American Journal of Business Practice Vol.2, No.5 (May, 2025),
E-ISSN: 2997-934X
American Journal of Business Practice
https://semantjournals.org/index.php/AJBP

| Research Article

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Triggering the Digital Rush: An S-O-R Examination of Product Features, AI Personalization, And Hedonic Motives in Manado's Online Marketplace

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Abstract: Indonesia's booming e-commerce sector increasingly relies on artificial-intelligence (AI) tools-personalised recommendations, flash-sale alerts and chatbots—to engage shoppers, yet empirical insight into how these stimuli trigger unplanned purchases outside major cities remains limited. Anchored in the Stimulus–Organism–Response framework, this study tests whether e-commerce product attributes and AI-driven digital promotions foster digital impulsive buying through the mediation of hedonic shopping motives among consumers in Manado. A cross-sectional survey yielded 230 valid responses from online shoppers aged 17 years and above. Using SmartPLS 4.1.1.2, twenty-three reflective indicators demonstrated strong psychometric quality (loadings = 0.726–0.843; composite reliability = 0.841–0.897; AVE = 0.571–0.635), while HTMT ratios and Fornell–Larcker criteria confirmed discriminant validity. Structural modelling showed that product appeal ($\beta = 0.529$, $p < 0.001$) and AI promotions ($\beta = 0.308$, $p < 0.05$) significantly elevated hedonic motives, which in turn exerted the strongest direct effect on impulsive buying ($\beta = 0.763$, $p < 0.001$). Both stimuli also retained direct paths to impulsive purchasing ($\beta = 0.295$ and 0.375, respectively), yielding substantial explanatory power ($R^2 = 0.634$ for hedonic motives; $R^2 = 0.512$ for impulsive buying) and acceptable global fit (SRMR = 0.071; NFI = 0.711). Mediation tests confirmed that hedonic motives partially transmit the influence of products and promotions to impulse buying. The findings extend impulse-buying theory into AI-enabled retail, emphasising that curating varied, visually appealing catalogues and transparent, real-time personalised offers can strategically heighten shopping enjoyment and, consequently, spontaneous purchases in secondary-city markets.

Key words: Digital Impulsive Buying; Digital Promotion; E-Commerce Product; Hedonic Shopping Motives.

INTRODUCTION

The *e-commerce industry* in Indonesia continues to grow rapidly along with internet penetration and changes in consumer behaviour towards *online shopping*. As a result of consumer behaviour increasingly shifting towards *online* shopping in 2014, the global *e-commerce* market was worth around $1.3 trillion, but by 2022, it has grown to over $6.3 trillion (Ady et al., 2022). The *e-commerce* business is experiencing rapid growth, which makes it an attractive target for investors.

This trend has rapidly prompted many e-commerce platforms to leverage sophisticated digital marketing and technological advancements. Platforms now routinely employ AI-driven tools, ranging from algorithmic product recommendations and targeted advertising, to dynamic pricing strategies and chatbots. Such AI-based digital promotions have proven effective in capturing consumer attention and stimulating unplanned purchases (Kotler et al., 2017). The convenience of 24/7 online access, coupled with persuasive tactics such as time-limited flash sales, personalized offers, and one-click payments, creates a conducive shopping environment for impulsive purchases. Integrating e-commerce with artificial intelligence and big-data-driven personalization has demonstrably heightened impulsive buying behaviours among consumers in the digital era (Gulfraz et al., 2022). Particularly for Indonesian consumers, who increasingly spend their time on e-commerce applications and websites, exposure to sophisticated promotional stimuli frequently triggers spontaneous, emotionally-driven buying decisions (Manafe et al., 2025).

From a consumer behaviour viewpoint, product offerings and promotional tactics in e-commerce significantly stimulate impulse purchases. Extensive, appealing online product assortments encourage prolonged browsing, enhancing spontaneous buying likelihood (Husnain et al., 2018). Additionally, compelling digital promotions, like personalized recommendations, discount alerts, and limited-time deals, prompt urgency and exclusivity, further encouraging immediate purchases. Nonetheless, limited research exists on how product characteristics and AI-driven promotions collectively influence digital impulsive buying tendencies. Given the importance of impulse purchases in online retail, exploring these combined effects is essential for understanding why consumers frequently exceed their intended spending online.

The effect of external stimuli on impulse buying varies among consumers due to internal psychological factors, notably hedonic shopping motives—such as seeking pleasure and excitement—which significantly encourage impulsive purchases (Anggita et al., 2023). Consumers driven by hedonic motives enjoy browsing and shopping, making them particularly susceptible to unplanned buying triggered by appealing products or promotions. Within online shopping contexts, hedonic motivation serves as the internal "organism" activated by external stimuli, leading to impulse purchasing responses (Gao & Liang, 2025). However, this mediating role of hedonic motives between e-commerce attributes, digital promotions, and impulse buying remains under-researched, especially in emerging markets like Indonesia.

Another research gap involves limited attention to secondary city markets in studies of digital consumer behaviour. Most Indonesian studies on online impulse buying emphasize metropolitan or national contexts, neglecting smaller cities. Manado, a growing city in North Sulawesi, exemplifies such secondary cities, with unique cultural and economic characteristics potentially influencing local consumer responses to digital marketing stimuli. Yet, empirical investigations into how e-commerce stimuli affect consumer motives in these regional contexts remain scarce. This study addresses the gap by examining digital impulse buying among Manado's consumers, thereby expanding geographic insights beyond Indonesia's primary urban centres.

