THE INFLUENCES OF ONLINE SOCIAL MARKETING COMMUNICATION ON STRAY ANIMAL ASSISTANCE THROUGH THE STAGES OF CHANGE THEORY

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Abstract

This study examines how exposure to online social marketing communication influences stray animal assistance behavior based on the Stages of Change Theory, covering four stages: Contemplation, Preparation, Action, and Maintenance. Six online platforms were examined: Facebook, Instagram, X, TikTok, YouTube, and websites. A quantitative survey with a self-administered online questionnaire was conducted with 400 followers of Facebook fan pages related to stray animal assistance in Thailand. Frequency, percentage, mean, and standard deviation (S.D.) were employed to analyze characteristics of sample and variables in this study. Multiple Regression Analysis (MRA) was employed to test the hypotheses for each stage at the .05 significance level.

The findings show that the effects of exposure are different across stages. First, in the contemplation stage, X ($\beta = 0.345$) and Facebook ($\beta = 0.153$) influenced awareness of stray animal issues. In the preparation stage, Facebook ($\beta = 0.320$), X ($\beta = 0.268$), and Instagram ($\beta = 0.142$) influenced readiness to assist stray animals. In the action stage, Facebook ($\beta = 0.353$), X ($\beta = 0.200$), TikTok ($\beta = 0.140$), and websites ($\beta = 0.107$) influenced stray animal assistance behavior. Lastly, in the maintenance stage, Facebook ($\beta = 0.353$) and X ($\beta = 0.227$) influenced the repeated assistance to stray animals. These results provide valuable insights into social media's role in social marketing communication to promote stray animal assistance in Thailand. Besides, these findings help policymakers and social marketers develop and select online platforms that are appropriate with each stage of behaviors more effectively. Particularly in supporting practical stray animal management policies such as animal registration, microchipping, and responsible pet ownership campaigns.

Keywords: Stray animal, Stages of Change Theory, Online social marketing communication

Introduction

Stray animals continue to be an ongoing challenge in Thailand. National data show that the number changes each year but usually remains high and sometimes increases. The Rabies Surveillance Command Center (2025) reported 242,057 stray dogs and cats in the first survey round and 229,340 in the second round of 2023. In 2024, the total decreased slightly to 223,489, but it was still with a large number. The situation became more serious in 2025, when the first national survey recorded 286,415 ownerless animals in Thailand. That's showing rise risks compared to previous years. This issue is not only about animal welfare. Stray animals can also create safety and sanitation concerns. Reports shows that over 50% are abandoned in garbage disposal sites or forested areas,

about 30% are left in temples, and around 20% roam within residential community, which can contribute to hygiene and safety issues in public spaces (Thairath Online, 2024). In Bangkok, the problem is also linked to responsible ownership for registration their own pets. Only 62.5% of dogs and 11.09% of cats have been microchipped and registered, even though the Bangkok Metropolitan Administration plans to enforce its pet registration ordinance in January 2026 (Bangkokbiznews, 2025). However, recent reporting notes that the Bangkok Metropolitan Administration proposed delaying the enforcement of its pet control ordinance for one year, from 10 January 2026 to 2027, because of practical obstacles. These include limited services, limited access to registration points, concerns about microchip safety and legal punishment, and the need for permission letters from landlords or building owners (such as dormitories and condominiums), which makes registration hard for many renters (Posttoday, 2026). This situation shows the importance of public communication to help people understand and follow the policy to reduce confusion and lower barriers.

Reducing the stray animal problem cannot be done by authorities alone. It depends on ongoing public participation. Social marketing is appropriate in this context because it encourages people to take voluntary actions for the public's good, not for profit (Kotler & Lee, 2008). In Thailand, online media are part of daily life; in early 2025 there were about 51.0 million social media users (71.1%) (Kemp, 2025). Nowadays, online media are used for social marketing communication to promote stray animal assistance among Thai people increasingly (Soi Dog Foundation, 2025). Online media in promoting stray animal assistance in Thailand can be found in Facebook, Instagram, YouTube, TikTok, X, and websites. Therefore, these six online platforms in social marketing communication to promote stray animal assistance were focused on this study.

This study also applies the Stages of Change Theory to examine how exposure to online communication relates to behaviors at different stages. The main idea is behavior can be changed gradually (Prochaska & DiClemente, 1983). In this research, the model is used as a four-stage process. The first stage, awareness of stray animal issues (Contemplation stage), refers to recognizing the problem and understanding its impacts, without taking any action yet. The second stage, readiness to assist stray animals (Preparation stage), refers to intention and preparation for animal assistances, such as searching for information and planning how to help the stray animals. The third stage, stray animal assistance behavior (Action stage), refers to taking a real step to assist stray animals. The final stage, repeated assistance to stray animals (Maintenance stage), focuses on continuing these helping behaviors for over time.

Based on this framework, the study examines how exposure to online social marketing communication influences stray animal assistance across these stages. The results can help nonprofits organization and related agencies to design and select online platforms that matches behavior change process. In addition, the findings may support the Bangkok Metropolitan Administration in planning and improving actions related to pet registration, population control, and responsible ownership, with the goal of reducing stray animal numbers in the long term.

Research Objective

The research objective of this study aims to examine the influences of online social marketing communication on stray animal assistance through the Stages of Change Theory, covering four stages: Contemplation, Preparation, Action, and Maintenance. Online social marketing communication in this study focused on six online platforms as the scope of research: Facebook, Instagram, X, TikTok, YouTube, and websites.

Literature Review

In this part, the authors will summarize concepts, theories, and previous studies that support the research framework. Literature review covers social marketing, online media, and the stages of change theory.

1. Social Marketing

Social marketing refers to using marketing tools to support actions that can benefit for society (Kotler & Zaltman, 1971). It uses marketing methods to help people accept, reject, change, or stop behaviors that affect the well-being of individuals, groups, and society. This approach is often used for public issues such as health, the environment, and safety (Andreasen et al., 1995). Social marketing also uses ideas from commercial marketing but adjusts them for social goals. For example, it may use communication activities, campaigns, and audience research to increase awareness and support positive behavior change (Lefebvre, 2013). Social marketing is usually planned in a clear and organized way so that the target audience can benefit (El-Ansary & Kramer, 1973). It also focuses on monitoring and evaluation. Checking results during and after a campaign helps improve the campaign and keeps it on track with its goals (Grier & Bryant, 2005). Besides, Kotler (2002) explains that social marketing can be planned through 10 steps: 1) Analyze the social marketing environment, 2) Select target audiences, 3) Set objectives, 4) Analyze target audiences, 5) Determine strategies (4Ps): plan the strategy using Product (the action or idea), Price (time/effort/cost), Place (easy access), and Promotion (messages and platforms), 6) Develop evaluation and monitoring strategy: decide what to measure and how to measure it, using suitable methods, 7) Establish budgets and funding sources, 8) Complete an implementation plan, 9) Monitor progress and feedback, 10) Adjust strategies and tactics based on evaluation results.

In summary, social marketing uses marketing concept to encourage people to improve their attitude and behavior. It does not focus on profit, but on benefits for society and the target audience. Nowadays, social marketing is increasingly used for stray animal assistance, especially through social media.

2. Social Media

People today rely on internet-based platforms to access information quickly and share content with others. Holliman (2010) states that online media are networked platforms where information spreads quickly and stays available. Online media can also be understood as a space where people build online communities, interact with others, exchange opinions, and share experiences through platforms such as websites and social media services (Kaewsuksai & Jussapalo, 2013). Hemmin (2013) explains that social networking platforms allow users to both receive and create messages by sharing text, images, videos, and comments within their networks. The Royal Society of Thailand (2018) defines online media as electronic media that allows people to create, share, and exchange information and opinions through the internet with immediate interaction and easy data storage, including upcoming of media that may develop in the future. Based on these views, this study treats online media as a digital platform that supports fast and interactive communication through the internet-based networks.

According to the Public Relations Department (2025), Facebook is the most widely used social media platform, accounting for 37.9% of usage. LINE follows with the same share (37.9%), and the next platforms are TikTok (8.5%), Facebook Messenger (5.1%), Instagram (4.9%), YouTube (3.4%), Threads (0.9%), and X (0.7%). For the target age group in this study (24–44 years), Facebook is also the most frequently used platform (48.3%), followed by LINE (28.4%) and TikTok (9.9%). However, based on the researcher's observation, social marketing communication about stray animal

assistance is rarely found on LINE and Threads in Thailand. Therefore, this study will focus on Facebook, Instagram, X, TikTok, YouTube, and websites.

These six platforms were chosen because they support different ways of sharing and interacting with information. Facebook supports multiple formats such as text, images, videos, and links (Nations, 2024). Instagram focuses on visual content and engagement (Swan, 2019). X is useful for quick updates and timely information sharing in limited texts (Amintra, 2024). TikTok attracts attention through short videos that can spread quickly (D'Souza, 2025). YouTube supports longer videos that can explain topics in more detail (Christensson, 2009). Websites provide organized information that users can search and revisit (Pickle, 2023).

Overall, social media is used for supporting social marketing communication tools to change social behaviors, including stray animal assistance, which has become more visible in various online platforms. Therefore, this study uses these six online platforms as the scope of research.

3. Stages of Change theory

The Stages of Change Theory explains that people usually change their behavior gradually. People may move forward, stop for a while, or even move back before progressing again (Prochaska & DiClemente, 1983). This model has been used in good behavior studies, such as quitting smoking and developing exercise habits. Besides, Prochaska (1998) also explains that behavior change takes time and often happens through a stage, called the Stages of Change. The model includes five stages: 1) In precontemplation stage, people have not thought about change yet and may not see the issue as important to them, 2) In contemplation stage, people recognize the problem and understand its impacts, but they have not taking any action yet, 3) In preparation stage, people show intention to help and begin to prepare, such as seeking information or planning what to do, 4) In action stage, they begin doing the behavior change in real life, and 5) In maintenance stage, they continue the behavior more over time and try to maintain the behavior.

Because each stage shows a different level of behavior change, the model suggests that communication and support should match the stage. In this study, only four stages are used, based on the context of stray animal assistance: 1) Awareness of stray animal issues (Contemplation stage), 2) Readiness to assist stray animals (Preparation stage), 3) Stray animal assistance behavior (Action stage), 4) Repeated assistance to stray animals (Maintenance stage). The precontemplation stage is not included in this study because it describes for people who have not recognized the issue and have not considered behavior change yet.

Hypothesis

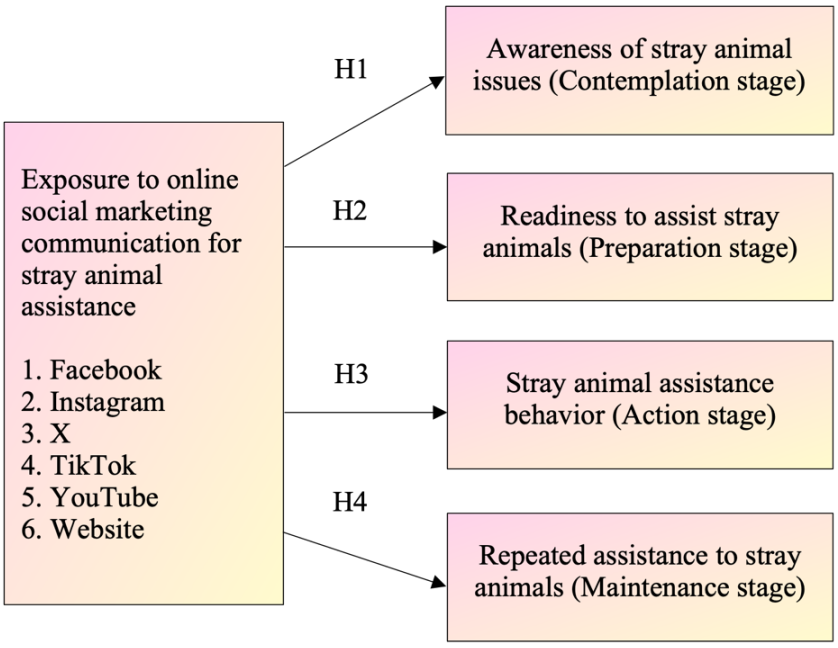
From literature review, this study assumes that exposure to online social marketing communication in six online platforms can influence stray animal assistance through the stages of change theory in four stages. Therefore, the study proposes the following hypotheses:

H1: Exposure to online social marketing communication for stray animal assistance influences awareness of stray animal issues (Contemplation stage).

H2: Exposure to online social marketing communication for stray animal assistance influences readiness to assist stray animals (Preparation stage).

H3: Exposure to online social marketing communication for stray animal assistance influences stray animal assistance behavior (Action stage).

H4: Exposure to online social marketing communication for stray animal assistance influences repeated assistance to stray animals (Maintenance stage).



Picture 1: Conceptual Framework

Research Methodology

1. Population and Sampling

The target population for this study comprised Thai people aged 25-44 years who followed Facebook fan pages related to stray animal assistance in Thailand. The sample consisted of 400 Thai people aged 25-44 years who followed Facebook fan pages related to stray animal assistance in Thailand. The sample size was determined using Cochran's formula to calculate the infinite population with a 95% confidence level and a 5% margin of error (Cochran, 1977). Stratified random sampling method was used by gender and age to create 8 groups (2 gender groups: male and female, and 4 age groups: 25-29, 30-34, 35-39, and 40-44 years), with an equal number of 50 participants in each group. Data were collected using an online self-administered questionnaire via Google Forms.

2. Research Instrument

Data were collected with a structured questionnaire in six sections: 1) demographic characteristics, 2) exposure to online social marketing on six platforms (Facebook, Instagram, X, TikTok, YouTube, and websites), 3) awareness of stray animal issues (Contemplation stage), 4) readiness to assist stray animals (Preparation stage), 5) stray animal assistance behavior (Action stage), and 6) repeated assistance to stray animals (Maintenance stage). Questions in section 2) to 6) were measured using a 5-point rating scale. Content validity was checked using IOC values (0.60–1.00). All scales showed acceptable reliability (Cronbach's alpha > .70). Reliability scores of exposures to online social marketing on six platforms were 0.970 (Facebook), 0.949 (Instagram), 0.971 (X), 0.975 (TikTok), 0.953 (YouTube), and 0.954 (websites). Reliability scores of the stages of change were 0.830 (Contemplation stage), 0.945 (Preparation stage), 0.936 (Action stage), and 0.956 (Maintenance stage).

3. Data Collection

The questionnaire was distributed online via 10 Facebook fan pages related to stray animal assistance in Thailand. Participants learned the research objectives before participation and had willingness to answer the questionnaire. Then, responses were coded for statistical analysis.

4. Data Analysis

Frequency, percentage, mean, and standard deviation (S.D.) were employed to analyze characteristics of sample and variables in this study. Multiple Regression Analysis (MRA) was employed to test the hypotheses for each stage at the .05 significance level.

To clarify, the responses were rated on a 5-point scale, with the following interpretation criteria for the mean score: 4.21–5.00 = Always, 3.41–4.20 = Frequently, 2.61–3.40 = Moderate, 1.81–2.60 = Rarely, and 1.00–1.80 = Almost never. These criteria were used to measure the exposure to online social marketing communication for stray animal assistance. Additionally, for the Stages of Change in Stray Animal Assistance, the interpretation criteria were as follows: 4.21–5.00 = Most, 3.41–4.20 = High, 2.61–3.40 = Moderate, 1.81–2.60 = Low, and 1.00–1.80 = Least.

Results

1. Characteristics of Sample

The results showed that the sample included equal numbers of males and females, with 200 males (50.00%) and 200 females (50.00%). The authors also set the age groups to have equal numbers across four ranges: 25-29 years, 30-34 years, 35–39 years, and 40-44 years. Each age group included 100 participants (25.00%). Most participants held a bachelor's degree (n = 273, 68.25%). In terms of monthly income, the largest group reported earning 15,000-25,000 THB (n = 186, 46.50%).

2. Exposure to Online Social Marketing Communication for Stray Animal Assistance

The results showed overall exposure to online social marketing communication on Facebook, TikTok, Instagram, X, YouTube, and websites was moderate. The overall mean score was 2.82, with a standard deviation (S.D.) = 0.90. The highest mean exposure was via Facebook (M = 3.37, S.D. = 1.02), followed by TikTok (M = 2.97, S.D. = 1.23), Instagram (M = 2.84, S.D. = 1.20), X (M = 2.82, S.D. = 1.33), YouTube (M = 2.63, S.D. = 1.13), and websites (M = 2.31, S.D. = 1.09), as shown in Table 1.

Table 1: Mean and Standard Deviation of Exposure to Online Social Marketing Communication Platforms

Variable	Mean (M)	Standard Deviation (S.D.)
Facebook	3.37	1.02
TikTok	2.97	1.23
Instagram	2.84	1.20
X	2.82	1.33
YouTube	2.63	1.13
Websites	2.31	1.09
Overall	**2.82**	**0.90**

Note: Responses were rated on a 5-point scale. The researchers applied the following interpretation criteria for the mean score: 4.21–5.00 = Always, 3.41–4.20 = Frequently, 2.61–3.40 = Moderate, 1.81–2.60 = Rarely, and 1.00–1.80 = Almost never.

3. Stages of Change in Stray Animal Assistance

Results showed high overall opinions and practices for the stages of change in stray animal assistance. The overall mean score was 3.68, S.D. = 0.70. Among the 4 stages, awareness of stray animal issues (Contemplation stage) was the highest (M = 4.16, S.D. = 0.67), followed by readiness to assist stray animals (Preparation stage) (M = 3.57, S.D. = 0.88), repeated assistance to

stray animals (Maintenance stage) (M = 3.55, S.D. = 0.88), and stray animal assistance behavior (Action stage) (M = 3.44, S.D. = 0.85), as shown in Table 2.

Table 2: Mean and Standard Deviation of the Stages of Change in Stray Animal Assistance

Variable	Mean (M)	Standard Deviation (S.D.)
Awareness of stray animal issues (Contemplation stage)	4.16	0.67
Readiness to assist stray animals (Preparation stage)	3.57	0.88
Stray animal assistance behavior (Action stage)	3.44	0.85
Repeated assistance to stray animals (Maintenance stage)	3.55	0.88
Overall	**3.68**	**0.70**

Note: Responses were rated on a 5-point scale. The researchers applied the following interpretation criteria for the mean score: 4.21–5.00 = Most, 3.41–4.20 = High, 2.61–3.40 = Moderate, 1.81–2.60 = Low, and 1.00–1.80 = Least.

4. Hypothesis Testing Results

4.1 Hypothesis 1 (H1): Exposure to online social marketing communication for stray animal assistance significantly influences awareness of stray animal issues (Contemplation stage).

The results of the analysis of exposure to online social marketing communication influencing awareness of stray animal issues (Contemplation stage) indicated that the independent variables jointly explained 16.0% of the variance (Adjusted R^2 = 0.160). When controlling for the effects of other independent variables, 2 variables were found to have a statistically significant influence at the 0.05 level: exposure through X (β = 0.345) and Facebook (β = 0.153), as shown in Table 3.

Table 3: Multiple Regression Analysis of Exposure to Online Social Marketing Communication Influencing Awareness of Stray Animal Issues (Contemplation stage)

Online Social Marketing Communication	b	Beta(β)	t	Sig.t
1) Facebook	0.100	0.153	2.500	.013*
2) Instagram	0.017	0.030	0.407	.684
3) YouTube	0.078	0.131	1.849	.065
4) X	0.174	0.345	5.899	.001*
5) TikTok	0.003	0.006	0.084	.933
6) Websites	0.017	0.028	0.459	.647
Adjusted R^2 = 0.160, F = 12.4, Sig. F = .001*				

Note: *p < .05

4.2 Hypothesis 2 (H2): Exposure to online social marketing communication for stray animal assistance significantly influences readiness to assist stray animals (Preparation stage).

The results of the analysis of exposure to online social marketing communication influencing readiness to assist stray animals (Preparation stage) revealed that the independent variables jointly explained 40.9% of the variance (Adjusted R^2 = 0.409). When controlling for the effects of other independent variables, 3 variables were found to have a statistically significant

influence at the 0.05 level: exposure through Facebook (β = 0.320), X (β = 0.268), and Instagram (β = 0.142), as presented in Table 4.

Table 4: Multiple Regression Analysis of Exposure to Online Social Marketing Communication Influencing Readiness to Assist Stray Animals (Preparation stage)

Online Social Marketing Communication	b	Beta(β)	t	Sig.t
1) Facebook	0.274	0.320	6.220	.001*
2) Instagram	0.104	0.142	2.270	.024*
3) YouTube	0.086	0.110	1.860	.063
4) X	0.177	0.268	5.460	.001*
5) TikTok	0.072	0.101	1.820	.069
6) Websites	0.061	0.077	1.500	.135
Adjusted R^2 = 0.409, F = 45.4, Sig. F = .001*				

Note: *p < .05

4.3 Hypothesis 3 (H3): Exposure to online social marketing communication for stray animal assistance significantly influences stray animal assistance behavior (Action stage).

The results of the analysis of exposure to online social marketing communication influencing stray animal assistance behavior (Action stage) showed that the independent variables jointly explained 42.5% of the variance (Adjusted R^2 = 0.425). When controlling for the effects of other independent variables, 4 variables were found to have a statistically significant influence at the 0.05 level: exposure through Facebook (β = 0.353), X (β = 0.200), TikTok (β = 0.140), and Websites (β = 0.107), as presented in Table 5.

Table 5: Multiple Regression Analysis of Exposure to Online Social Marketing Communication Influencing Stray Animal Assistance Behavior (Action stage)

Online Social Marketing Communication	b	Beta(β)	t	Sig.t
1) Facebook	0.294	0.353	6.964	.001*
2) Instagram	0.018	0.026	0.420	.675
3) YouTube	0.010	0.014	0.231	.818
4) X	0.128	0.200	4.132	.001*
5) TikTok	0.097	0.140	2.544	.011*
6) Websites	0.083	0.107	2.117	.035*
Adjusted R^2 = 0.425, F = 48.4, Sig. F = .001*				

Note: *p < .05

4.4 Hypothesis 4 (H4): Exposure to online social marketing communication for stray animal assistance significantly influences repeated assistance to stray animals (Maintenance stage).

The results of the analysis of exposure to online social marketing communication influencing repeated assistance to stray animals (Maintenance stage) indicated that the independent variables jointly explained 36.4% of the variance (Adjusted R^2 = 0.364). When controlling for the effects of other independent variables, 2 variables were found to have a statistically significant influence at the 0.05 level: exposure through Facebook (β = 0.353) and X (β = 0.227), as shown in Table 6.

Table 6: Multiple Regression Analysis of Exposure to Online Social Marketing Communication Influencing Repeated Assistance to Stray Animals (Maintenance stage)

Online Social Marketing Communication	b	Beta(β)	t	Sig.t
1) Facebook	0.302	0.353	6.618	.001*
2) Instagram	0.074	0.101	1.557	.120
3) YouTube	0.031	0.040	0.648	.517
4) X	0.149	0.227	4.453	.001*
5) TikTok	0.025	0.036	0.615	.539
6) Websites	0.065	0.081	1.525	.128
Adjusted R^2 = 0.364, F = 37.5, Sig. F = .001*				

Note: *p < .05

Discussion

1. Exposure to Online Social Marketing Communication for Stray Animal Assistance

Overall, the sample showed a moderate level of exposure to online social marketing communication, with Facebook showing the highest exposure. This suggests that Facebook remains a primary space where people in Thailand follow social issues and related activities. This pattern is consistent with Howe (2025), who reported that 90.7% of Thai internet users access Facebook each month, indicating its strong role in spread news and social information. Kemp (2025) reported that Thailand had about 51 million Facebook users in early 2025, and reached more than 70% of the population, which helps explain why the platform is highly popular and widely used in Thailand. Therefore, Facebook is a suitable platform for sharing social marketing about stray animal assistance and increasing public engagement.

2. Stages of Change in Stray Animal Assistance

Through the Stages of Change framework, the sample showed the highest strength at the awareness stage, especially when content provided basic knowledge about responsible pet care. This suggests that educational messages are essential because they help people understand the issue and can influence an attitude before people take any action. Similar findings appear in previous studies. For example, da Cunha et al. (2016) reported that education programs improved understanding of sterilization and helped increase attitudes about population control and responsibility in ownership. Baatz et al. (2020) also found that responsible ownership education was linked to more positive attitudes toward animal welfare. In addition, Iqbal et al. (2023) noted that animal welfare education can help children better understand animal's feelings and reducing violence acceptance toward animal. Overall, these results show that awareness is an early step that can lead to the next stage (Prochaska & DiClemente, 1983).

3. The Influence of Exposure to Online Social Marketing Communication on Stray Animal Assistance Through the Stages of Change Theory

Across stages of change, exposure to online social marketing communication in stray animal assistance was significant differently in each stage.

For awareness of stray animal issues (Contemplation stage), exposure through X and Facebook was significant. This is consistent with Buddle et al. (2017), who found that Twitter (now X) can be useful for building awareness because it supports real-time updates, quick information sharing, and public discussion about animal welfare. In Thailand, this may also relate to how people use social media. Facebook is widely used for following and sharing information (37.9%), and X is

often used for real-time updates (18%) (Public Relations Department, 2025). As a result, these can help explain why X and Facebook were significant at the awareness stage.

For readiness to assist stray animals (Preparation stage), exposure through Facebook, X, and Instagram was significant. This suggests that people use these platforms to find information and get ready before they take action. Limangkun (2018) noted that Instagram can support information searching and help build readiness before making decision. In Thailand, Facebook is often used for following and sharing information (37.9%), while X is used for real-time updates (18%) (Public Relations Department, 2025). Overall, Facebook and X may help people stay updated and see shared content, while Instagram may help them explore information and feel more prepared to help.

For stray animal assistance behavior (Action stage), exposure through Facebook, X, TikTok, and websites was significant. This matches social media use in Thailand, where Facebook is often used for following and sharing information (37.9%), and TikTok is widely used (59.4%). Besides, TikTok's videos are short and attention-grabbing, they also can spread messages quickly and generate strong interest (Public Relations Department, 2025). However, a study in Peru found that TikTok-based social marketing increased learning and awareness about pet welfare, but awareness did not always lead to higher participation. This suggests that TikTok may support the action best when posts clearly show what to do next, such as donating, signing up, or volunteering (Calanchez Urribarri et al., 2025). In addition, websites may support action because they can serve as a trusted source of information (Pickle, 2023). Overall, these four online platforms may support action because they help people both notice the issue and know what to do next. Facebook and X can quickly share updates and spread information. TikTok can create strong attention and motivation. Websites can provide clear and trusted details that make it easier for people to take real helping steps.

For repeated assistance to stray animals (Maintenance stage), exposure through Facebook and X remained significant. As a result, people often see related posts many times, even when they are not searching for them. On X, users can repeatedly encounter content through scrolling, hashtags, retweets, and posts shared by others, which increases repeated exposure and continued engagement. Over time, highly engaging posts can encourage repeated behaviors, such as following, sharing, or supporting related activities, which can help people stay active (Srisukho, 2020). Meanwhile, Facebook also support maintenance because it allows animal welfare content to remain visible through everyday use. For example, people can repeatedly see posts in their feed, in groups, or through shares from friends. Facebook also makes it easy to follow pages, join communities, and receive updates about ongoing activities, donation drives, or volunteer opportunities. This repeated exposure can remind people to keep helping and make it easier to continue participating. This pattern also matches with Marcus et al. (1992), who suggested that repeating helpful behaviors can strengthen commitment and support long-term maintenance efficiently.

Conclusion and Implications

This study examines how exposure to online social marketing communication influences stray animal assistance behavior based on the Stages of Change Theory, covering four stages: Contemplation, Preparation, Action, and Maintenance. Six online platforms were examined: Facebook, Instagram, X, TikTok, YouTube, and websites. The findings found that exposure to online social marketing communication affected stray animal assistance across different stages of change theory.

In the contemplation stage, X and Facebook influenced awareness of stray animal issues. Therefore, if social marketers plan to raise awareness of stray animal assistance, X and Facebook should be used in this stage.

In the preparation stage, Facebook, X, and Instagram influenced readiness to assist stray animals. As a result, if social marketers plan to increase readiness to assist stray animals, Facebook, X, and Instagram should be focused on this stage.

In the action stage, Facebook, X, TikTok, and websites influenced stray animal assistance behavior. Thus, if social marketers plan to promote actions in stray animal assistance, Facebook, X, TikTok, and websites should be used during this stage.

In the maintenance stage, Facebook and X influenced the repeated assistance to stray animals. Consequently, if social marketers plan to maintain stray animal assistance behavior, Facebook and X should be implemented in this stage as well.

This study provides practical insights for policymakers and government agencies to effectively implement stray animal policies. By adjusting communication strategies to fit different online platforms, policymakers can increase engagement at each stage of behavior change.

In particular, On Facebook and X can be used to raise awareness in the Contemplation stage by sharing educational content about stray animals. The content should be simple, emotionally engaging, and highlight the importance of addressing the issue to help increase public awareness and positive attitudes toward helping stray animals.

In the Preparation stage, Instagram, X, and Facebook can help increase readiness to assist by sharing practical information such as how to help, how to register pets, and information about spaying/neutering. This will make it easier for people to take action.

In the Action stage, Facebook, X, TikTok, and websites can encourage actual participation by presenting positive content like success stories, videos, and helpful tips.

Finally, Facebook and X can be used in the Maintenance stage to keep people engaged by sharing updates on the progress of rescued animals, fundraising events, or opportunities for ongoing sponsorship. This will help maintain consistent participation in helping stray animals.

These results can be used in guidelines for choosing platforms that fit each stage to improve online social marketing communication strategies and encourage continued participation in stray animal assistance in Thailand more effectively.

Recommendations for future research

Future studies could examine exposure social marketing in stray animal assistance through offline platforms, such as TV, radio, newspapers, and magazines, to see whether these media lead to higher exposure and greater behavior change.

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BEYOND RELATIONSHIP SELLING: THE DIGITAL-AGILE NEXUS AS A DRIVER OF B2B EXPORT SALES PERFORMANCE IN EMERGING MARKETS

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Abstract

This study empirically examines the technological, strategic, and behavioral antecedents of B2B sales performance within the high-pressure context of the Southern Vietnamese aquaculture processing and exporting industry. Integrating the Resource-Based View (RBV) and Dynamic Capabilities View (DCV), the research investigates how digital enablers (AI, CRM, Digital Marketing), strategic orientations (SDG, Market Intelligence), and adaptive behaviors (Agility, Innovative Work Behavior) impact export outcomes. Adopting a quantitative deductive approach, data were collected via a self-administered survey from a purposive sample of 400 export sales representatives and managers in Southern Vietnam, and the conceptual model was tested using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results reveal a distinct hierarchy of performance drivers, in which system-level capabilities, specifically Digital Marketing Adoption, CRM Capabilities, and SDG Orientation, emerged as strong, positive predictors of sales performance. In contrast, "individual-level" adaptive behaviors, including Salesforce Agility, Innovative Work Behavior (IWB), and Marketing Intelligence, were not statistically significant, while AI Adoption showed only a marginally significant effect. These findings challenge the prevailing assumption in the Dynamic Capabilities literature that agility is universally beneficial, suggesting instead a Contextual Rigidity effect where firm-level structural compliance and digital connectivity are more critical than individual improvisation in highly regulated export sectors. Consequently, the study offers actionable implications for managers to prioritize technological infrastructure and sustainability certifications over soft-skills training to drive export revenue.

Keywords: B2B Sales Performance, Digital Transformation, SDG Orientation, Dynamic Capabilities View (DCV), Aquaculture Industry, Vietnam, PLS-SEM.

Introduction

In the contemporary B2B landscape, sales performance has transcended its traditional definition as a mere metric of revenue generation to become the primary determinant of organizational survival and strategic resilience (Badrinarayanan et al., 2024). No longer solely dependent on individual charisma or static interpersonal networks, superior sales performance is increasingly recognized as a multifaceted outcome of technological assimilation, strategic intelligence, and behavioral adaptability (Bamberger et al., 2025). As global markets fracture and competition intensifies, the ability of B2B sales professionals to orchestrate a complex ecosystem of digital tools, while simultaneously embodying sustainability orientations, has shifted from a competitive advantage to a fundamental baseline for viability (Linde et al., 2021). The modern salesperson must evolve from a transaction facilitator into a strategic knowledge broker, capable of navigating volatile market terrains with precision (Wilson & Stephens, 2022).

This strategic evolution is being accelerated by the convergence of two potent global mega-trends: the Fourth Industrial Revolution (Industry 4.0) and the urgent imperative of Sustainable Development Goals (SDGs) (Veugelers et al., 2023). In the post-pandemic era, international supply chains demand unprecedented transparency and responsiveness (Lawrence, 2025). Consequently, the digitization of sales functions is reshaping how value is communicated across borders (Kyrdoda et al., 2025). Simultaneously, global buyers are increasingly mandating strict adherence to ESG (Environmental, Social, and Governance) criteria, forcing suppliers to integrate SDG (Sustainable Development Goals) orientation directly into their value proposition (Andrianarivo Andriandafiarisoa Ralison et al., 2026). This "twin transition" of digitalization and sustainability places immense pressure on export-oriented firms to abandon legacy sales models in favor of data-driven, agile methodologies that can withstand the shocks of a VUCA (Volatile, Uncertain, Complex, and Ambiguous) global economy (Muench et al., 2022).

