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From Immersion to Impulse: The Trust Buiding Journey in Digital Commerce

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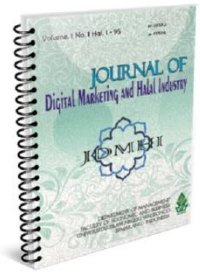

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ABSTRACT

Despite the rapid expansion of digital commerce in Indonesia's cosmetics sector, the mechanisms through which immersive digital experiences shape consumer decision-making remain insufficiently understood, particularly with respect to the interaction between trust formation and tactile preferences. Addressing this gap, the present study investigates how multidimensional immersive experiences influence impulse buying behavior through the mediating role of trust, while considering need for touch as a moderating factor. Immersive experience is conceptualized through three dimensions that are increasingly prevalent in digital cosmetic marketing, namely augmented reality virtual try-on, live streaming commerce, and social media marketing activities. Employing a cross-sectional research design, data were collected from 451 Indonesian consumers aged 18 to 40 years who had purchased international cosmetic brands via digital platforms within the previous six months. The proposed hypotheses were tested using Partial Least Squares Structural Equation Modeling. The findings indicate that all three immersive dimensions significantly enhance consumer trust, with social media marketing exerting the strongest influence, followed by live streaming commerce and augmented reality virtual try-on. Trust, in turn, has a positive and significant effect on impulse buying behavior. Importantly, the results reveal that need for touch negatively moderates the relationship between trust and impulse buying, suggesting that consumers with higher tactile preferences tend to engage in greater purchase deliberation despite elevated levels of trust. The structural model demonstrates strong explanatory power for both trust and impulse buying. This study contributes to the literature by operationalizing immersive experience as a multidimensional construct and identifying tactile preference as a critical boundary condition in digital consumption contexts. From a practical perspective, the findings offer strategic insights for international cosmetic brands in tailoring digital marketing approaches that align with consumers' sensory orientations in emerging markets such as Indonesia.

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Introduction

Digital transformation has fundamentally altered global commerce, where immersive technology has become the primary catalyst shaping contemporary consumer behavior (Bao & Yang, 2022). The evolution toward "Marketing 6.0: The Future is Immersive" emphasizes creating comprehensive experiences through AR technology, live streaming commerce, and social media marketing (Kotler et al., 2024). This transformation is particularly evident in impulse buying behavior, defined as a sudden and strong desire to purchase without mature planning (Bao & Yang, 2022), which has undergone significant changes globally, generating substantial retail profits (Tran et al., 2025). The global cosmetics industry, valued at USD 341.1 billion in 2020 and projected to reach USD 560.50 billion by 2030, exemplifies where sensory-dependent product attributes intersect with digital innovation imperatives (Pine & Gilmore, 2013). In Indonesia, the cosmetics industry maintained steady growth with the market revenue reaching USD 9.17 billion in 2024, and cosmetics export value notably increasing to USD 800 million in 2024, with projections reaching nearly USD 1 billion by mid-2025 (Statista, 2024; Satra Sinar Abadi Group, 2025). Leading international brands like Maybelline, L'Oréal, Revlon, and Estée Lauder continue to expand their virtual try-on features powered by augmented reality (AR) and artificial intelligence (AI), addressing health and hygiene concerns related to conventional tester usage while boosting conversion rates by up to 90% (BrandXR, 2025; FFFACE, 2025).

However, Indonesia's digital commerce ecosystem presents distinctive characteristics challenging direct extrapolation of Western consumer behavior models. Indonesian consumers exhibit heterogeneous technology adoption patterns shaped by diverse socioeconomic strata, varying digital infrastructure across urban-rural divides, and culturally embedded collectivist values influencing social media engagement and peer-driven purchase decisions (Simamora & Islami, 2023). Indonesia's mobile-first digital ecosystem, where 89% of internet users access platforms primarily through smartphones, creates unique conditions for live streaming commerce penetration differing fundamentally from desktop-dominated Western markets, necessitating market-specific empirical investigation.

Despite rapid immersive technology adoption in cosmetics, crucial problems exist regarding impulse buying in digital marketing contexts. The theoretical framework linking Marketing 6.0's immersive paradigm (Kotler et al., 2024) (Kotler et al., 2024) to impulse buying outcomes requires systematic operationalization. While Marketing 6.0 advocates multisensory engagement, specific mechanisms through which sensory immersion (AR virtual try-on), interactive immersion (live streaming commerce), and social immersion (social media marketing) independently and collectively build consumer trust remain underspecified. Previous research shows gaps in understanding how these three dimensions work simultaneously influencing impulse buying behavior, where most research explores only one or two separate dimensions. Studies examining AR try-on in isolation reveal significant positive effects through reduced uncertainty, enhanced perceived value, and increased user enjoyment (Do et al., 2020; Hsu et al., 2024; T. Trivedi, 2024), yet predominantly focus on Western markets. Research on live streaming commerce separately reveals impulse buying responses with characteristics creating psychological arousal bypassing deliberative processing (Lee & Chen,

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2021; Li, 2022), yet findings emerge predominantly from Chinese platforms raising generalizability questions. Investigations of social media marketing independently prove significant positive influences through content virality, peer endorsements, brand engagement, and influencer trust (Jamil et al., 2022; Shamim et al., 2024; Singh et al., 2023), yet examine social media in isolation overlooking interaction effects with other immersive technologies. This fragmented approach fails to capture contemporary digital marketing where brands simultaneously deploy multiple immersive channels. Theoretical limitation is compounded by insufficient operationalization of (Pine & Gilmore, 2013) experience economy framework into measurable commerce-specific constructs.