This study aims to analyse how e-commerce product attributes and AI-driven digital promotions influence online impulsive buying, emphasizing the mediating role of hedonic shopping motives. By focusing on consumers in Manado, the research introduces a novel context to test and extend current digital consumer behaviour models. Theoretically, this work enriches existing literature by integrating external stimuli (products and promotions) with internal psychological factors (hedonic enjoyment), clarifying how marketing influences impulsive actions. Practically, findings will guide e-commerce firms and marketers in optimizing product presentations and AI-based personalized promotions that align effectively with consumer hedonic motivations. Additionally, insights gained from Manado's market context can inform tailored marketing strategies for similar secondary cities, enhancing their impact and relevance. Ultimately, this study contributes to a deeper understanding of impulse buying drivers in Indonesia's dynamic digital marketplace, emphasizing how global technology interacts with local consumer preferences.

THEORETICAL FOUNDATION

Stimulus–Organism–Response (S-O-R) Paradigm

The conceptual model of this study draws upon the Stimulus–Organism–Response (S-O-R) theory, suggesting that external stimuli influence an individual's internal psychological state, subsequently leading to specific behavioural responses (Mahrinasari & Fihartini, 2024). Within online shopping, external stimuli typically include product characteristics and digital promotional strategies, which evoke hedonic shopping motives—defined as consumers' intrinsic desire for enjoyment and pleasure. This internal emotional state then encourages impulsive purchasing behaviours. Previous research has validated the S-O-R framework by illustrating how elements of online shopping environments can shape consumer emotions and cognitive states, thus impacting buying behaviour (Afna, 2024). Consequently, this study specifically positions e-commerce products (X1) and AI-based digital promotions (X2) as external stimuli influencing consumers' hedonic shopping motives (M), thereby affecting digital impulsive buying behaviour (Y). Additionally, the study acknowledges potential direct relationships between stimuli and impulsive buying, beyond their mediated effects..

E-Commerce Products and Hedonic Shopping Motives (H1)

E-commerce product attributes and variety are crucial stimuli that activate consumers' hedonic motivations in online shopping. Rich and appealing product assortments foster enjoyable browsing experiences, encouraging shopping for pleasure rather than mere necessity (Zheng et al., 2019). Attractive or novel items on platforms stimulate consumers' desire for pleasurable shopping experiences, triggering hedonic motives (Nurlinda & Christina, 2020). Research indicates that diverse product selections significantly boost consumers' hedonic motivations by providing variety and excitement (Anggita et al., 2023). Likewise, visually appealing and stimulating products offer emotional value, effectively engaging consumers' hedonic desires (Manafe et al., 2025). When product offerings are perceived as fun or gratifying, consumers are more inclined to shop for enjoyment, aligning with the pursuit of pleasure in shopping activities (Yastuti & Irawati, 2023). Thus, well-curated e-commerce product assortments are expected to amplify consumers' hedonic shopping motivations. **H1: E-commerce product factors have a positive effect on hedonic shopping motives**.

AI-Based Digital Promotion and Hedonic Shopping Motives (H2)

AI-powered digital promotion, such as personalized advertisements, product recommendations, and targeted offers, represent another critical stimulus influencing online consumer behaviour. These AI-driven promotions adapt dynamically to individual preferences, enhancing emotional engagement through highly relevant and timely content. Recent studies indicate that AI-based personalization effectively stimulates consumers' hedonic motives by creating enjoyable, emotionally engaging experiences (Djuuna et al., 2024). Personalized recommendations spark

curiosity and pleasure, much like a digital salesperson attending to personal tastes. Empirical research in digital marketing supports this, showing that advertising stimuli activate consumers' hedonic motivations, thus encouraging impulse purchases (Gao & Liang, 2025). The interactive and personalized nature of AI-driven promotions likely intensifies this effect by making consumers feel understood and entertained. Consequently, AI-enabled digital promotions are expected to significantly enhance consumers' hedonic shopping motivations. **H2: AI-based digital promotions have a positive effect on hedonic shopping motives.**

E-Commerce Products and Digital Impulsive Buying (H3)

The attributes of e-commerce product offerings directly stimulate impulse buying, illustrating the stimulus–response connection within the S-O-R model. In online retail, appealing or novel products frequently trigger consumers' spontaneous purchase urges, even when not originally intended. Prior research confirms that attractive products act as immediate temptations, prompting unplanned purchases by bypassing deliberate decision-making (Angela & Paramita, 2020). A diverse, visually appealing product assortment enhances opportunities for shoppers to encounter items that spontaneously attract interest, particularly hedonic products such as fashion or gadgets known for enjoyment and novelty. Empirical studies further validate that broad, interesting product ranges significantly boost impulse buying tendencies, either directly or indirectly through internal motivations (Ependi & Pahlevi, 2021), (Veliana Angela, 2020). Therefore, it is expected that appealing e-commerce product attributes directly and positively influence consumers' impulsive buying behaviour. **H3: E-commerce product factors have a positive effect on digital impulsive buying.**

