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Impulsive Buying in AI-Driven Retail: An SOR Model Perspective on Omni-Channel Usefulness

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ABSTRACT

Introduction: This study investigate how AI-driven retailing affects impulsive buying behavior among Malaysian youth. It investigates the role of perceived usefulness as a mediator, using the Stimulus-Organism-Response (SOR) model and the Technology Acceptance Model (TAM) as foundational frameworks. **Methods:** The study collected from 401 online respondents and used Structural Equation Modelling (SEM) was employed to analyze the data, using SmartPLS software. **Results:** The findings show that omni-channel retailing explains 57.2% of the variance in perceived usefulness and 38.3% in impulsive buying behavior. **Discussion:** The results underscore significant implications in emphasizing the urgent need to improve digital financial literacy among Malaysian youth to address the risks associated with impulsive spending in AI-driven retail environments. **Conclusion:** This research provides key insights into the dynamics of impulsive buying in AI-driven omni-channel platforms, and practical recommendations for managing technology-driven consumer behavior responsibly.

Keywords: Artificial Intelligence, Impulse Buying Behaviour, Omni-Channel Retailing, Perceived Usefulness.

1 INTRODUCTION

The rapid advancements in the Fourth Industrial Revolution (IR 4.0) have catalyzed the evolution of Society 5.0, characterized by the integration of cyberspace and physical environments to enhance human satisfaction and productivity (Pereira et al., 2020). Society 5.0 emphasizes artificial intelligence (AI) as a tool for interconnectedness and efficiency (Salimova & Vukovic, 2021). Among industries, the retail sector has experienced profound transformations, with omni-channel strategies reshaping consumer shopping experiences (Liu & Xie, 2022). These AI-enabled platforms have expedited changes in consumer behavior, a trend further accelerated by the COVID-19 pandemic (McKinsey, 2021). Despite the benefits of

AI-driven retailing, concerns have arisen regarding its influence on impulsive purchasing, a phenomenon that remains underexplored (Mishra et al., 2020).

Malaysia, with its rapidly growing digital economy, presents a compelling case for examining the impact of AI-driven omni-channel retailing on consumer behaviour, particularly among youth (MCMC, 2019). Generation Z, known for high digital engagement, is particularly susceptible to impulsive buying and financial mismanagement (Wan Rasyiday & Syadidah, 2023; AKPK, 2022). In this study, the focus would be on fashion apparels due to its dominance in the Malaysia's e-commerce landscape. Report has shown that up to 68% of Malaysians have purchased fashion apparel through social media platforms in which this high consumer activity provides a rich dataset for AI applications and making fashion apparel an appropriate data-driven choice for AI research in the Malaysia. This study aims to bridge the existing research gap by exploring how AI-integrated retailing influences impulsive purchasing tendencies. The findings will provide insights for developing strategic frameworks that mitigate adverse consumer behaviours while optimizing AI's role in retail.

2. LITERATURE REVIEW

2.1 Impulse Buying Behaviour

Impulse buying is characterized by spontaneous and unplanned purchases driven by emotional and environmental stimuli (Lehman et al., 2019). While early research focused on the retailer's perspective (Clover, 1950), later studies examined consumer-centric factors such as personality traits and store environments (Rook, 1987; Zhu et al., 2020). Despite significant research in traditional and e-commerce settings, the implications of AI-driven omni-channel retailing on impulsive buying remain insufficiently explored (Krishna et al., 2021; Pereira et al., 2023)

2.2 Stimulus-Organism-Response (SOR) Model

The SOR model (Mehrabian & Russell, 1974) explains consumer responses to environmental stimuli, mediated by emotional states. This framework has been widely applied to consumer behavior studies, particularly in understanding impulsive buying triggered by retail stimuli (Octavia, 2016; Chen & Yao, 2019). In the omni-channel retail environment, AI-generated promotions, personalized recommendations, and seamless channel transitions act as stimuli that trigger cognitive and emotional responses, leading to impulsive purchases (Chan et al., 2017; Sarilgan et al., 2022). To ensure the study reflects AI based retailing, the Technology Acceptance Model (TAM) is introduced in the framework.