Nowhere is this tension more palpable than in the aquaculture product processing and exporting sector of Southern Vietnam, a critical node in the global food supply chain. While Vietnam remains a top-tier exporter of shrimp and pangasius, the industry operates in a high-pressure environment characterized by distinct "insider" vulnerabilities (Agroberichten Buitenland, 2024). B2B export representatives in this region face a "pressure cooker" scenario: they deal with highly perishable goods where a delay of hours can destroy value, navigate the labyrinthine phytosanitary regulations of the EU and US markets, and battle fierce price competition. Furthermore, Vietnam's cultural context, traditionally rooted in high power distance and relationship-based commerce, clashes with the impersonal efficiency of modern digital tools (Nguyen et al., 2024). Sales representatives are squeezed between the rigid operational constraints of processing plants and the dynamic demands of international buyers (Mukhopadhyay et al., 2025).

Despite the critical nature of this sector, extant literature reveals a significant schism. The majority of research regarding sales technology and agility is predominantly situated within Western, developed economies or high-tech service industries (Verhoef et al., 2021). For instance, Zahoor et al. (2022) explored how dynamic capabilities and strategic agility functioned within B2B high-tech SMEs in Finland during the pandemic. Additionally, Javanmardi et al. (2024) explored business models for managing uncertainty within the healthcare, medical devices, and biotechnology industries in the Czech Republic and Poland, further highlighting the academic focus on high-tech sectors within developed European economies. Furthermore, Golgeci et al. (2023) investigated the role of marketing agility in the resilience and survival of entrepreneurs in Denmark. There is a conspicuous "silence" regarding how these advanced drivers function within resource-intensive, traditional manufacturing sectors in emerging Asian economies. Specifically, we lack an empirical understanding of how Vietnamese export representatives reconcile the adoption of disruptive technologies with the nuanced demands of sustainable export selling.

To bridge this gap, this study draws upon the Dynamic Capabilities View (DCV) and the Resource-Based View (RBV) to propose a three-pillar framework (de Almeida Barbosa Franco et al., 2024). We argue that the synergy of three distinct clusters drives sales performance. First, technological capabilities, specifically AI, CRM, and Digital Marketing adoption, serve as the digital infrastructure for sensing market data (Pesqueira & Sousa, 2024). Second, strategic intelligence, manifested through Marketing Intelligence and SDG Orientation, provides the strategic direction and legitimacy required in global markets (Kumar et al., 2025). Third, adaptive behaviors, including Agility and Innovative Work Behavior (IWB), represent the human mechanism that transforms these digital and strategic assets into closed deals (Ahmed et al., 2022).

Research Objectives

This research aims to empirically examine these antecedents among export sales representatives in Southern Vietnam, offering actionable intelligence for transitioning from labor-intensive sales models to tech-empowered, agile sales forces.

Literature Review

The Integration of RBV and DCV

To adequately explain the drivers of B2B sales performance in the volatile context of the Vietnamese aquaculture export industry, this study integrates two dominant theoretical frameworks: the Resource-Based View (RBV) and the Dynamic Capabilities View (DCV). Originating from the seminal work of Lockett et al. (2009), the RBV posits that a firm's competitive advantage is derived from resources that are valuable, rare, inimitable, and non-substitutable (VRIN). In the context of sales, technological assets such as Customer Relationship Management (CRM) systems and proprietary market data serve as fundamental resources (Graesch et al., 2022). However, in high-velocity environments characterized by rapid market shifts and perishable inventory, possessing static resources is insufficient for sustained performance (Chowdhury, 2025). Consequently, we extend the RBV by drawing on the Dynamic Capabilities View (DCV) introduced by Teece (2007), which argues that performance depends on the firm's ability to "sense" market opportunities, "seize" them through rapid decision-making, and "reconfigure" assets accordingly. This theoretical duality allows us to conceptualize sales performance not merely as a result of having digital tools (RBV) but as a function of using them with agility and strategic intelligence (DCV) to navigate the complexities of international trade.

Technological Capabilities as Strategic Resources

In the era of Industry 4.0, the sales force's technological infrastructure serves as the primary resource base (Tiwari, 2020). The first critical variable, Artificial Intelligence (AI) Adoption, is defined by Syed et al. (2020) as the deployment of machine learning algorithms to automate routine sales tasks and augment human decision-making. Unlike traditional automation, AI acts as a predictive resource, analyzing vast historical datasets to forecast buyer behaviors with high precision (Thakur & Kushwaha, 2024). Empirical literature, such as Paschen et al. (2020), indicates that AI adoption enhances sales performance by freeing sales professionals from administrative burdens, enabling them to reallocate cognitive resources toward high-value relational selling.

H1: AI Adoption positively impacts sales performance.

Complementing AI is CRM Capability, which Chatterjee et al. (2022) define not as mere software usage, but as a comprehensive firm competency in managing customer interactions. Viewed through the RBV lens, CRM systems function as a repository of "institutional memory," ensuring that client knowledge is not lost with employee turnover (Migdadi, 2020). Research consistently demonstrates that robust CRM capabilities enhance customer retention and cross-selling by providing a "single source of truth" that enables personalized communication (Alnofeli et al., 2025).

H2: CRM Capabilities positively impact sales performance.

Furthermore, Digital Marketing Adoption, the utilization of digital channels to create and capture value, serves as the bridge between the exporter and the global market (Homburg & Wielgos, 2022). For Vietnamese firms, digital marketing is a critical resource for overcoming geographical distance (Hien et al., 2023). Prior studies, such as Wu et al. (2024), confirm its positive effect on lead generation and on expanding the sales funnel, particularly in export contexts where physical presence is limited.

H3: Digital Marketing Adoption positively impacts sales performance.

Strategic Intelligence and Legitimacy Beyond technological assets, superior sales performance requires a strategic orientation that aligns with global market demands (Barba-Sánchez et al., 2024). Marketing Intelligence, conceptualized by Jaworski and Kohli (1993) within the market orientation framework, refers to the systematic generation and dissemination of market knowledge. Within the Dynamic Capabilities View (DCV) framework, this acts as a "sensing" capability (Forrest et al., 2023). In the aquaculture sector, where price volatility and regulatory changes are frequent, the ability to gather real-time intelligence allows sales representatives to anticipate shifts and adjust pricing strategies proactively, a behavior strongly linked to higher win rates (Fanaee & Bokaei, 2021).

H4: Marketing Intelligence positively impacts sales performance.

Simultaneously, the modern export landscape demands SDG Orientation (Rehman, 2024). This variable reflects the strategic alignment of sales practices with the UN Sustainable Development Goals, particularly regarding ethical supply chains (Leal Filho et al., 2023; Ratasuk, 2023b). As noted by Hult (2011), sustainability has evolved from a corporate social responsibility initiative to a core performance driver. In Western markets, adherence to ESG (Environmental, Social, and Governance) criteria is often a prerequisite for supplier selection (Linnenluecke, 2022). Therefore, an explicit SDG orientation enhances the legitimacy of the sales pitch, positively impacting performance by satisfying the compliance requirements of global buyers (Gabler et al., 2023).

H5: SDG Orientation positively impacts sales performance.

Adaptive Behaviors: The Human Mechanism

The translation of technological resources and strategic intelligence into actual revenue relies heavily on the sales force's behavioral adaptability (Zheng et al., 2023). Salesforce Agility is defined as the capacity of sales representatives to rapidly sense and respond to market changes (Olivieri, 2025). In the "pressure cooker" environment of perishable exports, agility is the mechanism that prevents resource obsolescence (Uddin et al., 2023). Empirical evidence suggests that agile salespeople, who can pivot strategies mid-negotiation or rapidly resolve logistical crises, achieve significantly higher performance by mitigating the negative effects of market turbulence (Bourguignon et al., 2021).

H6: Agility positively impacts sales performance.

Closely related is Innovative Work Behavior (IWB), defined by Janssen (2000) as the intentional creation and application of new ideas within a work role. While traditional manufacturing cultures often value compliance, recent sales literature suggests that IWB is crucial for solving complex, non-routine client problems (AlEssa & Durugbo, 2022; Ton et al., 2025). When sales representatives are empowered to innovate, for example, by devising novel shipping solutions or flexible payment terms, they create unique value propositions that distinguish them from competitors, thereby driving sales growth (Pappas et al., 2023).

H7: Innovative Work Behavior (IWB) positively impacts sales performance.

Control Variables and Model Synthesis

To isolate the effects of these core constructs, this study includes demographic control variables theoretically linked to human capital and sales outcomes. Age and Tenure are included based on Human Capital Theory, which suggests that accumulated tacit knowledge and experience are significant predictors of sales success (Verbeke et al., 2011). Education serves as a proxy for absorptive capacity, influencing a salesperson's ability to adopt complex technologies such as AI (Massing & Schneider, 2017). Income is controlled to account for baseline motivational variances (Bossavie et al., 2021), while Gender is included to control for potential structural disparities in networking opportunities within the male-dominated industrial export sector (Hernandez-Arenaz & Iriberri, 2019). Synthesizing these elements, the proposed conceptual model posits that technological resources and strategic orientations provide the necessary foundation, which is then operationalized through adaptive behaviors to drive superior Sales Performance.

Based on the theoretical arguments and hypotheses presented above, the proposed conceptual framework illustrating the relationships between the antecedents and sales performance is depicted in Figure 1.

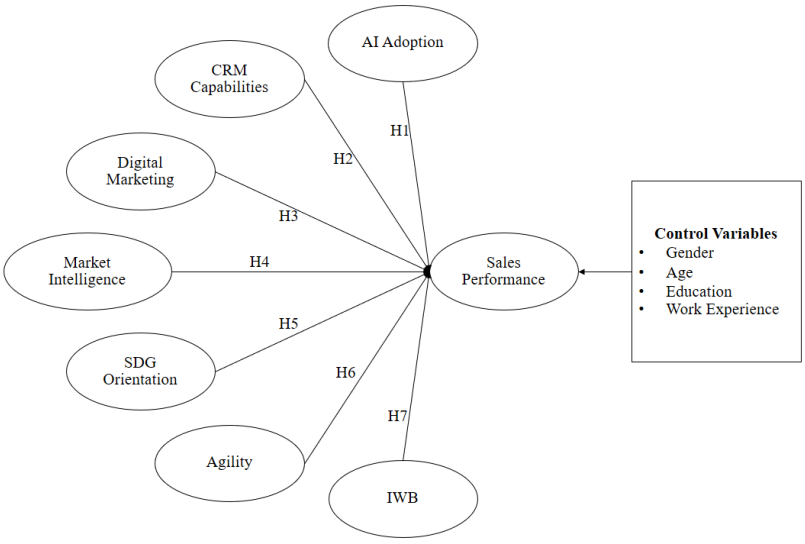

Figure 1: Conceptual Model

Research Methodology

This study adopts a quantitative, deductive research design to empirically test the hypothesized relationships between technological capabilities, strategic orientations, adaptive behaviors, and sales performance. Given the exploratory nature of the structural paths, particularly the integration of modern constructs like AI adoption and SDG orientation within the specific context of the Vietnamese aquaculture industry, Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected as the primary analytical method. In contrast to Covariance-Based SEM (CB-SEM) tools like AMOS, which prioritize parameter estimation and model fit, PLS-SEM is a variance-based approach optimized for maximizing the explained variance (R^2) of the dependent variables, making it ideal for prediction-oriented research (Hair et al., 2019; Zhu & Ratasuk, 2024). Furthermore, PLS-SEM is robust to non-normal data distributions, common in social science survey research, and can handle complex models with many constructs and indicators without the restrictive sample-size requirements of CB-SEM (Hair et al., 2021; Yang & Ratasuk, 2024).

Population and Sampling

The target population for this study comprises B2B export sales representatives and export managers currently employed in aquaculture product processing and exporting companies in Southern Vietnam. Since there is no centralized, exhaustive registry of all individuals in this specific profession, the population is treated as infinite or unknown. To ensure representativeness, a purposive sampling technique was used, targeting respondents with specific knowledge of their firm's export operations and digital tool use (Pan & Ratasuk, 2025; Ratasuk & Nyan Lin, 2025). To determine the minimum required sample size, this study employed the Inverse Square Root Method proposed by Kock and Hadaya (2018), which is considered more robust than the traditional "10-times rule" for PLS-SEM. Based on a significance level of 5% and a statistical power of 80%, this method indicates that a sample size of 400 is sufficient to detect path coefficients as low as 0.124. Thus, the collected sample (N=400) exceeds the minimum required to detect significant effects within the structural model.

The final valid sample consisted of 400 respondents (N=400). As detailed in Table 1, the sample is relatively balanced by gender (54.75% male, 45.25% female) and notably youthful, with over 86% of respondents aged under 35. This demographic structure reflects the "digitally native" cohort currently driving technology adoption in the sector. Furthermore, the sample demonstrates high absorptive capacity, with 97.75% holding at least a Bachelor's degree. Crucially, the majority of respondents (89.00%) are Export Sales Executives, ensuring that the data captures the operational reality of frontline sales agility rather than solely executive-level strategy.

Table 1: Characteristics of the sample.

Characteristics	Categories	Descriptive Statistics	
		Frequency (*f*)	Percentage (%)
Gender	Female	181	45.25
	Male	219	54.75
Age	18 - 25	119	29.82
	26 - 35	226	56.64
	36 - 45	50	12.53
	46 - 55	2	0.50
	Above 55	2	0.50
Education	High School	0	0.00
	Associate Degree	9	2.25
	Bachelor's Degree	381	95.25
	Master's Degree	10	2.50
	Doctor's Degree	0	0.00
Income (Vietnamese Dong)	Less than 10 million	20	5.03
	10 million to 15 million	209	52.51
	15 million to 20 million	113	28.39
	20 million to 25 million	33	8.29
	More than 25 million	23	5.78
Position	Export Sales Executive	356	89.00
	Export Sales Team Leader	25	6.25
	Export Sales Manager	16	4.00
	Export Sales Director	3	0.75

Data Collection Procedure

Data were collected via an online, self-administered questionnaire (Google Forms) distributed through professional networks (LinkedIn and Facebook) and industry associations in the Mekong Delta region. To ensure data quality, the survey employed a mandatory screening question: "Are you currently working as a sales representative or manager involved in the export of aquaculture products?" Respondents answering "No" were automatically terminated from the survey. This procedure ensured that only qualified participants with relevant industry experience contributed to the dataset.

Instrument Development

The research instrument was structured into four distinct sections: Screening, to verify respondent eligibility. Demographics: Collecting control variables including Gender, Age, Income, and Education. Behavior & Usage: General profiling of digital tool usage (e.g., years of experience with CRM). Construct Measurement: The core variables (AI Adoption, CRM Capabilities, Digital Marketing Adoption, Marketing Intelligence, SDG Orientation, Agility, IWB, and Sales Performance). To ensure content validity, all measurement items were adapted from established, validated scales in prior literature. For instance, Agility items were adapted from Inyang et al. (2024), SDG Orientation measures were

refined from Hult (2011), and IWB items were adapted from Ratasuk (2023a). All constructs were measured using a 5-point Likert scale, ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree").3.5 Data Analysis Plan. The conceptual model was assessed using WarpPLS 8.0 software. WarpPLS was chosen specifically for its ability to identify non-linear relationships often present in behavioral studies and its robust calculation of model fit indices. The analysis followed a two-stage process:

Assessment of the Measurement Model

The reliability and validity of the reflective constructs were evaluated using the following criteria: Internal Consistency Reliability: Assessed via Cronbach's alpha and Composite Reliability (rho_A). Values exceeding 0.70 were considered acceptable (Niu et al., 2025). Convergent Validity: Confirmed by ensuring that the Average Variance Extracted (AVE) for each construct exceeded 0.50, and that all outer factor loadings were significant and above the 0.708 threshold (Hair et al., 2019). Discriminant Validity: Evaluated using the Heterotrait-Monotrait ratio of correlations (HTMT). This method is preferred over the traditional Fornell-Larcker criterion because it is more sensitive to a lack of discriminant validity. HTMT values below the conservative threshold of 0.85 (or 0.90) were required to establish distinctness between constructs (Henseler et al., 2016).3.5.2 Assessment of the Structural Model. The structural relationships were tested by examining: Collinearity: Variance Inflation Factor (VIF) values were checked to ensure they remained below 3.3 (Kock, 2015), indicating no lateral collinearity issues. Path Coefficients (β): The strength and direction of the hypothesized relationships. Coefficient of Determination (R^2): To measure the model's predictive accuracy. Significance: Determined via a bootstrapping procedure with 5,000 resamples to generate t-values and p-values.

Robustness Checks

To ensure the integrity of the findings, Common Method Bias (CMB) was assessed using the Full Collinearity VIF approach available in WarpPLS. A VIF value below 3.3 for all latent variables would confirm that the model is free of common method bias (Lyu & Ratasuk, 2024). Additionally, mediation analysis was conducted to test the indirect effects of adaptive behaviors.

Ethical Considerations

This study strictly adhered to ethical research standards. All participants were provided with a digital Informed Consent statement prior to starting the survey, ensuring they understood the study's purpose. Participation was entirely voluntary, with the right to withdraw at any time. Furthermore, anonymity was guaranteed; no personally identifiable information (PII), such as names or email addresses, was linked to the response data, ensuring complete confidentiality.

Results

Assessment of the Measurement Model (CFA)

The measurement model was evaluated to establish the reliability and validity of the latent constructs prior to structural analysis. As summarized in Table 2, all reflective constructs met and exceeded the rigorous quality thresholds established in PLS-SEM literature. Individual indicator reliability was first assessed by examining the outer factor loadings. According to Hair et al. (2019), loadings should ideally exceed 0.708, a threshold indicating that the latent construct explains more than 50% of the indicator's variance. The analysis confirms that all retained items exhibited robust loadings, ranging from 0.717 (Agility) to 0.934 (Market Intelligence), thereby demonstrating strong indicator reliability. Convergent validity was subsequently evaluated using the Average Variance Extracted (AVE). All constructs yielded AVE values ranging from 0.610 to 0.828, consistently surpassing the minimum threshold of 0.50. This confirms that, on average, each construct explains the majority of the variance in its indicators, establishing satisfactory convergent validity.

To ensure the constructs consistently measured the intended concepts, both Cronbach's Alpha (CA) and Composite Reliability (CR) were examined. As detailed in Table 2, all Cronbach's Alpha values exceeded the 0.70 benchmark, ranging from 0.840 to 0.948. Similarly, Composite Reliability (CR) values were well above the acceptable limit, ranging from 0.886 to 0.960. These results provide conclusive evidence of high internal consistency across the model.

Finally, given the self-reported nature of the data, this study proactively addressed the potential for Common Method Bias (CMB) by examining Full Collinearity VIFs as recommended by Kock (2015). In the context of WarpPLS, VIF values below 3.3 indicate that the model is free of vertical collinearity and that CMB is not a pervasive issue. The VIF values reported in Table 2 range from 1.330 (Sales Performance) to 1.948 (Digital Marketing), all of which are substantially below the 3.3 threshold. This confirms that the model is robust against common method bias and lateral multicollinearity (Naing & Ratasuk, 2025).

Table 2: Convergent Validity, Reliability, Multicollinearity, and Common Method Bias (CMB)

Construct	Items	Factor Loadings	CR	CA	AVE	VIF (CMB)
Sales Performance	SP1	0.762	0.917	0.886	0.688	1.33
	SP3	0.814				
	SP4	0.821				
	SP5	0.877				
	SP6	0.869				
AI Adoption	AI1	0.821	0.91	0.867	0.716	1.587
	AI3	0.834				
	AI4	0.885				
	AI5	0.844				
CRM Capabilities	CRM1	0.83	0.928	0.903	0.722	1.364
	CRM2	0.826				
	CRM3	0.874				
	CRM4	0.879				
	CRM5	0.838				
Digital Marketing	DM1	0.774	0.916	0.884	0.687	1.948
	DM2	0.729				
	DM3	0.884				
	DM4	0.888				
	DM5	0.857				
Market Intelligence	MI1	0.864	0.96	0.948	0.828	1.663
	MI2	0.908				
	MI3	0.934				
	MI4	0.932				
	MI5	0.91				
SDG Orientation	SDG1	0.799	0.946	0.933	0.713	1.782
	SDG2	0.808				
	SDG3	0.852				
	SDG4	0.864				
	SDG5	0.869				
	SDG6	0.855				
	SDG7	0.859				
Agility	AG1	0.717	0.886	0.84	0.61	1.683
	AG2	0.76				
	AG3	0.81				
	AG4	0.816				
	AG5	0.798				

Construct	Items	Factor Loadings	CR	CA	AVE	VIF (CMB)
Innovative Work Behavior (IWB)	IWB3	0.793	0.914	0.882	0.68	1.691
	IWB4	0.824				
	IWB5	0.855				
	IWB6	0.835				
	IWB7	0.814				

Note: CR = Composite Reliability; CA = Cronbach's Alpha; AVE = Average Variance Extracted; VIF = Variance Inflation Factor (Full Collinearity VIF used to assess Common Method Bias).

Discriminant validity was assessed to ensure that each construct is empirically distinct and represents a unique phenomenon not captured by other variables in the model. This study employed two distinct criteria: the Heterotrait-Monotrait Ratio (HTMT) and the Fornell-Larcker Criterion.

First, following the modern guidelines of Henseler et al. (2016), the HTMT ratio was prioritized as the primary metric due to its superior sensitivity in detecting discriminant validity issues compared to traditional methods. As shown in the lower triangle of Table 3, all HTMT values were well below the conservative threshold of 0.85 (and the liberal threshold of 0.90). The highest observed HTMT value was 0.598 (between Digital Marketing and Market Intelligence), confirming that all constructs are statistically distinct.

Second, the traditional Fornell-Larcker criterion was applied for robustness. As presented in Table 3, the square root of the Average Variance Extracted (AVE) for each construct (shown in parentheses on the diagonal) was compared against the inter-construct correlations (shown in the upper triangle). In every case, the square root of the AVE was greater than the highest correlation with any other construct. For instance, the square root of the AVE for Market Intelligence (0.910) is significantly greater than its strongest correlation with Digital Marketing (0.513).

Collectively, these two tests provide strong evidence of discriminant validity, permitting the analysis to proceed to the structural model assessment.

Table 3: Discriminant Validity (HTMT Ratio below diagonal, Fornell-Larcker above)

Construct	1	2	3	4	5	6	7	8
1. Sales Performance	(0.830)	0.317***	0.188***	0.221***	0.307***	0.242***	0.382***	0.395***
2. AI Adoption	0.261	(0.846)	0.364***	0.380***	0.286***	0.443***	0.508***	0.481***
3. Agility	0.249	0.515	(0.781)	0.514***	0.443***	0.368***	0.385***	0.420***
4. IWB	0.217	0.411	0.595	(0.824)	0.308***	0.472***	0.463***	0.397***
5. CRM Capabilities	0.344	0.283	0.344	0.507	(0.850)	0.263***	0.311***	0.357***
6. Market Intelligence	0.43**	0.559	0.522	0.446	0.347	(0.910)	0.513***	0.422***
7. Digital Marketing	0.435	0.451	0.438	0.474	0.388	0.598	(0.829)	0.545***
8. SDG Orientation	0.36**	0.489	0.434	0.426	0.321	0.573	0.536	(0.844)

Note: *** = $p \leq 0.001$

Before interpreting the specific path coefficients, the overall quality and predictive power of the structural model were evaluated using the global model fit indices provided by WarpPLS 8.0. The model exhibits a robust fit with the empirical data, satisfying all major threshold criteria.

The model's explanatory power is statistically significant, as evidenced by the Average Path Coefficient (APC = 0.099, P = 0.011) and the Average R-squared (ARS = 0.278, P < 0.001). Furthermore, the Average Adjusted R-squared (AARS) is 0.258 (P<0.001), confirming that the model retains its explanatory power even after correcting for model complexity. To assess the overall goodness-of-fit, the Tenenhaus GoF index was calculated. The obtained value of 0.473 exceeds the threshold of 0.36 for a "large" effect size (Wetzels et al., 2009), indicating that the model performs

exceptionally well across both measurement and structural dimensions. Additionally, the Standardized Root Mean Squared Residual (SRMR) is 0.062, which is well below the conservative threshold of 0.08 proposed by Hu and Bentler (1999), confirming acceptable model fit.

Multicollinearity was assessed via the Average Block VIF (AVIF = 1.508) and the Average Full Collinearity VIF (AFVIF = 1.631). Both values are substantially below the ideal threshold of 3.3 (Kock, 2015), suggesting that vertical and lateral collinearity are not distorting the results. Furthermore, the model's causal robustness is supported by the Simpson's Paradox Ratio (SPR = 0.818) and the Nonlinear Bivariate Causality Direction Ratio (NLBCDR = 0.773), both of which exceed the acceptable threshold of 0.70. This confirms that the data support the hypothesized directions of causality and are not artifacts of reverse causality or suppression effects.4.3.3 Predictive Relevance (Q^2). Finally, the predictive relevance of the model was evaluated using the Stone-Geisser Q^2 coefficient. The model yielded a Q^2 value of 0.278. Since this value is effectively greater than zero, it confirms that the exogenous constructs have significant predictive relevance for the endogenous latent variables in the model (Hair et al., 2019).

Structural Model and Hypothesis Testing

The structural model was assessed by examining the path coefficients (β) and their corresponding significance levels (p-values) generated via bootstrapping. The results of the hypothesis testing are summarized in Figure 2 and Table 4.

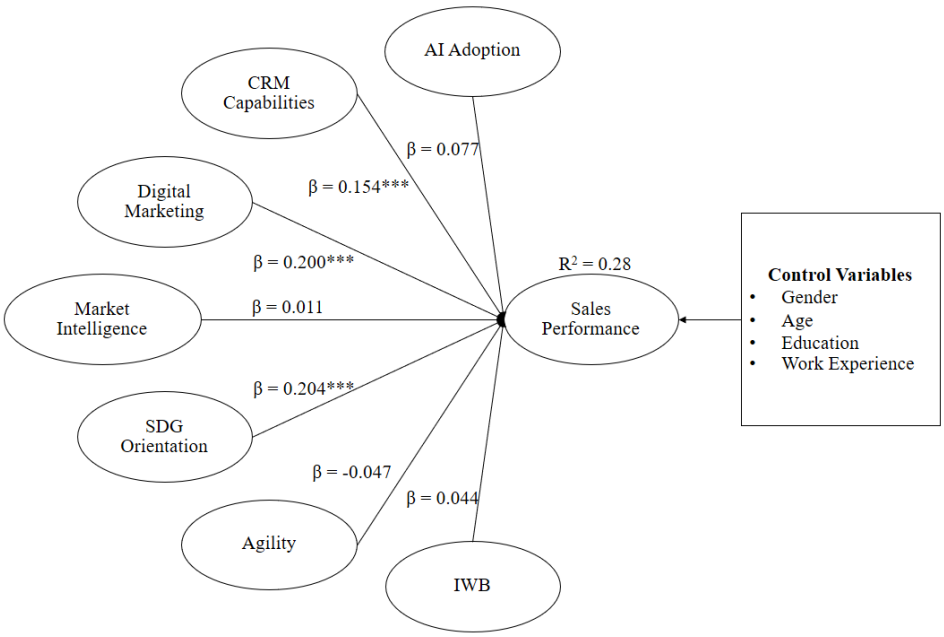

Figure 2: PLS-SEM Results
Note: *** = $p \leq 0.001$

Drivers of Sales Performance

The analysis reveals that technological and strategic capabilities are the strongest predictors of sales performance in this context. Specifically, Digital Marketing Adoption exerted a strong positive impact on sales performance (β = 0.200, $p < 0.001$), fully supporting H3. Similarly, CRM Capabilities demonstrated a significant positive relationship with performance (β = 0.154, $p < 0.001$), supporting H2. Interestingly, SDG Orientation emerged as the most impactful strategic driver (β = 0.204,

p < 0.001), confirming H5. This finding highlights the critical role of sustainability legitimacy in the export sector. However, the results for the other technological and behavioral variables were mixed. AI Adoption showed a positive coefficient but failed to reach the strict statistical threshold of 0.05 (β = 0.077, p = 0.059), rendering H1 Not Supported (though marginally significant).

Furthermore, contrary to expectations, neither the adaptive behaviors nor the market intelligence yielded significant effects. Marketing Intelligence (β = 0.011, p = 0.415), Agility (β = -0.047, p = 0.173), and Innovative Work Behavior (IWB) (β = 0.044, p = 0.190) were all non-significant. Consequently, H4, H6, and H7 are Not Supported. These findings suggest that in the highly regulated aquaculture export industry, systematic compliance (SDG/CRM) contributes more to performance than individual adaptability or improvisation.

Control Variables

Regarding the control variables, Age (β = 0.106, p = 0.016) and Work Experience (β = 0.094, p = 0.029) showed significant positive effects, indicating that seniority and accumulated experience are key assets. Conversely, Education displayed a significant negative relationship (β = -0.109, p = 0.014), potentially suggesting that over-qualification may lead to lower engagement in routine sales tasks, or that practical trade skills are more valuable than academic degrees in this specific context. Gender had no significant impact.

Table 4: Hypothesis Testing Results

Hypothesis	Path Relationship	Beta (β)	p-Value	Decision
H1	AI Adoption → Sales Performance	0.077	0.059	Not Supported
H2	CRM Capabilities → Sales Performance	0.154	< 0.001	Supported
H3	Digital Marketing → Sales Performance	0.200	< 0.001	Supported
H4	Market Intelligence → Sales Performance	0.011	0.415	Not Supported
H5	SDG Orientation → Sales Performance	0.204	< 0.001	Supported
H6	Agility → Sales Performance	-0.047	0.173	Not Supported
H7	IWB → Sales Performance	0.044	0.19	Not Supported
Controls	Gender → Sales Performance	-0.045	0.181	Not Significant
	Age → Sales Performance	0.106	0.016	Significant
	Education → Sales Performance	-0.109	0.014	Significant
	Work Exp → Sales Performance	0.094	0.029	Significant

Discussion

The primary objective of this research was to empirically examine the technological, strategic, and behavioral drivers of sales performance among B2B export representatives in the Southern Vietnamese aquaculture industry. Integrating the Resource-Based View (RBV) and Dynamic Capabilities View (DCV), the analysis of the structural model reveals a distinct hierarchy of drivers. A comparison among the results themselves highlights a clear dominance of "Strategic Legitimacy" and "Digital Infrastructure" over "Individual Adaptability." The strongest predictors of sales performance were SDG Orientation (β = 0.204) and Digital Marketing Adoption (β = 0.200), followed closely by CRM Capabilities (β = 0.154).

Notably, Artificial Intelligence (AI) Adoption occupied a unique middle ground. While it did not meet the strict threshold for statistical significance (β = 0.077, p = 0.059), its positive coefficient suggests it is an emerging technological capability. This stands in sharp contrast to the "human" behavioral constructs, which were clearly non-significant; Agility (β = -0.047), Innovative Work Behavior (β = 0.044), and Market Intelligence (β = 0.011) all failed to impact performance.

This internal contrast suggests a crucial "System vs. Self" dichotomy in the context of aquaculture exports. The data indicate that performance is not driven by the individual salesperson's ability to improvise (Agility/IWB) or gather data (Market Intelligence), but rather by the firm's ability to project legitimacy (SDG) and maintain robust digital connections (CRM/Digital Marketing/AI). In essence, in a sector governed by rigid international phytosanitary standards, compliance and systematic connectivity are far more valuable than individual creativity.

Theoretical Contributions

This study makes several critical contributions by refining the application of the RBV and DCV frameworks and creating new knowledge that fills gaps in the current literature. Consistent with the Resource-Based View (RBV), our findings confirm that intangible assets are critical for competitive advantage. The strong positive impact of CRM Capabilities (H2) aligns with Rodriguez et al. (2014), who argued that CRM acts as an institutional memory bank essential for customer retention. Similarly, the support for Digital Marketing (H3) corroborates Ritz et al. (2019) and Wu et al. (2024), confirming that for export firms, digital channels are the primary resource for overcoming the "liability of foreignness" and expanding the sales funnel.

Uniquely, this study extends the RBV by establishing SDG Orientation (H5) as a strategic resource. While Hult (2011) theorized that sustainability is a performance driver in Western markets, our results empirically validate that in the Vietnamese context, SDG alignment functions as a "license to operate". This finding supports recent work by Gabler et al. (2023), which links sustainability to professional sales success, and extends it to the specific context of emerging-market exports.

The study offers a significant theoretical deviation regarding the Dynamic Capabilities View (DCV). Contrary to Inyang et al. (2018) and Janssen (2000), who established Salesforce Agility (H6) and IWB (H7) as universally positive drivers in volatile markets, our results found these paths non-significant. This contradicts the traditional DCV assumption that "sensing and seizing" (agility) always leads to better outcomes. We theorize a "Contextual Rigidity" effect: in the aquaculture industry, where product specifications (e.g., shrimp size, freezing method) and import regulations are fixed, individual improvisation (Agility/IWB) may be redundant or even detrimental. This creates new theoretical knowledge by identifying a boundary condition for DCV: in highly regulated, commoditized export industries, dynamic capabilities may need to be embedded in firm-level systems rather than individual-level behaviors.

Finally, the marginal non-significance of AI Adoption (H1, $p=0.059$) contrasts with recent studies in high-tech sectors, such as Paschen et al. (2020), which found AI to be a definitive driver of sales performance. This discrepancy suggests that while AI is emerging, it has not yet reached the "tipping point" of utility in the Vietnamese aquaculture sector, likely due to insufficient data maturity to fuel effective machine learning models.