AI-Based Digital Promotion and Digital Impulsive Buying (H4)

Marketing promotions strongly influence impulse purchases, and AI-driven digital promotions have amplified this effect. Online consumers frequently encounter stimuli such as flash sales, personalized coupons, and tailored recommendations that create urgency or excitement, directly prompting impulsive purchases. Limited-time offers or customized suggestions encourage immediate buying due to fear of missing favourable deals or desirable products (Nurlinda & Christina, 2020). Empirical studies confirm that online promotional tactics significantly enhance impulse buying behaviours (Ependi & Pahlevi, 2021). Moreover, AI-enhanced personalization increases stimulus relevance, making promotions even more persuasive. Recent research found that AI-driven personalized recommendations substantially boosted impulsive purchases compared to generic content (Dimas Wibisono, 2024). Therefore, this study proposes that AI-based digital promotions directly stimulate consumers' online impulse buying. **H4: AI-based digital promotions have a positive effect on digital impulsive buying.**

Hedonic Shopping Motives and Digital Impulsive Buying (H5)

Hedonic shopping motives represent consumers' emotional drive for enjoyment, excitement, and pleasure during shopping. Individuals with strong hedonic motives typically seek immediate gratification through impulsive purchases, often for recreation or mood enhancement. Previous research consistently associates hedonic motivation with increased impulse buying behaviour (Indrawati et al., 2022). Empirical evidence indicates that shoppers driven by hedonic desires frequently browse for entertainment, react enthusiastically to appealing products or promotions, and buy spontaneously to fulfil emotional needs. Specifically, Indrawati et al. (2022) found hedonic motivation significantly heightened online impulse buying. Thus, hedonic shopping motives are expected to directly encourage impulsive purchasing in digital contexts. **H5: Hedonic shopping motives have a positive effect on digital impulsive buying.**

Mediating Role of Hedonic Shopping Motives (H6, H7)

The S-O-R framework posits that environmental stimuli influence behaviour through internal psychological states. In this research, hedonic shopping motives serve as the internal mechanism linking external stimuli (e-commerce product attributes and AI-based promotions) to impulse buying responses. Thus, the effect of these external factors on impulse buying is primarily mediated by consumers' hedonic motivations. Previous studies support this mediation role: online advertisements stimulate impulse purchases by activating hedonic emotions rather than purely through direct persuasion (Juanim et al., 2024), (Anggita et al., 2023). Similarly a research reported that product assortments indirectly influenced impulse buying by elevating hedonic shopping motives (Gulfraz et al., 2022). Additionally, In that case, the product assortment's effect on impulse buying was fully realized through the intervening hedonic motive (a classic S-O-R mediated effect). Another study focusing on online fashion shoppers reported that hedonic shopping value mediated the relationship between sales promotions and impulse buying, meaning the promotions worked by boosting shoppers' enjoyment which then translated into impulse purchases. A study found hedonic value mediated the effect of online promotions on impulse buying in fashion contexts (Pangemanan et al., 2022). Based on these findings, the current study proposes that e-commerce product attributes and AI-driven promotions enhance impulse buying through the mediating role of hedonic shopping motives. Thus, we hypothesize two mediation effects: **H6: Hedonic shopping motives mediate the effect of e-commerce product factors on digital impulsive buying**, and **H7: Hedonic shopping motives mediate the effect of AI-based digital promotion on digital impulsive buying**.

RESEARCH METHOD

This study employs a quantitative explanatory research design is structured to explain why and how e-commerce products (X1) and AI-based digital promotion (X2) influence digital impulsive buying (Y) through hedonic shopping motives (Z). This design is appropriate for testing the proposed hypotheses and examining the relationships among the constructs in a real-world consumer context.

The population of this research consists of digital consumers in Manado City who are aged 17 years or older and have prior experience with online shopping. A purposive sampling technique was used to select respondents, ensuring that participants met these specific criteria (i.e. mature online shoppers in the targeted city). To determine the sample size, the study followed the "ten-times rule" commonly recommended in PLS-SEM analysis. There are a total of 18 indicators across all constructs in the research model (5 indicators for X1, 4 for X2, 5 for Z, and 4 for Y). The minimum sample size should be at least 10 times the number of indicators of the most complex construct or measurement scale. Given 18 indicators in total, a minimum of 180 respondents was required ($18 \times 10 = 180$). The final sample size was planned to meet or exceed this threshold to provide sufficient statistical power and robust estimation for the model.

Primary data were gathered using a structured questionnaire distributed through both online and offline channels. The online questionnaire was shared via digital platforms (e.g. email and social media), while printed questionnaires were used for offline data collection to reach respondents with limited internet access. All survey items were measured on a 5-point Likert scale (ranging from "strongly disagree" to "strongly agree"), allowing respondents to express their level of agreement with each statement.

The collected data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with the aid of SmartPLS software (version 4.1.1.2). PLS-SEM was chosen because it is well-suited for predictive modelling and for testing complex causal relationships in situations where the research focuses on maximizing explained variance (R^2) of the dependent constructs. The analysis followed a two-step approach for evaluating the measurement and structural models.