2.3 Technology Acceptance Model (TAM)

TAM, was derived from innovation diffusion and social psychology theories, evaluates technology adoption through perceived usefulness and ease of use (Venkatesh & Davis, 2000). While TAM is widely applied in online retailing studies, its role as a mediator in impulse buying behaviours within AI-driven omni-channel retail remains underexplored (Alwie et al., 2024; Habibi et al., 2023). This study integrates TAM with the SOR model to assess the influence of AI-enabled omni-channel retailing on impulsive purchases among Malaysian youth.

The SOR theory posits that external stimuli influence individuals' internal states (organism), leading to a behavioural response. In this context, the study examines how cognitive (perceived usefulness) reactions affect the impulse to buy fashion apparel online. The research builds on the premise that impulsiveness, as a psychological state, drives impulsive buying tendencies, and aims to expand the empirical application of TAM in measuring such behaviours (Fortmann et al., 2019; Kamboj et al., 2018; Chen & Yao, 2018).

2.4 Research Framework and Hypotheses Development

Based on the extensive literature review the following framework is suggested with the incorporation of the SOR (Mehrabian and Russell, 1974) and TAM Model (Davis, 1989).

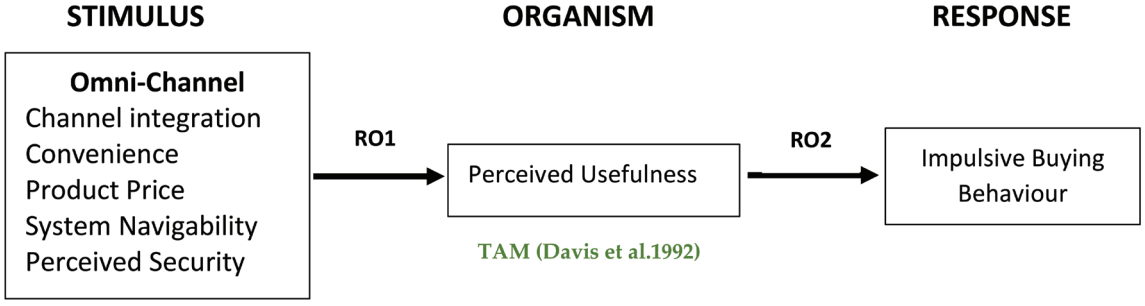

Figure 1: Proposed Research Framework.

The first research objective is to examine the relationship of external factors (channel integration, convenience, perceived pricing, system navigability and perceived security) and perceived usefulness. Perceived usefulness is an individual's perception of how technologies or a particular technology are set to improve the individuals' tasks or roles in terms of efficiency and effectiveness (Davis, 1989; Bolodeoku et al., 2022). The technology referred in this study is the AI enabled omni-channel retailing platform.

This study proposes a research framework incorporating external stimuli, perceived usefulness, and impulsive buying behaviour.

2.4.1 Channel Integration and Perceived Usefulness

Channel integration, as defined by Bendoly et al. (2005) and Mirsch, Lehrer, and Jung (2016), refers to how different channels within a retail environment interact to provide a seamless customer experience, consistent brand image, and effective data sharing. This integration is a key feature of the omni-channel business model, offering multiple touchpoints for customers (Verhoef et al., 2015). Channel integration is conceptualized as an object-based belief, reflecting customers' perceptions of how well omni-channel technology unifies various channels (Yurova et al., 2017). While previous research has explored channel integration (Li & Chen, 2018; Shen et al., 2018), studies have not specifically addressed its relationship with hedonic response. Recent research in Indonesia found a significant relationship between channel integration quality and perceived value in omni-channel retailing (Khevin, 2023). This study aims to extend this area by investigating the impact of channel integration on perceived usefulness and impulsive buying behaviour among Malaysian youth in fashion apparel purchases.

H1: There is a relationship between channel integration and perceived usefulness.

2.3.2 Convenience and Perceived Usefulness

Convenience in retail is defined as the retailer's ability to offer fast and easy shopping experiences, a concept traditionally discussed in the context of physical retail channels (Seiders et al., 2000; Gielsens et al., 2021). However, there is a need to explore convenience in omni-channel retailing, where technologies such as interactive kiosks and digital transactions inside physical stores enhance the shopping experience (Margetis et al., 2019; Bennett & Azhari, 2015). Studies have shown that convenience positively influences repurchasing behaviour due to ease of use, as evidenced in research by Jiang et al. (2019) and Zeqiri et al. (2023). While Moon et al. (2022) empirically supported the link between convenience and ease of use in Starbucks, literature on the relationship between convenience and perceived usefulness in omni-channel platforms remains limited.