Practical Implications

The findings offer actionable strategies for export managers: Invest in "Hard" Systems over "Soft" Skills: Given that CRM and Digital Marketing ($\beta = 0.20$) vastly outperform Agility ($\beta = 0$), training budgets should shift from soft-skills workshops (e.g., "adaptive selling") to technical training on CRM utilization and digital lead generation. Leverage the SDGs as a Sales Tool: Managers must explicitly integrate SDGs 8 and 12 into their value proposition. The data proves that "being green" is a stronger sales driver ($\beta = 0.204$) than "being smart" (Market Intelligence, $\beta = 0.011$). Standardize Processes: Since individual innovation (IWB) did not drive sales, firms should focus on standardizing successful export procedures rather than encouraging representatives to experiment with novel but risky solutions.

Limitations and Future Research

This study is limited by its cross-sectional design, which precludes causal inference, and its focus on a single industry (aquaculture). Future research should replicate this model in less regulated industries (e.g., fashion or software exports) to test whether the non-significance of Agility holds or is unique to the "Contextual Rigidity" of the food export sector. Additionally, longitudinal studies are needed to track whether AI Adoption becomes significant as the technology matures in Vietnam.5.5 Recommendation for Future Studies We recommend that future scholars investigate the moderating role of Regulatory Turbulence. It is plausible that Agility becomes significant only when external regulations change rapidly. By examining this, researchers can further refine the DCV framework, moving beyond "Agility is always good" to a more nuanced understanding of "Agility is good when structural constraints are low."

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THE STUDY OF ENHANCING SOCIAL MEDIA CONTENT MARKETING STRATEGY IN CROSS-BORDER E-COMMERCE BASED ON SWOT ANALYSIS

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Abstract

With the rapid development of cross-border e-commerce and social commerce, content marketing has become an essential strategy for international brands entering the Chinese market. This study examines the content marketing performance of two Thai cosmetic brands on Xiaohongshu using a data-driven SWOT analysis framework. Official account posts published between January and June 2025 are collected and analyzed, including posting frequency, content type distribution, fan size, and user interaction indicators such as likes, comments, collections, and interaction rates, it also collected the target audience and hot search word trend data from the Xiaohongshu data platform Xinhong data. Descriptive statistics and independent-samples t-tests are employed to enhance the objectivity of SWOT factor identification. The results show that brand 2 achieves significantly higher user interaction through a high-frequency and stable content publishing strategy, while brand 1, despite its distinctive brand advantages, exhibits weaknesses in posting frequency and interaction performance. The findings indicate that Xiaohongshu provides important communication opportunities for cross-border brands, but effective content marketing strategies must be aligned with brand characteristics, user interests, and platform trends. This study offers practical implications for Thai cosmetic brands and other cross-border enterprises seeking to optimize content marketing strategies in the Chinese market.

Keywords: Cross-border e-commerce, Social commerce, Content Marketing, Xiaohongshu, SWOT Analysis

Introduction

With the rapid development of the Chinese economy and digital technologies, the scale of Chinese e-commerce market has continued to expand. Meanwhile, the growth of cross-border e-commerce has provided more convenient channels for brands and products from different countries to enter the Chinese market (Li et al., 2024). Under this background, social commerce has gradually become an important approach for brand promotion and sales due to its strong social attributes and content-driven communication mechanisms. Xiaohongshu, as one of Chinese leading social commerce platforms, offers significant market opportunities for cross-border brands by integrating picture & text and short-video content formats with recommendation mechanisms based on User-Generated Content (UGC) and Key Opinion Leader (KOL) influence (Liu, 2019).

Content marketing attracts target audiences through high-quality and engaging content and has been proven to be an effective method for enhancing brand awareness and user engagement (Tang, 2025). For example, brand 2, a Thai cosmetics brand, has successfully established strong brand awareness and accumulated a large user base in the Chinese market through its systematic content marketing strategy on Xiaohongshu. In contrast, although another Thai cosmetics brand, brand 1, performs well in Thailand

domestic market, its current content marketing performance in China has not fully leveraged the platform's content ecosystem and interactive mechanisms. Therefore, how to scientifically and systematically optimize content marketing strategies based on brand characteristics, platform features, and user data has become a crucial issue for brand 1's expansion into the Chinese market.

Although existing studies on cosmetics brands and social commerce platforms are increasing, most prior research focuses on domestic Chinese brands or fashion-related categories, with limited attention paid to cross-border cosmetics brands. Moreover, many studies rely primarily on questionnaire surveys, lacking analyses grounded in actual platform data and brand-specific operational characteristics. In particular, few studies adopt real brand cases combined with quantitative content performance data. In addition, traditional SWOT analysis has been criticized in digital marketing research for its subjectivity and lack of quantitative standards, resulting in limited reproducibility and empirical validity. These research gaps provide important opportunities for this study.

Accordingly, this study takes the Thai cosmetics brand brand 1 as the primary research object and uses brand 2 as a benchmark brand. The research period covers January to June 2025. Data sources include content and interaction data published by the official Xiaohongshu accounts of brand 1 and brand 2, official brand information, as well as crowd portrait data and hot search keyword data provided by the Xinhong Data platform. To ensure data authenticity and reliability, this study analyzes only content published by official brand accounts, thereby ensuring that the data accurately reflect each brand's content marketing strategies and operational intentions on Xiaohongshu.

The purpose of this study is to assess the strengths, weaknesses, opportunities and threats of Thai cosmetics brands 1 and 2 based on real platform data through SWOT analysis, analyze their existing content marketing strategies in xiaohongshu, and identify the key features of effective content and the interests of Chinese consumers by using data-driven quantitative analysis and statistical test, and finally put forward suggestions on the optimization of content marketing to help brand 1 better enter the Chinese market. The importance of this study is to fill the academic gap, provide theoretical and empirical basis for the content marketing of brand 1 and the strategy of Thai cosmetics entering the Chinese market, and promote the development of cross-border e-commerce and cultural exchanges.

Research Objectives

1. Based on SWOT analysis and platform content marketing data (number of official posts, fans, percentage of content types released, update frequency, interaction rate, etc.) of Xiaohongshu, identify the current situation of content marketing of brand 1 and brand 2 in Xiaohongshu.
2. Based on the comparison results of the content marketing strategies of the two brands and the analysis results of Xinhong data (crowd/hot search word analysis), provide optimization suggestions for brand 1's content marketing strategy on Xiaohongshu.
3. Provide suggestions for the content marketing strategies of brand 1 and other Thai cosmetics brands on Xiaohongshu in the future.

Literature Review

1. Current Situation of Chinese E-commerce Market

Driven by the rapid development of digital technology, the scale of Chinese e-commerce market has steadily expanded year by year and has gradually become one of the largest e-commerce markets in the world. In recent years, new models such as new retail, cross-border e-commerce, social commerce, content e-commerce and green e-commerce have been emerging, injecting new impetus into the development of the industry (Li et al., 2024). According to the data of the National Bureau of

statistics, Chinese e-commerce transaction volume reached 46.83 trillion yuan in 2023, an increase of 9.4% over the previous year, including 15.43 trillion yuan of online retail sales, an increase of 11.0% over the previous year (National Bureau of Statistics, 2024). These data show that Chinese e-commerce market maintains a stable growth trend. E-commerce has been deeply integrated into the daily life of Chinese consumers and has become one of the main shopping methods (Liu, 2019).

2. Overview of Social commerce Platform

The development of social media has pushed e-commerce platforms onto the road of exploring socialization, and spawned a new business model, namely, social commerce (Ge, 2025). Social commerce is a new business model integrating social media and e-commerce. Its core is to attract consumers' attention through user interaction, content sharing and recommendation, to affect consumers' purchase decisions (Zhao, 2024).

As an important social commerce platform in China, Xiaohongshu has unique characteristics and advantages in the market (Zhang, 2023). The content of the platform focuses on the in-depth experience sharing of products and brand recommendation (especially lifestyle and beauty products). Through user generated content (UGC) and community trust, it has won the favor of young user groups (Han & Wei, 2025).

In addition, studies have shown that the core of social commerce is the emotional resonance and interactive feedback of consumers triggered by content, thus further promoting the dissemination effect of highly interactive content (Duan, 2021). Therefore, social commerce platforms are crucial for brands to broaden the consumer market (Li et al., 2025).

3. Definition and Theory of SWOT

SWOT is an analysis tool, which consists of four dimensions: strengths, weaknesses, opportunities and threats. By systematically analyzing the internal development (strengths and weaknesses) and external environment (opportunities and threats) of the enterprise or brand, identify the key factors affecting the development of the enterprise, and provide a clear reference framework for formulating targeted strategies (Ni, 2016).

Due to the clear structure and logic of SWOT analysis method, in the research of digital marketing and cross-border e-commerce related fields, SWOT analysis is often used to systematically analyze the internal conditions and external environment of brands or cases in specific markets, and further used to identify the existing strengths and weaknesses of brands or products at the market level, as well as the opportunities and challenges in different markets (Gürel & Tat, 2017).

In a word, the results of SWOT analysis can help brands promote product innovation, content optimization and marketing strategy formulation more specifically, so as to launch more feasible and effective content marketing strategies (Yang & Xing, 2024).

4. Definition and Theory of Content Marketing

Content marketing refers to that enterprises attract and retain clear or potential target audiences by creating and disseminating valuable content, and ultimately urge consumers to make behaviors that can bring profits to enterprises (Tang, 2025). The theoretical basis of content marketing is to provide consumers with valuable information, rather than directly promote products or services (Gu & Yao, 2023).

With the rapid development of social media, content marketing has evolved from a traditional brand communication tool to an important tool for enterprises to shape brand image and strengthen links with consumers (Lei, 2025). Especially in social commerce, content marketing has further become an important method to influence consumers' purchase decisions. By continuously outputting content with information value, emotional value and social value, users can gradually establish a trust

relationship with the brand (Li & Xu, 2024). At the same time, with the improvement of the accuracy of the platform for users' use of data, more and more studies have begun to focus on the data-driven content marketing analysis method, and evaluate the brand content performance through quantitative indicators such as posting frequency, content type, and interaction rate (likes, comments, and collections) (Zhang, 2023). This method makes the content marketing effect change from subjective judgment to data analysis that can be compared and measured and provides a solid method foundation and new channels for brands to formulate more accurate and effective marketing strategies (Cheng et al., 2022).

Previous studies suggest that content marketing plays a critical role in building brand engagement and trust in social media environments (Holliman & Rowley, 2014; Pulizzi, 2012).

5. Overview of Xiaohongshu

Since its establishment in 2013, Xiaohongshu has evolved from an initial "overseas shopping guide" to a leading lifestyle sharing and social commerce platform in China. The platform focuses on picture & text and short videos as its core content, emphasizing the sharing of users' real experiences, gradually forming a "product seeding culture", which has a significant impact on consumer decision-making (Shao & He, 2020). Research shows that international cosmetics brands have a higher level of discussion on Xiaohongshu, and users are more likely to establish trust in the brand through authentic sharing, thereby driving product purchases. At the same time, the platform's tagging system and intelligent recommendation mechanism can help brands accurately locate their target customers, becoming an important channel for international brands to enter the Chinese market (Liu, 2019).

6. Current Situation of Thai Cosmetics in the Chinese Market

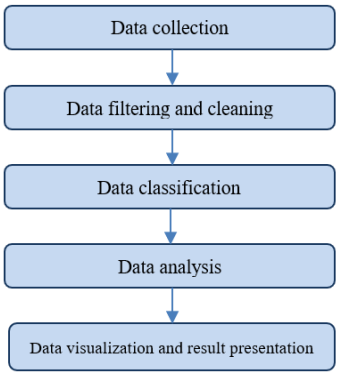
Thai cosmetics are favored by young Chinese consumers with their high cost performance, natural ingredients and unique packaging (Tang, 2025). In particular, under the framework of the "belt and road" initiative and the regional comprehensive economic partnership agreement (RCEP), the economic and trade exchanges between China and Thailand have become more frequent, providing a more convenient market environment and logistics conditions for Thai consumer goods brands to enter the Chinese market (Xiao & Dai, 2025).In this background, more and more Thai cosmetic brands began to hope to enter the Chinese market through cross-border e-commerce platforms (Tang, 2025).

From 2015 to 2019, the export scale of Thailand's cosmetics continued to grow, with sales reaching US $7.27 billion in 2019, accounting for 6.7% of ASEAN's market share. It is expected to grow to US $8.325 billion in 2024. This trend shows that Thai cosmetic brands have good growth prospects and development potential in the Chinese market (Li & Lin, 2021).

Although Thailand cosmetics has certain competitive advantages in terms of products, it is still generally weaker than international brands and Chinese local brands that have been in the Chinese market for many years in terms of brand awareness and localization marketing ability (Feng, 2024). Therefore, from "products are competitive" to "brands are recognized by the Chinese market", Thai cosmetic brands still face marketing and communication challenges (Feng, 2024).

Research Methodology

In order to ensure the scientific of the research, this study uses the research and application methods of scientific data technology in e-commerce research (Chen, 2022). And combined with the content of this study, the adaptability was improved. And cause this study selected two well-known Thai cosmetic brands as the research object. In order to avoid negative impact on the brand, this study used "brand 1" and "brand 2" instead of them. The specific research steps of this study are as follows:



Picture 1: The flow chart of research steps

1. **Data collection**

The data used in this study were obtained from three sources between January and June 2025: 1) All posts published on the official Xiaohongshu accounts of Brand 1 and Brand 2, including posting volume, content type (picture & text or short video), and user interaction indicators such as likes, comments, and collections. 2) Brand audience profile data and platform-level cosmetic-related hot search keyword trends from Xinhong Data(the official data analytics platform of Xiaohongshu), including audience characteristics such as gender, age, and interests. 3) Official brand introduction information released by Brand 1 and Brand 2 on Xiaohongshu..

2. **Data filtering and cleaning**

This study will manage and preprocess the following types of data, filter invalid or missing records and handle incomplete posts to ensure the accuracy and consistency of the data set: 1)The posts without interactive content (number of likes, comments and collections is 0) to ensure the validity of the data; 2) The posts with invalid links to ensure the accuracy of data; 3) For cosmetics hot search keywords, to ensure the validity of the experimental data, only 50 terms with the highest heat index are reserved.

3. **Data classification**

This study will classify the data according to the characteristics, including: content type (picture & text, videos), interactive data (likes, comments, collections, reading, interaction rate, average posting frequency). Focus on the proportion of target audiences (gender, age) of the brand, and the trend of popular search keywords for cosmetics on Xiaohongshu platform.

The calculation formula of interaction rate is (Hootsuite, n.d.) (Quintly, n.d.) (Trunfio & Rossi, 2021):

$$\text{Interaction rate}=\frac{\text{Number of likes+comments+collections}}{\text{Number of readings}}\times 100\%$$

The calculation formula of average posting frequency is:

$$\text{Average posting frequency}=\frac{\text{Total posts}}{\text{Research time span (month)}}$$

These two indicators will be used to calculate and evaluate the content release frequency and content effectiveness of the brand on the Xiaohongshu platform.

4. Data analysis

The purpose of this study is to analyze and compare the SWOT characteristics of brand 1 and brand 2. Therefore, this study adopts the following analysis methods:

4.1 Descriptive statistics

Statistics of brand 1 and brand 2's official introduction information, the number of posts in Xiaohongshu, the proportion of content types, interactive data and interactive rate. And focus on the distribution proportion of the target audience of the brand and the trend of cosmetics hot search keywords on the platform.

4.2 Inferential analysis - Independent samples t-test

In order to reduce the subjectivity in the process of SWOT classification and improve the preciseness of methodology, this study uses independent sample t-test to statistically test the mean difference between brand 1 and brand 2 in key content marketing performance indicators. The significance level is set as $\alpha=0.05$, which is widely used in social science and digital marketing research to control the first type of error risk. The null hypothesis is set as that the mean difference between the two brands in relevant indicators is 0. When the test result is $p<0.05$, it is considered that the difference between the two brands is statistically significant (Wikipedia, 2026).

This study selected the following two variables for t-test analysis: 1）Interaction rate；2）Monthly posting frequency

4.3 SWOT analysis

This study uses a hybrid SWOT framework, the following two dimensions are collected in a data-driven way, that is through the differences in the total number of posts, posting frequency, number of fans, and interaction rate, to identify the data-driven disadvantages of brand 1 and the data-driven advantages of brand 2; Other SWOT dimensions (advantages, opportunities, threats) are identified by qualitative analysis based on the official information of the brand, existing literature, platform trends and market competition, so as to avoid the decline of theoretical interpretation ability caused by excessive data.

4.4 Comparative analysis

Compare the differences between brand 1 and brand 2 in the number of posts, content type distribution, interaction rate, target audience and t-test results, and identify the gap between the two brands at the content marketing level.

5. Data visualization and result presentation

In order to facilitate the description of data analysis results, this study will use pie charts, bar charts and tables to show and compare the popularity of the cosmetics hot search word trend in Xiaohongshu, the target audience, content composition, interactive distribution of brand 1 and brand 2 in the platform, as well as the systematic summary and display of SWOT results.

Results

1. Data collection results

The data collected in this study include three components: 1) Brand introduction information released by Brand 1 and Brand 2 on their official Xiaohongshu accounts. 2) A total of 18 posts from Brand 1 and 379 posts from Brand 2 published between January and June 2025 were collected for content analysis. 3) Target audience data of both brands and platform-level cosmetic-related hot search keyword trends were obtained from Xinhong Data.

2. Data filtering and cleaning results

The initial data collected in this study were 397 posts. After screening and cleaning, 376 posts were retained for research, accounting for 94.71% of the initial data. The reasons for deleting the data are as follows: 1). delete the posts without interactive content (number of likes, comments and collections is 0) to ensure the validity of the data: a total of 18 posts have been deleted; 2). delete posts with invalid links to ensure the accuracy of data: a total of 3 posts were deleted. 3). only keep the top 50 hot cosmetic search terms.

3. Data classification results

This study classifies the data according to the different data characteristics of brand 1 and brand 2, including the following categories: content types (picture & text, videos), interactive data (likes, comments, collections, reading, interactive rate and average posting frequency). The target audience of brand 1 and brand 2, and the trend of cosmetics hot search words on the platform.

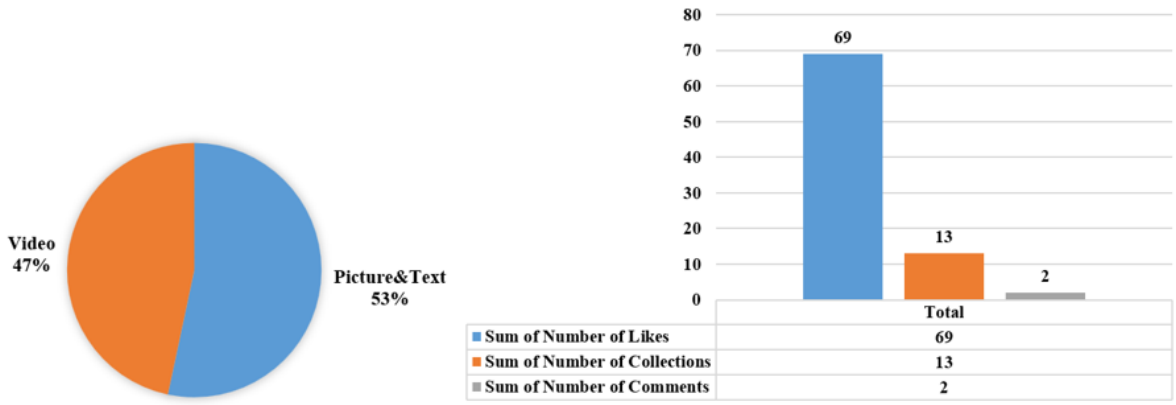
4. Data analysis results

After completing the data analysis, the data analysis results of this study are as follows:

4.1 Descriptive statistics result:

After data collection and summary, Brand 1 is identified as a Thai cosmetic brand founded in 2002. The brand positions itself with characteristics including high cost performance, vegan formulation, mild and non-irritating ingredients, and product purity. During the research period from January to June 2025, Brand 1 published a total of 15 posts on Xiaohongshu. Among these, 8 posts were picture-and-text content, accounting for 53% of the total, while 7 posts were video content, accounting for 47%,

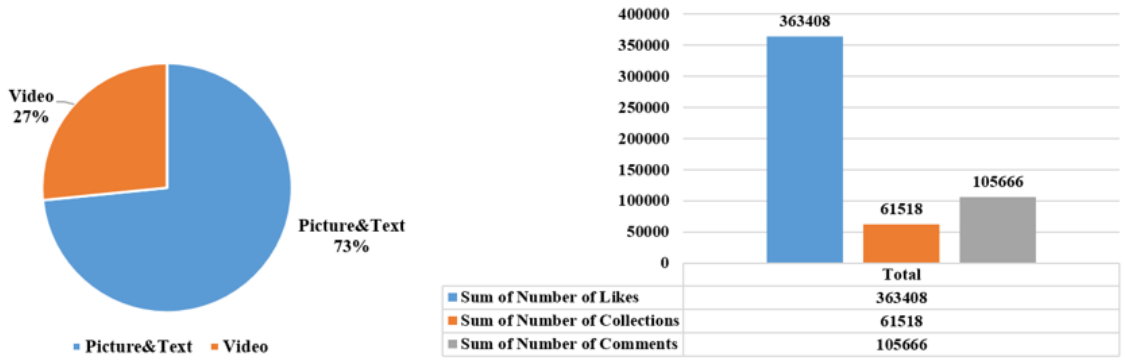
Interaction situation: from January to June 2025, brand 1's posts on Xiaohongshu got a total of 69 likes, 13 collections, 2 comments and 4208 readings; The average interaction rate was 1.86%; The average posting frequency was 2.50 posts per month. As shown in Picture 2:



Picture 2: The chart of content types and content interaction situation of distribution of brand 1

After data collection and summary, Brand 2 is identified as a Thai-origin cosmetic brand that has entered the Chinese market. The brand characteristics include product quality emphasis, high market visibility, cultural communication orientation, and specialized research on tropical cosmetic products. During the research period from January to June 2025, Brand 2 published a total of 361 posts on Xiaohongshu. Among these, 265 posts were picture-and-text content, accounting for 73% of the total, while 96 posts were video content, accounting for 27%. Interaction situation: from January to June 2025, brand 2's posts on Xiaohongshu got a total of 363,408 likes, 61,518 collections,

105,666 comments and 4208 readings; The average interaction rate was 3.12%; The average posting frequency was 60.17 posts per month. As shown in Picture 3:



Picture 3: The chart of content types and content interaction situation of distribution of brand 2

The target audiences of brand 1 and brand 2 are as follows:

Table 1: Target audiences situation of brand 1 and brand 2

Target audience	Gender	Age	Interested
Brand 1	Men 8.11% Women 91.88%	less than 18 years old (64.38%) 18-24 years old (25.80%) 25-34 years old (4.43%) 35-44 years old (3.38%) More than 44 years old (1.99%)	Material (9.4%) Film and television (7.18%) Entertainment (5.9%)
Brand 2	Men 5.51% Women 94.48%	18-24 years old (36.68%) 25-34 years old (36.46%) 35-44 years old (11.43%) Less than 18 years old (10.45%) More than 44 years old (2.56%)	Cosmetics (6.49%) Fashionable (6.29%) Food (6.20%)

Through the hot search words information collection of the Xinhong data, this study sorted out 50 hot search words related to cosmetics, which were the most popular. In order to facilitate viewing, this study summarized and removed duplicate words in the form of word cloud. As shown in Picture 4:

Picture 4: Top 50 hot search words for cosmetics

4.2 Inferential Analysis - T-test Analysis

Sample description: brand 1 group (n=15), average interaction rate=0.01861; brand 2 group (n=379), the average interaction rate=0.02975. Variance: the variance of brand 1 group is minimal (0.00000778), and the variance of brand 2 group is large (0.000187), so t-test two-sample assuming unequal variances is adopted. The test results of the interaction rate of post content are shown in the table 2:

Table 2: T-test of single post interaction rate

T-Test: Two-Sample Assuming Unequal Variances		
	Variable 1	**Variable 2**
Mean	0.018610801	0.029747108
Variance	7.77947E-06	0.000186615
Observations	15	379
Hypothesized Mean Difference	0	
df	51	
t Stat	-11.07545689	
P(T<=t) one-tail	1.76797E-15	
t Critical one-tail	1.67528495	
P(T<=t) two-tail	3.53594E-15	
t Critical two-tail	2.00758377	

Sample description: both groups are n=6, the average monthly number of posts in brand 1 group=2.5, and the average monthly number of posts in brand 2 group=60.17. Variance: brand 1 group variance=37.5, brand 2 group variance=820.97, the difference is obvious, so t-test two-sample assuming unequal variances is adopted. The test results of monthly posting frequency are shown in the table 3:

Table 3: T-test of monthly posting frequency

T-Test: Two-Sample Assuming Unequal Variances		
	Variable 1	**Variable 2**
Mean	2.5	60.16666667
Variance	37.5	820.9666667
Observations	6	6
Hypothesized Mean Difference	0	
df	5	
t Stat	-4.821018025	
P(T<=t) one-tail	0.002397073	
t Critical one-tail	2.015048373	
P(T<=t) two-tail	0.004794146	
t Critical two-tail	2.570581836	

4.3 SWOT analysis results

After the previous research, this study summarizes the strengths, weaknesses, opportunities and threats of brand 1 and brand 2 through manual annotation. The SWOT dimension of brand 1 and brand 2 are as follows:

Table 4: SWOT dimension of brand 1

Strengths 1. High-cost performance. 2. Natural and environmentally friendly ingredients, mild and non-irritating. 3. Good reputation in Thailand.	**Weaknesses** 1. Low content update frequency 2. Low content interaction rate and insufficient user participation 3. The number of Posts output is insufficient, and it is difficult to form a sustained "planting grass"effect
Opportunities 1. The content dissemination potential of Xiaohongshu platform. 2. Cosmetics-related keywords are highly popular on the platform. 3. Opportunities brought by social commerce.	**Threats** 1. Market competition pressure of brand 2 and other cosmetics brands

Table 5: SWOT dimensions of brand 2

Strengths 1. High content update frequency. 2. Large proportion of picture & text content. 3. The content focuses on the brand's international popularity and product reputation. 4. High content interaction rate.	**Weaknesses** 1. Uneven distribution of interaction due to high frequency of content release
Opportunities 1. The content dissemination potential of Xiaohongshu platform. 2. Opportunities brought by social commerce. 3. Cosmetics-related keywords are highly popular on the platform.	**Threats** 1. Market competition between other international brands and Chinese local brands

4.4 Comparative analysis

In terms of the number of Posts and update frequency, brand 2 (361 posts and 60.17 monthly update frequency) is much higher than brand 1 (15 posts and 2.50 monthly update frequency); In terms of content type distribution, both brands are mainly based on picture & text content, but the proportion of picture & text content in brand 2 (73%) is higher than that in brand 1 (53%); In terms of interaction rate, brand 2's interaction (3.12%) is better than brand 1's (1.86%). The main audience of the two brands are: the main audience of brand 1 is women (91.88%) under the age of 18 (64.38%) and women aged 18-24 (25.80%); The main audience of brand 2 is women (94.48%) aged 18-24 (36.68%) and 25-34 (36.46%). The audiences of the two brands overlap.

Through the independent sample t-test (t-test: two-sample assuming unequal variances） of the interaction rate of Thailand cosmetics brand brand 1 and brand 2 on Xiaohongshu platform, the results showed that there was a significant difference in the interaction rate between the two brands ($t=-11.08$, $P<0.001$). Among them, the average interaction rate of brand 2 is significantly higher than that of brand 1, indicating that brand 2 performs better in content interaction efficiency. The independent sample t-test results of monthly posting frequency of brand 1 and brand 2 showed that there were also significant differences in post frequency between the two brands ($t=-4.82$, $P=0.0048$). The average posting frequency of brand 2 is significantly higher than that of brand 1, indicating that brand 2 has obvious advantages in content update rhythm and platform activity.

5. Main findings

5.1 The distribution of content types is significantly different

Descriptive statistics show that brand 2's content is mainly in the form of picture & text, accounting for 73%, while brand 1's picture & text content accounts for 53%, and the proportion of short videos is relatively high.

5.2 The significant gap in the frequency of content release

The average monthly posting frequency of brand 2 was 60.17, which was significantly higher than that of brand 1 (2.50). The results show that brand 2 maintains high platform exposure through continuous and high-frequency content output, while the content update rhythm of brand 1 is relatively unstable.

5.3 The significant is difference in the level of interaction rate

From the perspective of average interaction rate, the interaction rate of brand 2 is 3.12%, higher than 1.86% of brand 1. Further, through independent sample t-test, it is found that the average difference in the interaction rate between the two brands is statistically significant ($P<0.05$), indicating that the difference is not caused by random fluctuations, but reflects the systematic difference in content marketing performance between the two brands.

5.4 Brand differences revealed by SWOT

SWOT analysis indicates that brand 2 has achieved a high level of interaction through high-frequency content, but its threats come from the competition between international brands and Chinese local brands, as well as the pressure to maintain continuous high-frequency output. The strengths of brand 1 lie in its high-cost performance and mild composition, but its weaknesses lie in the lack of content updates and low interaction rate. The platform characteristics of Xiaohongshu and the rise of social commerce have brought opportunities for it, but it also faces the competitive pressure from brand 2 and international brands. This comparison shows that the two brands have different compositions in Xiaohongshu's content marketing strategy.

5.5 The difference of interaction rate provides a statistical basis for data driven SWOT

This study verified the significant difference between brand 1 and brand 2 in the average interaction rate by independent sample t-test ($P<0.05$). This result provides quantitative support for brand 2's "strengths (S)" and brand 1's "weaknesses (W)" in the SWOT analysis, reduces the uncertainty caused by subjective judgment in the traditional SWOT analysis, and makes the SWOT conclusion more repeatable and scientific.

5.6 The positive relationship between the frequency of content release and interactive performance

Combined with descriptive statistics and the comparison of interaction rate, it can be found that the brand with high content publishing frequency (brand 2) is significantly better than the brand with low content publishing frequency (brand 1) in the overall interaction rate. Although high-frequency publishing may lead to uneven distribution of single content interaction, on the whole, stable and high-frequency content output helps to improve the algorithm exposure and user participation of brands in the platform.

Discussion

1. The relationship between content release frequency and interaction rate

The results of this study show that brand 2's content publishing frequency during the study period is significantly higher than that of brand 1 (60.17 items per month ＞ 2.5 items), and its average interaction rate is also significantly higher (3.12%>1.86%). Further independent sample t-test results show that the average difference in the interaction rate between the two brands is statistically

significant (P<0.05), indicating that the difference between the release frequency and the interaction performance is not accidental, but systematic.

The higher release frequency will help the brand to continuously obtain exposure opportunities on Xiaohongshu platform and improve the probability of content being touched by users through the algorithm recommendation mechanism, thus bringing a higher overall level of interaction. Therefore, it is very important to find a balance between publishing frequency and content quality. Brand 1 can combine its own advantages and brand status, gradually increase the frequency of content updates by imitating brand 2's high-frequency content strategy, and improve the actual interactive effect of content by strengthening interactive guidance.

2. Differences in content and form affect the communication efficiency of brand information

From the perspective of content structure, brand 2 is mainly picture & text content, which can systematically display product information, usage and brand background, and is more in line with Xiaohongshu users' habits of "planting grass" and information preservation. However, the content of brand 1 is relatively scattered, and some of the core selling points of the brand are not continuously and clearly presented in the content, which makes it difficult for users to quickly perceive and feedback the brand advantages. This shows that the choice of content form not only affects users' real-time interactive behavior, but also directly relates to the understanding efficiency and communication depth of brand information. Therefore, if brand 1 wants to improve brand awareness and achieve higher content interaction rate, it needs to pay more attention to the role of picture & text content in explaining product selling points and brand value.

3. The formulation of brand content marketing strategy needs to combine brand characteristics

Through the comprehensive analysis of the official brand information and the contents of Xiaohongshu, it can be found that brand 2 has successfully integrated its brand advantages into platform content marketing, so that the brand image has high consistency and recognition in the content. In contrast, brand 1 did not show its product advantages, and the frequency and clarity of these core selling points in the content of Xiaohongshu are still limited, which has not been fully translated into the brand value that users can perceive.

Therefore, brand 1's future content marketing strategy should focus more on "spreading the core value of the brand" and express it in the form of content that users can easily understand and accept, such as displaying natural ingredients or product development process through short videos or explaining environmental protection concepts through picture & text system. This content strategy based on the brand's own advantages helps to enhance consumers' cognition and trust in the brand, so as to enhance the effect of content marketing.

4. The impact of brand development stage differences on content marketing strategy selection

The results show that the content performance differences of the two brands on the Xiaohongshu platform are closely related to the brand development stage. brand 2, as a Thai cosmetics brand with a certain popularity in the Chinese market, its content marketing strategy is more inclined to large-scale output and brand image consolidation; While brand 1 is still in the stage of brand entry and cognition establishment, it has not yet formulated corresponding content strategies for this stage.

For cross-border brands at an early stage, the focus of content marketing should be on brand cognition construction and core value communication, rather than scattered product exposure. If

the content strategy fails to match the brand development stage, even if it has certain product advantages, it is difficult to form a stable degree of user interaction and brand communication on the platform.