1. Outer Model (Measurement Model) Evaluation. In the first stage, the reflective measurement model was assessed to ensure validity and reliability of the constructs. This involved checking indicator loadings for each item on its respective construct and confirming that they are high (typically above 0.70) and statistically significant. The internal consistency reliability of each construct was evaluated using Cronbach's alpha and composite reliability, aiming for values above the acceptable threshold of 0.70. To establish convergent validity, the average variance extracted (AVE) for each latent construct was calculated, with a value above 0.50 indicating that the construct explains the majority of variance in its indicators. Discriminant validity was also examined to verify that each construct is distinct from the others in the model. This was checked by ensuring that each construct's AVE square root exceeded its correlations with other constructs (Fornell-Larcker criterion) and by confirming that the Heterotrait-Monotrait (HTMT) ratios were below the recommended ceiling (e.g., 0.85). Together, these tests of the outer model confirmed that the survey indicators were measuring their intended constructs accurately and reliably.
2. Inner Model (Structural Model) Evaluation. In the second stage, the focus was on the inner model, which represents the hypothesized relationships between constructs. Several key metrics were used to evaluate the quality and predictive power of the structural model. The coefficient of determination (R^2) was examined for each endogenous (dependent) construct to determine the proportion of variance in that construct explained by its predictors. Higher R^2 values (closer to 1.0) indicate greater explanatory power of the model for that construct. Additionally, the model's predictive relevance (Q^2) was assessed using the Stone-Geisser blindfolding procedure. A Q^2 value greater than 0 indicates that the model has acceptable predictive relevance for a given endogenous construct, meaning the observed values are well reconstructed by the model's parameters. The effect size (f^2) of each exogenous (independent) construct on the endogenous constructs was calculated to gauge the practical significance of each predictor. An f^2 value of 0.02, 0.15, and 0.35 can be interpreted as small, medium, and large effect sizes respectively (Cohen's criteria), indicating how much an independent variable contributes to the R^2 of a dependent variable if it were removed from the model.
3. Hypothesis Testing: Finally, the structural model's path coefficients were analysed to test the research hypotheses. Each path coefficient represents the strength and direction of the relationship between an independent variable and a dependent variable (including direct effects of X1 and X2 on Y, and mediation effects through Z as per the research framework). To evaluate the significance of these relationships, a bootstrapping resampling technique was applied. Bootstrapping provides t-statistics and p-values for each path coefficient. A hypothesis was supported if the corresponding path coefficient was statistically significant (commonly at the $p < 0.05$ level). In the context of mediation, the indirect effect of X1 and X2 on Y through Z was also examined by looking at the significance of the mediated paths. All statistical analyses were conducted in SmartPLS, and the results were interpreted in line with established guidelines for PLS-SEM reporting (Hair et al., 2022).

RESULT

Description of E-Commerce Consumers in Manado City

Manado is the capital city and economic hub of North Sulawesi Province, strategically positioned at the northern tip of Sulawesi Island. It significantly contributes approximately 68% of the province's Gross Regional Domestic Product (GRDP), reflecting its economic dominance. The city's population reached an estimated 458,582 in mid-2023, indicative of steady demographic growth driven by urbanization and economic development. Manado's primary economic sectors include trade, tourism, financial services, fisheries, and culinary businesses, supported by relatively advanced infrastructure compared to surrounding regions. Economic growth is further

reinforced by rising internet penetration and digital literacy, which has notably accelerated the adoption and expansion of e-commerce activities in recent years.

The demographic profile of e-commerce consumers in Manado predominantly consists of young people from Generation Z and Millennials, although older groups such as Generation X and Baby Boomers are increasingly embracing digital platforms. Younger generations, characterized by technological adeptness, prioritize convenience, speed, and enjoyment in online shopping and regularly explore various products through digital platforms. Conversely, older consumers typically engage in online platforms primarily to purchase basic goods, local specialties, and for bill payments. The consumer behaviour in Manado blends utilitarian motives, like efficiency and cost savings, with hedonistic motivations, which emphasize enjoyment, lifestyle, and shopping trends. The prominence of hedonic motives among Manado consumers is closely linked to local culture, particularly the popular local expression, "*biar kalah nasi, asal jangan kalah aksi,*" which translates to prioritizing appearance and lifestyle, sometimes even above basic needs. This cultural orientation intensifies consumptive behaviours and digital impulse buying, particularly when consumers encounter promotional stimuli such as large discounts, free shipping offers, cashback rewards, and seasonal promotions.

Respondent Profile

This study involved 183 respondents, predominantly female (55.19%). Most participants belonged to the 26–35 age group (40.44%), indicating a dominant presence of younger generations among e-commerce users. In terms of education, respondents were primarily university graduates (36.61%) and high school graduates or equivalent (25.14%), suggesting that most e-commerce consumers possess relatively high educational backgrounds. Regarding occupation, the largest group consisted of government employees (civil servants/military/police) and private-sector workers (40.44%), followed by students (25.68%). Most respondents reported monthly incomes ranging from IDR 3,000,000 to IDR 6,000,000 (44.81%) and from IDR 6,000,001 to IDR 10,000,000 (42.62%), reflecting adequate purchasing power for online shopping. Typically, respondents made 3–5 online purchases monthly (44.26%), with Shopee being the most frequently used platform (44.26%), and smartphones as the preferred shopping device (63.39%), underscoring convenience and practicality in their digital shopping activities.