The psychological pathway from immersive stimuli to impulse buying remains inadequately theorized. While trust has been established as critical mediator in online commerce (Wongkitrungrueng & Assarut, 2020), research examining trust formation across multiple immersive dimensions simultaneously is scarce. Empirical findings show concerning contradictions: non-significant relationships between social media marketing and e-impulse buying through purchase intention (Haider Iqbal et al., 2024) contradict positive direct effects (Jamil et al., 2022; Singh et al., 2023) non-significant trust moderation in live streaming contexts (Wang et al., 2023) challenges assumptions that trust universally facilitates conversion; mixed results with trust predicting impulse buying only under specific streamer characteristics (Na & Kisuk, 2023) suggest unidentified boundary conditions determining when trust translates immersive experiences into impulsive actions. Need for touch (NFT), consumers' preference for haptic information during product evaluation (Peck & Childers, 2006) remains underexplored in immersive technology contexts, particularly in cosmetics where tactile properties are paramount. While AR can partially satisfy touch needs through visual realism and interactive manipulation (Gatter et al., 2022), contradictory evidence exists regarding whether high-NFT consumers resist digital purchasing or whether immersive technologies adequately compensate for haptic deprivation. Haptic psychology in digital environments requires context-specific investigation, as cultural variations in sensory preferences may moderate technology acceptance differently (Krishna et al., 2024). High-NFT individuals process product information differently, relying more heavily on tactile feedback for quality assessment, which digital interfaces cannot fully replicate regardless of visual fidelity, implying high-NFT consumers may develop trust yet withhold purchases due to unmet sensory verification needs. Indonesia, where the country has not been included in active AR evolution research (Patnaik, 2024), represents a critical empirical void for testing NFT's boundary effects.

Based on these identified gaps, this study examines how immersive experience dimensions shape impulse buying behavior in Indonesia's digital cosmetics market. The primary objective is to analyze the influence of try-on with augmented reality, live streaming commerce, and social media marketing activities on consumer trust formation, requiring empirical quantification of each dimension's relative contribution to trust building and enabling identification of which immersive mechanism most effectively reduces perceived risk and uncertainty in haptic-dependent product categories. The second objective examines trust's mediating pathway to impulse buying behavior, testing the theoretical proposition that immersive technologies trigger impulse buying not through direct sensory stimulation alone but through

intermediate psychological state of confidence in product quality and platform reliability, crucial for resolving contradictory findings (Haider Iqbal et al., 2024; Na & Kisuk, 2023; Wang et al., 2023) regarding when and why immersive experiences succeed or fail in converting digital engagement into purchases. The third objective investigates need for touch's moderating role in the trust-impulse buying relationship, addressing a critical boundary condition by examining whether consumers with high tactile preferences exhibit different behavioral responses to trust signals compared to low-NFT consumers, testing whether high-NFT individuals despite developing trust through immersive experiences still demonstrate purchase hesitancy due to unmet sensory verification needs (Krishna et al., 2024). The fourth objective provides context-specific insights by focusing exclusively on Indonesian cosmetics industry for international brands Maybelline, L'Oréal, Revlon, and NYX, enabling examination of how culturally embedded collectivist values, mobile-first digital infrastructure, and heterogeneous socioeconomic strata influence immersive marketing strategies effectiveness.

This research contributes theoretically by integrating three immersive experience dimensions into one holistic model never systematically explored in Indonesian cosmetic market context, extending (Pine & Gilmore, 2013) experience economy framework and (Steuer, 1992) telepresence dimensions into contemporary digital commerce applications. It resolves contradictory findings in trust-mediated impulse buying literature by investigating NFT's simultaneous moderating role, filling gaps showing inconsistent results (Haider Iqbal et al., 2024; Na & Kisuk, 2023; Wang et al., 2023), drawing on (Krishna et al., 2024) haptic psychology framework to test that NFT negatively moderates trust to impulse buying pathway. It focuses on international cosmetic brands in Indonesian market, filling geographical research gap considering Indonesia has not been included in active AR evolution research (Patnaik, 2024) despite being Southeast Asia's largest economy, establishing empirical foundations for emerging market theorization in context characterized by mobile-first commerce, collectivist cultural values, and heterogeneous digital literacy. Practically, findings guide brands identifying which dimension most efficiently drives consumer trust and impulse purchasing, inform compensatory strategies for high-NFT segments, and support evidence-based digital commerce infrastructure development.

Literature Review

This research is grounded in Social Exchange Theory (SET) as the overarching framework explaining how immersive experiences generate consumer trust and impulse buying. SET posits that human interactions are driven by cost-benefit calculations where individuals maximize rewards while minimizing costs (Homans, 1958); Blau, 1964). In digital commerce, SET explains consumer-brand relationships as exchange processes where consumers evaluate immersive technological experiences against perceived online purchasing risks (Cropanzano & Mitchell, 2005).

SET application to immersive marketing addresses the core uncertainty problem: how consumers develop willingness to engage in spontaneous purchases without physical product inspection. When brands provide high-quality immersive experiences through AR, they offer compensatory benefits that address the absence of tactile verification. Research demonstrates that AR can satisfy consumers' need for touch by providing hedonic and utilitarian benefits that positively impact purchase intentions and

attitudes (Gatter et al., 2022), while immersive AR experiences enhance decision comfort by compensating for the inability to physically inspect products (Hilken et al., 2017). These rewards include informational benefits (realistic visualization), emotional benefits (entertainment and connection), and functional benefits (convenience and personalization). When consumers perceive these rewards exceed uncertainty costs, they reciprocate by extending trust and engaging in otherwise risky transactions like impulse cosmetics purchases (Dhianita & Rufaidah, 2024; Micheletto et al., 2025).

SET's reciprocity norm is central to understanding trust formation. When brands invest in creating quality AR environments, authentic live streaming, or engaging social media content, consumers perceive commitment to their satisfaction, creating felt obligations to reciprocate through positive evaluations and purchases (Cropanzano & Mitchell, 2005). Trust emerges as the psychological manifestation of this reciprocity (Johnson & Grayson, 2005): consumers trust brands delivering consistent immersive value. SET's distinction between economic and social exchange illuminates why different immersive dimensions build qualitatively different trust forms: sensory immersion (AR) creates primarily cognitive trust based on functional accuracy (economic exchange), while interactive and social immersion (live streaming, social media) build affective trust rooted in emotional connection (social exchange).

NFT moderating role operates through SET's alternative comparison levels principle. High-NFT consumers possess elevated comparison standards requiring higher compensatory rewards to overcome haptic deprivation costs. Even when trust is established, high-NFT consumers maintain higher thresholds for spontaneous purchasing because tactile verification represents a fundamental exchange component they cannot fully replace digitally (Ahmad et al., 2023). Immersive experience represents a multidimensional construct conceptualized as the extent to which technology creates presence where users feel transported into mediated environments (Steuer, 1992). Contemporary digital commerce encompasses three dimensions: sensory immersion through AR enabling product visualization (Javornik et al., 2021), interactive immersion through live streaming creating real-time engagement (Wongkitrungrueng & Assarut, 2020), and social immersion through social media marketing building communities (Pine & Gilmore, 2013).