5. The suggestions on the optimization of brand 1's content marketing strategy

Combined with the results of this study, it can be seen that the content marketing of brand 1 on Xiaohongshu platform mainly has problems such as low release frequency, insufficient interaction rate and insufficient presentation of brand core selling points, resulting in the brand failing to effectively stimulate user participation and continuous attention. Based on the above findings and combined with the characteristics of platform data, this study believes that brand 1 can further optimize its content marketing strategy from the following aspects:

1) Formulate a relatively stable and sustainable content release plan and gradually increase the release frequency to enhance the exposure of the brand in the platform.

2) Optimize the content according to the characteristics and interests of the target audience. According to the target audience analysis of Xinhong data, the potential audience of brand 1 is mainly young female users. In the process of content planning, brand 1 should produce more creative and attractive content in combination with the content interested by the target audience to enhance the matching degree between the content and user needs, to enhance the willingness to interact.

3) Reasonably balance the proportion of content forms, strengthen the role of picture & text content in the communication of brand ideas and product selling points, and improve the efficiency of information communication and content retention through structured content (such as summary of key points and description of use steps).

4) Reasonably use hot search keywords and hashtags on the platform to enhance content exposure. Based on the hot search word analysis results of Xinhong data, brand 1 can reasonably embed the hot keywords and hashtags related to cosmetics, skin care and lifestyle in the title and body of the current platform. Better improve the exposure probability of content in the platform search and recommendation system, to expand the potential reach range and improve the interactive performance.

5) Strengthen the interactive guidance mechanism in the content, such as raising user participation by asking questions, sharing usage scenarios, etc.

6) Make full use of the platform characteristics of Xiaohongshu's "planting grass culture", continuously output the content with "planting grass attribute" around the core advantages of the brand, the real use scenarios of the product and the user experience, enhance the credibility and persuasiveness of the content, and enhance the brand identity and trust.

Through the above optimization strategy based on data analysis and platform characteristics, brand 1 can gradually form a clearer and more recognizable brand image in Chinese social commerce market and effectively improve its overall content marketing effect on the Xiaohongshu platform.

6. Research Limitations

Although this study is based on data and has made contributions to the entry of Thai products into the Chinese market, there are still some limitations. First of all, this study only focuses on the two Thai cosmetics brands on the Xiaohongshu platform, which may limit the universality of the research results to other industries, brands or social e-commerce platforms. Secondly, the data used in this study are only from the official account of the brand from January to June 2025. Although these data can reflect the brand's content marketing strategy, they do not include user generated content or key opinion leader content, which also plays an important role in xiaohongshu's communication ecosystem. Third, the uneven number of posts of the two brands reflects the differences in their development stages and platform activity, which may affect the comparison results to a certain extent.

Finally, this study mainly relies on quantitative indicators such as posting frequency and interaction rate, while deeper qualitative factors such as content creativity, visual design and story telling effect have not been fully investigated. Future research can expand the data set, include more brands and platforms, and combine qualitative analysis to further deepen the understanding of cross-border content marketing strategies.

Conclusion

Based on the data-driven SWOT analysis framework, this study systematically evaluated the content marketing performance of Thailand cosmetic brand brand 1 and brand 2 on the little red book platform, and compared and analyzed the differences in the release frequency, content form, target audience and user interaction effect between them. Through data collation, descriptive statistical analysis, independent sample t-test and SWOT analysis of the platform trend of the content data of the official brand account in the Xiaohongshu and the Xinhong data from January to June 2025, the research has improved the objectivity and repeatability of the traditional SWOT analysis in digital marketing research to a certain extent.

The results show that brand 2's content marketing performance on Xiaohongshu is better than brand 1, and its high-frequency and stable content publishing strategy can effectively improve user interaction and brand exposure, which constitutes its important competitive advantage in the Chinese market. In contrast, also brand 1 has certain advantages in product positioning and brand concept, but there are still obvious deficiencies in content update frequency, interactive guidance and brand core value communication, which limits its communication effect on the platform.

This study believes that Xiaohongshu provides an important channel for cross-border cosmetics brands to enter the Chinese market for content dissemination and user communication, but the formulation of content marketing strategy must be combined with the brand development stage, target audience characteristics and platform content ecology to avoid simply copying the operation mode of competitive brands. Based on the research results, this study puts forward operable content marketing optimization suggestions for brand 1 and provides a reference for the content marketing practice of other Thai and cross-border cosmetics brands on China's social commerce platform. Future research can further introduce user generated content and KOL data to expand the breadth and depth of research.

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STARTUP FINANCING AND CORPORATE VENTURE CAPITAL: AN EMPIRICAL STUDY ON SOUTHEAST ASIA STARTUPS

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Abstract

Corporate venture capital has been regarded as an important source of funding and a strategic partner that could provide complementary assets that are essential for the startup. There is not much study on the corporate venture capital in Southeast Asia even though it has contributed significant funding amount and frequently together with venture capital provided non-financial support to its invested startups. Using recent data from 2018 to 2025 from the six Southeast Asian economies, we conduct regression analysis to explore how corporate venture capital and venture capital impact startup funding. The results reveal interestingly that corporate venture capital has more impact when being a syndicated participant while venture capital has more impact when being a lead investor. The findings reveal different but complementary roles in the syndicated funding structure which are beneficial to startup founders, corporate venture capitalist and policymakers.

Keywords: Corporate Venture Capital, Venture Capital, Startup Financing, Syndication, Southeast Asia.

Introduction

Corporate venture capital (CVC) has long been regarded as an important source of external funding for startups (or new ventures). Studies have shown that corporate venture capital who has both financial and strategic purposes are more beneficial to startups than independent venture capital (IVC) whose focus is on the financial purpose. According to the NVCA (National Venture Capital Association) 2025 Year Book which data was provided by Pitchbook, corporate venture capital contributed to about 55% of funding raised by U.S. startups even though corporate venture capital participated in about 17% in term of the number of deals.

However, most studies on corporate venture capital and startup were conducted in U.S., EU and China respectively. Few studies are focusing on Southeast Asia countries even though there are growing number of unicorn startups in last few decades, on post-COVID19 era (after 2020). From 2001-2021 most studies were on U.S. (24%), China (6%), UK (2.6%), Germany (2.3%), Canada (1.3%) and other countries (less than 1% each), it is noteworthy that majority studies (68%) are relying on archival data (Cumming et al., 2023).

It is important to revisit the relationship between corporate venture capital and startup, especially to study on other countries which we could expect similar or different results from previous studies. Confirmation from this study may provide new insights, enhance understanding of startup financing for investors (including angel investors, independent venture capital, or corporate venture capital), startups, and policymakers. This study focuses on the six largest economies in the Southeast Asia: Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam. According to CB Insights

Global Unicorn Club, as of 3 July 2025, there were 1,277 unicorn startups globally; 27 unicorn startups were from these six countries, no other unicorn from other five Southeast Asia countries (Brunei, Cambodia, Laos, Myanmar, and Timor-Leste).

From deal structuring perspective, investors are generally preferred to co-investment with other investors as they could diversify the risk, expand their deal selection and investment and share information on current and future investment. Accordingly, from the view of corporate venture capital that has complementary assets and knowledge in a specific industry, we would expect that the participation in the investment round by corporate venture capital would be beneficial to the startups; especially, corporate venture capital may prefer to be a lead investor for the round. This study thus expects to bring new empirical evidence that could illustrate and increase our understanding of how startup and their important investors (corporate venture capital and venture capital) interact through the study of funding round.

Research Objective

To empirically investigate the association between startup and corporate venture capital through the startup funding round data. The study aims to explore recent funding round data from 6 Southeast Asia economies. Specifically, this study is guided by two sub-objectives:

1. To examine the impact of strategic investor participation, evaluating whether the presence of corporate venture capital and venture capital as syndicated participant benefits startup funding amounts.
2. To examine the impact of strategic investor leadership, evaluating whether corporate venture capital or venture capital drives higher funding outcomes when acting either as a lead or co-lead investor.

Literature Review

1. Importance of corporate venture capital and venture capital as essential sources of funds for startups

1.1 History of venture capital and corporate venture capital

The origin of venture capital can be dated back to 1940s., Jeng and Wells (2000) regard the American Research and Development, which was founded as publicly traded closed-end fund in Massachusetts in 1946 as the first modern venture capital organization. The first venture capital limited partnership, an organization form that is typical in the present day, is Draper, Gaither and Anderson which was founded in 1958 (Gompers & Lerner, 2001).

After a slow start in 1940s, venture capital investment has both boom and downturn periods, where investment seem to be specific to a particular industry. Gompers et al. (2008) provide that there were significant investment in scientific instrument companies in the 1960s, then investment were focused in personal computer and hardware in the 1980s, and on the internet and telecommunication in the late 1990s. During 1980s and 1990s, venture capitalist backed many reputable high-technology companies such as Apple Computer, Cisco Systems, Microsoft and Sun Microsystems (Gompers & Lerner, 2001).

Companies were also actively investment in venture capital since around 1960s, but the growing of corporate venture capital program started around 1990s (Rossi et al., 2020). Companies systemically set up their own corporate venture capital program and made investment in ventures directly as they saw the “window on new technologies” (Drover et al., 2017; Pinkow & Iversen, 2020). In the recent years up to 2018, Rossi et al. (2020) found that the focus of corporate

venture capital were heavily focus on technology sector: internet, mobile, artificial intelligence and cybersecurity.

1.2 Investment contribution by venture capital and corporate venture capital: Global, U.S. and Southeast Asia Perspectives

These days corporate venture capital has been regarded as an important source of corporate innovation for companies that are looking for competitive advantages outside of the organization; meanwhile, corporate venture capital is a significant investor in the startup funding market (Benkraiem et al., 2023; Huang & Madhavan, 2021; Ma, 2020).

From the global perspective, according to CB Insights recent reports (State of CVC Q1'25 Report, published on 29 April 2025 and State of Venture Q2'25 Report, published on 10 July 2025, available on CB Insights website), the global corporate venture capital activity may be a bit decrease from its peak in 2021, but corporate venture capital still contributes largely to the overall venture market both number of deals and funding amount: corporate venture capitals roughly involve about 12% of total deals which represent 18% of funding amount. In addition, while U.S. corporate venture capital dominates in terms of total amount funding (70% of total funding amount, following by Europe of 19%), Asia corporate venture capital dominates in term of deal volume, and early-stage deals represent 65% of all corporate venture capital activity in 2025 YTD (in 2021 early-stage deal was about 58%, 2022: 64%, 2023: 65% and 2024: 65%).

From the U.S. perspective, according to NVCA reports (National Venture Capital Association (NVCA) 2025 Yearbook and Venture Monitor Q2'25 which data provide by Pitchbook, both reports are available on NVCA website), corporate venture capital contribute to 55% of amount funding (approximately $118.6 billion out $215.4 billion) but represent about 17% in term of total deals in 2024. For the first half of 2025, the number grow to 67.6% of the amount of funding and 22.3% of total deals. It is noteworthy that in 2025, AI companies represent about 42% of all corporate venture capital deals. And, consistent with the growing importance of corporate venture capital, the 55% share of total amount funding in 2024 is a record high, while in 2014 and 2010, the corporate venture capital represented about 40% and 28% respectively.

From the Southeast Asia perspective, according to the report by OECD: Start-up Asia Chasing the Innovation Frontier (published on 21 May 2025, available on OECD website), over the period 2020-2022, corporate venture capital contributed for 36% of all deals in Thailand, for 40% of all deals in Indonesia, and about 17% of all deals in Singapore and Vietnam. In addition, Singapore-based venture capital and corporate venture capital are often the most active investors in Southeast Asia. For Malaysia and the Philippines, another report by BCG: Advancing Malaysia's Innovation Landscape: The Pivotal Role of Corporate Venture Capital (published on 15 November 2024, available on BCG website) provides that corporate venture capital contributes in term of amount of funding by 21% and 66% for Malaysia and the Philippines during the 2021 to the first half of 2024 period respectively.

1.3 Differences between venture capital and corporate venture capital

Unlike corporate venture capital who often pursue both financial and strategic goals, the focus of independent venture capital is solely on achieving the financial return for their investors (normally called "limited partner" or "LP" while the person or entity that taking the role of venture capital fund management is called "general partner" or "GP"). Though independent venture capitalist may offer other value added services to their portfolio companies (investees) such as strategy formulation, administrative support, personnel recruitment or networking their backed companies to investors, their services are purposely for the later financial return typically through the initial public offering (IPO) or acquisition of such portfolio company (Ma, 2020; Sapienza, 1992).

Gompers and Lerner are probably among the first who provide how independent venture capital and corporate venture capital are different (Gompers & Lerner, 2000, 2001). Corporate venture capital is though still interested in the financial return, its focus is on strategic goals. Studies have found that the focus of majority corporate venture capitals are strategic reasons especially in seeking innovation from the outside for the benefit of the company (Chemmanur et al., 2014; Dushnitsky & Lenox, 2005a, 2005b, 2006). It is noteworthy that Dushnitsky and Yu (2022) found that in China, company engaging in corporate venture capital investment is to strategically expand its market growth rather than focus only on the technological purposes.

Apart from general organization and governance structure in which corporate venture capital is set-up and managed by its company while venture capital fund is normally set-up independently by often veteran investors or investment professional. Another key difference is the limited timeframe which naturally affect the risk tolerance of independent venture capital. The typical life cycle of independent venture capital fund is 8-10 years where most of the investments be made in early period then harvesting its investment in the remaining period up until such fund need to be closed and return investment to its investors. However, corporate venture capital normally does not have limited timeframe (Lerner & Nanda, 2020). Combining the nature of unlimited timeframe and focus more on strategic goal, corporate venture capital thus has higher risk tolerance than venture capital; especially, when the portfolio company is in the development process (Ma, 2020). The high risk tolerance of corporate venture capital is more apparent when its parent is looking for "radical innovation" which normally has high uncertainty and risk in its nature (Weber & Weber, 2007).

It is noteworthy to mention that some scholars illustrate that despite focusing on strategic goal and looking for innovation from young venture, corporate venture capital may in some scenarios have lower risk tolerance than independent venture capital due to its parent characteristics. In respect of the parent company does not familiar with investment or managing of high risk and fast paced venture, such company may hesitate to invest in new venture (Chesbrough, 2002). Dushnitsky and Lenox (2006) also observe from literature that corporate venture capital investment is more volatile than and sometimes the average life span of corporate venture capital fund is shorter than that of independent venture capital funds. Recent evidence from China, Lu and Li (2024) who studied the A-share listed companies on the Shanghai and Shenzhen stock markets from 2007 to 2021 found that the duration and investment period is relatively shorter than the U.S. listed companies.

1.4 Why corporate venture capital is a better investor for startup?

In addition to the differences between independent venture capital and corporate venture capital previously discussed, this section discusses from the perspective of startups on why corporate venture capital may be a better investor for them in which perspectives and in what issues that startups should be cautious.

Startups, being young and perceived as high failure rate, face a problem of newness. They generally have problems with availability of financing, access to market, access to talent; in addition, they may lack some technology or business expertise needed for growth that are not their founders strength (Dushnitsky & Lenox, 2005b). Corporate venture capital not only can provides financial support like independent venture capital or other investors, it can also provide non-financial resources that are essential for startup which modern literature use the term "complementary assets" (Haslanger et al., 2023). Alvarez-Garrido and Dushnitsky (2016) provide that startups receive benefits from corporate venture capital in many different ways: an access to rare raw materials, use of laboratory or testing facilities for product testing and development, access to the corporate network, advice or assistance relating to sales or marketing. These complementary assets are sometime unique that startups could not easily develop or acquire themselves (Gompers & Lerner, 2000; Guo et al.,

2015; Maula et al., 2005; Park & Steensma, 2012; Weniger et al., 2023). Choosing the suitable investors in consideration of non-financial resources is also consistent with the resource dependence theory from the strategic management literature (Shuwaikh & Dubocage, 2022), the resource dependence theory is in opposite of resource-based view which focuses on firm's unique internal strength, this theory is rather looking for external resources in order to enhance the competitive advantage (Grant, 1991; Hillman et al., 2009; Spender, 1996). This is essential for startup survival and growth (Riepe and Uhl, 2020).

Also, in receiving an investment and collaborating with corporate venture capital and its parent, startup gains legitimacy as an investment by corporate venture capital suggest a proven of startup potential, this signals positive expectation, enhances creditability and improving awareness to the market (Maula et al., 2005; Weniger et al., 2023).

Despite benefits for startups, there are disadvantages of having corporate venture capital as an investor; especially, the risk of knowledge misappropriation. It is unavoidable that in an investment decision process, the due diligence process is normally conducted by potential investor. Startups need to disclose proprietary information about their innovation or technology to the investor (Dushnitsky & Lenox, 2005b), there is a concern that investor may expropriate the innovation (Dushnitsky & Lenox, 2006; Park & Steensma, 2012). Dushnitsky and Shaver (2009) provided that in the industry where patent protection is considered effectiveness (such as pharmaceuticals industry), the relationship of corporate venture capital and startups from the same industry is more likely to be formed; however, the relationship is unlikely for the industry where patent protection is considered weak (such as telecommunication, computer equipment, semiconductors and software industries).

From the perspective of startups that would like to exit by IPO which is generally yield higher returns than exit by acquisition, that corporate venture capital normally prioritizes strategic goals over financial goals also affect the exit route. Guo et al. (2015) studied U.S. startups who received investment from either independent venture capital or corporate venture capital during 1980 to 2004 and eventually exit through IPO or acquisition, the authors found that startups whom were backed by corporate venture capital take longer period of time to exit than those backed by independent venture capital; however, the higher amount of funding by corporate venture capital led to higher probability of exit as well. In a more recent U.S. study with IPO startups during 1998 to 2020, Benkraiem et al. (2023) found consistent result with Guo et al. (2015) that corporate venture capital backed startups received higher valuation at IPO relative to independent venture capital backed startups; especially, for those that having technological fit with the corporate venture capital (matching technological fit by four digit SIC codes). Another study by Weniger et al. (2023) through online survey from German startups in 2018 found that startups who striving for an IPO exit are unlikely to choose corporate venture capital. In short, literature suggests that for startups who prefer shorter time to exit, they should choose independent venture capital over corporate venture capital (Guo et al., 2015; Weniger et al., 2023); however, if higher IPO valuation is matter, corporate venture capital will lead to better IPO valuation for startups (Benkraiem et al., 2023; Maula et al., 2005).

1.5 Why corporate venture capital invests in startups?

The priority of a company engaging the corporate venture program is on strategic goals rather than financial goals (Haslanger et al., 2023; Maula et al., 2005). This section discusses benefits that company could expect from the startups, portfolio companies, investing through its corporate venture capital program.

Accessing to the innovation and new technologies are well-regarded as priority objectives of most corporate venture capital. Corporate venture capital can keep monitoring new and potential disruptive technologies that may either threaten or complement the core businesses of a company (Pinkow & Iversen, 2020; Rossi et al., 2020). An investment and collaboration with a

startup can help facilitating the transfer of technological knowledge, which company may use for its own product development (Basu et al., 2011; Wadhwa et al., 2016). Pinkow and Iversen (2020) also suggested that by collaborating with the portfolio companies through licensing or integrate that startup products, company can improve its own technology or even increase internal R&D efficiency. This perspective of open innovation framework is also mentioned by scholars (Anokhin et al., 2025; Chesbrough, 2002; Gutmann et al., 2023).

Drawing from finance literature, an investment in startup can also be explained by the concept of real option. By investing a small amount of investment in early stage startup which normally high risk and high certainty, company has option in hand of whether to follow the investment in next rounds, continue working with such portfolio companies or even considered acquisition (Ceccagnoli et al., 2018; Shuwaikh et al., 2024).

From the innovation management literature, corporate venture capital is regarded as one of mechanism for an established company to look for radical or disruptive innovation as these types of innovation normally require new knowledge that does not currently in the possession of a company (Weber & Weber, 2007), since by their nature, startups are normally come up with innovative idea, product or business model. Corporate venture capital can be seen as "window on technology" that help incumbents exploring for new ideas, practices and technologies while they manage or exploit the current competitive advantage (Dushnitsky & Lenox, 2005a; Dushnitsky & Shaver, 2009; Park & Steensma, 2012; Rossi et al., 2019, 2021).

2. Effect of syndicated funding structure

2.1 Advantages

It is common for investors to participate in financing as one of syndicated investors. Syndication is typically viewed as an investment mechanism that provide benefits to investors such as (i) access to deal flow and even reciprocal investment which an investor expect the other to join in the future deal (Hochberg et al., 2007); (ii) receive second opinion by checking with syndicated participants, this generally mitigates uncertainty and leads to better investment selection (Bayar et al., 2020; Tian, 2012); and (iii) investors not only diversify risk through syndication, this also allows them to participate in more deals (Mäkelä & Maula, 2008). In a syndication, syndicated parties normally combine their resources, skill, expertise and networks together in the manner that each investor aims to provide value to the startup (Laachach & Ettahri, 2023).

From cross border investment perspective, Chemmanur et al. (2016) studied the venture capital backed firms in emerging nation during 1989-2008 and found that foreign venture capital and local venture capital could combine their strength especially to rely on local investors for local knowledge and geographical proximity which generally lower the monitoring costs, and the syndicate investment between foreign and local venture capitals lead to higher probability of exit through IPO and even post-IPO operating performance. It is noteworthy that emerging countries, for example the Southeast Asia countries, tend to have weak legal protection, generally higher financial, political and market risks in which syndication with the local investor who contains local knowledge and networks is important to mitigate such risks (Aleenajitpong & Leemakdej, 2021; Cumming et al., 2021; Dai et al., 2012; Scheela et al., 2015).

From the perspective of startups, having corporate venture capital participated in the funding round also has some advantages over the independent venture capital. Corporate venture capital could provide the portfolio companies access to their unique assets such as specialized knowledge on industry, R&D facilities, technical expertise or access to market; these complementary assets are almost impossible for startups to afford by themselves (Alvarez-Garrido & Dushnitsky, 2016; Braune et al., 2021; Shuwaikh et al., 2025; Shuwaikh & Dubocage, 2022). Guo et al. (2015)

also found that corporate venture capital invests more in startups than independent venture capital and the amount is even higher when the corporate venture capital is the lead investor in a particular syndicated funding round. Especially, in case of high technological fit between portfolio companies and corporate venture capital, such corporate venture backed companies have higher valuation relative to their independent venture capital backed peers (Benkraiem et al., 2023; Brander et al., 2002; Kang, 2019; Tian, 2012).

2.2 Disadvantages

There are two sides to every story. Literature also discusses the disadvantage or potential risks relating to the syndication deal structure.

First, having multiple investors result in more coordination and transaction costs (Brander et al., 2002; Laachach & Ettahri, 2023). Di Lorenzo and Sabel (2024) found that having to deal with multiple corporate investors decrease the R&D intensity for the early-stage ventures as they need to spend more time in collaborating with multiple parties.

Second, consistent with misappropriation concern for startup (Dushnitsky & Lenox, 2006; Park & Steensma, 2012), having corporate venture capital as one of syndicated investor also raise this concern and in a syndicate, the more parties access the startup information, the higher risk of information leak (Anokhin et al., 2011).

Finally, as independent venture capital prioritizes financial return but corporate venture capital prioritizes strategic goal over financial return, this could lead to conflict among syndicated investors and thus lower the benefits of syndication (Kaplan & Stromberg, 2003; Tian, 2012). Kang (2019) provided that in a scenario when corporate venture capital has higher reputation than venture capital, this leads to lower chance of successful exit since corporate venture capital does not prioritize financial return over their strategic goals.

Research Hypotheses

Hypothesis 1: Syndicated funding round where corporate venture capital participates as a syndicated investor should have higher funding amount relative to syndicated funding round where corporate venture capital does not participate.

Hypothesis 2: Syndicated funding round where corporate venture capital participates as a lead or co-lead investor should have higher funding amount relative to syndicated funding round where corporate venture capital does not lead the funding round.

Research Methodology

1. Data & Sample

This study obtained data from CB Insights*, one the most popular database for the recent researches which cover startup funding data globally (*an access to CB Insights was supported by the Capital Market Research Institute: CMRI, Stock Exchange of Thailand). In particular, we retrieved startup funding rounds and investors data that had announced deal date during 1 January 2018 to 10 September 2025, which we obtained 16,608 funding rounds (startups that main location were based in 6 countries: Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam) and 7,974 investors (investors that had invested in 6 countries during the same sample period).

The funding round data were filtered by excluding debt financing, transactions that were classified as acquisition (corporate majority and minority), those that do not disclosed the funding amount raised (deal size), and after verifying and filling some missing data, the final sample is 4,752 funding rounds (please refer to Table 1 for sample summary). The funding round data were matched

with the list of investors to determine whether there were corporate venture capital or venture capital involved as either participant and/or leading in the funding round.

Table 1: Sample Summary

By Country

Funding Round	Funding Round	Average (USD Millions)	Min	Max
Indonesia	765	22.94	0.01	1,500.00
Malaysia	365	5.68	0.01	400.00
The Philippines	210	4.43	0.01	77.50
Singapore	2,834	15.57	0.01	2,000.00
Thailand	182	13.90	0.01	447.00
Vietnam	396	7.36	0.01	300.00
Total	4,752	14.75	0.01	2,000.00

By Sectors

Sector	Funding Round	Average (USD Millions)	Min	Max
Agriculture	77	33.69	0.01	2,000.00
Automotive & Transportation	53	22.03	0.01	447.00
Business Products & Services	75	3.84	0.01	51.50
Computer Hardware & Services	68	32.52	0.02	640.00
Consumer Products & Services	99	11.59	0.01	430.00
Electronics	21	25.83	0.02	200.00
Energy & Utilities	78	17.20	0.02	400.00
Environmental Services & Equipment	32	4.08	0.01	35.00
Finance	63	9.50	0.02	200.00
Food & Beverages	127	4.27	0.01	100.00
Healthcare	162	13.91	0.01	200.00
Industrials	86	5.97	0.01	100.00
Internet	2,974	12.59	0.01	2,000.00
Leisure	25	12.54	0.02	109.00
Media (Traditional)	7	63.07	0.75	166.00
Metals & Mining	1	0.27	0.27	0.27
Mobile & Telecommunications	690	26.33	0.01	1,500.00
Retail (non-internet/mobile)	5	11.57	0.01	31.80
Risk & Security	3	8.35	0.04	22.00
Software (non-internet/mobile)	106	3.19	0.01	40.00

2. Measurements

This study investigates the relationship of key variables and funding amount being raised from external strategic investors: corporate venture capital and venture capital. To empirically test the hypotheses, this study estimates the following OLS multiple regression analysis which takes the following form:

$$FundingRaised_i = \alpha_i + \beta_1 CVCparticip_i + \beta_2 VCparticip_i + \beta_3 CVCLead_i + \beta_4 VCLead_i + Control_{ik} + \varepsilon_i$$

The dependent variable is the funding amount beings raised of that funding round is $FundingRaised_i$ = Ln(the amount of money raised for such funding round in United State Dollar). Given the nature of funding data is positive and right skewness, the natural logarithm form is used for normalization.

The independent variables are four dummy variables which categorized whether a particular funding round has 1) corporate venture capital and/or venture participate and 2) corporate venture capital and/or venture capital be lead or co-lead investor.

For the set of control variables, this paper adopts several variables that have been applied in the literature. To control for the financing stage of startup as the growth stage is more mature and commonly receive larger amount of funding than early-stage startups, the two dummy variables for early-stage financing (pre-Series A) and growth-stage (Series A onwards) are applied. It is noteworthy that there are some funding rounds that do not clearly be classified as either early-stage or growth-stage, so we simply adopt two dummy variables. In addition, the maturity stage of startup which is typically be controlled by its official founding year to funding year is controlled. To control for the country effect as more than half of our sample are funding round from Singapore startups (according to their official location/headquarter), also in comparison to Malaysia, the Philippines, Thailand and Vietnam, which are emerging market, Singapore is well-regarded as developed market for financing, we adopt a dummy variable for Singapore startup. To control for potential effect from industry, four dummy variables which represent Healthcare, Internet, Mobile & Telecommunications and Software (non-internet/mobile) sectors are also applied, we note that these four sectors altogether represent over eighty-percent of sample (please refer to Table 2 for Variables and Definitions).

Table 2: Variables and Definitions

Variables	Definitions
Dependent Variable	
FundingRaised	Natural Logarithm of fund-raising amount of the round in USD million
Independent Variables	
CVCparticip	Dummy variable if the round has CVC participate
VCparticip	Dummy variable if the round has VC participate
CVClead	Dummy variable if the round has CVC be a lead or co-lead investor
VClead	Dummy variable if the round has VC be a lead or co-lead investor
Control Variables	
Earlystage	Dummy variable if the round is in early-stage
Growthstage	Dummy variable if the round is in growth stage and later (Series A onwards)
SG	Dummy variable if startup located in Singapore
Yeartofunding	1+ Natural Logarithm of the founded year to funding round year
Healthcare	Dummy variable if startup is in healthcare sector
Internet	Dummy variable if startup is in internet sector
Mobile&Tele	Dummy variable if startup is in mobile and telecommunication sector
Software	Dummy variable if startup is in software sector

Results

1. Regression Analysis

Table 3 provides results for 4 models where the funding round amounts are regressed against the set of independent variables and control variables; Model 1 (baseline) contains the control variables, Model 2 tests the participation effect of corporate venture capital and/or venture capital, Model 3 tests the leading/co-leading role effect of corporate venture capital and/or venture capital, and Model 4 (full model) tests both participation and leading/co-leading effects.

Model 1 reports the baseline analysis which focus on control variables of startup and funding characteristics. The result indicates the model is valid with an F-test statistic significant at the 1% level while R-squared of 0.447 provides that the model explains approximately of 44.7% of the variation in funding amount. For each control variables, all coefficients are statistically significant at $p < 0.01$ level (with the exception of healthcare sector at $p < 0.10$ level).

Model 2 reports the analysis of having corporate venture capital and/or venture participate in the funding round. The addition of participated variables improves the model overall explanatory power with R-squared of 0.497. Specifically, the coefficient of having corporate venture capital participated (0.806) is substantially higher than the coefficient of having venture capital participated (0.604). If other things constant, the model provides that a funding round having corporate venture capital participate receives 124% ($e^{0.806} - 1 \approx 1.239$) higher funding amount than a no corporate venture capital participated round; and, a funding having venture capital participate receives 90% ($e^{0.644} - 1 \approx 0.904$) higher funding amount than a no venture capital participated round. Overall, this result supports the hypothesis 1.

Model 3 reports the analysis of having corporate venture capital and/or venture capital be lead or co-lead investor in the funding round. Both investors' types variables are significant when they lead or co-lead the funding round. The result provides that a funding round having venture capital be a lead investor receives 141% higher funding ($e^{0.879} - 1 \approx 1.408$) and a funding round having corporate venture capital be a lead investor receives 116% higher funding ($e^{0.771} - 1 \approx 1.162$). Interestingly, the result does not support the hypothesis 2, which expects that a funding round having corporate venture capital be a lead investor should receive higher funding amount.

Model 4 reports the full model analysis with both participation and lead variables. The result provides that when acting as a lead investor, venture capital investor contributes more in term of deal size (funding amount) than corporate venture. Interestingly, the participated variables provide opposite suggestion that the funding round with corporate venture investor participated receives higher funding amount. The result suggests the benefit to be a leading role for venture capital and the benefits to be a syndicated investor (follower) for corporate venture capital which is already added much value and may not need to take a leading role in the funding round; especially, when a venture capital is leading the funding round. In line with model 2 and 3, the result supports hypothesis 1 but does not support hypothesis 2.

Overall, the regression analysis reveals how different strategic investor roles involving in funding round affect the funding outcome. The empirical evidences support hypothesis 1 which confirms that corporate venture capital is associated with larger deal sizes than venture capital when participating in the funding round as one of syndicated party. However, contrary to the expectation which reject the hypothesis 2, venture capital is associated with larger deal sizes than corporate venture capital when venture capital is leading the funding round. In addition, to ensure the reliability of regression analysis, the following section discusses few robustness checks.

Table 3: Result of relationship between fund raising and having corporate venture capital and venture capital as investor

Variables	Model 1	Model 2	Model 3	Model 4
CVCparticip		0.806*** (0.049)		0.732*** (0.053)
VCparticip		0.644*** (0.049)		0.422*** (0.053)
CVClead			0.771*** (0.074)	0.294*** (0.079)
VClead			0.879*** (0.046)	0.628*** (0.049)
Earlystage	1.141*** (0.114)	0.779*** (0.115)	0.975*** (0.113)	0.770*** (0.114)
Growthstage	3.832*** (0.118)	3.240*** (0.122)	3.49*** (0.118)	3.160*** (0.122)
SG	0.408*** (0.049)	0.349*** (0.048)	0.375*** (0.048)	0.341*** (0.047)
Yeartofunding	0.312*** (0.041)	0.378*** (0.040)	0.320*** (0.039)	0.366*** (0.039)
Healthcare	0.272* (0.143)	0.299** (0.141)	0.281** (0.140)	0.300** (0.139)
Internet	0.310*** (0.070)	0.217*** (0.068)	0.276*** (0.068)	0.218*** (0.067)
Mobile&Tele	0.385*** (0.088)	0.323*** (0.085)	0.330*** (0.087)	0.302*** (0.085)
Software	-0.509*** (0.165)	-0.412*** (0.155)	-0.428*** (0.157)	-0.379*** (0.153)
Constant	-2.2859*** (0.139)	-2.461*** (0.135)	-2.306*** (0.136)	-2.434*** (0.134)
Observations	4,752	4,752	4,752	4,752
F-Test	566.21***	498.08***	467.33***	419.24***
R-Squared	0.447	0.497	0.483	0.510

Robust standard errors in parentheses
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

2. Model Evaluation (Robustness Checks)

To ensure the validity of regression analyses, we conducted model diagnostic tests examining common potential problems: multicollinearity, heteroskedasticity and model specification.