Measurement Model (Outer Model Evaluation)

OL (Outer Loading). All construct indicators meet the requirements of the loading factor threshold: ≥ 0,70 and interpreted as “Good” (Hair et al., 2017). All items load strongly on their intended constructs: E-commerce Product, X1 (X1.1 = 0.793, X1.2 = 0.726, X1.3 = 0.842, X1.4 = 0.790 and X1.5 = 0.786). AI-Based Digital Promotion, X2 (X2.1 = 0.843, X2.2 = 0.795, X2.3 = 0.802, X2.4 = 0.742). Hedonic Shopping Motives Z (Z1 = 0.790, Z2 = 0.776, Z3 = 0.772, Z4 = 0.753, Z5 = 0.781). Digital Impulsive Buying Y (Y1 = 0.815, Y2 = 0.789, Y3 = 0.828, and Y4 = 0.835. This demonstrates that the manifest variables represent their latent factors adequately, supporting indicator reliability in the measurement model.

CR (Composite Reliability). Cronbach’s alpha values range from 0.747 to 0.856, and composite reliabilities (ρc) span 0.841 – 0.897. Because both metrics exceed the recommended 0.70 cutoff, all four constructs (E-commerce Product, AI-Based Digital Promotion, Hedonic Shopping Motives, and Digital Impulsive Buying) met the criterion of internal-consistency reliability. The slightly higher ρc values relative to alpha also confirm the advantage of composite reliability for SEM-PLS assessment.

Convergent Validity (CV). Each construct’s AVE (E-commerce Product, AI-Based Digital Promotion, Hedonic Shopping Motives, and Digital Impulsive Buying) is above 0.50 (0.571 – 0.635), meaning that more than half of the variance in its indicators is captured by the latent

variable. Convergent validity is therefore established: the indicators share adequate common variance and truly converge on their underlying construct.

Discriminant Validity: HTMT (Heterotrait-Monotrait) Ratio. All HTMT values fall below the conservative 0.90 benchmark (highest = 0.882). This indicates strong discriminant validity: heterotrait correlations never exceed monotrait correlations to a problematic extent. Practically, respondents were able to perceive each construct (e.g., Hedonic Motives) as conceptually distinct from the others (e.g., AI-Based Promotion).

Fornell-Larcker Criterion. The square roots of AVE on the diagonal (0.682 – 0.797) are greater than the inter-construct correlations in the corresponding rows and columns. This corroborates the HTMT result, further confirming discriminant validity. For instance, Digital Impulsive Buying's AVE square root (0.797) exceeds its highest correlation with another construct (0.676 with E-commerce Product).

Path Coefficient. Figure 1 below visualises the measurement layer of the research model in SmartPLS. Each circle represents a latent construct, while the yellow rectangles denote its reflective indicators together with their standardised loadings.

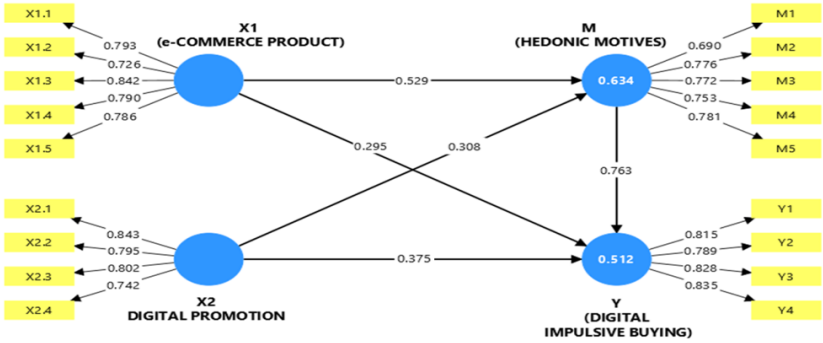

Figure 1. Outer Model of Digital Impulsive Buying

Source: Data Process, 2025

By presenting both measurement and structural information in one diagram, Figure 1 embodies the Stimulus–Organism–Response logic: product and promotion stimuli point first to the organismic state (*Hedonic Motives*), then onward to the behavioural response (*Impulsive Buying*). Seeing the coefficients and R^2 together clarifies how much of the stimulus effect travels through internal enjoyment versus acting directly on behaviour.

1.1. Structural Model (Inner Model Evaluation)

Collinearity Analysis. Variance inflation factors lie between 2.351 and 3.198—well below the critical value of 5 (or the stricter 3.3 guideline). Multicollinearity is therefore not a threat, and path estimates are unlikely to be biased by redundant predictors.

R^2 (Explained variance). R^2 value of Hedonic Shopping Motives is 0.634 indicates the model explains 63.4 % of the variance in Hedonic Shopping Motives (moderate explanatory power) and 51.2 % of the variance in Digital Impulsive Buying (substantial explanatory power). These R^2 values indicate that the exogenous variables and mediator together provide a robust account of impulsive-buying behaviour among Manado's digital consumers.

f^2 (f-Square, Effect Size). Effect sizes are medium to large (0.258 – 0.389) for the main predictors and 0.353 for the mediator. Specifically, E-commerce Product exerts the largest impact on Impulsive Buying (f^2 = 0.389), highlighting its pivotal role in stimulating spontaneous purchases, while AI-Based Promotion shows a meaningful but slightly smaller direct influence (f^2 = 0.289).