H2: There is a relationship between convenience and perceived usefulness.

2.3.3 Perceived Price and Perceived Usefulness

While omni-channel retailing offers retailers a competitive advantage by attracting more customers, it complicates the development of optimal pricing strategies due to customers frequently comparing prices and promotions across channels (Wu et al., 2020; Song & Jo, 2023). Omni-channel pricing strategies provide real-time price information across all channels, enhancing customer experience and simplifying interactions (Bahremand, Soltani & Karimi, 2022). This transparency helps remove barriers to purchase, adding to the perceived usefulness of omni-channel platforms. However, customers are highly sensitive to price discrepancies between channels, making pricing transparency essential (Li, Zhang & Tayi, 2020). While research has examined omni-channel pricing strategies and competition between online and offline channels (Mousavi et al., 2019; Cai & Lo, 2020), there is limited empirical evidence on the relationship between pricing and perceived usefulness in omni-channel retailing, particularly in fashion apparel purchases among Malaysian youth.

H3*:* There is a relationship between perceived price and perceived usefulness.

2.3.4 System Navigation and Perceived Usefulness

Consumers prioritize ease of system navigation on omni-channel retailing platforms for a seamless experience. Research shows that consumer satisfaction is influenced by elements like last-mile fulfilment and the integration of online and offline store images, ensuring consistency (Larke, Kilgour & O'Connor, 2018; Tyrvainen & Karjaluoto, 2019). Studies also confirm a positive relationship between easy navigation and increased customer loyalty, with enhanced personalization and seamless interfaces improving the overall journey (Swaid & Wigand, 2012; Simone & Sabbadin, 2018). Retailers can boost consumer value by synchronizing physical and digital touchpoints, creating a unified shopping experience across channels (Verhoef, Kannan & Inman, 2015). However, inconsistent navigation can diminish the perceived usefulness of omni-channel platforms, particularly for utilitarian shopping, although instant connectivity improves both utilitarian and hedonic shopping value (Shin et al., 2022; Hure, Picot-Coupey & Ackermann, 2017).

H4: There is a relationship between system navigation and perceived usefulness.

2.3.5 Perceived Security and Perceived Usefulness

Perceived security refers to consumers' belief that retailers will meet security requirements, such as authentication, integrity, and encryption, ensuring protection against risks (Kim, Ferrin & Rao, 2008; Linck et al., 2006; Zuroni & Teng, 2019). Studies indicate that low perceived security deters customers from engaging in electronic payments (Tsiakis & Stephanides, 2005; Zuroni & Teng, 2019). The surge in online transactions, particularly post-COVID-19, has heightened consumer anxiety over data privacy and personal information misuse (Farah et al., 2018; Indiani & Fahik, 2020). Security concerns, including data breaches and fraud, are critical in online shopping adoption (Meskaran, 2015; Neame et al., 2016). Perceived security is seen as a key factor influencing trust and consumer behavior within the SOR theory (Johnson & Grayson, 2005; Ventre & Kolbe, 2020). Despite its importance, the relationship between perceived security and perceived usefulness in omni-channel retailing lacks sufficient empirical research (Indiani & Fahik, 2020; Chowdhury, 2023).

H5: There is a relationship between perceived security and perceived usefulness.

2.3.6 Perceived Usefulness and Impulsive Buying behaviour

The second objective of the study is to determine if the perceived usefulness of external factors and impulsive buying behaviour. Users tend to perceive a favourable relationship between usage and performance when a system scores high on perceived usefulness, as it reduces search costs related to time, convenience, and security (Dam, 2023). Numerous studies have found perceived usefulness to be a significant mediating factor between ease of use and usage intention, with notable findings in various contexts (Santhanamery & Ramayah, 2017; Muftiasa et al., 2021; Mazan & Cetinal, 2022). In the realm of omni-channel retailing, related research in Australia has focused on the mediating role of perceived value and omni-channel shopping habits (Sharma & Fatime, 2024).