First, we examined the Variance Inflation Factor (VIF) which is a common method to detect potential multicollinearity among the independent variables. The mean VIF for the model is 1.71 with the two highest VIF values are 3.83 (Growth-stage) and 3.67 (Early-stage) while the rest are lower than 1.8. Since all VIF values are lower than conservative threshold of 5 (Hair et al., 2019), this suggests that there is no potential multicollinearity concern in the analyses.

Second, we examined the model with a Breusch-Pagan test to check for homoskedasticity in the error terms (Greene, 2018). Given the test indicates the presence of heteroskedasticity ($\chi^2(1) = 71.13$, $p < 0.01$), all regression models were estimated with the robust standard errors.

Finally, we conducted the Ramsey Regression Equation Specification Error Test (RESET) to check for omitted variable bias or misspecification (Greene, 2018). The test rejected the null

hypothesis (with F-test statistically significant at $p < 0.01$) which suggests potential non-linearity problem. We thus further investigate by adding the quadratic term for startup age to the model 4 ($Yeartofunding^2$). However, this quadratic term was statistically insignificant ($p = 0.380$), and all 4 interested independent variables remain stable. As a result, we retain the simple form (model 4).

Discussion and Conclusion

This study provides new empirical evidence on the benefits of having corporate venture capital and venture capital as syndicated investors on the Southeast Asia startup fundings. The analysis reveals that while both corporate venture capital and venture capital involving in a funding round is beneficial to the funding, there are different contributions according to the role they are in the funding round.

Consistent with the Hypothesis 1 which predicted a benefit of having corporate venture capital participate in the funding round, funding rounds having corporate venture capital as one of syndicated investors (participate) are generally larger than others, including those that venture capital either participate or lead in such rounds. The finding suggests that when corporate venture capital joining the round, corporate venture capital is more willing to contribute financial capital than other strategic investors as a "follower" who could rely on syndicated parties; especially, venture capital.

Contrary to the Hypothesis 2 which predicted that the funding round having corporate venture capital as a lead or co-lead investor should result in larger funding amount. The finding supports the view that when venture capital takes a leading role, this results in larger funding amount in general which suggests the credential effect of venture capital when they are "leader" in the funding rounds. This finding contrasts with the finding by Guo et al. (2015) who found that when corporate venture capital is a leading investor, the funding amount is relatively larger than that of venture capital lead funding for U.S. startups. Our result reveals interestingly that in this Southeast Asia region, venture capital seems to be the dominance one in the syndication.

Taking together syndicated participant and leading roles, our result reveals the role of corporate venture capital as being a "better follower" and venture capital as being a "better leader" in the syndication, as represented by funding amount. For the Southeast Asia startups/founders that are planning their funding strategy, if the focus is more on the amount of financing, they may consider having venture capital leading the funding round while having corporate venture capital as one of syndicated investors.

Theoretical contributions

This study contributes to, among others, entrepreneurial finance and corporate venture capital literature in many ways. First, the result is consistent with resource dependence theory which posits on the necessity that a firm (in this case, both startup and corporate venture capital) need to look for external resources in building their competitive advantage. The result also confirms importances of both corporate venture capital and venture capital in being critical funding resources for the startups in the Southeast Asia. Second, our result emphasizes an importance of having venture capital involving in the deal, especially when venture capital is leading the funding round. Relatively higher funding amount may partially due to the positive signal effect from the lead venture capital, this certification effect is in line with signaling theory literature. Finally, in exploring funding rounds and focus on both corporate venture capital and venture capital, we provide new empirical evidence of Southeast Asia startups to the corporate venture capital literature.

Practical contributions

For startup founders in the Southeast Asia, while dealing with corporate venture capital who has complementary assets/resources that is essential for growth is significant, our study reminds an importance of venture capital who could drive funding amount. As a result, startup founders may need to find a reputable venture capital as a lead investor even if they are focusing in building product or service in their early stage with corporate venture capital.

For corporate venture capitalist and especially to those corporates that are designing corporate venture capital investment programs, the result provides that corporate venture capital may not need to be a lead investor in this Southeast Asia, rather actively connecting with reputable venture capital would be beneficial. By participating as a syndicate investor, corporate venture capital has already provided significant support which represent by funding amount. Thus, unnecessary leading the funding with normally mean to provide the most funding amount and spending resources in the process, corporate venture capital can distribute their investment in more deals and shift their focus on post-investment collaboration with invested startups.

For policymakers, our results highlight important influences of both corporate venture capital and venture capital to the funding of startup, an important driver to the economy. Policies that support investment in startups for both corporate/corporate venture capital and venture capital would be beneficial to overall growth of startup ecosystem.

Limitations and recommendations for future studies

There are several limitations which also offer opportunities for future researches. First, this study uses the funding amount as the proxy for startup success. Though fund raising is one of important milestone for a startup and likely be a positive signal for growth, it would not directly translate to product or service success or financial performance of startup. Future research may conduct the longitudinal case studies that keep tracking whether those with difference funding profile may result in higher or faster exit such as through IPO or merger and acquisition. Second, although we control for some startup characteristics such as stage of financing and industry, there could be other latent factors that affect funding raising; for example, founder profiles (ages, experience, board composition) or location of startups which future studies may consider in studying these factors. Third, this study acknowledges potential endogeneity concerns, particularly selection bias where it is plausible that strategic investors self-select into funding rounds of those superior or high-quality startups, further studies may employ methods such as Propensity Score Matching (PSM), Instrumental Variable approaches, or Heckman selection models. Fourth, given this study provides new evidences for Southeast Asia, comparative study with other region (other than those that already have lot of research such as U.S., EU, China) with similar sample period may reveal other interesting differences; for example, the infrastructure, development of capital market, innovation ecosystem, governance or country innovation level which likely to affect the funding. Finally, this study relies on data from the CB Insights, though it is one of well-known databases for recent literature, other than correctness and completion of data, it may not cover all funding data. As a result, future studies may rely on others or combined several databases or conduct qualitative approaches such as interviews/surveys which may reveals interesting results.

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CULTIVATING BRAND LOYALTY THROUGH THE EXTENDED MARKETING MIX: AN INTEGRATION OF SOCIAL EXCHANGE AND RESOURCE CONSERVATION THEORIES IN THE PHNOM PENH COFFEE SECTOR

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Abstract

This research investigates the critical drivers of brand loyalty in the international coffee sector in Phnom Penh, Cambodia, using the extended 7Ps marketing mix framework. Grounded in Social Exchange Theory and Conservation of Resources Theory, the study examines how international coffee chains cultivate long-term commitment in a rapidly evolving and competitive emerging market. Data were collected via an online self-administered questionnaire from 431 consumers who frequent international coffee establishments in Phnom Penh, ensuring robust statistical power, as justified by the Inverse Square Root Method. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed via WarpPLS to test the hypothesized relationships between the seven marketing mix elements and brand loyalty. The empirical results indicate that price, promotion, and physical evidence exert significant positive influences on brand loyalty, while product, place, people, and process did not demonstrate a significant direct impact in this specific urban context. Notably, physical evidence emerged as the strongest predictor, underscoring the coffee shop as a third-place sanctuary for urban dwellers. These findings suggest that for international brands in Cambodia, loyalty is anchored in environmental comfort and status signaling rather than functional product attributes alone. The study provides actionable insights for practitioners to prioritize servicescape investments and strategic pricing to maintain a competitive advantage in Southeast Asian markets.

Keywords: 7Ps Marketing Mix, Brand Loyalty, International Coffee Chains, Phnom Penh, PLS-SEM, Social Exchange Theory, Conservation of Resources Theory

Introduction

The global hospitality landscape has undergone a seismic shift, with the proliferation of international brands transforming consumer expectations from mere commodity consumption to holistic experiential engagement (Rugolo, 2024). Within this competitive arena, the 7Ps Marketing Mix, comprising product, price, place, promotion, people, process, and physical evidence, emerges not merely as a functional framework but as a strategic necessity for organizational survival (Safitri et al., 2023). For international coffee chains, the ability to orchestrate these seven dimensions determines their capacity to cultivate brand loyalty. This intangible asset serves as the ultimate defensive moat against market volatility and aggressive local competition (Ratasuk, 2022).

This strategic imperative is further amplified by global mega-trends defining the post-crisis era (Moreno et al., 2023). As the world navigates the complexities of post-crisis resilience, the emphasis has shifted toward Sustainable Development Goal (SDG) 8, Decent Work and Economic

Growth (Cerejeira & Sousa, 2025). In the service sector, this manifests as a heightened focus on the people and process elements of the marketing mix (Sarin & Srivastava, 2024). Consumers are increasingly drawn to brands that demonstrate operational resilience and ethical service delivery, viewing their daily coffee ritual through the lens of well-being and social connectivity (Holloway, 2025). Consequently, international chains are no longer just selling caffeine; they are providing safe havens of consistency in an unpredictable global economy (Azahra et al., 2024).

However, applying these global standards within the specific context of Phnom Penh, Cambodia, introduces unique contextual tensions (Böhm et al., 2022). The coffee industry in Phnom Penh has transitioned from traditional street stalls to a sophisticated third-place culture, dominated by international heavyweights and premium local hybrids (Sokly & Mardy, 2023). This rapid transition is reflected in the sector's financial footprint. The coffee sector in Cambodia has the potential to generate significant economic and social benefits, with projections indicating it could create up to 100,000 new jobs and generate $500 million in revenue by 2025 (Darith et al., 2025). The rapid growth of Cambodia's coffee market is also driven by multiple factors, such as the increasing number of coffee shops and cafes, higher disposable incomes, and the rising influence of Western culture (Sokly & Mardy, 2023). Despite this robust growth, the Phnom Penh market remains heavily under-researched compared to mature Western or East Asian contexts. Focusing on this specific emerging market presents significant academic and practical merit; it provides a unique laboratory to test how global marketing frameworks, such as the extended 7Ps, function in a rapidly urbanizing economy characterized by a young demographic and distinct cultural dimensions. However, the industry operates in a pressure-cooker environment characterized by intense real estate competition, volatile supply chain costs, and a high-turnover labor market (Gois et al., 2023). In Phnom Penh's business districts, such as Boeng Keng Kang I, coffee chains face the grueling task of maintaining rigid international standards while navigating a local consumer base that demands both global prestige and local relatability (Kalay & Kandemir, 2025). The pain point lies in maintaining brand consistency amid rapid urban expansion and fluctuating service quality, driven by a young workforce operating under high-pressure performance metrics (Kojongian et al., 2022).

Despite the maturity of marketing mix research in Western contexts, a significant research gap persists in Southeast Asia, particularly in emerging hubs such as Cambodia (Luan & Soonthonsmai, 2024; Saputra & Ariani, 2024). Existing studies often suffer from a Western bias, assuming that product and price are the primary drivers of loyalty (Ahmed et al., 2023). Such models fail to account for Cambodian cultural nuances, such as high power distance and the concept of face (Vredeveldt et al., 2026). In a culture where the servicescape (physical evidence) acts as a status symbol and respect (people) is a non-negotiable social currency, traditional 4P models are insufficient (Oyedele & Opeyemi, 2024). There is a dearth of empirical evidence exploring how the extended 3Ps (People, Process, Physical Evidence) function as anchors of loyalty in a hierarchy-conscious society where social harmony often dictates consumer feedback loops (Nguyen et al., 2025; Saxena et al., 2025).

To address this complexity, this research utilizes Social Exchange Theory (SET) and Conservation of Resources (COR) Theory as its foundational pillars. SET posits that brand loyalty results from a reciprocal relationship: when a brand provides superior process and physical evidence, consumers reciprocate with repeat patronage and psychological attachment (Lim et al., 2025). Complementarily, COR theory suggests that in the high-stress, fast-paced urban environment of Phnom Penh, the physical evidence (a comfortable, climate-controlled environment) and efficient process act as external resources that buffer consumers against daily stressors, thereby anchoring their loyalty to the brand that best preserves their cognitive and emotional energy (Hollebeek et al., 2023).

Research Objectives

1. To evaluate the individual and collective contributions of the 7Ps (Product, Price, Place, Promotion, People, Process, and Physical Evidence) on the brand loyalty of international coffee chains in Phnom Penh.
2. To identify which specific elements of the 3Ps (People, Process, Physical Evidence) act as the primary differentiators in a high-power-distance cultural context.
3. To examine the role of the servicescape as a psychological resource that moderates the relationship between service delivery and long-term customer retention.

Literature Review

The evolution of relationship marketing has transitioned from basic transactional exchanges to the cultivation of deep-seated psychological bonds between brands and consumers (Chan, 2024; Chu, 2024). In Phnom Penh's burgeoning coffee market, international chains must navigate a landscape where brand loyalty is not merely a byproduct of a quality brew but a complex outcome of a multidimensional marketing strategy. This research is anchored in the integration of Social Exchange Theory (SET) and Conservation of Resources (COR) Theory, providing a robust lens for examining consumer behavior in emerging economies.

1. Theoretical Foundations: SET and COR Theories

Social Exchange Theory (SET), as conceptualized by Blau (1964) and further refined by Emerson (1977), posits that social behavior results from an exchange process in which parties evaluate the costs and benefits of a relationship. In the context of international coffee chains, SET explains brand loyalty as a reciprocal response to a superior value proposition (Hsiao et al., 2023). When a firm delivers excellence across the 7 Ps, it establishes a norm of reciprocity (Gouldner, 1960). In the Cambodian context, characterized by high power distance, respect shown by staff (people) and service reliability (process) are perceived as high-value social gifts that the consumer repays through repeat patronage and advocacy (Wu & Rojniruttikul, 2024).

Conservation of Resources (COR) Theory by Hobfoll (1989) suggests that individuals are motivated to obtain and protect resources, ranging from physical objects and conditions to personal energy. For the urban professional in Phnom Penh, the servicescape (physical evidence) serves as a critical resource, a sanctuary offering cooling, high-speed connectivity, and a professional ambiance (Ariffin et al., 2025; Ratasuk & Gajesanand, 2020). According to COR logic, consumers develop loyalty toward brands that serve as a resource gain, buffering against the resource loss associated with a high-stress, humid urban environment (Biggs & Brough, 2025).

2. Conceptual Analysis of the Marketing Mix (7Ps)

The marketing mix has evolved from the traditional 4Ps (McCarthy, 1964) to the extended 7Ps (Booms & Bitner, 1981) to address the unique complexities of service-oriented industries. Product is seminally defined as a bundle of tangible and intangible attributes that satisfy consumer needs (Kotler & Keller, 2016), while price represents the key component of the value equation, where price fairness (Bolton et al., 2003) serves as the key driver of long-term commitment. Place refers to the accessibility and distribution channels that reduce the resource cost of consumer effort, and promotion serves as the communication pillar that builds brand awareness and psychological presence (Grönroos, 1994). Within the service sector, people, the human actors in service delivery, provide critical relational drivers through empathy and competence (Parasuraman et al., 1988), while process refers to the procedural flow (Shostack, 1984) that reduces cognitive friction. Finally, physical evidence, or the servicescape (Bitner, 1992), encompasses the environment in which service is delivered and serves as a third place for social engagement and status signaling in Southeast Asia (Ratasuk & Buranasompob, 2021).

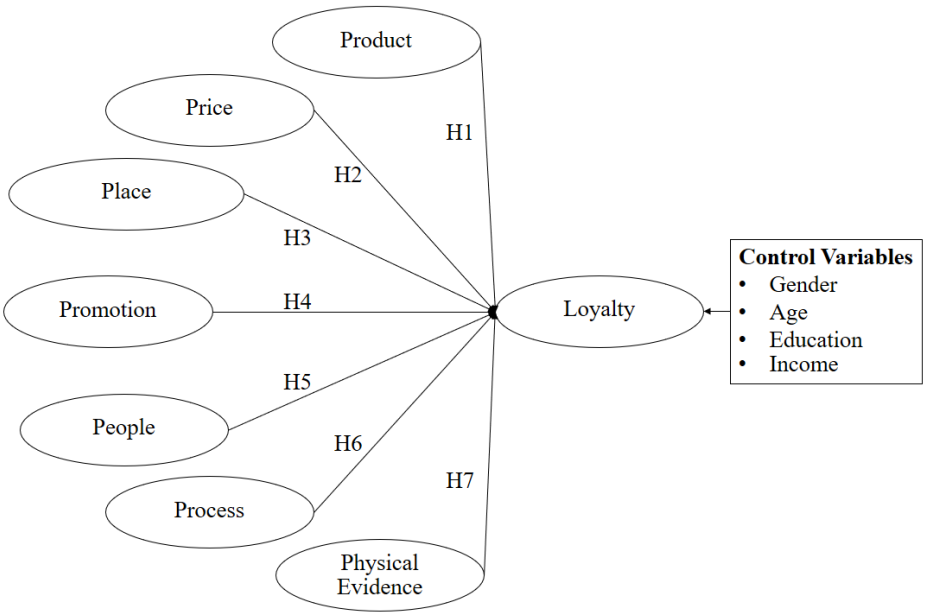
3. The Role of Demographic Control Variables

The inclusion of gender, age, income, and education as control variables is academically justified by the Consumer Heterogeneity principle (Evanschitzky & Wunderlich, 2006). Prior research indicates that age and income significantly moderate the relationship between price and loyalty: high-income segments may be less price-sensitive but more sensitive to physical evidence of status signaling (Manyanga et al., 2022; Nuseir, 2020). Furthermore, education levels often correlate with brand consciousness and the ability to process complex promotional messages (Abdel Wahab et al., 2023). By controlling for these factors, this study isolates the unique variance explained by the 7Ps, ensuring a more rigorous assessment of the marketing mix's direct impact on the ultimate dependent variable, brand loyalty, which Oliver (1999) defines as a deeply held commitment to repatronize a preferred service consistently.

Hypotheses Development

The narrative of this research suggests that in the competitive landscape of Phnom Penh, international coffee chains operate as resource hubs, where the traditional 4Ps facilitate market entry, and the service 3Ps anchor loyalty. This conceptualization builds upon recent empirical evidence in Southeast Asian coffee markets, which highlights the dual necessity of tangible product excellence and intangible store ambiance (Ratasuk, 2022). Based on the logic of SET reciprocity and COR resource protection, the following hypotheses, presented in Figure 1, are formulated for empirical testing:

H1: Product quality has a significant positive impact on brand loyalty.
H2: Price perception has a significant positive impact on brand loyalty.
H3: Place (Accessibility) has a significant positive impact on brand loyalty.
H4: Promotion has a significant positive impact on brand loyalty.
H5: People (Service Personnel) have a significant positive impact on brand loyalty.
H6: Process efficiency has a significant positive impact on brand loyalty.
H7: Physical Evidence (Servicescape) has a significant positive impact on brand loyalty.



Picture 1: Conceptual Framework

Research Methodology

This study employs a quantitative, deductive research design to empirically validate the hypothesized relationships between the marketing mix and brand loyalty. By operating within a positivist paradigm, the research aims to produce objective, generalizable findings by systematically measuring latent constructs. The primary analytical tool selected for this investigation is Partial Least Squares Structural Equation Modeling (PLS-SEM). The choice of PLS-SEM over Covariance-Based SEM (CB-SEM) is justified by its superior suitability for prediction-oriented research, where the primary objective is to maximize the explained variance (R^2) of the dependent variable (Hair et al., 2020; Ratasuk & Nyan Lin, 2025). Furthermore, PLS-SEM is highly robust in handling non-normal data distributions and complex models with numerous indicators, as recommended by seminal scholars in the field (Hair & Alamer, 2022; Hair et al., 2019; Naing & Ratasuk, 2025).

1. Population and Sampling Strategy

The target population for this study comprises consumers who frequent international coffee chains in Phnom Penh. Given that the total number of such consumers is unknown, the population is treated as infinite. To ensure the acquisition of high-quality data from individuals with relevant experience, a Purposive Sampling technique was employed. The final sample consisted of 431 valid responses, a size that satisfies multiple rigorous statistical requirements. The adequacy of the sample size is justified using the Inverse Square Root Method, which is superior to the traditional 10-times rule because it accounts for the minimum expected path coefficient and the required statistical power (Kock & Hadaya, 2018). Assuming a minimum significant path coefficient (β) of 0.155 at a 5% significance level, the method requires a sample of approximately 324; thus, the current sample of 431 provides ample power to detect even subtle relationships within the complex 7Ps model. As detailed in Table 1, the sample is predominantly female (56.1%) and concentrated in the younger age groups, with 54% aged 18-34 years. The respondents' educational backgrounds are notably high, with the majority holding a graduate degree (36.4%) or an undergraduate degree (32.0%). Financially, the largest segment reports a monthly income between $500 and $1,000 (31.3%), with a typical spend of $5 to $10 per visit (39.7%). These demographic and behavioral characteristics confirm that the sample accurately represents the emerging middle-class and professional segments that drive international coffee culture in Phnom Penh.

Table 1: Characteristics of the Sample and Descriptive Statistics

Variable		n	%
Gender	Male	189	43.9%
	Female	242	56.1%
Age	18 – 24 years old	117	27.1%
	25 – 34 years old	116	26.9%
	35 – 44 years old	107	24.8%
	45 – 54 years old	53	12.3%
	55 – 64 years old	28	6.5%
	65 years or older	10	2.3%
Education	High School	30	7.0%
	Undergraduate Degree	138	32.0%
	Graduate Degree	157	36.4%
	Master's Degree	84	19.5%
	Doctoral Degree (PhD)	22	5.1%
Income (USD)	Less than $500	105	24.4%
	$500 - $1,000	134	31.3%
	$1,001 - $2,000	107	24.8%
	$2,001 - $4,000	55	12.8%
	More than $4,000	30	7.0%

Variable		n	%
Frequency of Visit	Several times a week	105	24.4%
	Once a week	100	23.2%
	2 – 3 times a month	125	29.0%
	Once a month	30	7.0%
	Less than once a month	32	7.4%
Average Spending Per Visit	Less than $5	150	34.8%
	$5 - $10	171	39.7%
	$11 - $15	87	20.2%
	$16 - $20	17	3.9%
	More than $20	6	1.4%

2. Data Collection and Instrument Development

The data collection process is conducted via an online, self-administered questionnaire distributed through digital platforms and social media. To maintain the integrity of the dataset, the survey includes mandatory screening questions at the outset; only respondents who have patronized an international coffee chain in Phnom Penh within the preceding 6 months are permitted to complete the instrument. The survey itself is structured into four distinct sections: (1) screening criteria, (2) respondent demographics, (3) consumption behavior and brand preferences, and (4) the core research constructs. All items measuring the independent and dependent variables are adapted from validated scales in the established literature (Hang & Ratasuk, 2025; Ratasuk & Buranasompob, 2021; Yang & Ratasuk, 2024) and are measured on a 5-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

3. Data Analysis Plan with WarpPLS

The analysis is conducted using WarpPLS (v. 8.0) (Kock, 2022; Ratasuk, 2024), focusing first on the measurement model and subsequently on the structural model. In the measurement model stage, the study assesses internal consistency using Cronbach's Alpha (α) and composite reliability, with values above 0.70 considered acceptable (Hair et al., 2019). Convergent Validity is confirmed by ensuring factor loadings exceed 0.708, and the Average Variance Extracted (AVE) is greater than 0.50 (Hair et al., 2019). To establish discriminant validity, the study uses the Heterotrait-Monotrait Ratio (HTMT), adhering to the strict threshold of less than 0.85 (Henseler et al., 2015), as this method is widely recognized as superior to the traditional Fornell-Larcker criterion for detecting a lack of discriminant validity between latent constructs (Henseler et al., 2015; Ton et al., 2025).

Following the validation of the measurement model, the structural model is assessed to test the hypothesized paths. Potential collinearity is assessed using the Variance Inflation Factor (VIF), with values below 3.3 preferred to indicate the absence of collinearity (Kock, 2015). The significance of the path coefficients (β) and the coefficient of determination (R^2) is determined using a bootstrapping procedure with 5,000 resamples. To ensure robustness, a full collinearity assessment is conducted to check for Common Method Bias (CMB), and the mediation analysis is performed where theoretically relevant to explore the depth of the structural relationships (Ratasuk, 2023; Ratasuk & Gajesanand, 2023).

Ethical Considerations

Ethical integrity is maintained throughout the research process. Every participant must provide informed consent before accessing the survey items. All responses remain strictly anonymous, and participation is entirely voluntary, with respondents retaining the right to withdraw from the study at any point without penalty. The data collected are used exclusively for academic purposes and are presented only in aggregate form to protect individual identity and privacy.

Results

1. Assessment of the Measurement Model

The measurement model was evaluated for internal consistency, convergent validity, and discriminant validity. Internal consistency was confirmed as all constructs exhibited Cronbach's Alpha (CA) and Composite Reliability (CR) values well above the 0.70 threshold. Specifically, brand loyalty demonstrated high reliability (CA=0.855, CR=0.896), as did product (CA=0.829, CR=0.880), and price (CA=0.876, CR=0.910). Convergent validity was established through factor loadings, all of which exceeded the 0.78 requirement, and the Average Variance Extracted (AVE), which ranged from 0.529 to 0.668, surpassing the minimum 0.50 threshold for all constructs.

Discriminant validity was assessed using both the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio. According to the Fornell-Larcker results, the square root of the AVE for each construct is greater than its highest correlation with any other latent construct. Furthermore, the HTMT ratios remained within the conservative 0.85 threshold for most paths, through the relationship between people and physical evidence (0.881) suggests a high degree of conceptual proximity in the service delivery experience. While slightly elevated, these values generally fall within the acceptable relaxed threshold of 0.90, often used for conceptually related constructs in service marketing research.

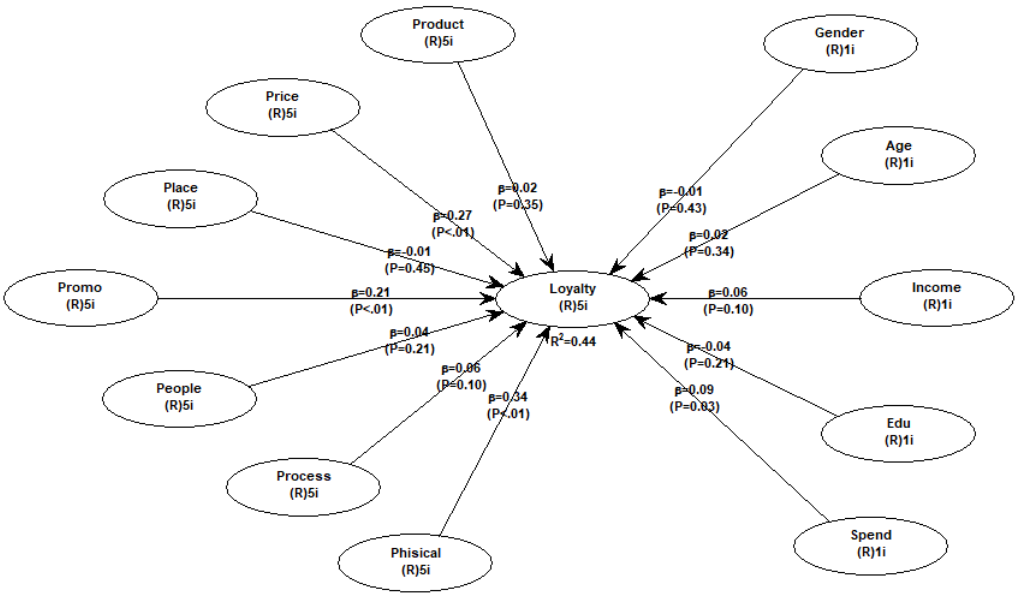
2. Assessment of the Structural Model

The structural model assessment focused on the explanatory power and the significance of the hypothesized paths. The coefficient of determination (R^2) for brand loyalty is 0.439, indicating that the 7Ps marketing mix explains approximately 43.9% of the variance in customer loyalty. This is complemented by an adjusted R^2 of 0.423 and a Q^2 value of 0.386, suggesting substantial predictive relevance.

Multicollinearity was not a significant concern, as all Variance Inflation Factor (VIF) values were below the 3.3 threshold, with the highest recorded at 2.671 for the process construct. These results provide a robust framework for the subsequent hypothesis testing, demonstrating that the extended marketing mix, particularly the interplay between service-oriented factors, plays a pivotal role in anchoring brand loyalty in the Cambodian market.

3. Path Analysis Results

The results of the path analysis, as shown in Figure 2 and Table 2, reveal a nuanced landscape of drivers for brand loyalty in Phnom Penh.



Picture 2: WarpPLS 8.0 Results

Source: Path coefficients (β) and significance (p-value) derived from WarpPLS bootstrapping

Table 2: Hypotheses Testing Results

Hypothesis	Path	Beta (β)	P-Value	Result
H1	Product → Loyalty	0.019	0.346	Not Supported
H2	Price → Loyalty	0.271	<0.001	Supported
H3	Place → Loyalty	-0.006	0.451	Not Supported
H4	Promotion → Loyalty	0.214	<0.001	Supported
H5	People → Loyalty	0.039	0.21	Not Supported
H6	Process → Loyalty	0.06	0.104	Not Supported
H7	Physical → Loyalty	0.341	<0.001	Supported

The findings indicate that Physical Evidence ($\beta = 0.341$, $p < 0.001$), Price ($\beta = 0.271$, $p < 0.001$), and Promotion ($\beta = 0.241$, $p < 0.001$) are the primary significant drivers of brand loyalty in this market. Interestingly, Product, Place, People, and Process did not show a statistically significant direct impact on loyalty in this specific model. Among the control variables, only Average Spending Per Visit demonstrated a significant positive relationship with loyalty ($\beta = 0.087$, $p = 0.034$).

Discussion and Conclusion

This section provides a detailed interpretation of the empirical findings, situating them within the existing theoretical landscape of marketing and consumer behavior while highlighting the unique nuances of the Phnom Penh coffee market.

The primary objective of this study was to evaluate the contribution of the 7Ps marketing mix to brand loyalty within the competitive landscape of Phnom Penh. The structural model analysis revealed that Physical Evidence ($\beta = 0.314$), Price ($\beta = 0.271$), and Promotion ($\beta = 0.214$) exert significant positive influences on brand loyalty, confirming the research hypotheses for these specific variables. Interestingly, the results did not support the direct paths for product, place, people, and process in this particular urban context. Our findings regarding physical evidence align with Bitner's (1992) servicescape theory, which argues that the physical environment is a primary driver of consumer behavior in service-heavy industries. This also supports Oliver's (1999) work, as the perceived prestige and atmosphere of international chains serve as a critical anchor for long-term commitment. However, the lack of significance for product quality contradicts seminal findings by Zeithaml (1988) and Kotler and Keller (2016), who traditionally viewed product as the baseline for loyalty. In Phnom Penh, product quality has become a hygiene factor; while necessary, it no longer serves as a primary loyalty differentiator compared to the experience provided by the physical environment. This presents a fascinating contrast to the Bangkok market, where prior studies have demonstrated that core product quality remains a significant, direct predictor of repurchase intention in convenience-store coffee chains (Ratasuk & Buranasompob, 2021; Ratasuk, 2022). For example, while the prior research in Western contexts often emphasized the flavor profile as a driver of loyalty, our results suggest that, for Cambodian consumers, the shareability of the environment and the brand's status take precedence over the beverage itself.

Theoretical Contribution

This study expands the body of knowledge by integrating Social Exchange Theory (SET) and Conservation of Resources (COR) Theory to explain brand loyalty in an emerging Southeast Asian hub. The dominance of physical evidence as the strongest predictor provides a compelling application of COR Theory. In the high-stress, humid, and congested urban environment of Phnom Penh, international coffee shops serve as resource hubs, offering a climate-controlled, aesthetically pleasing environment that buffers consumers from daily resource loss. Furthermore, the significance of price and promotion supports the social exchange narrative, suggesting that loyalty is cultivated when consumers reciprocate the social gift of status and membership through continued patronage. The non-significance of people and process suggests that, in highly standardized international franchises, these elements are often perceived as uniform by consumers, thereby shifting exchange value toward more visible markers of brand identity and environmental comfort.

Practical Implications

For practitioners and stakeholders in the Cambodian hospitality sector, these findings offer actionable strategic advice. Management should prioritize servicescape investment over traditional product innovation to drive retention, focusing on Instagrammable interior designs and high-comfort zones such as ergonomic seating and premium air conditioning. For example, a brand could create dedicated coworking zones for professionals seeking a sanctuary from urban noise. Furthermore, practitioners should use pricing as a status signal rather than competing solely on cost. Premium-tier loyalty programs that offer exclusive lounge access would leverage both the price and physical evidence drivers identified as significant in this study. High-impact promotions should move beyond simple discounts to foster relational engagement on digital platforms, reinforcing the brand's role as a lifestyle choice. Finally, investors should focus site selection on areas where the third place concept is underserved, ensuring that the physical store provides a distinct resource gain that distinguishes the brand from local competitors.