Q^2 (Q-Square, Predictive power). All Q^2_predict values are positive (0.219 – 0.500), confirming that the structural model possesses out-of-sample predictive relevance for every indicator. The highest Q^2 (0.500) for Z1 suggests especially strong predictive power for consumers' enjoyment feelings.

Fit (Model Fit – SRMR, NFI). A Standardized Root Mean Square Residual of 0.071 (< 0.08) indicates an acceptable model fit, while a Normed Fit Index of 0.711 surpasses the 0.70 rule-of-thumb, providing further evidence that the model reproduces the empirical covariance matrix adequately.

Direct Path Coefficient. The bootstrapping method is used to calculate the t and p values of the path coefficient. In addition, bias-corrected and accelerated confidence intervals were investigated. Since the "0" is not located within this confidence interval, it would be considered significant. The results of direct path coefficients analysis through bootstrapping tested the significance of the hypothesis. In general, most of the direct relationships between variables are significant according to the predicted direction of influence.

Table 1. Direct Path Coefficient

Direct path of Constructs	Path coefficients	*t*-statistics	*p*-value	Conclusion
X2 Digital Promotion → M (Hedonic Motives)	0.308	3.300	0.044	Supported
X1 (E-Commerce Product) → Y (Digital Impulsive Buying)	0.295	3.680	0.000	Supported
X2 Digital Promotion → Y (Digital Impulsive Buying)	0.375	4.192	0.033	Supported
M (Hedonic Motives) → Y (Digital Impulsive Buying)	0.763	9.096	0.000	Supported
X1 (E-Commerce Product) → M (Hedonic Motives)	0.529	5.932	0.000	Supported

Source: Data Process, 2025

Both latent predictors exert positive, statistically significant effects (*p-value* < 0.05) on Hedonic Motives and Digital Impulsive Buying. Hedonic Motives exhibits the strongest effect (β=0.763, followed by E-Commerce Product (β=0.529) and Digital Promotion (β=0.375). Thus the hypothesis of this study is proven, as follows:

H1 supported, or E-Commerce Product has a significant positive effect on the Consumer's Hedonic Motives in Manado.

H2 supported, or Digital promotion has a significant positive effect on the Consumer's Hedonic Motives in Manado .

H3 supported, or E-Commerce Product has a significant positive effect on the Digital impulsive buying in Manado.

H4 supported, or Digital promotion has a significant positive effect on the on the Digital impulsive buying in Manado.

H5 supported, or Consumer's Hedonic Motives has a significant positive effect on the on the Digital impulsive buying in Manado.

Total Indirect Effect. The total-indirect paths are both statistically compelling. First, the route E-Commerce Product → Hedonic Motives → Digital Impulsive Buying (t = 5.684, p < 0.001) shows that product-related cues heighten consumers' hedonic enjoyment, and this elevated pleasure, in

turn, drives a pronounced surge in impulse purchases. The sizeable t-value indicates that hedonic motives transmit a substantial share of the product's overall influence on impulsive buying. Second, the chain Digital Promotion-AI → Hedonic Motives → Digital Impulsive Buying (t = 2.786, p = 0.003) confirms that AI-driven promotional triggers also stimulate hedonic feelings, which subsequently spur impulsive buying, though the mediated effect is weaker than that of product attributes. Together, the results underscore hedonic motivation as a critical psychological conduit: it carries both stimuli to behavioural outcomes, with product features exerting the more potent indirect impact.

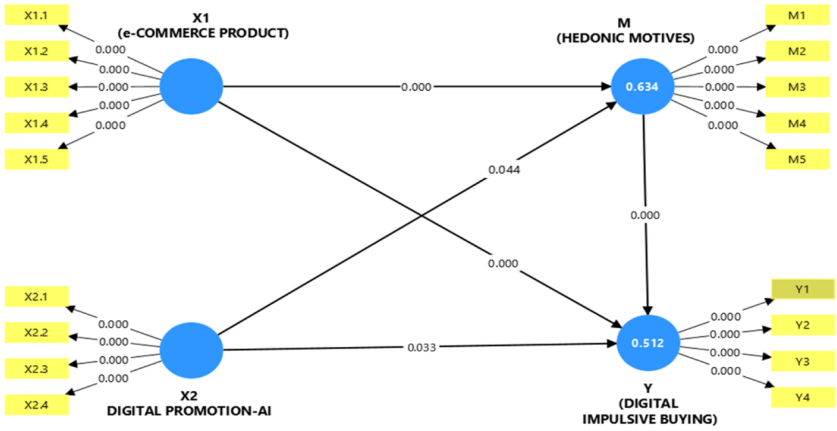

Figure 2. Inner Model (Structural Model) of Digital Impulsive Buying

Source: Data Process, 2025

DISCUSSION

Respondents' Perceptions of Research Constructs. Based on respondents' perceptions toward the research constructs, the survey generally revealed high mean values (above 3.7), reflecting positive consumer attitudes towards e-commerce products (X1), AI-based digital promotions (X2), hedonic shopping motives (M), and digital impulse buying (Y). The highest-rated indicators included specific product attributes for e-commerce (X1.5 = 3.98) and the effectiveness of AI-driven promotions in capturing consumer attention (X2.1 = 3.92). For hedonic motives, the dominant indicator was the enjoyment or entertainment experienced during online shopping (M5 = 4.04), while digital impulse buying showed the strongest tendency in spontaneous purchases without prior planning (Y3 = 4.11).