These dimensions are interdependent mechanisms operating through distinct yet complementary pathways, with each providing different relational rewards addressing multiple consumer needs. Sensory immersion through AR addresses functional information needs by reducing product appearance uncertainty through realistic visualization and operates primarily through cognitive processing, helping consumers preserve cognitive resources while forming mental expectations regarding product attributes (Barta, 2025; Sun et al., 2022). Interactive immersion through live streaming addresses social and emotional needs through parasocial relationships and real-time dialogue, creating affective bonds that transcend purely informational exchanges (Huang & Mohamad, 2025; Jriyasetapong et al., 2023). Social immersion through social media addresses belongingness and identity needs by embedding consumers in brand communities where peer validation shapes preferences.

These dimensions interact through complementary, compensatory, and sequential mechanisms. Understanding these

interrelationships is crucial for brands deploying omnichannel strategies, as touchpoints managed in a synergistic, integrated manner optimize customer experience and firm performance (Massi et al., 2023).

These dimensions interact through three mechanisms: complementary effects where multiple dimensions strengthen overall immersion beyond summation; compensatory relationships where strength in one dimension offsets weakness in another; and sequential mechanisms where one dimension creates conditions enabling another's effectiveness. Understanding these interrelationships is crucial because brands deploying omnichannel strategies need evidence on whether to specialize in one dimension or invest broadly, and whether certain combinations produce synergistic returns.

Trust encompasses both cognitive and affective components serving distinct yet interrelated functions. Cognitive trust, grounded in rational evaluation of competence, reliability, and integrity (McAllister, 1995), reflects consumers' beliefs that brands possess ability and intention to deliver promised quality and security. This develops through informational mechanisms where consumers assess brand credibility evidence. Affective trust emerges from emotional connections and perceived goodwill in relationships (Johnson & Grayson, 2005) reflecting feelings of comfort and emotional security from positive relational exchanges rather than rational assessments.

This distinction is salient for understanding how immersive dimensions influence trust through distinct psychological pathways aligned with SET's economic versus social exchange differentiation. Sensory immersion (AR) primarily builds cognitive trust by providing high-fidelity informational resources reducing product attribute uncertainty. Interactive immersion (live streaming) develops both cognitive trust through transparent real-time Q&A and affective trust through warm, authentic host interactions. Social immersion (social media) predominantly fosters affective trust by embedding consumers in relational networks where peer validation generates emotional comfort.

The distinction matters for impulse buying because cognitive and affective trust differentially influence spontaneous decisions. Cognitive trust provides rational foundation permitting purchase consideration by reducing perceived risk, removing barriers to action. Affective trust supplies emotional catalyst converting possibility into action by creating positive affect that lowers psychological inhibitions against spontaneous spending. This suggests effective immersive strategies should integrate dimensions building both trust types.

Despite growing scholarly attention, three critical gaps persist. First, while individual dimensions have been studied, no research systematically examines their simultaneous, integrated effects on trust and impulse buying. AR studies show enhanced enjoyment and impulse buying triggers (Do et al., 2020; Hsu et al., 2024; J. Trivedi et al., 2022), with AR creating presence and confidence (Javornik et al., 2021; Vashisht & Sharma, 2024), yet inconsistencies exist regarding whether sensory immersion alone suffices or requires other dimensions, particularly in emerging markets. Live streaming research shows powerful sales effects (Lee & Chen, 2021; Li et al., 2022) with trust enhancement through transparency (Deng & Tian, 2024), but lacks systematic investigation of how synchronous interactive immersion creates unique trust conditions for cosmetics' personal attributes. Social media marketing significantly influences impulse buying (Jamil et al., 2022;

Shamim & Azam, 2025; Singh et al., 2023) with parasocial relationships building trust (Shamim & Azam, 2025; Skarzyńska, 2022), yet contradictions exist regarding social immersion effectiveness versus skepticism triggers. This fragmented approach fails to capture omnichannel strategies' synergistic, compensatory, or independent effects.

Second, trust's mediating role between immersive experiences and impulse buying contains theoretical ambiguities. While trust facilitates impulse buying in digital environments (Aldiaz et al., 2024; Bao & Yang, 2022), gaps exist in understanding trust as psychological bridge converting immersive stimuli into spontaneous purchases. Literature treats trust as direct antecedent in deliberative contexts, overlooking its role enabling impulsive, non-deliberative behavior. Empirical inconsistencies raise boundary condition questions: non-significant relationships found between social media marketing and e-impulse buying (Haider Iqbal et al., 2024), non-significant trust moderation in live streaming (Wang et al., 2023), and mixed results in content-type live commerce (Na & Kisuk, 2023) suggest trust operates differently across technologies or that individual differences moderate relationships unexplored.

Third, need for touch (NFT) presents theoretical paradoxes. NFT reflects fundamental haptic needs (Peck & Childers, 2006) theoretically diminishing digital effectiveness, yet AR proves more effective for high-NFT consumers appreciating compensatory efforts (Gatter et al., 2022), creating a paradox where tactile dependency enhances digital responsiveness. Touch emphasis affects purchases differently by NFT levels (Krishna et al., 2024; Zheng & Bensebaa, 2022) yet inconsistent findings (Haider Iqbal et al., 2024) suggest contextual influences. How NFT moderates trust-impulse buying across immersive dimensions in cosmetics remains unexamined in emerging markets like Indonesia (Patnaik, 2024).

Hypothesis Development

Try-on With Augmented Reality and Trust

AR creates sensory immersion enabling real-time product visualization on consumers' faces, bridging online-offline gaps through accurate representation (Javornik et al., 2021; Steuer, 1992). AR increases consumer confidence through deep immersive experiences where exploring various shades and textures virtually builds trust in product quality and suitability (Vashisht & Sharma, 2024). From SET perspective, AR provides informational rewards reducing perceived risk costs, compensating for inability to physically test products. This builds primarily cognitive trust through evidence-based product-consumer fit evaluation. However, empirical inconsistencies exist: while positive effects are confirmed (Javornik et al., 2021) , effectiveness varies by technology quality and consumer digital literacy, particularly in emerging markets (Vashisht & Sharma, 2024). In Indonesia where AR research is limited (Patnaik, 2024), questions remain whether sensory immersion alone suffices or requires complementary social validation.