Given the limited research on perceived usefulness as a mediator specifically in the context of impulsive buying behaviour on omni-channel retailing platforms, this study aims to bridge that gap. It seeks to explore how perceived usefulness mediates the relationship between external factors such as channel integration, convenience, product price, system navigability, and perceived security, and impulsive buying behaviour among Malaysian youth purchasing fashion apparel. This research proposes testing the hypothesis that perceived usefulness has a mediating effect on these factors within the omni-channel retail environment.

H7: Perceived usefulness mediates the relationship of channel integration and impulsive buying behaviour.

H8: Perceived usefulness mediates the relationship of convenience and impulsive buying behaviour.

H9: Perceived usefulness mediates the relationship of product price and impulsive buying behaviour.

H10: Perceived usefulness mediates the relationship of system navigability and impulsive buying behaviour.

H11: Perceived usefulness mediates the relationship of perceived security and impulsive buying behaviour.

3. RESEARCH METHODOLOGY

3.1 Research Design and Sampling Approach

This study adopts a quantitative research design to empirically test the proposed hypotheses. Given the lack of official statistics on the number of Malaysian youths utilizing AI-powered omni-channel retailing platforms, a non-probability sampling technique was employed. The unit of analysis comprises Malaysian youth aged 18 to 30 years, a demographic characterized by high engagement in fashion apparel consumption and relatively greater disposable income (MCMC, 2023; Statista, 2023). This classification adheres to the definition established by the Malaysian Ministry of Youth and Sports, ensuring compliance with ethical guidelines and allowing participants to provide informed consent without parental approval (TheStar, 2023; Themalaysianreserve.com, 2023; Mathews, 2023; Hashim & Dusuki, 2023).

3.2 Measurement and Instrumentation

All constructs in this study were measured using a 7-point Likert scale, with measurement items adapted from established scales in prior literature. These indicators underwent rigorous validity and reliability testing in previous studies and were further evaluated through a pilot study to ensure robustness.

3.3 Data Collection and Sample Size

Data were collected using an online survey administered via Google Forms, yielding a total of 401 valid responses. The sample size satisfies the minimum threshold recommended for structural equation modelling (SEM) (Hair et al., 2012), ensuring adequate statistical power for hypothesis testing.

3.4 DATA ANALYSIS

Data analysis was conducted using SPSS Statistics 26.0 for data screening, including the detection of missing

values, descriptive statistics, and internal consistency reliability assessment. For hypothesis testing and model evaluation, this study employs Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 4.0. PLS-SEM was chosen due to its suitability for analyzing complex theoretical models (Hair et al., 2012), its ability to accommodate non-normally distributed data (Hair et al., 2021), and its effectiveness in exploratory research contexts (Hair, 2009). This analytical approach facilitates path analysis, construct validation, and hypothesis testing, ensuring a rigorous evaluation of the proposed research model.

4. DISCUSSION AND FINDINGS

The survey sample comprised 50.62% female and 49.38% male respondents, aligning with findings from the Malaysian Communication and Multimedia Commission (2021), which indicate that women engage in online shopping more frequently than men.

In terms of age distribution, respondents were categorized into three groups using the visual binning method in IBM SPSS V.24. The largest proportion (49.13%) fell within the 18–21 years category, followed by 22–23 years (32.42%), and 24–30 years (18.45%). This distribution reflects the study's focus on youth consumers, who are actively engaged in digital retail environments.

The ethnic composition of the sample was representative of Malaysia's diverse population, with 38.40% Malay, 26.43% Indian, and 24.94% Chinese, along with smaller percentages from other ethnic groups. Educational attainment varied across respondents, with 28.43% holding a diploma and 25.44% possessing a degree, indicating a well-educated consumer base.

Regarding marital status, the majority of respondents were single (67.08%), and a significant portion (57.34%) were students, reflecting the study's focus on young consumers. The monthly income distribution showed that 66.33% earned RM1,500 or less, consistent with the predominance of students and early-career professionals within the sample.

