with trust in people fostering relational engagement and trust in platforms supporting transactional activities.

Third, this present study provides a novel theoretical contribution by showing trust in streamers to be a more powerful predictor of CEB than trust in products, particularly in facilitating influencing and mobilizing behaviors. In doing so, it emphasizes that the product trust is not the only factor in the involvement of consumers to deeper involvement, since consumers tend to like, share, and endorse products when they can see the credibility, entertain, and identify with the streamers. The finding highlights the importance of streamers in determining consumer behavior in live streaming contexts and the impact of interpersonal trust on meaningful engagement with live streaming.

Therefore, this study makes theoretical contributions to the interplay between trust, streamer and platform characteristics, and CEB. This shows that trust is not just necessary to reduce uncertainty, it also leads to emotional connections, credibility and thus is the crucial mechanism that motivates meaningful CEB. Aligning streamer performance and platform features with trust building strategies enhances the capability of practitioners to amplify consumer participation across all the CEB dimensions, thereby maximizing the potential of live streaming commerce. These results furnish a rich theoretical background for trust as a multidimensional construct as well as its crucial place in determining engagement behaviors in electronic commerce.

### 6.2. Implication for practice

This study offers several recommendations for live streaming platforms and marketers aiming to enhance CEB through targeted strategies involving streamer and platform characteristics, as well as trust

mechanisms. To cultivate trust in streamers, platforms should prioritize the selection and development of streamers with attributes that resonate with their audience. Beauty emerged as the most influential factor in building trust in streamers, suggesting that platforms should align the streamer’s appearance with the products being promoted. For instance, cosmetics products may be better showcased by visually appealing streamers, while fitness supplements could be presented by athletic and charismatic individuals. Passion also plays a significant role in forming trust, highlighting the importance of streamers actively engaging with their audience by answering questions, addressing comments during the stream, or dedicating sessions to direct viewer feedback. Additionally, humor enhances trust in streamers, indicating that platforms could either recruit streamers with a natural sense of humor or provide training to enhance their comedic skills. Streamers should exhibit enthusiasm and sincerity, using expressive body language and fostering a friendly atmosphere to strengthen connections with viewers.

Expertise is the most critical factor in building trust in products. Platforms should ensure that streamers possess in-depth product knowledge and assign them to categories that align with their expertise. For example, gaming products should be promoted by streamers who are passionate gamers, while skincare products might benefit from being endorsed by individuals with knowledge of dermatology or beauty routines. Warmth also significantly influences trust in products, emphasizing the need for streamers to share relatable personal experiences and interact with viewers in a welcoming, genuine manner. For instance, streamers could share their own experiences of using a product, addressing viewers’ concerns with empathy and sincerity to build a stronger sense of product reliability.

Platform characteristics such as interactivity and personalization also play pivotal roles in enhancing trust. Streamers should foster interactive environments by engaging in two-way communication, addressing viewers by name, and inviting feedback. Interactivity can be further enhanced by hosting live polls, responding promptly to queries, and tailoring the content to audience preferences. Personalization, on the other hand, involves recommending products that align with individual viewer needs. For example, a skincare streamer could suggest specific products for viewers living in humid beach areas versus those in cooler mountain climates. This level of personalization not only builds trust in products but also strengthens the relationship between viewers and the platform.

Finally, trust in streamers and products significantly drives CEB dimensions, with trust in streamers playing the most prominent role. To encourage augmenting behavior, platforms could incentivize consumers to post reviews or share personal experiences by offering discounts or cashback rewards. For mobilizing behavior, affiliate programs could be introduced, where viewers earn discounts for referring new customers who make purchases. To foster influencing behavior, platforms could establish product-focused communities, inviting satisfied viewers to serve as co-leaders or ambassadors within these groups. For co-developing behavior, streamers could involve loyal customers in the product development process by soliciting feedback on prototypes or offering early access to new product trials. Collectively, these strategies highlight the importance of streamers’ performance and platform engagement features in building trust and driving meaningful consumer engagement, offering a practical roadmap for optimizing live streaming commerce.

### 7. Conclusion, limitation and future research

This study advances the understanding of live-streaming e-commerce by exploring the relationship between streamer and platform characteristics, trust, and CEB. Specifically, it investigates how attributes such as beauty, humor, passion, expertise, warmth, interactivity, and personalization influence trust in streamers and products, which subsequently drives engagement behaviors like augmenting, co-developing, influencing, and mobilizing. Using data from 682

respondents and employing Structural Equation Modeling (SEM) with SmartPLS 4.0, the findings reveal that all proposed hypotheses are supported, affirming the significance of streamer and platform characteristics in shaping trust and engagement behaviors. This study highlights that trust acts as a key mediator, linking the characteristics of streamers and platforms to meaningful consumer engagement outcomes. The results emphasize the importance of cultivating trust in both streamers and products as an effective strategy for enhancing consumer participation in live-streaming e-commerce.

Despite its contributions, this study has several limitations that offer opportunities for future research. First, the research is geographically restricted to the Indonesian market, which limits the generalizability of the findings. Future studies should extend this framework to other regions to explore how cultural and market-specific factors influence trust mechanisms and consumer engagement in live-streaming contexts. Such comparative studies could provide richer insights into how geographic diversity shapes consumer behavior in e-commerce. Second, this study focuses on a specific set of streamer and platform characteristics, such as beauty, humor, passion, expertise, warmth, interactivity, and personalization. However, other relevant factors, such as product reliability, pricing strategies, or the impact of influencer credibility, were not examined. Future research could incorporate these additional attributes to develop a more holistic understanding of the antecedents of trust and CEB.

Furthermore, this study does not differentiate between various live-streaming platforms, despite their potentially unique streaming methods and features. Platforms like Shopee, TikTok, and Lazada may employ different tools and engagement strategies, which could affect the way consumers perceive trust and engagement behaviors. Future studies should investigate platform-specific effects to understand how distinct platform characteristics influence trust creation and consumer participation. Additionally, longitudinal studies could provide valuable insights into how trust and engagement behaviors evolve over time within live-streaming environments. By addressing these limitations, future research could refine the theoretical and practical frameworks for understanding live-streaming e-commerce, offering more nuanced insights into the dynamics of consumer engagement in this rapidly growing field.

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### CRedit authorship contribution statement

**Adi Prasetyo Tedjakusuma:** Writing – original draft, Software, Resources, Methodology, Investigation, Data curation. **Andri Dayarana K. Silalahi:** Writing – review & editing, Writing – original draft, Validation, Investigation, Formal analysis, Data curation, Conceptualization. **Ixora Javanisa Eunike:** Writing – original draft, Visualization, Software, Methodology, Investigation, Formal analysis. **Do Thi Thanh Phuong:** Writing – review & editing, Writing – original draft, Methodology, Data curation, Conceptualization. **Dalianus Riantama:** Writing – review & editing, Writing – original draft, Visualization, Software, Methodology, Investigation, Data curation.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Data availability

[andridksilalahi@gmail.com](mailto:andridksilalahi@gmail.com) The data that support the findings of this study are openly available in Zenodo at <https://doi.org/10.5281/zenodo.15049105>.

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