H1: Try-on With Augmented Reality has a significant positive effect on Trust

Live Streaming Commerce and Trust

Live streaming creates interactive immersion through real-time engagement, transcending static content by creating co-presence where consumers feel "present" in demonstrations (Wongkitrungrueng & Assarut, 2020). Immersive technology in live streaming enhances trust through transparency and authenticity, with interactive dimensions allowing specific texture,

pigmentation, and application questions creating trust-building dialogue (Deng & Tian, 2024). High immersion levels strengthen credibility and trustworthiness perceptions. From SET framework, live streaming offers relational rewards through synchronous, personalized interactions demonstrating brand responsiveness. Ephemerality and spontaneity signal authenticity, reducing skepticism about deceptive marketing, building both cognitive (informational transparency) and affective trust (parasocial bonds). However, contradictions complicate this: while trust-building effects are confirmed (Wongkitrungrueng & Assarut, 2020), non-significant trust moderation (Wang et al., 2023) and mixed results dependent on host characteristics (Na & Kisuk, 2023) suggest effectiveness depends on execution quality and cultural contexts.

H2: Live Streaming Commerce has a significant positive effect on Trust

Social Media Marketing Activities and Trust

Social media creates social immersion where consumers become embedded in brand communities through user-generated content, influencer collaborations, and interactive storytelling (Skarzyńska, 2022). Immersive influencer content creates parasocial relationships building trust, with immersion degree from passive viewing to active participation strengthening emotional connection (Shamim & Azam, 2025). From SET lens, social media provides social rewards through community belonging, peer validation, and identity expression fulfilling relational needs. Peer reviews and influencer demonstrations create perceived reduced social costs and increased social benefits, primarily building affective trust. However, theoretical tensions exist: while trust-building is demonstrated (Shamim & Azam, 2025; Skarzyńska, 2022), growing influencer skepticism and non-significant effects on e-impulse buying (Haider Iqbal et al., 2024) suggest social immersion's capacity depends on perceived authenticity and platform characteristics.

H3: Social Media Marketing Activities has a significant positive effect on Trust

Trust and Impulse Buying.

Trust built through immersive experiences reduces cognitive load, facilitating (Bao & Yang, 2022) and creating "moments of truth" where trust transforms into spontaneous action (Aldiaz et al., 2024). From SET perspective, trust serves as psychological mechanism enabling exchange completion under uncertainty. When consumers trust brands will deliver promised value, they reciprocate by lowering purchase inhibitions and acting on emotional impulses without extensive deliberation. Trust shifts internal cost-benefit calculations by reducing perceived risks to near-zero, allowing hedonic motivations and emotional arousal from immersive experiences to dominate decision-making. However, theoretical paradoxes exist: trust is typically rational and cognitive, while impulse buying is emotional and spontaneous. This may resolve through cognitive-affective trust distinction: cognitive trust removes rational barriers (risk), affective trust provides emotional impetus (positive feelings) that together enable impulsive action. Inconsistent findings (Haider Iqbal et al., 2024; Wang et al., 2023) suggest trust effects depend on product category, platform characteristics, and individual differences.

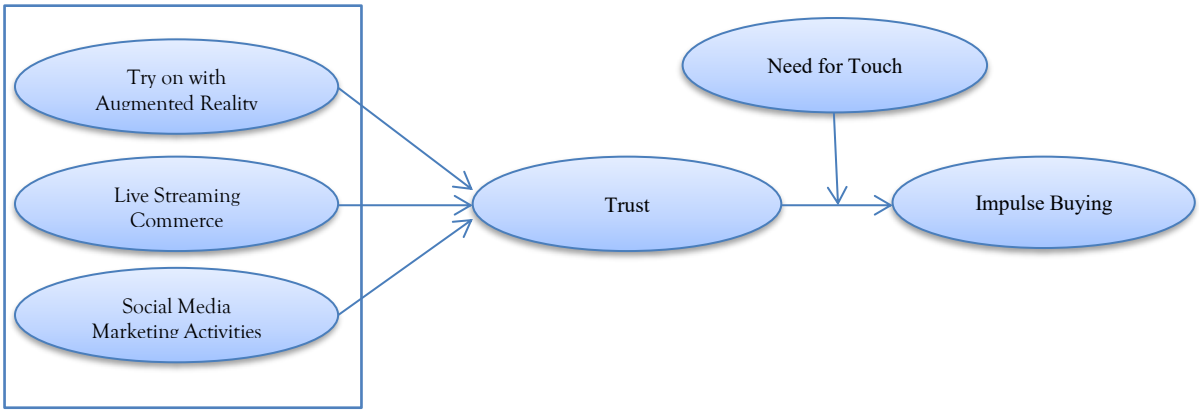
H4: Trust has a significant positive effect on Impulse Buying

Need for Touch as Moderator. NFT reflects fundamental haptic needs challenging digital effectiveness, yet paradoxically AR proves more effective for high-NFT consumers appreciating

compensatory efforts (Gatter et al., 2022). In cosmetics where texture and application sensation are crucial, NFT moderates trust-to-impulse buying conversion (Krishna et al., 2024; Zheng & Bensebaa, 2022). From SET framework, NFT represents individual variation in comparison standards for acceptable exchange terms. High-NFT consumers maintain elevated thresholds requiring actual tactile verification as fundamental exchange component that digital technologies cannot fully replace, even when cognitive and affective trust are established. These consumers may trust brands yet withhold impulse purchases because unmet haptic needs create residual uncertainty that deliberative processing cannot overcome. Low-NFT consumers possess lower haptic comparison standards, allowing visual and social immersion to sufficiently reduce uncertainty and enable trust-driven impulse buying. The paradox resolution lies in distinguishing between AR's ability to satisfy informational needs about visual appearance (where high-NFT consumers appreciate efforts) versus inability to fully replace tactile verification for texture and feel (which remains impulse buying barrier). In Indonesia's context where cosmetics growth relies on digital channels lacking physical testers (Patnaik, 2024), understanding NFT's boundary effects is crucial for identifying segments requiring hybrid strategies.

H5: Need for Touch moderates the relationship between Trust and Impulse Buying, where the relationship is weaker for consumers with high NFT compared to low NFT

Figure 1.
The Framework of Research



Method, Data, and Analysis

This quantitative study employed a cross-sectional survey design with primary data collected from 451 Indonesian consumers (aged 18-40) who purchased cosmetics from international brands (Maybelline, L'Oréal, Revlon, NYX) via digital platforms, selected through stratified random sampling across five major cities. Data collection utilized online questionnaires with validated 5-point Likert scales measuring: Try-on with Augmented Reality, Live Streaming Commerce, Social Media Marketing Activities, Trust, Impulse

Buying, and Need for Touch. Data analysis employed PLS-SEM using SmartPLS 3.0, assessing measurement model validity and reliability (Cronbach's α >0.70, AVE >0.50, HTMT <0.90), followed by structural model evaluation through bootstrapping (5,000 subsamples) examining path coefficients, R^2, f^2, Q^2, and moderation effects using the product-indicator approach.