Occupationally, the largest group comprised students, while 21.95% were professionals, including doctors, lawyers, and engineers, indicating a segment with financial stability for discretionary spending. This occupational profile suggests that despite lower income levels, respondents exhibit purchasing power, particularly within omni-channel retail settings.

4.1 Measurement Model

In the initial phase of the measurement model evaluation, the focus was on assessing item reliability and validity. According to Hair et al. (2017a; 2022), the structural model can only be tested once the measurement model meets all necessary criteria. Measurement items are deemed reliable when they consistently capture the intended constructs, while validity ensures that the items accurately assess their designated concepts. To establish the robustness of the measurement model, this study conducted tests for convergent validity and discriminant validity.

First, inter-item reliability was examined through an analysis of factor loadings. Second, convergent validity was assessed by calculating the average variance extracted (AVE), ensuring that all values met the minimum threshold of 0.50 (Erasmus, Rothmann, & Van Eeden, 2015). Third, internal consistency reliability was evaluated using composite reliability (CR), with values exceeding 0.60 considered acceptable. The results of these analyses, as presented in Table 1, confirm the convergent validity and reliability of the measurement model, ensuring its suitability for further structural model analysis.

4.2 Discriminant Validity

In this study, the HTMT ratio analysis was employed to assess discriminant validity. This approach was chosen in response to recent critiques of Fornell and Larcker's criteria. As noted by Abbas and Sağsan (2019) and Gurer and Akkaya (2022), potential issues with discriminant validity may arise if the HTMT value surpasses 0.85. As shown in Table 2, all HTMT values were below the threshold of 0.85 (Gurer & Akkaya, 2022), thereby confirming the establishment of discriminant validity.

4.2 Hypotheses Results

Using the Smart PLS 3.0 bootstrapping technique, T-statistics are calculated for all paths to determine the significance threshold. The bootstrapping parameters are a one-tailed test, a significance threshold of 0.05, and 5,000 subsamples. For a one-tailed test, the critical values for a 1% (=0.01), 5% (=0.01), and 10% (=0.01) significance level are 2.33, 1.645, and 1.33, respectively (Ramayah et al., 2018).

4.2.1 Direct Effect

The direct effect uses the t-test, which aims to determine the effect of the variable partially independent of the dependent variable. This hypothesis can be accepted if P Values < 0.05. Table 3, shows the supported and not supported hypotheses based on the P values.

Based on the table above, it shows that of the six (6) hypotheses that have a direct effect, there is two hypothesis that is rejected, namely convenience and perceived security to perceived usefulness due to the value of T-Statistics < 1.96 and P - Values > 0.05 while

Table 1: Measurement Model.

Constructs	Standardized Factor Loadings (>0.40-0.70)	Cronbach Alpha (≥0.7)	Composite reliability (≥0.6)	Average variance Extracted (≥0.5)
Channel Integration				
CH1	0.569			
CH2	0.662			
CH3	0.838			
CH4	0.665	0.849	0.886	0.680
CH5	0.801			
CH6	0.797			
CH7	0.729			
Convenience				
CV1	0.738			
CV2	0.763	0.700	0.886	0.642
CV3	0.788			
CV4	0.611			
System Navigability				
SN1	0.732			
SN2	0.628			
SB3	0.786			
SN4	0.679	0.845	0.882	0.518
SN5	0.732			
SN6	0.667			
SN7	0.799			
Perceived Security				
PS1	0.784			
PS2	0.739	0.834	0.878	0.590
PS3	0.704			
PS4	0.798			
PS5	0.811			
Perceived Price				
PP1	0.717			
PP2	0.783			
PP3	0.849	0.825	0.874	0.516
PP4	0.585			
PP5	0.740			
PP6	0.707			
Perceived Usefulness				
PU1				
PU2	0.795			
PU3	0.820	0.767	0.851	0.588
PU4	0.731			
	0.717			
Impulsive Buying Behaviour				
IBB1	0.771			
IBB2	0.744			
IBB3	0.752	0.821	0.874	0.581
IBB4	0.787			
IBB5	0.757			

.Source: *Authors, 2025*

the other four hypotheses are accepted because the T - Statistics value > 1.96 P -Values < 0.05.