Limitations and Future Research

Despite the rigorous methodology and a sample size of 431 valid responses, this study is subject to certain limitations. First, the cross-sectional nature of the data collection captures only a snapshot of consumer behavior; longitudinal studies would be beneficial for observing how loyalty evolves as the Cambodian market matures. Second, the study relied on self-administered online questionnaires, which may introduce self-selection bias. Future research should consider multi-group analysis (MGA) to compare local versus international brand loyalty, or conduct a cross-national MGA comparing consumer behavior in Phnom Penh with established data from Bangkok coffee chains, such as Ratasuk & Gajesanand (2020), or explore the moderating role of cultural values, such as collectivism or face-saving, which are highly relevant in the Cambodian context. Additionally, while the Inverse Square Root Method confirmed the sample's statistical power, future studies could incorporate qualitative interviews to further explore the emotional triggers underlying the Servicescape preference.

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THE ROLE OF MULTISENSORY MARKETING AND CUSTOMER-CENTRIC CULTURE IN SHAPING CUSTOMER EXPERIENCE AND PERCEIVED VALUE: EVIDENCE FROM A SYSTEMATIC LITERATURE REVIEW IN PREMIUM AUTOMOTIVE SETTING

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Abstract

This study presents a systematic literature review (SLR) to investigate how Multisensory Marketing (MM) and Customer-Centric Culture (CCC) influence Customer Experience (CX) and Customer Perceived Value (CPV) within premium and high-involvement service contexts, with particular relevance to the premium automotive industry. As the automotive industry transitions from product-driven competition toward experience-based differentiation, understanding how sensory cues and organizational culture jointly influence customer value has become increasingly critical.

Following PRISMA guidelines, this review synthesizes 59 peer-reviewed publications from major academic databases, including Scopus, Web of Science, ScienceDirect, and Emerald, published between 2000 and 2025. The procedure included (1) identification and screening of relevant studies, (2) eligibility assessment based on conceptual fit with MM, CCC, CX, and CPV, and (3) thematic synthesis. Extracted data included theoretical foundations, empirical coefficients, methodological approaches, and context-specific insights. The selected articles span luxury hospitality, retail, and premium automotive services, providing a cross-contextual evidence base.

The findings reveal that multisensory marketing encompassing visual, acoustic, haptic, olfactory, and gustatory stimuli significantly enhances the emotional, symbolic, and experiential aspects of customer value. Meanwhile, a customer-centric culture fosters service behaviors, employee empathy, and interaction quality, collectively elevating the customer experience across touchpoints.

The synthesis highlights customer experience as a central mechanism through which both sensory strategies and organizational culture translate into customer perceived value, particularly in high-involvement and luxury automotive contexts. However, existing research remains fragmented, with limited integration of sensory and cultural dimensions in a unified framework and scarce qualitative investigations in emerging markets. This review concludes by proposing an integrative conceptual model and outlining research avenues for future empirical validation in premium automotive environments.

Keywords: Multisensory Marketing, Customer-Centric Culture, Customer Experience, Customer-Perceived Value, Premium Automotive Industry

Introduction

In premium and high-involvement service industries, customer expectations have shifted from product-centered evaluation to value derived from holistic and emotionally resonant experiences. The premium automotive sector exemplifies this shift, where purchasing decisions increasingly depend on experiential cues that extend beyond technical performance to encompass atmosphere, interaction quality, and sensory immersion (Lemon & Verhoef, 2016). As a result, firms must strategically

integrate experiential, emotional, and organizational dimensions to strengthen customer value perception and differentiate themselves in competitive markets.

Multisensory Marketing (MM) has emerged as a key strategic approach for shaping customer experience (CX). By orchestrating visual, acoustic, haptic, olfactory, and gustatory cues, organizations can influence perception, emotional responses, and behavioral intentions (Krishna, 2012). Research highlights that multisensory stimuli embedded within the servicescape contribute significantly to brand experience formation, particularly in luxury and high-contact environments where sensory coherence enhances memorability and perceived quality (Spence, 2020; Schmitt, 1999). In premium automotive showrooms—where customers physically interact with vehicles, materials, soundscapes, and ambient cues—the role of MM becomes central to creating experiential value.

At the organizational level, Customer-Centric Culture (CCC) serves as a critical antecedent for designing and delivering meaningful experiences. CCC reflects shared values, norms, and practices that prioritize customer needs and guide employee behavior (Homburg et al., 2011). Firms that cultivate CCC demonstrate greater consistency in service delivery, higher responsiveness, and enhanced ability to generate positive emotional and relational experiences across touchpoints (Narver & Slater, 1990). Prior studies affirm that customer-focused cultural orientations strongly influence CX outcomes, positioning culture as a foundational mechanism that shapes how experiential strategies are operationalized.

Customer Experience (CX) is a multidimensional construct encompassing cognitive, emotional, sensory, and relational responses throughout the customer journey (Gentile et al., 2007). CX plays a critical role in determining Customer-Perceived Value (CPV)—a subjective evaluation of benefits relative to sacrifices—particularly in luxury services where symbolic, emotional, and identity-related value elements complement functional utility (Zeithaml, 1988). High-quality CX has been consistently associated with stronger perceived value, justification of premium pricing, and long-term behavioral outcomes such as loyalty and willingness to pay (Lemon & Verhoef, 2016).

Although MM, CCC, CX, and CPV have been widely studied, the literature remains fragmented. Most research examines these constructs independently rather than within an integrated value-creation framework. Moreover, empirical studies in premium automotive environments remain limited, despite their suitability for exploring mechanisms of multisensory and experiential value mechanisms. This highlights the need for a comprehensive synthesis that connects sensory, cultural, experiential, and value-based perspectives.

To address this gap, the present study conducts a Systematic Literature Review (SLR) to synthesize existing theoretical and empirical evidence on how MM and CCC influence CX and CPV in premium service contexts. The findings aim to establish an integrated conceptual framework for future empirical testing and to provide insights relevant to organizations seeking to enhance experiential value in the premium automotive industry.

Research Objective

1. To systematically review and synthesize existing academic literature related to Multisensory Marketing (MM), Customer-Centric Culture (CCC), Customer Experience (CX), and Customer-Perceived Value (CPV) within premium, luxury, and high-involvement service contexts.
2. To examine core relationships linking multisensory marketing and customer-centric cultural practices with customer experience and value creation
3. To develop a proposed conceptual framework that integrates multisensory marketing and customer-centric culture as antecedents of customer experience and customer-perceived value in premium automotive services.

4. To identify research gaps and future research directions concerning sensory design, organizational culture, experiential mechanisms, and value formation, particularly within premium automotive and emerging-market settings.

Literature Review

Multisensory Marketing (MM)

Multisensory Marketing refers to the strategic orchestration of sensory cues—visual, acoustic, haptic, olfactory, and gustatory—to shape customer perceptions, emotions, and evaluative judgments (Krishna, 2012). Sensory stimuli have been shown to significantly enhance experiential engagement by influencing affective and cognitive responses throughout the customer journey (Schmitt, 1999). In premium service contexts, such as luxury hospitality and automotive showrooms, integrating multisensory elements creates immersive servicescapes that reinforce brand identity and elevate perceived quality (Spence, 2020).

The literature emphasizes that sensory coherence and congruence are critical to forming a positive customer experience (Hultén, 2011). Visual cues such as lighting and color palettes contribute to perceived aesthetics and a premium ambience, while acoustic and haptic cues strengthen emotional resonance and tactile expectations. MM is therefore positioned as an antecedent of Customer Experience (CX) because it shapes how customers interpret environmental signals during service encounters. Research in high-involvement service settings consistently supports a positive link between sensory richness and the formation of memorable, emotionally charged experiences (Walls et al., 2011).

Customer-Centric Culture (CCC)

Customer-Centric Culture (CCC) has emerged as a central construct in contemporary marketing and service research as organizations transition from product-centered to customer-centered logics of value creation. Early theoretical roots of CCC can be traced to Market Orientation Theory, which conceptualizes customer orientation and interfunctional coordination as key drivers of superior organizational performance (Narver & Slater, 1990). This perspective established that firms must systematically generate, disseminate, and respond to customer intelligence across departments. However, while market orientation emphasizes strategic responsiveness to customers, it does not fully capture the deeper cultural transformation required to embed customer priorities into organizational values and behavioral norms.

The evolution toward customer-centric business models is further supported by Service-Dominant Logic (SDL), which reframes value as co-created through interactions among firms, customers, and stakeholders rather than delivered unilaterally by firms (Grieger & Ludwig, 2019). Within SDL, customers are active participants in service systems, and value emerges throughout the service lifecycle. This shift necessitates not only structural alignment but also cultural reorientation, as organizations must internalize customer value as a guiding principle across all touchpoints. In this sense, CCC represents a cultural infrastructure that supports value co-creation by aligning internal processes with customer experiences.

Customer-centricity has often been conceptualized as a strategic transformation that restructures organizations around customer segments instead of product categories (Shah et al., 2006). However, recent scholarship distinguishes between customer-centric strategy and customer-centric culture. While strategy reflects formal policies and structural alignment, culture operates at a deeper level by shaping employee cognition, interpretation, and discretionary behavior. Empirical research within the automotive aftersales sector demonstrates that CCC functions as an internalized organizational mindset characterized by shared values, service orientation, employee empowerment, customer-focused metrics, and feedback integration (Amro et al., 2025). This evidence indicates that CCC extends beyond strategic orientation and serves as a latent cultural mechanism that influence how employees enact customer-facing processes.

From a process perspective, customer centricity has been articulated through interactive customer relationship management, customer integration, internal integration, and external integration (Wünderlich et al., 2025). These processes collectively enable firms to discover implicit customer needs, align internal resources around customer value, and coordinate supply-chain responses to customization requirements. Although these mechanisms are operational in nature, their effectiveness depends on the presence of an underlying cultural commitment to customer value. Without cultural alignment, such processes risk becoming procedural rather than value-driven.

The linkage between CCC and customer experience (CX) further strengthens its theoretical relevance. Customer experience is defined as the holistic perception formed across multiple touchpoints throughout the customer journey (Lemon & Verhoef, 2016). Delivering coherent and seamless experiences requires organizational coordination and alignment across functions (Homburg et al., 2017). Research suggests that CCC enhances CX indirectly by fostering internal integration and empowering frontline employees to respond empathetically and consistently to customer needs (Amro et al., 2025). In this regard, CCC operates as an antecedent to CX, providing the cultural conditions necessary for experience consistency and personalization.

Furthermore, engagement theory conceptualizes customer engagement (CE) as a multidimensional construct encompassing cognitive, emotional, and behavioral dimensions (Brodie et al., 2011). Engagement emerges when customers perceive relational value, trust organizational intentions, and experience meaningful interactions. Evidence indicates that CCC influences CE primarily through experiential pathways, suggesting that the cultural embedding of customer value enhances customer satisfaction and trust, which subsequently drives engagement behaviors (Amro et al., 2025). Thus, CCC is not merely associated with customer-focused activities but plays a mediating and moderating role in engagement formation.

In addition, contemporary research emphasizes that emerging service technologies can enhance customer centricity when aligned with organizational processes (Wünderlich et al., 2025). Technologies such as digital twins, augmented reality, and interactive CRM systems support experiential, performance-enhancing, and automated processes that strengthen customer-centric alignment. However, technological implementation alone is insufficient without cultural readiness. This reinforces the argument that CCC functions as a foundational organizational capability enabling strategic and technological initiatives to translate into meaningful customer outcomes.

Collectively, the systematic review of the literature indicates that Customer-Centric Culture is best conceptualized as a cultural infrastructure rooted in market orientation, service-dominant logic, and customer experience management frameworks. It operates at the intersection of strategy, process, and organizational values, shaping how firms interpret customer intelligence, design service systems, and deliver experiences across the customer journey. Empirical evidence supports its role as a critical antecedent to customer experience and engagement, particularly within service-intensive sectors such as automotive aftersales. Therefore, CCC represents a multidimensional construct that integrates cognitive alignment, behavioral routines, and relational mechanisms to sustain customer-focused value creation in contemporary business environments.

Customer Experience (CX)

Customer Experience (CX) encompasses customers' cognitive, emotional, sensory, and behavioral responses across all touchpoints of the service journey (Gentile et al., 2007). CX research emphasizes that customers evaluate experiences holistically, integrating functional performance with emotional and symbolic elements. Within premium and luxury settings, CX becomes even more salient, as customers expect high levels of personalization, sensory immersion, and symbolic reinforcement of identity (Berry et al., 2002).

Both sensory and cultural factors reinforce CX—MM shapes environmental and emotional stimuli, while CCC determines behavioral and relational quality. Both antecedents contribute to the formation of experiential value. Prior studies demonstrate that enhanced CX leads to stronger perceived quality, satisfaction, and favorable judgments of value (Lemon & Verhoef, 2016). In high-involvement contexts such as automotive retail, CX plays a pivotal role in shaping perceptions of craftsmanship, exclusivity, and prestige associated with the brand.

Customer-Perceived Value (CPV)

Customer-Perceived Value (CPV) is defined as the customer's overall evaluation of the trade-off between perceived benefits and perceived sacrifices (Zeithaml, 1988). CPV in premium services is multidimensional, incorporating functional, emotional, symbolic, and financial value dimensions (Sweeney & Soutar, 2001).

The literature highlights CX as a direct determinant of CPV—positive interactions, sensory immersion, and cultural alignment enhance the perceived utility and emotional worth of the service encounter (Holbrook, 2006). For high-end consumption such as premium automotive purchases, CPV also reflects social and identity-based value,in which customers assess how the experience reinforces self-concept, status, and personal meaning (Wiedmann et al., 2009). Studies consistently show that enhanced CX increases CPV, which subsequently influences satisfaction, loyalty, and willingness to pay premium prices (Lemon & Verhoef, 2016).

Integrating MM, CCC, CX, and CPV in Premium Automotive Contexts

Although substantial literature exists on MM, CCC, CX, and CPV individually, few studies integrate these constructs into a unified framework. Sensory-driven experience formation and customer-centric cultural orientation are often studied separately, leading to a fragmented understanding of how experiential value is constructed in high-involvement services. The premium automotive sector is a relevant context for such integration because customers rely heavily on sensory cues, interpersonal interactions, and symbolic associations when evaluating premium vehicles (Nordin & Kowalkowski, 2019).

Thus, synthesizing these constructs provides a conceptual foundation for understanding how sensory design and organizational culture jointly shape customer experience and, consequently, customer-perceived value.

Research Methodology

This study employed a Systematic Literature Review (SLR) approach to synthesize existing knowledge on the relationships among Multisensory Marketing (MM), Customer-Centric Culture (CCC), Customer Experience (CX), and Customer-Perceived Value (CPV) within premium and high-involvement service contexts. The review followed established SLR procedures grounded in PRISMA guidelines (Page et al., 2021), ensuring transparency, replicability, and methodological rigor.

1. Data Sources and Search Procedure

The literature search was conducted using major academic and peer-reviewed databases, including Scopus, Web of Science, ScienceDirect, Emerald Insight, and Google Scholar. A combination of keywords and Boolean operators was used to ensure comprehensive coverage, focusing on terms such as "multisensory marketing," "sensory marketing," "customer-centric culture," "customer orientation," "customer experience," "customer-perceived value," "premium automotive," and "luxury services." The database search yielded a total of 212 academic articles, which served as the initial dataset for screening and review.

2. Inclusion and Exclusion Criteria

Predetermined inclusion and exclusion criteria guided the selection of relevant studies to ensure academic quality and relevance. Articles were included if they were peer-reviewed, written in English, published between 2000 and 2025, and demonstrated clear conceptual alignment with at least one of the research constructs (MM, CCC, CX, CPV). Studies were also required to focus on service, retail, hospitality, luxury, or high-involvement consumption contexts. Exclusion criteria removed non-academic sources, book chapters, dissertations, purely technical automotive research, duplicate records, and articles without accessible full texts. These criteria ensured that only studies of sufficient academic rigor were selected for synthesis.

3. Screening and Selection Process

The screening process involved multiple stages to determine the relevance of each article. First, titles and abstracts were reviewed to eliminate studies lacking conceptual alignment with the research focus. Duplicate articles from overlapping databases were removed. Full-text reviews were then conducted to evaluate theoretical relevance, methodological rigor, and contribution to the understanding of MM, CCC, CX, and CPV. Of the original 212 articles, 59 met all eligibility criteria and were retained for the final synthesis. These selected studies formed the analytical foundation for evaluating the relationships within the proposed framework.

4. Data Extraction and Analysis

A structured data extraction process was implemented to collect key information from each of the 59 included studies. Extracted data included publication year, research method, theoretical constructs examined, industry context, and major findings. The studies were categorized into four core thematic groups corresponding to the conceptual framework: Multisensory Marketing, Customer-Centric Culture, Customer Experience, and Customer-Perceived Value. A thematic synthesis approach was used to analyze the extracted data, allowing recurring patterns and connections to emerge across studies. This analysis enabled mapping empirical evidence supporting the relationships among MM → CX, MM → CPV, CCC → CX, and CX → CPV, thereby providing a cohesive understanding of the experiential value creation process.

5. Ensuring Research Rigor

Methodological rigor was maintained throughout the review process through the use of multi-database triangulation, systematic screening procedures, and consistent coding and analysis. The synthesis was cross-validated using established theoretical foundations in sensory marketing, customer experience management, and organizational culture research. Adherence to transparent, documented review procedures enhances the credibility and reliability of the findings and ensures that the resulting conceptual framework is grounded in robust academic evidence.

Results

1. Overview of Findings from the Systematic Review

The systematic review of 59 selected studies, drawn from 212 articles, provides strong, consistent evidence supporting the proposed relationships among Multisensory Marketing (MM), Customer-Centric Culture (CCC), Customer Experience (CX), and Customer-Perceived Value (CPV). The findings indicate that sensory stimuli, organizational cultural practices, and experiential processes collectively shape customer perceptions, emotional responses, and value assessments in premium and high-involvement service environments. Prior research across luxury hospitality, retail, and premium automotive sectors reinforces the importance of integrated experiential mechanisms, particularly where emotional immersion and symbolic value are central components of consumer decision-making

(Krishna, 2012; Spence, 2020; Lemon & Verhoef, 2016). These findings provide empirical grounding for the hypotheses developed in this study.

2. Multisensory Marketing and Customer Experience

The reviewed literature consistently highlights multisensory marketing as a major determinant of customer experience, influencing emotional, cognitive, and sensory responses. Visual design elements, ambient soundscapes, tactile materials, and olfactory cues are frequently shown to elevate experiential quality by enhancing immersion, pleasure, and perceived authenticity (Schmitt, 1999; Hultén, 2011). Studies in luxury hospitality and premium automotive showrooms emphasize the importance of sensory congruence, in which the harmony among sensory cues strengthens perceived craftsmanship and brand exclusivity (Spence, 2020; Walls et al., 2011). Collectively, these findings suggest that MM functions as a central experiential catalyst that shapes customers' interpretation of premium service encounters.

H1: Multisensory Marketing has a positive effect on Customer Experience.

3. Multisensory Marketing and Customer-Perceived Value

The results indicate that MM not only shapes experience but also contributes directly to the formation of CPV. Sensory stimuli reinforce functional value by enhancing perceptions of quality, precision, and performance expectations, especially in high-involvement categories such as automotive services (Sweeney & Soutar, 2001). Emotional and symbolic value dimensions are influenced by sensory cues that evoke pleasure, identity expression, and social signaling, a dynamic highly relevant in luxury consumption (Wiedmann et al., 2009). Research also shows that rich sensory experiences increase perceived price fairness and justify premium pricing, thereby enhancing financial value (Berry et al., 2002). These findings support the proposition that MM influences CPV both directly and through experiential mechanisms.

H2: Multisensory Marketing has a positive effect on Customer-Perceived Value.

4. Customer-Centric Culture and Customer Experience

The literature demonstrates that CCC acts as an organizational foundation shaping customer experience across emotional, relational, and behavioral dimensions. Studies indicate that customer-oriented culture enhances service consistency, responsiveness, and personalization by promoting supportive leadership, cross-functional information sharing, and employee empowerment (Narver & Slater, 1990; Shah et al., 2006). CCC is shown to influence CX indirectly by guiding employee behaviors and ensuring that service delivery aligns with customer needs and expectations (Homburg et al., 2017). This alignment is particularly important in premium automotive contexts where the experiential environment, interpersonal interactions, and brand image must be cohesively managed. Thus, CCC serves as an essential internal mechanism that drives experiential quality.

H3: Customer-Centric Culture has a positive effect on Customer Experience.

5. Customer Experience and Customer-Perceived Value

Customer experience is confirmed as a major driver of CPV across multiple value dimensions. Positive experiences influence functional value by enhancing assessments of service reliability and performance, while emotional experiences enrich symbolic and personal value, especially in luxury and high-involvement categories (Gentile et al., 2007; Wiedmann et al., 2009). CX also contributes to financial value by reinforcing price justification and increasing willingness to pay in premium settings (Zeithaml, 1988; Lemon & Verhoef, 2016). The reviewed studies consistently highlight that CPV is shaped by how customers interpret and emotionally internalize their service experiences, underscoring the mediating role of CX within the broader experiential framework.

H4: Customer Experience has a positive effect on Customer-Perceived Value.

6. Integrated Framework-Based Findings

The consolidated synthesis reveals that multisensory marketing and customer-centric culture operate as dual antecedents that shape the customer experience, which subsequently drives customer-perceived value. MM influences experiential and value formation through sensory immersion, while CCC facilitates internal alignment to ensures the effective delivery of meaningful and consistent experiences. CX functions as the mediating mechanism through which sensory and cultural strategies translate into value creation outcomes across functional, emotional, symbolic, and financial dimensions. These integrated findings validate the conceptual framework and support the proposed hypotheses.

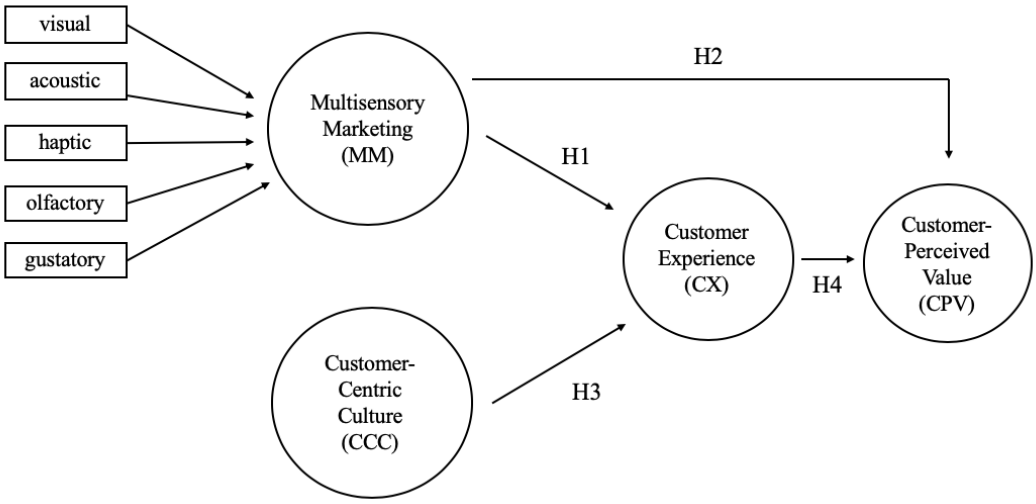

Figure 1: Integrated MM–CCC–CX–CPV Model Framework

Based on the theoretical foundations and synthesized literature, this study proposes an integrative conceptual framework that positions Customer-Perceived Value (CPV) as the central evaluative outcome through which customers interpret sensory, experiential, and cultural stimuli in premium automotive environments. Refer to Figure1 the model comprises two primary value-creation pathways. Sensory-Driven Value Pathway conceptualizes Multisensory Marketing as a direct antecedent to CPV while Culture-Driven Value Pathway conceptualizes Customer-Centric Culture (CCC) as a foundational organizational mechanism influencing Customer Experience (CX) and ultimately Customer-Perceived Value (CPV) Table 1: Summarizes the key empirical and conceptual findings from the 59 reviewed studies, highlighting supported relationships within the proposed framework as well as the identified research gaps in CCC–MM and CCC–CPV linkages.

Table 1: Summarizes the key empirical and conceptual findings from the 59 reviewed studies, highlighting supported relationships within the proposed framework and the identified research gaps in CCC–MM and CCC–CPV linkages.

Relationship	Key Findings from Reviewed Studies	Supporting Literature
Multisensory Marketing → Customer Experience	Multisensory cues (visual, auditory, haptic, olfactory, gustatory) significantly enhance emotional, sensory, and cognitive experience quality. Sensory congruence strengthens immersion and brand authenticity in premium service settings.	Schmitt (1999), Hultén (2011), Spence (2020), Walls et al. (2011)

Relationship	Key Findings from Reviewed Studies	Supporting Literature
Multisensory Marketing → Customer-Perceived Value	Sensory elements increase functional, emotional, symbolic, and financial value perceptions. Enhanced sensory design contributes to perceived quality, identity expression, and premium price justification.	Holbrook (2006), Sweeney and Soutar (2001), Wiedmann et al. (2009), Berry et al. (2002)
Customer-Centric Culture → Customer Experience	Organizations embedding customer-centric values across structures and processes demonstrate higher experience consistency, responsiveness, personalization, and service coherence. CCC operates as an internal cultural infrastructure that supports effective customer experience management.	Narver and Slater (1990), Shah et al. (2006), Homburg et al. (2017), Amro et al. (2025)
Customer Experience → Customer-Perceived Value	CX influences functional, emotional, and symbolic aspects of value. Positive CX enhances perceived service reliability, pleasure, self-identity expression, and financial value perceptions.	Gentile et al. (2007); Wiedmann et al. (2009); Lemon & Verhoef (2016); Zeithaml (1988)
CCC → CPV (Indirect Evidence)	Although no direct empirical testing explicitly examines CCC → CPV, conceptual and empirical evidence suggest that CCC enhances experience quality, which subsequently elevates perceived value dimensions.	Shah et al. (2006); Homburg et al. (2017); Lemon & Verhoef (2016); Amro et al. (2025)
CCC → MM (No Direct Evidence)	Existing literature suggests that organizations with strong customer-centric orientation are more likely to align environmental and experiential design with customer expectations, yet empirical testing of CCC → MM remains absent.	Schmitt (1999); Berry et al. (2002); Homburg et al. (2017)
Integrated Framework Evidence	Both MM and CCC operate as antecedents to CX, while CX acts as a mediator leading to CPV in premium/high-involvement services.	Synthesized from the reviewed 59 studies; supported conceptually by Schmitt (1999), Homburg et al. (2017), Lemon and Verhoef (2016), Amro et al. (2025)

Table 1: Presents a consolidated summary of the key findings derived from the 59 studies included in the systematic literature review. The table compares the major theoretical and empirical relationships identified across the four core constructs in the proposed framework: Multisensory Marketing (MM), Customer-Centric Culture (CCC), Customer Experience (CX), and Customer-Perceived Value (CPV). Each row highlights one specific relationship (e.g., MM → CX), summarizes the main themes or patterns found in the literature, and lists representative studies that support those findings.

The purpose of Table 1 is to provide a clear, structured overview of how previous research has addressed each relationship, including areas with strong empirical support (such as MM → CX and CX → CPV) and areas with only conceptual or indirect evidence (such as CCC → CPV). By organizing the findings into a comparative format, the table helps illustrate which relationships are well-established in academic literature and which remain under-explored—thereby reinforcing the research gap and the significance of the current study. This table, therefore, serves as a synthesized evidence map summarizing how multisensory, cultural, experiential, and value-related constructs interact within premium and high-involvement service contexts.

Discussion

The findings from the systematic review provide clear evidence that both Multisensory Marketing (MM) and Customer-Centric Culture (CCC) are critical antecedents shaping Customer Experience (CX) in premium and high-involvement service settings. Across the reviewed studies,

MM emerges as a powerful experiential driver, reinforcing the importance of orchestrating sensory cues to generate emotional resonance, perceived quality, and brand differentiation (Krishna, 2012; Spence, 2020; Schmitt, 1999). This is particularly relevant for the premium automotive industry, where physical interaction with vehicles, material finishes, and environmental cues heavily influence customers' interpretations of luxury, craftsmanship, and brand prestige (Walls et al., 2011). The review suggests that sensory coherence—consistent alignment between visual, acoustic, haptic, olfactory, and contextually relevant gustatory stimuli—plays a central role in customer meaning-making during the evaluation of automotive servicescapes (Hultén, 2011; Spence, 2020).

The review also highlights CCC as a foundational cultural mechanism supporting the creation of high-quality experiences. CCC influences CX through shared norms, customer-oriented beliefs, cross-functional collaboration, and empowered frontline employees (Narver & Slater, 1990; Shah et al., 2006; Homburg et al., 2011). In premium automotive contexts, employees play a crucial role in bridging experiential design elements with customer needs, indicating that strong CCC enables the effective operationalization of multisensory and experience-driven strategies (Lemon & Verhoef, 2016). This suggests that sensory experiences alone are insufficient; organizational alignment is required to support consistent, emotionally engaging, and value-driven service interactions.

Customer Experience (CX) is reinforced as the primary mechanism linking MM and CCC to Customer-Perceived Value (CPV). Prior literature demonstrates that CX influences CPV through functional, emotional, symbolic, and financial pathways (Gentile et al., 2007; Wiedmann et al., 2009; Zeithaml, 1988). In premium automotive environments—where high prices demand strong justification—CX serves not only as an experiential offering but also as a value-enhancing mechanism shaping perceptions of exclusivity, identity fit, and premium worthiness (Wiedmann et al., 2009; Lemon & Verhoef, 2016). The reviewed articles collectively support the role of CX as a central mediator, connecting sensory immersion and cultural alignment to perceived value in luxury service encounters.

Despite these converging insights, the review identifies significant research gaps that remain underexplored in current literature. First, no empirical studies directly examine the relationship between CCC and MM (CCC → MM). Although the conceptual literature implies that organizational culture may influence the design and execution of sensory-based strategies (Schmitt, 1999; Berry et al., 2002), empirical validation of this direct relationship is absent. This gap suggests that the organizational drivers of sensory strategy adoption—particularly in premium automotive settings—remain theoretically acknowledged but not empirically tested. Second, there is no direct empirical evidence linking CCC to Customer-Perceived Value (CCC → CPV) across the reviewed studies. Existing research supports only an indirect pathway (CCC → CX → CPV) (Shah et al., 2006; Lemon & Verhoef, 2016), indicating that the potential direct influence of cultural orientation on value perception remains conceptually plausible but empirically unsubstantiated. This represents a meaningful opportunity to investigate whether customer-centric norms shape perceived value independently of experiential mediation.

In addition, the literature rarely integrates sensory and cultural constructs into a unified framework that holistically explains value formation. Most prior work examines MM in isolation (Schmitt, 1999; Krishna, 2012) or focuses on CCC separately within the service culture and strategic management domains (Narver & Slater, 1990; Shah et al., 2006). Moreover, empirical research specific to premium automotive contexts remains limited (Spence, 2020; Walls et al., 2011), highlighting opportunities to explore cross-modal sensory effects, service culture implementation, and experiential value formation within this high-involvement industry. Emerging markets—including Thailand—are further underrepresented, suggesting the need for contextualized research that captures cultural and market-specific nuances in luxury value perception.

Conclusion

This study synthesizes empirical and conceptual evidence from 59 rigorously selected academic sources to develop an integrated understanding of how Multisensory Marketing (MM) and Customer-Centric Culture (CCC) shape Customer Experience (CX) and Customer-Perceived Value (CPV) in premium service environments. The findings confirm that MM and CCC serve as complementary antecedents of CX: MM influences the sensory and emotional dimensions of experience, while CCC shapes the relational, behavioral, and service delivery aspects. Together, these elements contribute to a cohesive and immersive experience that enhances customers' perceptions of value.

CX is reaffirmed as a multidimensional construct that mediates the relationship between sensory and cultural strategies and customer-perceived value. In the premium automotive context, where consumers seek not only functional benefits but symbolic and experiential fulfillment, CX acts as the primary mechanism through which customers evaluate the worthiness, identity expression, and exclusivity associated with the service. Consequently, CPV emerges as a complex evaluation shaped by emotional, symbolic, functional, and financial considerations.

The systematic review reveals several implications. Theoretically, it underscores the importance of integrating sensory and cultural perspectives into experience-driven value frameworks. Managerially, it highlights the need for automotive firms to align sensory design with customer-centric organizational practices to enhance experiential evaluations. Future research should investigate the dynamic interactions among sensory stimuli, cultural orientation, and experiential outcomes through empirical studies in premium automotive markets, particularly in emerging economies where consumption patterns and cultural cues differ from those in Western luxury markets.

Overall, this review contributes a comprehensive foundation for understanding the mechanisms through by which MM and CCC shape CX and CPV, providing a basis for developing strategic experiential models in premium automotive services.

Recommendations

1. Managerial Recommendations

For managers in premium and high-involvement service sectors, particularly the automotive industry, findings suggest that delivering a superior customer experience requires the deliberate integration of multisensory design with a strong customer-centric culture. Managers should prioritize developing holistic sensory strategies that align visual, acoustic, haptic, and olfactory cues to create coherent and emotionally engaging experiences throughout the customer journey. Simultaneously, organizations must cultivate customer-centricity at the cultural level through employee empowerment, cross-functional communication, and consistent service behaviors that reinforce premium brand identity. The combination of sensory innovation and customer-oriented culture will strengthen perceived value, justify premium pricing, and enhance long-term loyalty in luxury automotive contexts.