Table 1.
Variables, Definition Variables and Indicators

Variable	Operational Definition	Indicators	References
Try- on with Augmented Reality (TWAR)	Technology enabling virtual product trials through AR visualization	Product Visualization Realistic Experience Placement Control Visual Realism Color Accuracy Application Visualization	(Sekhavat, 2017; Sekri et al., 2024; Song et al., 2020)
Live Streaming Commerce (LSC)	Real-time interactive shopping through live video and chat features	Interactive Features Shopping Convenience Purchase Appeal Host Interaction Product Observation Ease of Use	(Cai & Wohn, 2019; Lee & Chen, 2021; Ng et al., 2024; Qing, 2023)
Social Media Marketing Activities (SMMA)	Brand promotional efforts and engagement via social media platforms	Engaging Content Two-way Communication Trend Information Personal Recommendations Influencer Collaboration Information Sharing	(Erobathriek et al., 2023)(Banerji & Singh, 2024)(Yeik Koay et al., 2021)(Banerji & Singh, 2024)
Trust (T)	Consumer confidence in brand's ability to fulfill promised functions and obligations	Sense of Security Customer Orientation Description Accuracy Good Reputation Information Transparency Quality Consistency	Foroutan et al. (2022)(Foroutan et al., 2022)(Punyatoya, 2019)(Wongkitrungrueng & Assarut, 2020)
Need for Touch (NFT)	Individual tendency to require physical contact for product evaluation in purchasing decisions	Purchase Confidence Touch Enjoyment Touch Spontaneity Quality Assurance Doubt Elimination Product Evaluation	(Rathee & Rajain, 2019)(Peck & Childers, 2003)(Zheng & Bensebaa, 2022)Rathee & Rajain (2019)
Impulse Buying (IB)	Sudden urge to purchase without prior planning or	Unplanned Purchase Emotional Response Spontaneous Urge	Bao & Yang (2022) (Bao & Yang, 2022) (C.-H. Lee & Chen,

Variable	Operational Definition	Indicators	References
	deliberate consideration	New Product Interest Excessive Buying Quick Decision	2021) (Lin et al., 2023) (Sharma, 2023)

Source: Data Processed SmartPLS 3, 2025

Data analysis in this research utilized Smart PLS Version 3.00 software. The Structural Equation Modeling (SEM) approach was chosen due to its ability to simultaneously identify the dimensions of a construct while measuring the intensity of relationships or influences between factors whose dimensions have been identified. The parameter estimation process in PLS analysis comprised three main stages. The measurement model analysis (outer model) evaluated convergent validity (loading factor > 0.5; AVE > 0.5), discriminant validity (cross loading > 0.5), and reliability (composite reliability > 0.7). The structural model analysis (inner model) utilized R-Square values for dependent constructs. Hypothesis testing employed criteria of T-statistics ≥ 1.96 and P-values < 0.05 for hypothesis acceptance.

Result and Discussion

Descriptive Statistics

The final sample comprised 451 respondents from five major Indonesian cities: Jakarta (n=135, 29.9%), Surabaya (n=98, 21.7%), Bandung (n=92, 20.4%), Yogyakarta (n=78, 17.3%), and Pontianak (n=48, 10.6%). The sample consisted of 312 females (69.2%) and 139 males (30.8%), reflecting the gender distribution typical of cosmetics consumers. Generational distribution showed 198 Millennials (43.9%, born 1980-1995) and 253 Generation Z members (56.1%, born 1996-2010), indicating strong representation of digital-native consumers. Age distribution ranged from 18 to 40 years (M=27.3, SD=5.8). Regarding educational background, 45.2% held bachelor's degrees, 28.6% were undergraduate students, 15.5% held master's degrees, and 10.7% had high school diplomas. Monthly income distribution varied: below IDR 3,000,000 (22.4%), IDR 3,000,000-5,000,000 (31.7%), IDR 5,000,001-8,000,000 (25.5%), and above IDR 8,000,000 (20.4%). All respondents had purchased cosmetics from at least one of the target brands (Maybelline, L'Oréal, Revlon, NYX) through digital platforms within the past six months, with 63.4% having experience using AR virtual try-on features, 71.2% having watched live streaming commerce sessions, and 89.1% actively following cosmetic brands on social media platforms.

Measurement Model Evaluation

The measurement model evaluation followed a systematic two-stage procedure in PLS-SEM methodology, assessing the outer model before inner model evaluation to establish construct validity and reliability. Convergent validity was examined through factor loading values and Average Variance Extracted (AVE) calculations. All factor loadings exceeded the threshold of 0.70, ranging from 0.707 to 0.770 across all constructs (Table 1). AVE values for all constructs surpassed the minimum requirement of 0.50: Try-on with Augmented

Reality (TWAR) = 0.573, Live Streaming Commerce (LSC) = 0.539, Social Media Marketing Activities (SMMA) = 0.536, Trust (T) = 0.546, Need for Touch (NFT) = 0.542, and Impulse Buying (IB) = 0.543, confirming that indicators effectively measure their respective constructs. Internal consistency reliability was assessed through Cronbach's Alpha and Composite Reliability (rho_a). All constructs demonstrated strong reliability with Cronbach's Alpha values ranging from 0.827 to 0.851 and Composite Reliability values from 0.828 to 0.851, exceeding the threshold of 0.70. These results indicate excellent internal consistency across all measurement instruments.