4.2.2 Indirect Effect

Indirect influence analysis is useful for testing the hypothesis that a dependent variable has an indirect effect on an independent variable mediated by an intermediate variable (Julian, 2018). In this case, perceived usefulness is the mediator of the independent variable and the dependent variable which is impulsive buying behaviour. Table 4, shows the results of the indirect effect.

Based on the table above, it shows that from the relationship that has an indirect effect, there is two (2) hypothesis that is rejected, namely convenience and perceived security to impulsive buying behaviour mediated by perceived usefulness because the value of T-Statistics < 1.96 and P - Values > 0.05 while the other three (3) hypotheses are accepted because the value of T - Statistics > 1.96 P -Values < 0.05.

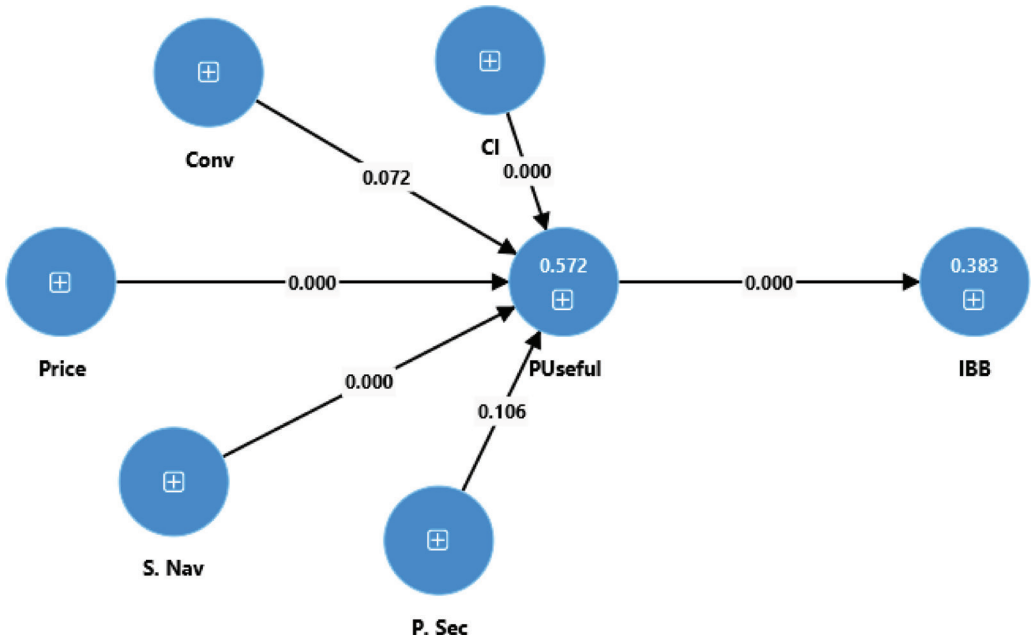

Table 2: HTMT Table.

	CI	Conv	IBB	P. Sec	PUseful	Price	S. Nav
CI							
Conv	0.229						
IBB	0.292	0.499					
P. Sec	0.443	0.315	0.325				
PUseful	0.58	0.605	0.751	0.42			
Price	0.388	0.743	0.574	0.532	0.831		
S. Nav	0.406	0.497	0.381	0.627	0.684	0.648	

Source: *Authors, 2025*

Note: *CH - Channel Integration, CV - Convenience, PP - Product Price, SN - System Navigation, PS - Perceived Security, PU - Perceived Usefulness, IBB - Impulsive Buying Behaviour*

Table 3: Structural Model Assessment.

H	Path	Coefficient (β)	Std. Error	T- Statistics	P Values	Results
H1	CH->PU	0.269	0.032	8.396	0.000	Supported
H2	CV->PU	0.081	0.045	1.798	0.072	Not Supported
H3	PP->PU	0.434	0.047	9.245	0.000	Supported
H4	SN->PU	0.242	0.044	5.519	0.000	Supported
H5	PS->PU	-0.071	0.044	1.616	0.106	Not Supported
H6	PU->IBB	0.619	0.034	18.296	0.000	Supported

Source: *Authors, 2025*

Table 4: Indirect Effect.