2. Theoretical Recommendations

From a theoretical perspective, the results highlight the need for deeper conceptual integration between sensory marketing and organizational culture research. While MM and CCC individually contribute to CX, their potential interaction as joint antecedents remains under-theorized. Future studies should develop expanded models that position culture as an enabling mechanism of sensory strategy design, or conversely, examine how sensory-driven environments shape internal service culture. Additionally, because no direct empirical evidence supports the CCC → MM and CCC → CPV relationships identified in this review, there is theoretical space to refine existing frameworks and propose new pathways explaining how organizational values influence experiential and value-driven outcomes.

Scholars should investigate how variables such as emotional engagement, customer involvement, or perceived authenticity mediate or moderate the MM–CX–CPV and CCC–CX–CPV pathways. While, the automotive sector remains underexplored. Future studies should validate sensory–cultural frameworks in real dealership environments, during test drives, and in after-sales service experiences.

In terms of Adopt Multi-Method Approaches, future research can combine qualitative methods (e.g., ethnography, sensory mapping) with quantitative techniques (e.g., SEM, PLS-SEM) to can deepen understanding of experiential value formation.

3. Practical Research Recommendations

Future empirical research should address the identified gaps by examining the direct relationships between CCC and MM, as well as between CCC and CPV, particularly within premium automotive settings where sensory design and service culture strongly intersect. Researchers should also explore cross-modal effects and sensory congruence using experimental or mixed-method approaches to understand better how multisensory cues shape value perception. Given the limited evidence from emerging markets such as Thailand, future studies should incorporate cultural and contextual variables to capture how luxury consumers interpret sensory and experiential signals differently across markets. These directions will not only strengthen theoretical understanding but also generate actionable insights for practitioners seeking to optimize premium customer experiences.

In terms of Incorporate Technological Enhancements, future work should explore how AR/VR showrooms, digital sensory simulations, or AI-based personalization influence CX and CPV. Furthermore, studies should also examine how sensory cues and CCC shape long-term value perceptions during after-sales service, maintenance, and ownership experience to investigate Post-Purchase Experience.

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EXPERIENCE-DRIVEN SERVICE DESIGN AND WILLINESS TO PAY PREMIUM: THE MEDIATING ROLES OF PERCEIVED VALUE AND BRAND EXPERIENCE

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Abstract

In increasingly experience-oriented service markets, firms seek strategic approaches that justify premium pricing beyond functional differentiation. This study, titled Experience-Driven Service Design and Willingness to Pay Premium: The Mediating Roles of Perceived Value and Brand Experience, aims to systematically examine how Experience-Driven Service Design (EDS) is theoretically and empirically linked to customers' Willingness to Pay Premium (WPP), with particular attention to the mediating roles of Perceived Value (PV) and Brand Experience (BE).

A systematic literature review (SLR) was conducted following a structured identification, screening, and eligibility process. Peer-reviewed journal articles published between 2000 and 2025 were retrieved from major academic databases, including Scopus, Web of Science, ScienceDirect, and Emerald, using predefined keywords aligned with the proposed framework. After applying inclusion and exclusion criteria, relevant studies were synthesized using thematic analysis to examine conceptual definitions, theoretical foundations, empirical relationships, and research contexts.

The review indicates that existing literature discusses experiential service design, value perception, and brand-related responses in interconnected yet often fragmented streams. Prior studies suggest potential cognitive and experiential mechanisms through which service design may influence price-related behavioral intentions; however, integrated mediation frameworks explicitly linking EDS, PV, BE, and WPP remain limited.

This study contributes by organizing dispersed findings into a coherent dual-pathway framework and identifying directions for future empirical validation, particularly in premium and high-involvement service contexts.

Keywords: Experience-Driven Service Design, Perceived Value, Brand Experience, Willingness to Pay Premium, Premium Service Strategy

Introduction

In today's competitive service economy, firms can no longer rely solely on functional differentiation or price-based competition to sustain advantage. Marketing thought has increasingly shifted from a goods-dominant perspective toward a service-centered paradigm in which value is co-created through interactions between firms and customers. Service-Dominant (S-D) Logic proposes that value is not embedded in outputs but is phenomenologically determined by beneficiaries within specific contexts (Vargo & Lusch, 2008). Within this perspective, Experience-Driven Service Design (EDS) has emerged as a strategic mechanism for orchestrating service touchpoints, structuring customer journeys, and intentionally shaping value co-creation processes (Bitner et al., 2008; Patrício et al., 2011).

Prior research suggests that well-designed service experiences influence customers' evaluations of Perceived Value (PV), defined as the cognitive assessment of benefits relative to sacrifices (Zeithaml, 1988; Sweeney & Soutar, 2001). Simultaneously, service encounters function as brand-related stimuli

that evoke multidimensional Brand Experience (BE), encompassing sensory, affective, intellectual, and behavioral responses (Brakus et al., 2009). Unlike satisfaction or general attitudes, brand experience reflects internal, subjective engagement and has been shown to significantly influence brand relationships and loyalty outcomes (Iglesias et al., 2011).

Although the relationships among service quality, perceived value, brand experience, and behavioral intentions have been widely examined, the specific outcome of Willingness to Pay Premium (WPP) remains underexplored. WPP represents a critical manifestation of customer-based brand equity, reflecting consumers' readiness to accept higher prices for a particular brand (Keller, 1993; Anselmsson et al., 2014). Existing studies frequently focus on loyalty or repurchase intention, while the mechanisms that translate experiential design into price tolerance or premium acceptance are less systematically integrated.

Moreover, the literature often investigates cognitive mechanisms (value-based evaluations) and experiential mechanisms (affective brand engagement) separately. This fragmentation limits theoretical clarity regarding how Experience-Driven Service Design simultaneously activates both pathways to influence premium pricing behaviour. An integrated mediation framework incorporating both Perceived Value and Brand Experience is therefore needed.

Accordingly, this study aims to conduct a systematic literature review (SLR) to synthesize existing conceptual and empirical evidence on the relationship between Experience-Driven Service Design and Willingness to Pay Premium, with the mediating roles of Perceived Value and Brand Experience. By consolidating dispersed research streams, this study seeks to advance theoretical integration and provide directions for future empirical testing, particularly within premium and high-involvement service contexts.

Research Objective

The primary objective of this study is to systematically synthesize existing literature to understand how Experience-Driven Service Design (EDS) influences customers' Willingness to Pay Premium (WPP) through the mediating roles of Perceived Value (PV) and Brand Experience (BE).
Specifically, this study aims to:

1. **To conceptualize and clarify** the definitions and theoretical foundations of Experience-Driven Service Design, Perceived Value, Brand Experience, and Willingness to Pay Premium within contemporary service and branding literature.
2. **To examine and synthesize** empirical evidence regarding the relationships among EDS, PV, BE, and WPP, identifying both cognitive and experiential mechanisms proposed in prior research.
3. **To develop an integrated dual-pathway framework** that explains how EDS may influence WPP through (a) a cognitive value-based pathway (EDS → PV → WPP) and (b) an experiential pathway (EDS → BE → WPP).
4. **To identify research gaps and future directions**, particularly concerning integrated mediation models and premium pricing behavior in high-involvement or premium service contexts.

Through achieving these objectives, the study seeks to contribute to theoretical integration in service and branding research and provide a conceptual foundation for future empirical validation.

Literature Review

Theoretical Foundations

The evolution of marketing thought from a goods-dominant logic toward a service-centered paradigm has reshaped how value is conceptualized in contemporary markets. Service-Dominant (S-D) Logic posits that value is co-created through interactions and is phenomenologically determined by beneficiaries rather than embedded in outputs (Vargo & Lusch, 2008). Within this framework, service design becomes a strategic mechanism for structuring interactions and facilitating value co-creation. Complementing this perspective, Brand Equity Theory emphasizes that differential consumer responses to marketing activities are driven by brand knowledge structures, ultimately influencing behavioral outcomes such as price tolerance and premium acceptance (Keller, 1993).

Together, these perspectives provide a foundation for examining how Experience-Driven Service Design (EDS) influences behavioral intentions, particularly Willingness to Pay Premium (WPP), through both cognitive and experiential mechanisms.

Experience-Driven Service Design (EDS)

Experience-Driven Service Design

Refers to the intentional orchestration of service touchpoints to create meaningful and coherent customer experiences. Service blueprinting and multi-interface design approaches highlight the importance of aligning frontstage and backstage processes to shape holistic experiences (Bitner et al., 2008; Patrício et al., 2011). Rather than focusing solely on operational efficiency, EDS emphasizes experiential value creation through environmental cues, employee interactions, and symbolic elements.

Prior research suggests that structured service environments influence customers' evaluative and emotional responses, thereby shaping downstream behavioral outcomes. However, the mechanisms linking service design to premium pricing remain insufficiently integrated in existing literature.

Perceived Value (PV) as a Cognitive Mechanism

Perceived Value is commonly defined as the consumer's overall assessment of utility based on a trade-off between perceived benefits and perceived sacrifices (Zeithaml, 1988). This trade-off perspective has been extended to multidimensional models incorporating functional, emotional, and social value dimensions (Sweeney & Soutar, 2001). Empirical evidence indicates that perceived value significantly predicts satisfaction and behavioral intentions in service settings (Cronin et al., 2000).

In premium contexts, high perceived value may justify higher monetary sacrifice, thereby increasing customers' willingness to accept premium pricing. Nevertheless, while the relationship between value perception and behavioral intention has been widely examined, explicit connections to WPP remain relatively underdeveloped.

Brand Experience (BE) as an Experiential Mechanism

Brand Experience captures internal consumer responses evoked by brand-related stimuli and comprises sensory, affective, intellectual, and behavioral dimensions (Brakus et al., 2009). Unlike satisfaction, which reflects post-consumption evaluation, brand experience encompasses broader experiential engagement across touchpoints.

Empirical findings suggest that positive brand experiences significantly influence loyalty and brand commitment (Iglesias et al., 2011). Furthermore, experiential dimensions—such as uniqueness and symbolic associations—have been found to enhance consumers' acceptance of price premiums

(Anselmsson et al., 2014). These findings imply that experiential engagement may function as a pathway linking service design to premium pricing behavior.

Willingness to Pay Premium (WPP)

Willingness to Pay Premium represents a key manifestation of customer-based brand equity, reflecting consumers' readiness to pay higher prices for a preferred brand (Keller, 1993). Unlike general purchase intention, WPP captures price tolerance and perceived differentiation. Research demonstrates that favorable brand image and strong brand equity significantly increase the predictability of premium pricing acceptance (Anselmsson et al., 2014). Despite its strategic importance, WPP has often been treated as a secondary outcome variable rather than a focal construct, especially within service design research.

Toward an Integrated Dual-Pathway Framework

The existing literature indicates two complementary mechanisms through which Experience-Driven Service Design may influence Willingness to Pay Premium. The first is a cognitive pathway, whereby structured service experiences enhance perceived value, leading to greater price tolerance (Zeithaml, 1988; Cronin et al., 2000). The second is an experiential pathway, whereby brand-related stimuli evoke emotional and symbolic engagement, strengthening brand equity and increasing premium acceptance (Brakus et al., 2009; Anselmsson et al., 2014).

However, these pathways are typically examined in isolation. An integrated mediation framework incorporating both Perceived Value and Brand Experience remains limited. Addressing this gap may contribute to theoretical clarity and provide a more comprehensive explanation of premium pricing behavior in experience-oriented service markets.

Research Methodology

This study adopts a Systematic Literature Review (SLR) methodology to synthesize existing knowledge on the relationships among Experience-Driven Service Design (EDS), Perceived Value (PV), Brand Experience (BE), and Willingness to Pay Premium (WPP). The SLR approach was selected to ensure methodological rigor, transparency, and replicability in consolidating fragmented research streams.

1. Search Strategy and Data Sources

A structured search process was conducted across four major academic databases: Scopus, Web of Science, ScienceDirect, and Emerald. The search covered peer-reviewed journal articles published between 2000 and 2025. Keywords were derived from the conceptual framework and included combinations of "Experience-Driven Service Design," "service design," "perceived value," "brand experience," "willingness to pay premium," and "premium pricing." The initial search yielded 120 articles.

2. Screening and Selection Process

The screening process followed a structured multi-stage procedure. First, duplicate records were removed. Second, titles and abstracts were reviewed to assess relevance to the focal constructs (EDS, PV, BE, and WPP). Third, full-text articles were examined based on inclusion criteria, which required studies to:

2.1provide clear conceptualization of at least one focal construct

2.2 examine empirical or theoretical relationships among service design, value perception, brand experience, or premium-related behavioral intentions; and

2.3 be published in peer-reviewed academic journals.

Studies focusing solely on product-based contexts without service components were excluded. After applying these criteria, 45 articles were retained for final analysis.

3. Data Analysis

A thematic synthesis approach was employed to analyze the selected studies. Extracted data included theoretical foundations, research contexts, methodological approaches (e.g., Structural Equation Modeling, Confirmatory Factor Analysis), key findings, and reported relationships among constructs. The analysis focused on identifying patterns that support cognitive (EDS → PV → WPP) and experiential (EDS → BE → WPP) pathways, as well as gaps in integrated mediation modeling.

Through this structured methodology, the study ensures systematic consolidation of relevant literature and provides a rigorous foundation for conceptual framework development.

Results

1. Descriptive Results of the Review

The systematic search initially identified 120 peer-reviewed articles from Scopus, Web of Science, ScienceDirect, and Emerald databases. After removing duplicates and applying inclusion and exclusion criteria, 45 articles were retained for final synthesis.

The selected studies span multiple service contexts, including retail, hospitality, automotive, and premium brand environments. Methodologically, the majority of empirical studies employed Structural Equation Modeling (SEM) and Confirmatory Factor Analysis (CFA) to examine relationships among service experience, perceived value, brand experience, and behavioral intentions (Cronin et al., 2000; Brakus et al., 2009).

2. Conceptual Clarification of Core Constructs

The reviewed literature demonstrates consistent conceptual foundations across four focal constructs:

Experience-Driven Service Design (EDS) is positioned as a structured orchestration of service touchpoints to facilitate value co-creation (Bitner et al., 2008; Patrício et al., 2011).

Perceived Value (PV) is conceptualized as a cognitive trade-off between perceived benefits and sacrifices (Zeithaml, 1988; Sweeney & Soutar, 2001).

Brand Experience (BE) reflects multidimensional internal responses—sensory, affective, intellectual, and behavioral—triggered by brand stimuli (Brakus et al., 2009).

Willingness to Pay Premium (WPP) represents a manifestation of customer-based brand equity and price tolerance (Keller, 1993; Anselmsson et al., 2014).

Although these constructs are individually well-established, integration of all four variables within a single mediation framework remains limited.

3. Evidence Supporting the Cognitive Pathway (EDS → Perceived Value → WPP)

Across reviewed studies, service design elements such as environmental cues, employee interaction, and service process structure consistently influence customers' evaluations of functional and emotional value (Cronin et al., 2000). Perceived value, in turn, significantly predicts satisfaction and behavioral intentions (Zeithaml, 1988). In premium contexts, favorable value evaluations justify higher monetary sacrifice and strengthen price tolerance. However, direct empirical testing of a full

mediation chain from EDS through PV to WPP remains scarce. Most studies examine only partial relationships rather than a fully integrated pathway.

4. Evidence Supporting the Experiential Pathway (EDS → Brand Experience → WPP)

The literature indicates that designed service encounters function as brand-related stimuli that evoke experiential responses (Brakus et al., 2009). Positive brand experiences significantly predict brand loyalty and commitment (Iglesias et al., 2011).

Moreover, non-functional brand image dimensions—such as uniqueness and symbolic associations—substantially enhance consumers' acceptance of premium prices (Anselmsson et al., 2014). These findings suggest that experiential engagement may serve as a mechanism for translating service design into into acceptance of a price premium. Nevertheless, as with the cognitive pathway, empirical research integrating EDS, BE, and WPP within a unified model remains limited.

5. Synthesis and Identified Research Gaps

The synthesis reveals three major findings:

Fragmented Empirical Testing Most studies test bilateral relationships (e.g., service quality → value; brand experience → loyalty) rather than full mediation structures.

Limited Focus on Premium Pricing Outcomes WPP is frequently treated as a secondary outcome compared to loyalty or repurchase intention (Keller, 1993).

Contextual Concentration in Mass Service Settings A significant portion of studies are conducted in retail or general service environments, with fewer investigations in high-involvement or luxury contexts.

Overall, the reviewed literature suggests theoretical plausibility for a dual-pathway mediation framework; however, comprehensive empirical integration remains underdeveloped. This gap provides justification for advancing a unified conceptual model linking Experience-Driven Service Design to Willingness to Pay Premium through both cognitive and experiential mechanisms.

6. Integrated Framework-Based Findings

This section integrates the findings from the systematic literature review to explain how Experience-Driven Service Design (EDS) influences Willingness to Pay Premium (WPP) through the mediating roles of Perceived Value (PV) and Brand Experience (BE). The synthesis moves beyond isolated bilateral relationships and consolidates prior research into a unified dual-pathway framework.

6.1 Integration of Cognitive and Experiential Mechanisms

The reviewed literature indicates that EDS operates as a structural enabler of value co-creation by intentionally orchestrating service touchpoints, physical evidence, and employee interactions (Bitner et al., 2008; Patrício et al., 2011). Within the Service-Dominant Logic perspective, such orchestration facilitates the determination of phenomenological value(Vargo & Lusch, 2008).

From a cognitive standpoint, designed service encounters influence customers' evaluations of benefits relative to sacrifices, thereby shaping Perceived Value (Zeithaml, 1988; Sweeney & Soutar, 2001). Empirical studies consistently show that higher perceived value positively affects behavioral intentions (Cronin et al., 2000). When applied to premium contexts, these evaluations may justify higher monetary sacrifice, strengthening price tolerance and WPP.

Simultaneously, EDS functions as experiential staging that triggers multidimensional brand responses. Brand Experience, encompassing sensory, affective, intellectual, and behavioral dimensions, emerges from brand-related stimuli embedded within service encounters (Brakus et al., 2009). Positive experiential engagement enhances brand commitment and relational strength (Iglesias et al., 2011). In

premium markets, symbolic and experiential brand dimensions significantly contribute to consumers' acceptance of higher prices (Anselmsson et al., 2014).

Taken together, the literature suggests that EDS activates two complementary mechanisms: A **cognitive pathway** (EDS → PV → WPP), grounded in rational trade-off evaluation. While, **an experiential pathway** (EDS → BE → WPP), grounded in affective and symbolic engagement.

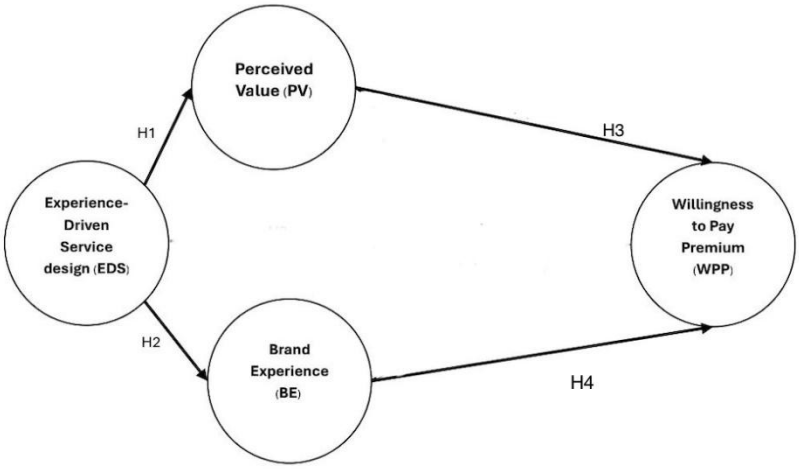
6.2 Convergence Toward Premium Pricing Behavior

The integrated review demonstrates that although PV and BE are conceptually distinct constructs, both converge in influencing premium pricing behavior. Perceived Value reflects justification of price through rational assessment, whereas Brand Experience reflects emotional and symbolic attachment that reduces price sensitivity.

Importantly, prior research has rarely tested these mechanisms simultaneously within a unified mediation model. Most studies examine either value-based outcomes (Cronin et al., 2000) or experiential outcomes (Brakus et al., 2009) independently. This fragmentation suggests that the combined explanatory power of cognitive and experiential pathways remains theoretically underdeveloped.

6.3 Proposed Integrated Framework

Based on the synthesized evidence, the integrated framework positions Experience-Driven Service Design as a strategic antecedent that simultaneously enhances Perceived Value and Brand Experience, both of which influence Willingness to Pay Premium. The framework aligns with Customer-Based Brand Equity theory (Keller, 1993), suggesting that premium price acceptance reflects strengthened brand equity derived from both rational and experiential evaluations.



Picture 1: Integrated Dual- Pathway Framework Linking Experience- Driven Service Design to Willingness to Pay Premium

6.4 Implications of the Integrated Findings

The integrated findings highlight that premium pricing in service markets cannot be explained solely through functional value enhancement. Instead, effective premium strategies require simultaneous management of value perception and experiential engagement. The review underscores

the need to examining both mediators in future empirical studies, particularly in high-involvement and luxury service contexts where experiential differentiation plays a strategic role.

Overall, the integrated framework consolidates fragmented literature streams and provides a coherent theoretical explanation for how Experience-Driven Service Design may translate into premium pricing outcomes.

Table 1: Summarizes the key empirical and conceptual findings from the 45 reviewed studies, highlighting supported relationships within the proposed framework as well as the identified research gaps in EDS-PV-WPP and EDS-BE-WPP linkages.

Construct/ Relationship	Key Conceptualization	Core Empirical Finding	Supporting Literature
EDS	Design of physical evidence and employee actions to co-create phenomenological value.	Service environments and blueprints dictate the holistic customer experience.	Bitner et al., 2008; Vargo & Lusch, 2008
PV	Cognitive trade-off between received utility (benefits) and sacrifices (costs).	PV directly influences customer satisfaction and behavioral intentions.	Zeithaml, 1988; Hult et al., 2017
BE	Subjective sensory, affective, intellectual, and behavioral responses to brand stimuli.	BE possesses a strong total effect (.69) on consumer loyalty and future behavior.	Brakus et al., 2009
EDS → PV	Service encounters shape utilitarian and hedonic value assessments.	Service design/experience positively impacts both hedonic and utilitarian value.	Basilisco et al.
EDS → BE	Staged experiences trigger psychological and behavioral consumer responses.	Atmospheric variables and personnel interactions evoke specific brand experiences.	Brakus et al., 2009
PV/BE → WPP	Favorable attitudes and high perceived value justify premium pricing.	Favorable brand images and value perceptions double the predictability of price premiums.	Anselmsson et al., 2014 ; Keller, 1993

Discussion

This systematic literature review provides an integrated understanding of how Experience-Driven Service Design (EDS) relates to Willingness to Pay Premium (WPP) through the mediating mechanisms of Perceived Value (PV) and Brand Experience (BE). By synthesizing 45 selected studies, the findings bridge fragmented research streams across service design, value theory, and branding literature.

First, the findings reaffirm the relevance of **Service-Dominant Logic (S-D Logic)** in explaining how value is formed in service ecosystems. According to Vargo and Lusch (2004, 2008), value is phenomenologically determined by the beneficiary rather than embedded in outputs. The reviewed studies suggest that EDS structures customer interactions and touchpoints in ways that facilitate value co-creation (Bitner et al., 2008; Patrício et al., 2011). Within this logic, service blueprinting and experience orchestration influence how customers interpret benefits and sacrifices.

From a cognitive perspective, Perceived Value represents a trade-off between what is received and what is given (Zeithaml, 1988). Empirical research consistently demonstrates that PV positively

affects satisfaction and behavioral intentions (Cronin et al., 2000; Hult et al., 2017). In premium contexts, higher perceived value justifies elevated price expectations and reduces perceived sacrifice. Therefore, the pathway EDS → PV → WPP is theoretically supported by value trade-off theory and empirically reinforced in service quality research.

Second, the review highlights the experiential mechanism linking service design and premium pricing. Brand Experience, defined as sensory, affective, intellectual, and behavioral responses to brand-related stimuli (Brakus et al., 2009), extends beyond functional evaluation. Positive brand experiences have been shown to influence loyalty and future behavioral intentions (Brakus et al., 2009; Iglesias et al., 2011). Moreover, non-quality brand image dimensions such as uniqueness and symbolic meaning significantly enhance price premium acceptance (Anselmsson et al., 2014). These findings support the experiential pathway EDS → BE → WPP.

Importantly, although individual relationships (e.g., service quality–value, experience–loyalty) are well established, integrated dual-mediation models remain underdeveloped. Most empirical studies examine bilateral relationships rather than testing PV and BE simultaneously within one structural framework. This fragmentation indicates a need for more comprehensive models that capture both rational and emotional drivers of premium pricing.

The findings also suggest contextual implications. Much of the prior empirical work focuses on mass retail or student samples (Brakus et al., 2009; Cronin et al., 2000), while premium, luxury, or high-involvement service settings remain relatively underexplored. Given that experiential differentiation plays a stronger role in premium markets (Anselmsson et al., 2014), future empirical research should extend the integrated framework into these contexts.

Conclusion

This study systematically reviewed existing literature to examine how Experience-Driven Service Design (EDS) influences Willingness to Pay Premium (WPP) through Perceived Value (PV) and Brand Experience (BE). Drawing from 120 initial articles and synthesizing 45 peer-reviewed studies, the review consolidates theoretical and empirical evidence into a coherent dual-pathway framework.

The findings indicate that EDS may shape premium pricing behavior through two complementary mechanisms. The cognitive pathway operates via value evaluation, consistent with value trade-off theory (Zeithaml, 1988) and service quality research (Cronin et al., 2000). The experiential pathway operates through affective and symbolic engagement, consistent with Brand Experience theory (Brakus et al., 2009) and Customer-Based Brand Equity theory (Keller, 1993). Together, these mechanisms provide a more comprehensive explanation of how service design translates into premium pricing outcomes.

The primary contribution of this review lies in integrating Service-Dominant Logic (Vargo & Lusch, 2008), Experience Economy perspectives, and Brand Equity theory (Keller, 1993) into a unified conceptual structure. By positioning PV and BE as parallel mediators, the study advances theoretical clarity and highlights the multidimensional nature of price premium acceptance in service contexts.

However, empirical validation of the proposed integrated framework remains limited. Future research should employ Structural Equation Modeling (SEM) to test the simultaneous mediation effects of PV and BE, as suggested by prior methodological approaches in service and branding research have suggested (Brakus et al., 2009; Hult et al., 2017). Longitudinal and cross-industry studies may further clarify the dynamic interplay between experiential design and price premium behavior.

In conclusion, this study contributes to service and branding literature by systematically organizing fragmented findings into a theoretically grounded, dual-pathway framework. The integrated

perspective offers a foundation for future empirical testing and provides strategic insight for firms seeking sustainable competitive advantage through experiential differentiation and premium positioning.

Recommendations

Based on the findings of this systematic literature review, this study proposes recommendations for future research and managerial practice.

1. Recommendations for Future Research

Empirical validation of the integrated dual-mediation model: Future studies should empirically test the proposed framework, incorporating both mediation paths (EDS → PV → WPP and EDS → BE → WPP)within a single structural model. Structural Equation Modeling (SEM) is recommended to examine parallel mediation effects and to assess the relative strength of cognitive and experiential mechanisms (Brakus et al., 2009; Cronin et al., 2000). Such empirical validation would strengthen the theoretical robustness of the integrated framework.

Extension to premium and high-involvement service contexts: Much of the prior literature has focused on general service environments. Future research should extend the framework to luxury, premium hospitality, high-end retail, or specialized professional services, where experiential differentiation and symbolic value play a more prominent role in price premium acceptance (Anselmsson et al., 2014).

Longitudinal research designs: Brand Experience develops cumulatively through repeated interactions (Iglesias et al., 2011). Longitudinal studies would provide deeper insights into how Experience-Driven Service Design gradually shapes Perceived Value, Brand Experience, and ultimately Willingness to Pay Premium over time.

Cross-cultural comparative studies: Perceptions of value and emotional responses to brand experiences may vary across cultural contexts. Cross-cultural investigations would enhance the generalizability of the proposed framework and clarify whether the dual mediation mechanisms operate consistently across markets.

2. Managerial Recommendations

Adopt a holistic approach to experience design: Managers should conceptualize service design as an integrated system of touchpoints across the entire customer journey (Bitner et al., 2008; Patrício et al., 2011). Consistency and coherence across pre-service, service, and post-service stages can strengthen both perceived value and brand experience.

Strategically enhance perceived value: Organizations should focus on maximizing functional, emotional, and social benefits while minimizing perceived sacrifices, consistent with value trade-off theory (Zeithaml, 1988). Clear communication of differentiated value propositions supports rational justification for premium pricing (Cronin et al., 2000).

Strengthen meaningful brand experiences: Designing sensory, affective, cognitive, and behavioral brand stimuli enhances customer engagement and loyalty (Brakus et al., 2009; Keller, 1993). Firms should align experiential cues with brand identity and strategic positioning to reinforce premium perception.

Embrace customer-centric design principles: Organizations should leverage customer insights, journey mapping, and service blueprinting to refine experience orchestration continuously. This aligns with Service-Dominant Logic, which emphasizes value co-creation through interactions (Vargo & Lusch, 2008).

3. Strategic Implications

For firms pursuing sustainable competitive advantage, investment in Experience-Driven Service Design should be viewed not merely as an operational enhancement but as a strategic value-based approach. By simultaneously activating cognitive (Perceived Value) and emotional (Brand Experience) mechanisms, firms can justify and sustain premium pricing strategies in increasingly competitive service markets.

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EMOTIONAL BRANDING AND DIGITAL INFLUENCER MARKETING EFFECTS ON PURCHASE INTENTION: MEDIATING ROLES OF PERCEIVED MODERNITY AND HEALTHINESS IN THAILAND CANNED FISH BRANDS: A PROPOSED FRAMEWORK

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Abstract

This study addresses the strategic challenge of repositioning canned fish for digital-native markets by developing a conceptual framework grounded in the Stimulus–Organism–Response model. Specifically, Emotional Branding and Digital Influencer Marketing are proposed as key marketing stimuli that shape consumers' internal perceptual evaluations, namely Perceived Modernity and Perceived Healthiness, which subsequently influence Purchase Intention. To achieve this, the study aims to systematically synthesize existing evidence on emotional branding and digital influencer marketing, with particular emphasis on identifying key mediating mechanisms linking these stimuli to purchase intention among Generation Z consumers, and to develop a theoretically integrated framework that addresses fragmentation in current literature while guiding future empirical research on modernizing traditional packaged food categories. A systematic literature review was conducted following PRISMA-informed procedures to synthesize previous research on branding, influencer marketing, consumer perception, and food-related behavior. The review consistently indicated that emotional branding enhances symbolic meaning and affective attachment, while digital influencer marketing strengthens credibility, cultural relevance, and lifestyle alignment among Generation Z consumers. Furthermore, perceived modernity and perceived healthiness were found to function as critical mediating mechanisms linking marketing stimuli to behavioral outcomes, with modern packaging, sustainability cues, and health-oriented communication positively influencing purchase intention in food contexts. Based on these insights, a unified conceptual framework was developed, along with ten research hypotheses (H1–H10) for future empirical testing, proposing that emotional branding and digital influencer marketing positively influence perceived modernity and perceived healthiness, which in turn drive purchase intention, with both mediators playing significant intervening roles. This study contributes to marketing theory by integrating emotional and digital influence mechanisms within a single perceptual mediation structure tailored to traditional food categories, and provides strategic guidance for revitalizing legacy packaged food products in contemporary digital markets.

Keywords: Emotional Branding, Digital Influencer Marketing, Purchase Intention, Perceived Modernity, and Perceived Healthiness

Introduction

Canned fish remains a core category in the global food industry, however, it confronts a declining relevance among next-generation consumers, particularly Gen Z, who increasingly perceive traditional packaged foods as disconnected from contemporary lifestyle values (Smith & Young, 2021). In contrast to previous generations, these digital-native groups make food choices based on

emotional resonance, digital experiences, and wellness-oriented criteria such as health, sustainability, and authenticity (Gligorić et al., 2023).

Previous research showed that emotional branding through narrative, sensory cues, and affective appeal builds brand attachment and perceived relevance, even in low involvement categories (Morris & Stangl, 2022). Concurrently, digital influence mechanisms, including creator-generated content, influencer credibility, and parasocial interaction, significantly shape brand perception and purchase intentions among younger audiences (Efendioğku, 2022; Sharkasi & Rezakhah, 2023; Anastasiei et al., 2024). Despite these theoretical advances, empirical studies rarely examine how emotional and digital pathways operate together within traditional packaged food categories, particularly those experiencing generational relevance decline.

Although canned fish remains nutritionally valuable and economically significant, its symbolic image is often associated with utilitarian, low-involvement consumption. This perception creates a strategic challenge for established brands seeking relevance among Generation Z, whose consumption decisions are increasingly shaped by identity expression, digital engagement, and health signaling.