Table 2.
Validity Test

Variable	Indicator	Outer-Loading	AVE	Conclusion
Try on With Augmented Reality	TWAR1	0.740	0.573	Valid
	TWAR2	0.737		
	TWAR3	0.768		
	TWAR4	0.758		
	TWAR5	0.770		
	TWAR6	0.767		
Live Streaming Commerce	LSC1	0.747	0.539	Valid
	LSC2	0.711		
	LSC2	0.742		
	LSC3	0.728		
	LSC4	0.751		
	LSC5	0.726		
Social Media Marketing Activities	SMMA1	0.744	0.536	Valid
	SMMA2	0.716		
	SMMA3	0.738		
	SMMA4	0.726		
	SMMA5	0.733		
	SMMA6	0.737		
Trust	TR1	0.744	0.546	Valid
	TR2	0.721		
	TR3	0.767		
	TR4	0.749		
	TR5	0.725		
	TR6	0.725		
Need for Touch	NFT1	0.733	0.542	Valid
	NFT2	0.729		
	NFT3	0.729		
	NFT4	0.759		
	NFT5	0.724		
	NFT6	0.741		

Variable	Indicator	Outer-Loading	AVE	Conclusion
Impulse Buying	IB1	0.766	0.543	Valid
	IB2	0.755		
	IB3	0.712		
	IB4	0.721		
	IB5	0.707		
	IB6	0.759		

Source: Data Processed SmartPLS 3, 2025

Table 3.
Reliability Test Result

Construct	Cronbach's Alpha	Composite Reliability (rho_a)	Conclusion
TWAR	0.851	0.851	Reliabel
LSC	0.829	0.830	Reliabel
SMMA	0.827	0.828	Reliabel
T	0.834	0.834	Reliabel
NFT	0.831	0.831	Reliabel
IB	0.831	0.832	Reliabel

Source: Data Processed SmartPLS 3, 2025

Table 4- Research Hypothesis Test

Hypothesis		Path Coefficients	t-value	Results
TWAR -> Trust	H1	0.291	6.348	Support
LSC -> Trust	H2	0.303	6.917	Support
SMMA -> Trust	H3	0.342	7.570	Support
Trust -> IB	H4	0.187	3.841	Support
NFT x Trust -> IB	H5	-0.251	10.482	Unsupport

Source: Data Processed SmartPLS 3, 2025

Structural Model Assessment

The structural model was evaluated through bootstrapping procedure with 5,000 subsamples to test the research hypotheses. Path coefficients, t-values, and significance levels were examined to determine the relationships between constructs. The model demonstrated strong explanatory power with R^2 values of 0.781 for Trust and 0.806 for Impulse Buying, indicating that the model explains 78.1% of variance in trust formation and 80.6% of variance in impulse buying behavior. After adjustment for model complexity, the adjusted R^2 values remained robust at 0.780 and 0.805 respectively, suggesting excellent predictive accuracy.

Hypothesis Testing Results

H1: Try-on with Augmented Reality → Trust (β = 0.291, t = 6.348, p < 0.001)

The first hypothesis was strongly supported, demonstrating that AR virtual try-on technology significantly enhances consumer trust in cosmetic brands. The positive path coefficient (β = 0.291) indicates that sensory immersion created through AR technology, which enables real-time product visualization on consumers' own faces, substantially contributes to trust formation. This finding aligns with the theoretical framework of immersive experience dimensions (Pine & Gilmore, 2013)(Steuer, 1992) where sensory immersion bridges the gap between online and offline shopping experiences. The ability to explore various shades and textures virtually creates better product understanding, ultimately building consumer confidence in product quality and suitability. This result extends previous research, demonstrating that AR applications increase consumer confidence through deep immersive experiences, particularly relevant in the Indonesian cosmetics market where tactile product evaluation has traditionally been crucial.

H2: Live Streaming Commerce → Trust (β = 0.303, t = 6.917, p < 0.001)

The second hypothesis received strong empirical support, revealing that live streaming commerce has the strongest direct effect on trust among the three immersive dimensions. The path coefficient (β = 0.303) indicates that interactive immersion through real-time engagement between hosts and consumers significantly enhances trust perceptions. This finding corroborates research before, demonstrating that immersive technology in live streaming creates transparency and authenticity that build consumer trust. The interactive dimension allows consumers to ask specific questions about texture, pigmentation, and cosmetic product application, creating two-way dialogue that strengthens perceptions of credibility. In the Indonesian context, this result is particularly significant given the cultural preference for interactive and social shopping experiences, where real-time engagement compensates for the absence of physical store interactions.

H3: Social Media Marketing Activities → Trust (β = 0.342, t = 7.570, p < 0.001)

The third hypothesis was strongly supported, with social media marketing activities showing the most substantial direct effect on trust formation (β = 0.342). This finding underscores the critical role of social immersion in building brand trust within digital ecosystems. The result extends theoretical understanding by demonstrating how consumers become embedded in brand communities and narratives through user-generated content, influencer collaborations, and interactive storytelling. The finding aligns previous researchs, who found that immersive influencer content creates parasocial relationships that build trust. In Indonesia's highly social media-engaged market, where platforms like Instagram, TikTok, and YouTube dominate digital interactions, this strong effect reflects the importance of continuous brand presence and community engagement. The degree of immersion in social media experience—from passive viewing to active participation—strengthens emotional connection with brands that underlies trust formation.

H4: Trust → Impulse Buying (β = 0.187, t = 3.841, p < 0.001)

The fourth hypothesis was supported, confirming that trust built through immersive experiences significantly triggers impulse buying behavior. Although the path coefficient (β = 0.187) is relatively smaller compared to the effects on trust, it represents a significant direct relationship. This finding validates the theoretical proposition that trust reduces cognitive load in decision-making, facilitating spontaneous purchases. When consumers trust brands through deep immersive experiences—whether through AR try-on, live streaming, or social media engagement—they are more likely to follow emotional urges to buy. The result extends research, who found that trust built through immersive experiences has strong mediating influence on impulse buying. In the Indonesian cosmetics market context, this finding suggests that trust serves as a critical psychological mechanism that transforms immersive experiences into actual purchase behavior.

H5: Need for Touch × Trust → Impulse Buying (β = -0.251, t = 10.482, p < 0.001)

The fifth hypothesis examining the moderating role of need for touch presents an intriguing and counterintuitive finding. Contrary to the hypothesized positive moderation, the interaction effect is significantly negative (β = -0.251), indicating that the relationship between trust and impulse buying becomes weaker for consumers with high need for touch. This paradoxical result challenges conventional assumptions about tactile requirements in cosmetics purchasing and reveals important nuances in how individual differences moderate digital shopping behavior.

The negative moderation suggests that consumers with high NFT, despite trusting brands through immersive experiences, exhibit more controlled purchasing behavior rather than impulsive actions. This finding can be interpreted through the lens another research, who demonstrate that emphasizing touch increases purchase deliberation for high-NFT individuals. In the digital cosmetics context, high-NFT consumers may recognize that even advanced AR technology and live streaming cannot fully replicate the tactile sensations crucial to their evaluation process. Consequently, while they develop trust through immersive experiences, this trust does not immediately translate into impulse buying; instead, they maintain cognitive control and delay purchase decisions until they can physically verify product texture and feel.