H	Path	Coefficient (β)	Std. Error	T- Statistics	P Values	Results
H7	CH->PU->IBB	0.167	0.021	7.753	0.000	Supported
H8	CV->PU->IBB	0.05	0.028	1.772	0.077	Not Supported
H9	PP->PU->IBB	0.269	0.035	7.764	0.000	Supported
H10	SN->PU->IBB	0.149	0.027	5.594	0.000	Supported
H11	PS->PU->IBB	-0.044	0.027	1.628	0.104	Not Supported

Source: Authors, 2025

4. DISCUSSION

This section presents the findings of the study, focusing on the relationships between external factors (channel integration, convenience, perceived pricing, system navigability, and perceived security) and perceived usefulness. A total of six hypotheses were tested, with all but H2 and H5 being supported. The analysis was conducted using Structural Equation Modelling (SEM) via SmartPLS 4.0.

4.1 Direct Relationships

The results indicate that H1, which examines the relationship between channel integration and perceived usefulness, is statistically significant. These findings align with Yen (2023), who demonstrated that channel integration in online food delivery applications enhances perceived usefulness, thereby influencing user intentions. Similarly, Chen and Chi (2021) found that omni-channel integration positively affects perceived usefulness among U.S. consumers, reinforcing the present study's results. This suggests that seamless integration across retail channels enhances consumer perception of platform utility, thereby supporting H1.

H2 (Convenience → Perceived Usefulness), however, was not supported. This contrasts with prior studies (Bansah & Agyei, 2022; Wardana et al., 2022) that established a significant relationship between convenience and perceived usefulness. A potential explanation for this inconsistency could be the demographics of the respondents, primarily aged 18 to 21 years, a cohort that has grown up with ubiquitous digital access and thus perceives 24/7 platform availability as a given rather than an added convenience (MasterCard, 2021; Thomas-Arnold, 2023). This assumption may have diminished the perceived value of convenience in influencing usefulness, leading to the rejection of H2.

Conversely, both H3 (Perceived Pricing → Perceived Usefulness) and H4 (System Navigability → Perceived Usefulness) were supported, indicating that price perception and ease of navigation significantly impact how useful consumers find the platform. The significance of H3 is consistent with findings from Cuong (2023) in Vietnam, as well as previous studies (Park et al., 2019; Lee et al., 2022; Lee & Chen, 2021). Similarly, the confirmation of H4 aligns with Tsai et al. (2017), who found that ease of system navigation is strongly correlated with perceived usefulness. As consumers encounter fewer navigation barriers, their perceived utility of the platform increases, thereby reinforcing the findings of H4.

Interestingly, H5 (Perceived Security → Perceived Usefulness) was not supported, indicating that consumers did not perceive security as a critical determinant of platform usefulness. This aligns with Tahar et al. (2020), who found that youth in Indonesia did not prioritize perceived security when using digital retail platforms. This suggests that digital natives may assume a baseline level of security in e-commerce platforms, reducing its influence on perceived usefulness.

Finally, H6 (Perceived Usefulness → Impulsive Buying behaviour) was significant, corroborating previous findings by Lee and Chen (2021) and Zuo and Xiao (2021). This suggests that when consumers perceive a platform as highly useful, they are more likely to engage in impulsive purchasing behaviours, particularly in omni-channel retailing contexts.

Mediating Effects of Perceived Usefulness

The study also examined six hypotheses (H7–H12) regarding the mediating role of perceived usefulness in influencing impulsive buying behaviour. H7 (Channel Integration → Perceived Usefulness → Impulsive Buying behaviour) was supported, confirming a significant positive mediation effect. This finding aligns with Pereira et al. (2023), who applied the SOR (Stimulus-Organism-Response) Model to examine impulsive buying behaviour in Brazilian consumers. The results suggest that well-integrated retail channels enhance perceived usefulness, which in turn stimulates impulse purchases.

In contrast, H8 (Convenience → Perceived Usefulness → Impulsive Buying Behaviour) was not supported, indicating that convenience does not indirectly influence impulsive buying through perceived usefulness. This reinforces the earlier rejection of H2, further emphasizing that digital-native consumers expect seamless platform accessibility, thereby weakening the influence of convenience on impulse purchasing behaviour. A study by Faisal et al. (2020) found that hedonic shopping motivations such as social media had a substantial impact on impulsive motivations among young Malaysians compared to utilitarian factors like convenience. Similarly, a study by Lim and Zainal (2025) highlighted the psychological factors were the most important factor which drives impulsive purchases.