Respondent profiles revealed a majority female participation (55.2%), reinforcing the relevance of findings related to hedonic motives and impulsive digital purchasing behaviours. This aligns with theoretical insights suggesting women typically exhibit higher emotional engagement in consumption decisions compared to men (Dittmar, 2005; Bakewell & Mitchell, 2003). The results confirm that emotional or affective factors, particularly hedonic motives, significantly mediate external stimuli such as e-commerce products and AI-based promotions toward impulsive buying decisions. Therefore, the dominance of female respondents becomes an important contextual factor enhancing the interpretation of these descriptive statistical outcomes.

Effects on Hedonic Shopping Motives. The results indicate that both e-commerce product attributes and AI-driven digital promotions serve as effective stimuli that elevate consumers' hedonic shopping motives. E-commerce product characteristics have a significant positive impact on hedonic motivations ($\beta \approx 0.53$, $p < 0.01$). In practical terms, the rich assortment, appealing presentation, and novelty of products on the platform appear to spark pleasure and excitement in shoppers. This finding is consistent with the notion that a wide variety of attractive products can arouse a "desire to like the items" and enjoyment in browsing (Nurlinda & Christina, 2020). Recent research confirms a strong relationship between extensive product offerings and

heightened hedonic motives in online consumers (Zheng et al., 2019). Our study thus reinforces prior observations that diverse and enticing e-commerce products do not just fulfil utilitarian needs but also trigger intrinsic enjoyment, aligning with the Stimulus-Organism-Response (S-O-R) framework's prediction that environmental stimuli (here, product cues) evoke an emotional response (Ribeiro Coimbra et al., 2023). AI-powered promotions, personalized suggestions, timed discounts, flash-sale alerts, and chatbots markedly raise hedonic shopping motives ($\beta \approx 0.38$, $p < 0.033$; $f^2 = 0.360$). This mirrors Fauzan and Widarmanti's Indonesian evidence (2024) that tailored online ads stimulate emotional, hedonic impulses that set the stage for impulse buying. This is in line also with the idea that retail personalization "creates enjoyable shopping experiences that delight individual customers" (Madanchian, 2024).

Direct Effects on Digital Impulsive Buying. The analysis also reveals robust direct effects of both the e-commerce product factor and AI-based promotions on digital impulsive buying behaviour, even when accounting for hedonic motives. E-commerce product attributes exhibit a strong direct influence on impulsive buying ($\beta \approx 0.68$, $p < 0.001$), emerging as the most powerful predictor in our model. This suggests that an appealing product assortment on an e-commerce platform can trigger spontaneous purchases in its own right. Consumers often make unplanned purchases simply due to the sheer availability of diverse, attractive products that they were not initially searching for. As one recent study noted, product variety can "create a sudden intention to purchase an item online" by first catching the shopper's interest and then quickly converting it into an impulse to buy (Sahetapy et al., 2020). Our finding aligns with prior evidence that a rich choice of products directly increases impulse purchase intentions (Nuraisyah et al., 2024). The strength of the product effect in our results (with a large effect size $f^2 = 0.389$) highlights that, in the digital context, the *merchandise itself* — its variety, novelty, and presentation — can act as a potent trigger for impulse buying. This is a notable point of convergence with traditional retail studies: just as attractive in-store displays and product assortments prompt impulse buys in physical stores, a well-curated e-commerce catalogue can drive impulsive purchases online (Sari & Karsono, 2023). Our contribution here is confirming that this holds true even in a highly digital scenario focused on Manado's e-commerce shoppers, emphasizing the universality of product-driven impulse effects.

AI-based digital promotions also have a significant direct effect on consumers' impulsive buying ($\beta \approx 0.38$, $p < 0.001$). Although slightly weaker than the product effect, this influence is still substantial, demonstrating that personalized promotions and real-time marketing tactics can push consumers toward unplanned purchases. When a shopping app sends a time-limited discount notification or showcases a flash sale, it creates a sense of urgency and excitement that can lead consumers to click "buy now" without extensive deliberation. Empirical studies in Indonesia support this; for example, flash sale events significantly increase impulse purchases among online shoppers (Shukun & Loang, 2024). Promotions tap into consumers' fear of missing out (FOMO) on a good deal, an emotional trigger that has been shown to intensify impulsive urges (Gao & Liang, 2025). Our finding contributes new insight by highlighting that modern digital promotions, empowered by AI's ability to deliver the *"right offer at the right time,"* can independently prompt impulse buying.