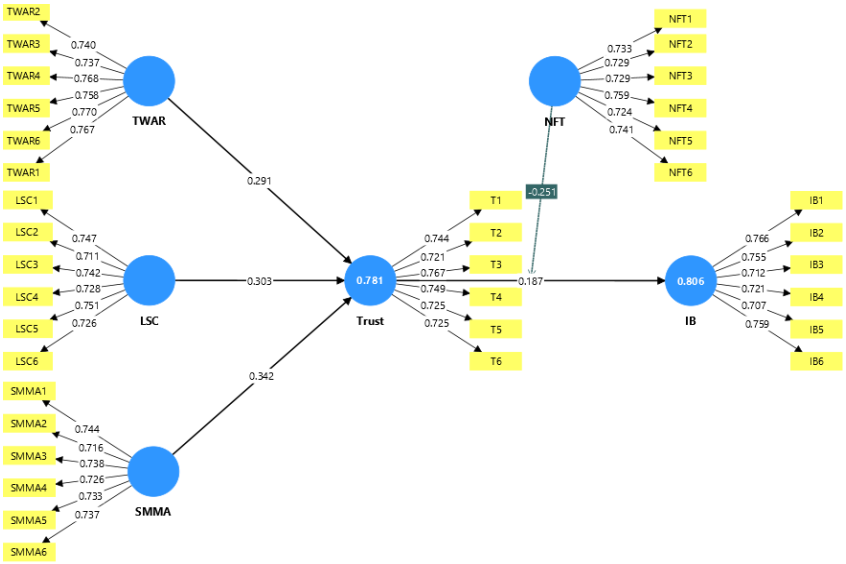
Conversely, consumers with low NFT demonstrate stronger impulse buying responses to trust built through immersive experiences. For these individuals, visual and social immersion adequately substitute for physical touch, allowing trust to more directly trigger spontaneous purchases. This aligns with previous research, who found that immersive technologies can effectively compensate for touch absence among low-NFT consumers. The strong negative moderation effect (β = -0.251) suggests that NFT is a critical individual difference variable that cosmetic brands must consider when designing digital marketing strategies.

Direct Effect of Need for Touch on Impulse Buying (β = 0.147, t = 3.051, p < 0.01)

Interestingly, NFT also demonstrates a significant direct positive effect on impulse buying (β = 0.147), independent of its interaction with trust. This suggests that individuals with higher NFT may engage in impulse buying for different reasons—possibly compensatory purchases or exploratory buying

behavior to satisfy their tactile curiosity. This dual role of NFT—as both a direct driver and a negative moderator—adds complexity to understanding impulse buying behavior in digital cosmetics markets.

Figure 2.
The Results of Full Model Analysis



Source: Data Processed SmartPLS 3, 2025

The overall model demonstrates exceptional predictive power and relevance. The R^2 value of 0.781 for Trust indicates that the three immersive experience dimensions (TWAR, LSC, SMMA) collectively explain 78.1% of variance in trust formation, demonstrating that these dimensions are highly effective predictors of consumer trust in digital cosmetics shopping. The R^2 value of 0.806 for Impulse Buying shows that trust, NFT, and their interaction explain 80.6% of variance in impulse buying behavior, indicating outstanding predictive accuracy. These high R^2 values exceed conventional thresholds for substantial explanatory power in consumer behavior research, validating the theoretical framework's robustness.

This research investigated how three dimensions of immersive experience—AR virtual try-on (sensory immersion), live streaming commerce (interactive immersion), and social media marketing (social immersion)—influence impulse buying through trust formation in Indonesia's digital cosmetics market. The findings provide robust empirical evidence extending immersive technology frameworks into contemporary

digital commerce contexts.

All three immersive dimensions significantly enhance consumer trust, with social media marketing demonstrating the strongest effect (β = 0.342), followed by live streaming commerce (β = 0.303) and AR virtual try-on (β = 0.291). Trust significantly predicts impulse buying (β = 0.187), confirming its critical mediating role in transforming immersive experiences into spontaneous purchases. Notably, need for touch exhibits a significant negative moderating effect (β = -0.251), revealing that high-NFT consumers demonstrate more controlled purchasing despite trusting brands, as digital experiences cannot fully substitute physical product evaluation. Conversely, low-NFT consumers show stronger impulse buying responses when trust is established. The model demonstrates exceptional explanatory power (R^2 = 0.781 for Trust; R^2 = 0.806 for Impulse Buying), effectively capturing digital cosmetics purchasing dynamics in Indonesia.

Discussion

The findings strongly confirm Stimulus-Organism-Response (S-O-R) theory, where immersive experiences act as environmental stimuli that trigger internal cognitive-affective states (trust), ultimately influencing behavioral responses (impulse buying). This aligns with the framework that environmental cues shape consumer emotions and behaviors. The significant positive effects of all three immersive dimensions on trust validate experiential marketing theory, demonstrating that interactive and engaging digital experiences enhance consumer confidence.

The dominance of social media marketing (β = 0.342) as the strongest predictor confirms social presence theory and parasocial interaction research, demonstrating that human connection through influencers, peer reviews, and community engagement remains the cornerstone of digital trust-building, even amid technological advancement. Indonesian consumers particularly value social validation and communal endorsement before purchasing, reflecting collectivistic cultural orientations where group opinion heavily influences individual decisions.

Live streaming commerce's significant effect (β = 0.303) empirically supports presence theory and flow theory in digital contexts, confirming that real-time interaction, limited-time offers, and entertaining presentations create urgency and reduce perceived risk. The phenomenon observed in Indonesian market reflects the rise of "shoppertainment," where consumers seek both entertainment and shopping fulfillment simultaneously, transforming purchasing from transactional activities into experiential events.

AR virtual try-on's positive influence (β = 0.291) validates product visualization theory and mental imagery research, demonstrating that technology reducing uncertainty gaps between online and offline shopping builds consumer confidence. Indonesian consumers' acceptance of AR technology indicates digital literacy advancement and willingness to adopt innovative solutions addressing traditional e-commerce limitations, particularly the inability to physically examine products before purchase.