Both H9 (Perceived Pricing → Perceived Usefulness → Impulsive Buying Behaviour) and H10 (System Navigability → Perceived Usefulness → Impulsive Buying Behaviour) were supported, demonstrating that perceived usefulness serves as a significant mediator between these factors and impulse purchases. Gen Z consumers, known for their price sensitivity, are more likely to engage in impulse buying when offered attractive discounts and promotions (Statista, 2022; Saw & Tin, 2023). Omni-channel platforms further amplify this effect by enabling real-time price comparisons, thereby reinforcing spontaneous purchasing

behaviours (Stefanska & Smigielska, 2020; Ipsos, 2023; Lina et al., 2022).

For H10, the findings confirm that enhanced system navigability facilitates impulsive purchases through perceived usefulness. Advancements in AI-driven recommendation systems and frictionless checkout processes further enhance this effect by streamlining browsing, selection, and payment, as supported by prior research (Xu et al., 2021; Iqbal et al., 2018; Zhang et al., 2020; Gao et al., 2023).

Finally, H11 (Perceived Security → Perceived Usefulness → Impulsive Buying Behaviour) was not supported, indicating that perceived security does not significantly mediate the relationship between security concerns and impulsive buying behaviour. This further reinforces previous findings that youth consumers do not prioritize security concerns when engaging in omni-channel shopping. A study by Ummah et al. (2021) found that although perceived security positively influences purchase intention, but it is not the most important factor in comparison to perceived usefulness and personalization on young Malaysians. Moreover, Lim and Zainal (2025) indicated psychological factors such as hedonic shopping values are the most important variable in impulse purchases among Malaysians and further suggesting that security concerns are secondary.

5. CONCLUSION

This study provides valuable insights into the influence of AI-driven omni-channel retailing on impulsive buying behaviour among Malaysian youth in the fashion apparel industry. Using the SOR Model and TAM as theoretical frameworks, the research examined the mediating role of perceived usefulness, with findings demonstrating its significant impact on impulsive purchases. The results, derived from SEM analysis of 401 respondents, indicate that perceived usefulness explains 57.2% of omni-channel retail adoption and 38.3% of impulsive buying behaviour. While seven hypotheses were supported, four were not, highlighting the complexity of factors influencing consumer behaviour in AI-powered retail environments, in this study focusing on omni-channel retailing.

These findings offer several theoretical and practical implications. First, they contribute to omni-channel retailing literature by highlighting the critical role of channel integration, pricing strategies, and system navigability in shaping consumer perceptions of usefulness and impulsive buying behavior. Second, the study underscores the evolving digital expectations of Gen Z consumers, demonstrating that convenience and security may no longer be primary determinants of retail platform adoption. From a managerial perspective, retailers should focus on seamless channel integration, competitive pricing strategies, and intuitive platform design to enhance consumer engagement and drive impulse purchases.

The study provides empirical evidence on the role of external factors in influencing perceived usefulness and impulsive buying behaviour within omni-channel retailing. While channel integration, pricing, and navigability significantly impact perceived usefulness, convenience and security concerns appear less relevant to Gen Z consumers. Moreover, perceived usefulness mediates the impact of pricing and system navigability on impulsive buying, emphasizing the importance of user-centric retail experiences.

6. LIMITATION AND FUTURE RESEARCH

As with all research, this study has a few limitations. The first is, this study deployed the non-probability sampling technique which does not allow for generalization of the findings to the broader population, which means not every individual in the population has an equal change of being included in the sample. The risk of selection bias and thus limits the representation of the sample. Therefore, in the future research probability sampling should be explore and using cross-cultural differences in impulsive buying behaviour can be researched. Additionally, incorporating qualitative methods or experimental designs could offer deeper insights to the field of study.

Secondly, this study focused primarily on Malaysian youth. Future studies might want to explore other consumer segments or regions. A comparative study across different age, countries or cultural aspect would be an area to explore. Other product category such as electronic products, house appliances, food and beverages or services can be tested by future researchers.

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The authors declare that they have no competing interests.

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