Finally, hedonic shopping motives themselves have a direct and powerful impact on digital impulse buying ($\beta \approx 0.49$, $p < 0.001$). This confirms the core premise of the S-O-R framework: the organismic state of shopper enjoyment translates into the response of impulsive purchasing. Consumers who find online shopping fun, emotionally stimulating, and satisfying are significantly more prone to buy on impulse. This result is strongly supported by past research, both internationally and in Indonesia. A broad consensus has emerged that hedonic value is a key catalyst for impulse buying, as it heightens positive emotions and decreases self-control during shopping (Ngo et al., 2024). A study of Indonesian e-commerce users by Diah (2022) similarly

concluded that higher hedonic shopping value led to more frequent impulse purchases, though their focus was on a single platform (Diah & Sukmawati, 2022). In sum, our findings here are in harmony with a multitude of prior studies: consumers driven by enjoyment and thrill are consistently more likely to indulge in impulse buying, whether in physical malls or on smartphone apps (Zheng et al., 2019).

Mediating Role of Hedonic Motives in Impulse Buying. Beyond the direct effects, this study sheds light on the indirect pathways through which e-commerce products and AI-based promotions influence impulsive buying via hedonic shopping motives. In our SEM-PLS analysis, hedonic motives function as a significant mediator for both relationships, supporting the S-O-R paradigm that stimuli lead to response in part by altering the internal organismic state. The e-commerce product → hedonic motives → impulsive buying path demonstrates partial mediation. E-commerce product appeal boosts impulsive buying not only directly (as discussed) but also indirectly by first increasing the shopper's enjoyment, which then drives impulse purchases. The indirect effect is statistically significant ($p < 0.01$), though smaller in magnitude than the direct effect. This finding is consistent with prior studies reported that hedonic motives *partially* mediate the impact of product variety on impulse purchase intention (Madhu et al., 2022).

Similarly, hedonic shopping motives partially mediate the relationship between AI-based digital promotions and impulsive buying. The chain AI promotion → hedonic motives → impulse buying was supported, indicating that personalized promotions increase impulsive purchasing in part by intensifying shoppers' enjoyment and emotional arousal. Notably, the direct route from AI promotions to impulse remained significant alongside this mediation, implying partial (not full) mediation. This suggests that while a portion of the influence of AI-driven promotions works through hedonic motivation, there is also a direct route, likely through other immediate responses such as urgency or cognitive overload reduction (Longoni & Cian, 2022). This finding both aligns with and extends previous research on digital marketing stimuli. Juanim (2024) found that online advertising stimulates impulse buying behaviour by arousing consumers' hedonic motives, essentially validating hedonic enjoyment as the *conduit* for ads to translate into purchases (Juanim et al., 2024). Our study confirms this mechanism for the more novel context of AI-personalized promotions: features like tailored recommendations or chatbot interactions make shopping more fun and engaging (the organism state), which then results in spur-of-the-moment purchases. In line with S-O-R theory, the organismic variable (hedonic motive) here carries forward the influence of the stimulus into the consumer's response. The new contribution of our finding is showing that even with cutting-edge AI marketing tactics, classical theoretical models still apply – digital personalization doesn't bypass the human psyche but rather works *through* it by amplifying enjoyment. At the same time, the presence of a residual direct effect from AI promotions to impulse suggests that certain aspects of these promotions can trigger impulses more reflexively (perhaps via instant trigger cues like "limited stock" or one-click purchasing convenience), a nuance that merits further exploration.

Overall, the mediation results underscore the importance of hedonic shopping motives as a pivotal psychological driver in digital impulsive buying. They validate that creating a pleasurable shopping environment is a key strategy for converting stimuli into sales. Our model's substantial explained variance ($R^2 = 0.512$ for impulsive buying) attests that by accounting for both direct paths and mediated paths, we capture a large portion of what drives impulsive buying in the online context. The findings resonate with recent S-O-R based studies in digital commerce which also emphasize internal motivations (like enjoyment or urge) as mediators between digital stimuli and consumer responses (Le et al., 2022).

CONCLUSIONS AND IMPLICATIONS

In conclusion, this study contributes to both theory and practice by integrating e-commerce product factors and AI-based promotions in one framework and demonstrating how they jointly

influence impulsive buying through hedonic motives. It reinforces that even as technology transforms retail (through AI personalization and digital platforms), the core consumer behaviour insights remain: engaging the shopper's emotions is paramount. Marketers in Indonesia and beyond can leverage this knowledge by curating compelling product assortments and deploying AI-driven promotional strategies that not only push products but also elevate the consumer's shopping experience to a pleasurable adventure – thereby fuelling digital impulsive buying in a sustainable, consumer-centric way.

Several caveats temper these conclusions. Because the data were captured at one moment in time, causality is inferred rather than observed, and the self-report format leaves room for common-method bias. The exclusive focus on Manado and the purposive sampling strategy further limit generalisability, while the study treats AI promotion as a composite bundle and does not differentiate between product categories that might moderate impulse reactions. Addressing these gaps will require future research that tracks shoppers longitudinally, couples survey responses with clickstream or transaction logs, manipulates distinct AI tactics in experimental settings, and compares multiple cities or cultures to isolate contextual effects. Exploring negative affective states—stress or boredom—as alternative organism variables, and testing how digital literacy or fear of missing out reshapes the pathway from stimulus to impulse, would also deepen our understanding of how algorithmic marketing intersects with human emotion. Taken together, these lines of inquiry promise to refine both theory and practice at the frontier where data-driven persuasion meets the timeless allure of hedonic consumption.

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