The most theoretically significant contribution is the negative moderating role of need for touch (β = -0.251), challenging conventional assumptions that trust universally drives impulse buying. This finding reveals that high-NFT consumers maintain deliberative purchasing patterns despite trusting brands. This phenomenon suggests

dual-process cognition where System 1 (automatic, emotion-driven) conflicts with System 2 (deliberative, rational) processing. High-NFT individuals activate compensatory cognitive strategies, consciously resisting impulsive urges due to unmet sensory needs, regardless of trust levels. This represents important boundary conditions for trust-based persuasion models in digital commerce.

The phenomenon in Indonesian cosmetics market reveals tensions between technological adoption and inherent sensory requirements. While Indonesian consumers embrace digital innovations, cosmetics as tactile-dependent products create cognitive dissonance for haptic-oriented individuals. This explains why despite Indonesia's high social media penetration and e-commerce growth, certain consumer segments remain cautious, requiring tangible product experiences before committing to purchases. The high R^2 values (0.781 for trust; 0.806 for impulse buying) indicate that immersive dimensions comprehensively explain trust formation and purchasing behavior, validating the model's robustness in capturing Indonesian digital consumer psychology.

Conclusion

This study successfully addresses its research objectives by demonstrating that immersive experience dimensions (augmented reality virtual try-on, live streaming commerce, and social media marketing activities) significantly enhance consumer trust, which subsequently drives impulse buying behavior in Indonesia's digital cosmetics market. Social media marketing emerges as the most influential dimension ($\beta = 0.342$, $p < 0.001$), followed by live streaming commerce ($\beta = 0.303$, $p < 0.001$) and AR virtual try-on ($\beta = 0.291$, $p < 0.001$). Trust significantly influences impulse buying ($\beta = 0.187$, $p < 0.001$), while need for touch negatively moderates this relationship ($\beta = -0.251$, $p < 0.001$), indicating that consumers with high tactile requirements exhibit purchase deliberation despite established trust. The model demonstrates robust explanatory power with R^2 values of 0.781 for trust and 0.806 for impulse buying.

This cross-sectional study limits causal inference; longitudinal research would strengthen claims. The sample (N=451, ages 18-40, five major cities) may not represent rural consumers or older cohorts. Focus on four international brands limits generalizability to local or luxury brands. Self-reported measures may involve social desirability bias. The study does not explore all immersive dimensions (gamification, virtual communities) or mediating mechanisms (emotional states, perceived risk).

This research operationalizes "immersive experience" into three measurable dimensions, bridging experiential marketing theory with digital consumer behavior literature. The finding that social immersion exerts the strongest effect confirms that human social needs remain paramount drivers even in technology-rich environments. The discovery of need for touch as a negative moderator adds theoretical nuance, contributing to dual-process theories by clarifying that tactile requirements operate as boundary conditions limiting trust's effectiveness in triggering impulse buying for sensorially-oriented consumers.

International cosmetic brands should prioritize social media marketing through influencer partnerships, user-generated content, and interactive brand communities as the foundation of digital strategy,

complemented by live streaming events and AR technology. Brands must implement segmentation based on need for touch: for high-NFT consumers, provide detailed texture information, sample programs, and hybrid digital-physical experiences; for low-NFT consumers, enhance purely digital immersive experiences. Creating integrated campaigns combining AR try-on during live streaming events promoted through social media generates synergistic effects. From a policy perspective, findings support continued investment in digital infrastructure as Indonesian consumers demonstrate readiness for advanced commerce technologies.

Reccomendation

International cosmetic brands operating in Indonesia should develop integrated immersive strategies that synergize all three dimensions. Specifically, brands should invest in influencer marketing and user-generated content campaigns on Instagram, TikTok, and YouTube to leverage social media's dominant effect. Regular live streaming shopping events featuring product demonstrations, limited-time offers, and interactive Q&A sessions should be scheduled to create urgency and engagement. AR virtual try-on features must be integrated into brand websites and mobile applications, enabling consumers to visualize products realistically before purchasing. Brands should create consumer segmentation based on need for touch profiles: high-NFT segments require sample subscription services, pop-up stores for physical testing, and detailed sensory descriptions (texture, consistency, fragrance intensity), while low-NFT segments benefit from enhanced digital experiences with 360-degree product views and AI-powered recommendations.

For E-Commerce Platforms. Digital marketplace platforms (Shopee, Tokopedia, Lazada) should enhance technological infrastructure supporting immersive features, including improved live streaming capabilities with higher video quality, interactive chat functions, and seamless purchase integration. Platforms should provide AR try-on APIs enabling brand partners to implement virtual testing easily. Social shopping features such as group buying, friend recommendations, and community reviews should be prioritized to amplify social immersion effects.

Agencies should design holistic campaigns integrating all immersive dimensions rather than siloed approaches. For example, launching new products through coordinated strategies: teaser campaigns via influencer posts (social dimension), followed by live streaming launch events featuring AR try-on demonstrations (interactive dimension), and sustained community engagement through user-generated content contests (social dimension). Agencies must develop content strategies addressing tactile concerns by creating detailed texture descriptions, comparison videos with physical swatches, and testimonial content emphasizing sensory experiences.

Government bodies should continue investing in digital infrastructure (broadband internet, 5G networks, and digital literacy programs) to support immersive technology adoption, particularly in underserved regions. Consumer protection regulations should be updated addressing emerging issues in live streaming commerce (misleading claims, impulse buying manipulation) and AR technology (privacy concerns, data security). Policies encouraging digital entrepreneurship and supporting local cosmetic brands in adopting immersive

technologies would enhance competitiveness against international brands.

Scholars should employ longitudinal and experimental designs to establish stronger causal relationships between immersive experiences and consumer outcomes. Research should extend this framework to other Southeast Asian markets for cross-cultural validation and test applicability across diverse product categories beyond cosmetics, such as fashion, electronics, and home furnishings. Investigation of emerging technologies (virtual reality shopping, metaverse retail environments, and artificial intelligence personalization) as additional immersive dimensions would advance theoretical understanding. Exploration of emotional mediators (excitement, anxiety) and cognitive mediators (perceived risk, perceived value) in the trust-impulse buying pathway would provide deeper psychological insights. Examination of additional individual differences (impulsivity traits, self-control, digital literacy) and situational moderators (time pressure, promotional intensity) would identify further boundary conditions. Finally, research addressing ethical implications of immersive technologies triggering excessive impulse buying, particularly among vulnerable populations such as young consumers and economically disadvantaged groups, is critically needed to ensure responsible digital commerce development.

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