This gap limits understanding of how established brands can modernize their appeal. Therefore, this study conducts a systematic literature review to synthesize existing evidence on emotional branding and digital influence, identify the key mediating mechanisms perceived modernity and perceived healthiness, and propose a conceptual framework to guide future empirical research on repositioning traditional food products for digital-native consumers. This study is conceptual in nature.

Based on the identified gaps, this study seeks to answer the following research questions:

RQ1: Does emotional branding influence perceived modernity and perceived healthiness of canned fish brands among Generation Z consumers in Thailand?

RQ2: Does digital influencer marketing influence perceived modernity and perceived healthiness of canned fish brands among Generation Z consumers in Thailand?

RQ3: Do perceived modernity and perceived healthiness influence the purchase intention of canned fish brands among Generation Z consumers in Thailand?

RQ4: Do perceived modernity, and perceived healthiness mediate the relationships between emotional branding and purchase intention and digital influencer marketing and purchase intention of canned fish brands among Generation Z consumers in Thailand?

Research Objectives

1. To systematically synthesize existing evidence on emotional branding and digital influencer marketing, identifying key mediators perceived modernity and perceived healthiness linking these stimuli to purchase intention among Gen Z consumers.
2. To develop a theoretically integrated proposed framework that addresses fragmentation in current literature and guides future empirical research on modernizing traditional packaged food categories.
3. To develop research hypotheses for future empirical testing.

Literature Review

1. Stimulus–Organism–Response (S-O-R) Theory

The Stimulus–Organism–Response (S-O-R) model, introduced by Mehrabian and Russell (1974), explained how environmental stimuli influenced individuals' internal states and subsequent behavioral responses. The model proposed that external stimuli (S) affected internal cognitive and affective evaluations (O), which then shaped behavioral outcomes (R). In this study, Emotional Branding and Digital Influencer Marketing served as stimuli. The organism component consisted of Perceived Modernity and Perceived Healthiness, which reflected consumers' internal evaluations of

canned fish products. The response was conceptualized as Purchase Intention. This framework was particularly relevant for Thai Generation Z consumers, who were highly responsive to digital and symbolic brand communication, especially in repositioning utilitarian products such as canned fish as modern and health-oriented.

2. Emotional Branding

Emotional branding, introduced by Marc Gobé (2001), referred to a strategic approach that built deep affective connections between brands and consumers through storytelling, symbolic meaning, shared values, and sensory experiences. Rather than relying only on functional attributes, emotional branding differentiated brands by inspiring feelings such as trust, belonging, and aspiration, thereby strengthening long-term consumer–brand relationships. In the food and beverage sector, emotional branding was shown to strengthen brand equity and customer intimacy through effective narratives and emotionally resonant advertising (Mousadoabi et al., 2025).

Emotional branding strengthened consumer evaluations in food and packaged food contexts by activating affective responses such as nostalgia, trust, comfort, and ethical pride. Contemporary related indications, such as contemporary music and imagery, increased perceived modernity and overall evaluation (Ketron et al., 2024). Contemporary packaging, characterized by minimalist layouts, refined typography, and premium graphics, signaled higher quality and value (Kukreja & Patil, 2025), while packaging color variations influenced inferred product attributes and positioning (Steiner & Florack, 2023). These findings suggested that the same visual and narrative cues used in emotional branding could also signal modernity. In seafood contexts, emotions such as anticipation and trust were central to product evaluation (Verza et al., 2023), indicating that affective cues could reshape category image.

Integrative studies showed that branding, packaging, and labelling jointly influenced perceptions of quality, taste, and health value (Pinto et al., 2021), suggesting that emotional branding operated as a heuristic mechanism in health evaluations. Sustainability and wellness-oriented emotional narratives motivated confidence and moral satisfaction, strengthening brand image and perceived value (García-Salirrosas et al., 2024a). In seafood contexts, emotions such as trust and anticipation facilitated acceptance of health-related information (Verza et al., 2023). Nutritional improvement messages positively affected perceived quality when communicated in a comforting manner (Castellini et al., 2022).

H1: Emotional branding positively influenced perceived modernity.

H2: Emotional branding positively influenced perceived healthiness.

3. Digital Influencer Marketing

Digital influencer marketing developed from early influencer marketing theory rooted in opinion leadership and word-of-mouth communication. Brown and Hayes (2008) conceptualized influencers as third-party promoters who shaped consumer attitudes and purchase decisions through authority, expertise, and social reach. With the rise of social media, the concept developed into digital influencer marketing. Freberg et al. (2011) defined social media influencers as independent promoters who influenced audience attitudes via blogs and social platforms, marking a shift from traditional celebrity support to digitally mediated influence.

Empirical studies consistently showed that influencer marketing increased brand perception by strengthening attributes such as innovativeness, cultural relevance, and lifestyle consistency (Gupta, 2024; Hegde et al., 2025). Research indicated that influencer-led communication improved brand perceptions of being “current” and “in tune with the times,” particularly among Gen Z and Millennials (Guled & Rajkumar, 2025). Influencers blended in social media environments signaled authenticity and cultural integration, reinforcing modern brand images (Zhou, 2023). In food categories, especially canned fish, influencer-driven short-form content on platforms such as TikTok contributed to repositioning traditionally utilitarian products as aesthetically appealing and culturally current (Wang et al., 2024).

Experimental evidence showed that endorsements significantly increased perceived healthiness and willingness to try novel foods compared to non-health influencers (Wang et al., 2025). Studies further confirmed that high influencer–product fit improved intentions to choose healthier options (Sajjad & Pasha, 2025; Smit et al., 2020). Influencer characteristics also mattered. Attributes such as authenticity, body type, and lifestyle influenced how healthy-promoted foods were perceived (De Jans et al., 2022), and influencer approvals significantly affected perceived health benefits of health-related products (Chung et al., 2021). In seafood contexts, fish was widely recognized for its cardiovascular and metabolic benefits (Mendivil, 2021), and digital communication was considered an effective tool for promoting seafood consumption (White, 2011). Nutritional and sustainability research further supported fish as a healthier dietary substitute (Mendivil, 2021).

H3: Digital influencer marketing positively influenced perceived modernity.

H4: Digital influencer marketing positively influenced perceived healthiness.

4. Perceived Modernity

Perceived modernity refers to consumers' perception that a brand or product is contemporary, innovative, and aligned with current lifestyles and aesthetic trends. It reflects the extent to which a brand is viewed as up-to-date and relevant. This perception is shaped by visual design, packaging elements, and communication that signal innovativeness and cultural alignment (Gelici-Zeko et al., 2013; Liu et al., 2025).

Atypical and modern packaging increased purchase intention by signaling uniqueness and self-enhancement (Xu et al., 2025). Packaging elements such as color, graphics, shape, and layout significantly influenced perceived quality and willingness to buy, with modern and minimalist designs outperforming traditional formats (Gelici-Zeko et al., 2013; Mateen Khan, 2018). In seafood contexts, minimalist and sustainability-oriented packaging boosted trust, perceived value, and purchase likelihood (Pashkevych et al., 2023; Cucchiara et al., 2015), while premium and modern branding increased willingness to pay (Vos, 2017).

H5: Perceived modernity positively influenced purchase intention.

5. Perceived Healthiness

Perceived healthiness referred to consumers' subjective evaluation of how healthy a product appeared, distinct from its objective nutritional quality. Foundational work by Raghunathan, Naylor, and Hoyer (2006) showed that health judgments were shaped by cognitive heuristics such as the "unhealthy = tasty" intuition rather than purely analytical processing. Thus, perceived healthiness reflected consumer-based inferences formed through beliefs. Research identified multiple marketing-related determinants. Packaging design, color, labels, ingredient lists, and naturalness significantly shaped perceived healthfulness (Plasek et al., 2020), while symbolic elements such as organic claims and eco-friendly packaging improved health perceptions even when objective nutrition remained constant (Pinto et al., 2021).

Systematic reviews showed that foods perceived as healthier were more likely to be purchased, particularly when health claims were believable and clearly communicated (Plasek et al., 2020; Pinto et al., 2021). Recent empirical studies further showed that perceived healthiness significantly increased purchase intention for healthy branded foods (Chilón-Troncos et al., 2024; García-Salirrosas et al., 2024). Health consciousness and perceived health benefits consistently acted as central motivational drivers of food choice (Pan et al., 2025; Albornoz et al., 2024). In functional food contexts, perceived nutrition and safety improved health benefit perceptions, which subsequently increased repurchase intention (Wang & Tsai, 2019). In seafood research, perceived health benefits were among the strongest predictors of consumption attitudes and purchase intention (Aminizadeh et al., 2024).

H6: Perceived healthiness positively influences purchase intention.

6. Purchase Intention

Purchase intention was a central construct in consumer behavior research and was widely used as a predictor of actual buying behavior. It was theoretically grounded in the Theory of Reasoned Action (Fishbein & Ajzen, 1975) and the Theory of Planned Behavior (Ajzen, 1991), which posited that behavioral intention was the most immediate antecedent of actual behavior. Accordingly, purchase intention reflected a consumer's conscious plan or willingness to buy a product. Marketing research conceptualized purchase intention as the outcome of cognitive and affective evaluations. Perceived value and quality significantly influenced purchase intention (Dodds et al., 1991), while brand attitude and advertising effectiveness directly shaped it (Spears & Singh, 2004).

Studies on packaging and experiential studies further supported this mediation logic. Visual elements such as color, graphics, and layout influenced purchase intention through brand experience (Liu et al., 2025). Innovative and modern packaging designs modified brand evaluations and increased purchase intention (Benachenhou et al., 2018), while contemporary aesthetics improved perceived quality and brand image, particularly among younger consumers (Gelici-Zeko et al., 2013; Mateen Khan, 2018). These findings suggested that modern design functioned as a perceptual mechanisms linking branding stimuli to behavioral outcomes.

In food contexts, influencer campaigns using lifestyle displays and recipe-sharing shaped beneficial brand responses and increased purchase intention (Qin et al., 2024). Influencer trustworthiness, expertise, and parasocial interaction further strengthened brand attitudes that translated into buying intention (Tan, 2020). Drawing on construal level theory, reducing psychological distance through relatable lifestyle content improved personal relevance and positive evaluation (Trope et al., 2007), which might manifest as stronger perceptions of modernity. Broader influencer marketing studies confirmed mediation through brand image and attitude. Influencer characteristics increased purchase intention via brand image (Richadinata et al., 2025).

Responsible packaging, such as recyclable or compostable materials increased perceived naturalness, which improved perceived healthiness and subsequently purchase intention, with perceived healthiness serving as the key mediator (d'Astous & Labrecque, 2021). Nutrition label research further confirmed that beneficial labels increased purchase intention indirectly through perceived healthiness (De Temmerman et al., 2021), and emotionally engaging health information predicted both health evaluations and buying intentions (Zerbini et al., 2019). Packaging signs such as healthier-looking colors and descriptions improved perceived healthiness, which in turn drove purchase intention (van Velzen & Verhoeven, 2021).

Experimental research showed that approvals from health-focused influencers significantly increased perceived healthiness and willingness to try novel foods compared with non-health influencers (Wang et al., 2025). Similarly, promotions by trustworthy fitness influencers improved positive attitudes and purchase intention for healthy foods, with parasocial interaction acting as a mediator (Folkvord et al., 2020). Broader research indicated that motivational influencer communication increased healthy food purchase intentions through intermediate psychological mechanisms (Sestino et al., 2024), and reviews consistently highlighted influencer believability and relatability as key drivers of health-oriented consumption among young audiences (Amson et al., 2024).

H7: Perceived modernity mediates the relationship between emotional branding and purchase intention.

H8: Perceived modernity mediates the relationship between digital influencer marketing and purchase intention.

H9: Perceived healthiness mediates the relationship between emotional branding and purchase intention.

H10: Perceived healthiness mediates the relationship between digital influencer marketing and purchase intention.

Research Methodology

This study employed a Systematic Literature Review (SLR) to synthesize existing knowledge on emotional branding, digital influencer marketing, perceived modernity, perceived healthiness, and purchase intention in canned seafood contexts. The SLR approach ensured methodological rigor through a transparent and structured process of identifying, screening, and synthesizing relevant academic studies. The initial search generated 95 records. After removing duplicates and applying inclusion criteria, 78 articles were retained for full-text screening. A total of 62 studies were included in the final synthesis.

1. Review Protocol

The review process followed established guidelines for systematic literature reviews (Tranfield et al., 2003) and incorporated PRISMA principles to enhance transparency in article selection and reporting. These procedures minimized bias and ensured replicability.

2. Data Sources and Search Strategy

Relevant articles were retrieved from Scopus, Web of Science, and Google Scholar. Boolean keyword combinations were used, including:

- "emotional branding."
- "digital influencer marketing" OR "social media influencer."
- "perceived modernity."
- "perceived healthiness" OR "health perception."
- "purchase intention."
- "food marketing" OR "seafood consumption."
- "canned seafood" OR "canned fish."

The search period was limited to 2000-2025 to capture both foundational theories and contemporary digital marketing developments.

3. Inclusion and Exclusion Criteria

3.1 Inclusion criteria:

- Peer-reviewed journal articles and conference papers
- Studies focusing on branding, influencer marketing, consumer perception, or food-related purchase behavior
- Empirical, theoretical, or review studies

3.2 Exclusion criteria:

- Non-academic publications
- Studies lacking methodological clarity
- Articles unrelated to marketing stimuli or consumer behavioral outcomes
- Duplicate records

After screening titles, abstracts, and full texts, relevant studies were retained for synthesis.

4. Data Extraction and Thematic Synthesis

A structured coding template was developed to extract key information, including research context, theoretical foundation, constructs examined, and reported relationships.

A thematic synthesis was conducted in three stages:

- Open coding of construct relationships
- Categorization of findings according to the Stimulus–Organism–Response (S-O-R) framework
- Development of a unified conceptual model

5. Framework Development

Based on the synthesis, Emotional Branding and Digital Influencer Marketing were positioned as stimulus variables, Perceived Modernity and Perceived Healthiness as organism (mediating) variables, and Purchase Intention as the response variable.

The review culminated in the development in the development of a theoretically grounded conceptual framework and the formulation of ten research hypotheses H1–H10 for future empirical validation.

Results

The systematic literature review provided consistent theoretical and empirical support for the relationships proposed in the conceptual framework. In line with the first research objective, which aimed to synthesize existing evidence on emotional branding and digital influencer marketing and identify the mediating roles of perceived modernity and perceived healthiness, the findings demonstrate that both marketing constructs play important roles in shaping consumer perceptions and behavioral intentions in food-related contexts. The reviewed studies consistently suggest that purchase intention is not formed directly from promotional stimuli alone, but through perceptual evaluations that help consumers interpret product relevance, value, and desirability.

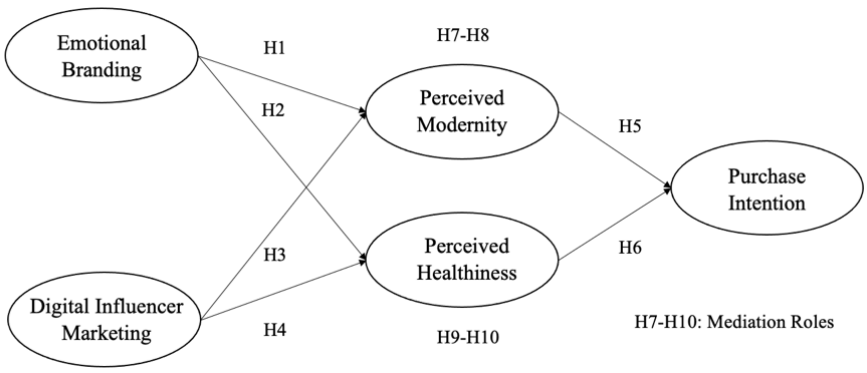
Firstly, the review showed that emotional branding strengthens affective attachment, symbolic meaning, and perceived brand relevance. Across the literature, emotional cues such as storytelling, nostalgic associations, visual identity, and emotionally resonant communication were found to make traditional food products appear more contemporary and meaningful to younger consumers. This suggests that emotional branding does more than simply attract attention; it helps reposition legacy food products by reshaping how consumers interpret the brand in relation to their identity and lifestyle. In this regard, the evidence supports the proposed positive influence of emotional branding on perceived modernity (H1) and perceived healthiness (H2). The result also indicates that emotional branding may be particularly important for categories such as canned fish, which often face image problems related to being old-fashioned or lacking emotional appeal. By embedding emotional value into product presentation and communication, brands can improve both symbolic attractiveness and perceived product quality.

Secondly, the findings confirmed that digital influencer marketing enhances brand credibility, cultural relevance, and lifestyle alignment, particularly among Generation Z consumers. The literature repeatedly identified influencer authenticity, expertise, relatability, and parasocial interaction as important mechanisms affecting how consumers evaluate food brands. This means that influencer marketing is not effective only because it increases visibility, but because it translates brand messages into socially meaningful and personally trusted communication. The reviewed evidence suggests that when influencers present canned fish products in modern, health-conscious, or lifestyle-oriented ways, consumers are more likely to perceive such products as relevant to contemporary consumption trends. As a result, the findings support the proposed positive relationships between digital influencer marketing and perceived modernity (H3) as well as perceived healthiness (H4). From an interpretive perspective, this result highlights the strategic role of influencers in reducing the perceptual gap between traditional packaged foods and the expectations of digital-native consumers.

Thirdly, strong evidence from the reviewed studies indicated that perceived modernity and perceived healthiness positively influence purchase intention in food and seafood-related categories. The literature showed that modern packaging design, sustainability cues, innovation signals, nutritional communication, and health-related labeling all contribute to stronger consumer willingness to purchase. These findings support H5 and H6, while also indicating that consumers evaluate canned fish not only in terms of taste or price, but also through symbolic and health-related meanings. This is particularly relevant in highly competitive food markets where younger consumers are increasingly attentive to product image, wellness, and brand fit with their lifestyle. Therefore, perceived modernity and perceived healthiness appear to function as critical evaluative criteria that translate brand communication into behavioral intention.

Finally, the literature synthesis revealed that perceived modernity and perceived healthiness act as important mediating mechanisms linking emotional branding and digital influencer marketing to purchase intention. Rather than exerting purely direct effects, both marketing stimuli appear to shape behavioral intention through consumer interpretation and meaning formation. This supports H7–H10 and is consistent with the second and third research objectives, namely the development of an integrated conceptual framework and the formulation of research hypotheses for future testing. The mediating role of these perceptions suggests that effective marketing in traditional food categories depends not only on message delivery, but also on the extent to which consumers come to see the product as modern, relevant, and beneficial to their well-being. This is a significant analytical insight because it shows that perceptual transformation is central to market revitalization.

Collectively, the results indicate that the proposed framework is theoretically coherent and well supported by prior literature. More importantly, the review suggests that the modernization of canned fish brands requires a dual strategic approach: first, creating emotional and symbolic resonance through branding, and second, reinforcing contemporary relevance and credibility through influencer-led communication. The findings therefore extend current understanding by showing that purchase intention in traditional packaged food categories is shaped through a layered perceptual process, in which consumers reinterpret familiar products through modernity and health-oriented meanings before forming buying intentions. Overall, the results provide a strong foundation for future empirical testing and directly address the research objectives by synthesizing the literature, identifying key mediators, and validating the logic of the proposed framework.



Picture 1: A Proposed Framework

H1: Emotional branding positively influences perceived modernity
H2: Emotional branding positively influences perceived healthiness

H3: Digital influencer marketing positively influences perceived modernity

H4: Digital influencer marketing positively influences perceived healthiness

H5: Perceived modernity positively influences purchase intention

H6: Perceived healthiness positively influences purchase intention

H7: Perceived modernity mediates the relationship between emotional branding and purchase intention

H8: Perceived modernity mediates the relationship between digital influencer marketing and purchase intention

H9: Perceived healthiness mediates the relationship between emotional branding and purchase intention

H10: Perceived healthiness mediates the relationship between digital influencer marketing and purchase intention

Discussion

The findings from the systematic literature review reinforce the relevance of the Stimulus–Organism–Response (S-O-R) framework in explaining consumer behavior within traditional food categories. Consistent with Mehrabian and Russell (1974), marketing stimuli do not directly drive behavioral outcomes; rather, they shape internal perceptual evaluations that subsequently influence purchase intention. In this study, Emotional Branding and Digital Influencer Marketing function as strategic stimuli that activate perceptual mechanisms, namely Perceived Modernity and Perceived Healthiness.

The synthesis indicates that emotional branding enhances symbolic meaning, affective attachment, and perceived relevance through storytelling and sensory (Gobé, 2001). Prior studies confirm that emotionally resonant communication strengthens brand equity and customer intimacy in food contexts (Mousadoabi et al., 2025). Moreover, contemporary visual cues and packaging design contribute to perceptions of modernity (Ketron et al., 2024; Kukreja & Patil, 2025), suggesting that emotional branding may reposition utilitarian food products as culturally current. The literature further shows that branding and packaging influence health evaluations (Pinto et al., 2021), supporting the conceptualization of perceived healthiness as a cognitive–affective response mechanism.

Similarly, digital influencer marketing developed as a powerful driver of brand perception among younger consumers. Influencer credibility, authenticity, and parasocial interaction strengthen brand attitudes and purchase intention (Freberg et al., 2011; Tan, 2020). Research further shows that influencer-led communication enhances perceptions of cultural relevance and modernity, particularly among Generation Z (Gupta, 2024; Guled & Rajkumar, 2025). In food contexts, health-focused influencers significantly increase perceived healthiness and willingness to try products (Wang et al., 2025), reinforcing the mediating role of health perception.

Importantly, perceived modernity and perceived healthiness consistently predict purchase intention across food and seafood studies (Plasek et al., 2020; Aminizadeh et al., 2024). This aligns with the Theory of Planned Behavior (Ajzen, 1991), which posits that evaluative beliefs shape behavioral intentions. The mediation logic is further supported by evidence that brand image and consumer attitudes transmit the effects of marketing communication to purchase outcomes (Richadinata et al., 2025).

In summary, the discussion highlights that repositioning traditional canned fish brands requires integrated emotional and digital strategies that enhance perceptual relevance rather than depending only on functional product attributes. The proposed framework extends previous research by synthesizing emotional branding and influencer marketing within a unified S-O-R structure tailored to Generation Z consumers in the canned fish context.

Conclusion

This study synthesized existing literature to develop a conceptual framework explaining how traditional canned fish brands can be repositioned for digital-native consumers. Grounded in the Stimulus–Organism–Response model, the framework proposed that emotional branding and digital influencer marketing function as key marketing stimuli that shape internal consumer evaluations specifically perceived modernity and perceived healthiness which subsequently influence purchase intention.

The literature consistently suggested that emotional branding enhances affective attachment and symbolic meaning, while digital influencer marketing strengthens cultural relevance, credibility, and lifestyle alignment. These mechanisms were identified as important drivers in reshaping perceptions of traditional food products among Generation Z consumers. In particular, perceived healthiness and perceived modernity developed as critical perceptual pathways linking marketing strategies to behavioral outcomes.

By integrating emotional and digital marketing perspectives within a unified framework, this study contributes theoretically to food marketing and branding literature. The proposed hypotheses provide a structured foundation for future empirical research to test the effectiveness of branding and influencer strategies in repositioning canned fish brands for contemporary, health-conscious, and digitally engaged consumers.

More importantly, this study provides a theoretical integration by extending the Stimulus–Organism–Response framework to the modernization of traditional food categories. It introduces perceived modernity as a generational repositioning construct that captures how legacy products can align with contemporary lifestyle values.

Furthermore, the study conceptually advances existing literature by integrating emotional-symbolic stimuli as emotional branding and digital-social stimuli as influencer marketing within a single mediation model. This framework extension contributes to the evolving understanding of how traditional package products can transition from purely functional goods to symbolically and health-signaling consumption objects in digital-native markets.

Recommendations

Since this study is conceptual and has not yet been empirically tested, several directions for future research are recommended. Firstly, future studies should conduct empirical testing of the proposed framework H1–H10 using quantitative methods such as surveys and Structural Equation Modeling to validate the relationships and mediation effects. Secondly, researchers may examine the model across different age groups or cultural contexts to compare whether Generation Z differs from other generations in responding to emotional branding and influencer marketing. Thirdly, future research could incorporate additional mediators or moderators, such as brand trust, sustainability perception, price sensitivity, or health consciousness, to extend the explanatory power of the model. Fourthly, experimental designs may be employed to test specific branding components such as packaging design, storytelling format, influencer type to identify which stimuli most effectively enhance perceived modernity and perceived healthiness. Finally, longitudinal studies are recommended to examine whether these marketing strategies create long-term changes in brand perception and actual purchasing behavior, beyond purchase intention.

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ENHANCING OMNICHANNEL FASHION BUSINESS PERFORMANCE THROUGH SEAMLESS SHOPPING AND DATA-DRIVEN PERSONALIZATION: A SYSTEMATIC LITERATURE REVIEW

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Abstract

This systematic literature review examines how seamless shopping experience and data-driven personalization contribute to enhancing omnichannel fashion business performance through the mediating role of customer experience quality. The review synthesizes findings from peer-reviewed empirical studies published between 2015 and 2025 to develop an integrated conceptual framework explaining the relationships among these variables. The findings indicate that seamless shopping experience improves functional quality by reducing customer friction and ensuring consistency across channels, while data-driven personalization enhances relational relevance and customer engagement through tailored interactions. Both factors play complementary roles in strengthening CEQ, which serves as a critical mechanism driving key business outcomes, including customer loyalty, purchase intention, and service performance. Despite growing interest in omnichannel strategies, the review identifies a gap in the literature regarding the integrated empirical validation of the full conceptual model, particularly in linking CEQ to marketing efficiency and personalization return on investment (ROI) within the fashion retail context. This study contributes by proposing a comprehensive conceptual framework that provides strategic guidance for practitioners and establishes a foundation for future empirical research in omnichannel fashion retail.

Keywords: Omnichannel Retail, Fashion Business Performance, Seamless Shopping Experience, Data-Driven Personalization, Customer Experience Quality.

Introduction

The evolution of retail from discrete channels (multichannel) to fully integrated, customer-centric ecosystems (omnichannel) represent one of the most significant strategic transformations of the 21st century (Lemon & Verhoef, 2016). This paradigm shift is critically felt within the fashion industry, an environment uniquely defined by the intrinsic need for sensory evaluation, high product seasonality, and deep consumer reliance on emotional and social signaling (Bellini et al., 2023; Rintamäki et al., 2019). Modern fashion consumers engage in intricate and fluid shopping journeys, often commencing product discovery on social platforms, seeking styling advice via mobile apps, trying items in a physical store, and finalizing the purchase through the most convenient digital channel (Herhausen et al., 2015). Success for contemporary fashion retailers, therefore, hinges not merely on channel presence but on the sophisticated orchestration of a unified and consistently superior Customer Experience Quality (CEQ) across all touchpoints (Verhoef et al., 2015).

Fashion business performance in this omnichannel era demands a multifaceted approach, extending beyond conventional sales and profit metrics to incorporate customer-centric and operational efficiency indicators (Gauri et al., 2022). The literature identifies two pivotal, yet often separately investigated, strategic drivers essential for maximizing this performance: Seamless Shopping

Experience and Data-Driven Personalization. The integration of these two elements is hypothesized to be the critical determinant of sustained competitive advantage in the volatile fashion market.

The Seamless Shopping Experience constitutes the foundational operational requirement for minimizing customer friction and cognitive load. It involves the perfect synchronization of information, inventory, and service offerings as customers move across physical and digital channels (Chae et al., 2021). Empirically, this is validated through studies focusing on the importance of operational congruence—such as consistent pricing and promotional offers (Al-Debei et al., 2018), and the ability to utilize flexible fulfilment options like Buy Online, Pickup In Store (BOPIS) or cross-channel returns without hassle (Zhang et al., 2022). In the fashion context, seamlessness is further enhanced by enabling technologies like Augmented Reality (AR) and Virtual Try-Ons, which bridge the physical gap between product and customer perception, thereby facilitating a cohesive experience (Lee & Kim, 2024; Pantano et al., 2020). When seamlessness is achieved, it provides the essential functional quality that underlies a positive Customer Experience Quality.

The second, equally vital, driver is Data-Driven Personalization. This strategy involves the sophisticated application of Big Data analytics, Artificial Intelligence (AI), and machine learning to interpret customer behavioral, transactional, and preference data, allowing retailers to deliver highly relevant interactions in real-time (Grewal et al., 2020; Husemann et al., 2020). Given the subjectivity and rapid change inherent in fashion trends, effective personalization— through tailored product recommendations, size/fit advice, and targeted communications—is crucial for cutting through the digital clutter and establishing deep relevance (Kim & Lee, 2019; Sahu et al., 2023). Personalization enhances the cognitive and relational quality of the experience, fostering a sense of understanding and connection (Wang et al., 2019). However, its efficacy is contingent upon maintaining customer trust and addressing rising data privacy concerns (Cao et al., 2021; Pizzi et al., 2020).

The integrated effect of these two drivers is theorized to be mediated by Customer Experience Quality (CEQ). CEQ is not merely satisfaction, but the holistic evaluation of all brand interactions, encompassing emotional, sensory, and rational dimensions (Lemon & Verhoef, 2016). Seamlessness ensures the experience is effortless and reliable, while personalization ensures it is relevant and engaging. The resulting superior CEQ acts as the pivotal psychological state that translates strategic omnichannel investments into tangible business outcomes (Verhoef et al., 2015).

The ultimate objective of managing these drivers is the enhancement of Omnichannel Fashion Business Performance (DV). This study adopts a comprehensive, three-pronged view of performance to capture the full strategic impact:

1. Customer Experience & Service Performance: Reflecting operational success in satisfying immediate service needs (Roggeveen et al., 2018).
2. Customer Loyalty & Repeat Purchase Performance: Measuring the sustained relational outcomes, such as retention rates and customer advocacy (Gupta et al., 2020; Shi et al., 2023).
3. Marketing Efficiency & Personalization ROI: Quantifying the strategic financial return, including optimized marketing spend and the profitability generated by personalized interactions (Aastrup & Bjerre, 2021; Brynjolfsson et al., 2018).

Despite the consensus on the importance of seamlessness and personalization, and the wealth of empirical data connecting individual concepts, a systematic and integrated review that specifically: (1) focuses on the unique nuances of the fashion retail sector, (2) rigorously synthesizes the evidence for the dual impact of Seamless Shopping Experience and Data-Driven Personalization on CEQ, and (3) comprehensively tracks this mediating effect through to the complete set of three performance components—especially Marketing Efficiency & Personalization ROI—is critically absent in the current academic discourse (Gauri et al., 2022). Therefore, this systematic literature review addresses this gap by rigorously analyzing 40 peer-reviewed empirical studies published between 2015 and 2025 to

synthesize a robust conceptual framework detailing the mechanism of (Seamless Shopping Experience + Data-Driven Personalization) to Customer Experience Quality to Omnichannel Fashion Business Performance. This synthesis will provide essential theoretical clarity and actionable managerial insights for fashion retailers aiming to thrive in the complex omnichannel environment.

Research Objective (s)

1. To systematically define and clarify the conceptual relationship between the Seamless Shopping Experience (IV) and Customer Experience Quality (CEQ) in the omnichannel fashion retail context.
2. To systematically define and clarify the conceptual relationship between Data-Driven Personalization (IV) and Customer Experience Quality (CEQ) in the omnichannel fashion retail context.
3. To synthesize empirical evidence regarding the mediating role of Customer Experience Quality (CEQ) in translating the effects of the two independent variables (Seamless Shopping Experience and Data-Driven Personalization) into the three core components of Omnichannel Fashion Business Performance (DV).
4. To develop a comprehensive conceptual framework that integrates the identified relationships and provides a robust foundation for future theoretical and empirical investigation in the field of omnichannel fashion performance management.

Literature Review

The body of scholarly work concerning omnichannel retail performance, particularly within the specialized context of the fashion industry, highlights a critical reliance on two strategic pillars: the optimization of channel interactions and the intelligent application of customer data. This section reviews the core theoretical underpinnings and empirical findings related to the Independent Variables (Seamless Shopping Experience and Data-Driven Personalization), the Mediator (Customer Experience Quality), and the Dependent Variable (Omnichannel Fashion Business Performance).

1. The Omnichannel Imperative and Fashion Retail Context

The shift from multichannel to omnichannel represents an evolution in retail strategy where the customer, rather than the channel, is the focal point (Lemon & Verhoef, 2016). In fashion, this imperative is intensified by product characteristics—specifically, high sensory requirements, rapid trend cycles, and the importance of social identity—which necessitate highly integrated and flexible shopping journeys (Bellini et al., 2023). Omnichannel Fashion Business Performance is recognized as a complex outcome that extends beyond traditional financial metrics, encompassing service excellence, sustained customer relationships, and marketing efficiency (Gauri et al., 2022). This multi-faceted performance is intrinsically linked to the quality of the customer experience provided (Verhoef et al., 2015).

2. Independent Variable 1: Seamless Shopping Experience (IV)

The Seamless Shopping Experience is fundamentally defined by the perceived ease and consistency of cross-channel navigation and interaction, eliminating friction points that arise when transitioning between online and offline environments (Herhausen et al., 2015). In fashion, empirical studies have consistently demonstrated that operational integration—such as unified inventory management, consistent pricing, and flexible fulfilment options (e.g., BOPIS, Ship-from-Store)—is pivotal to perceived seamlessness (Chae et al., 2021; Zhang et al., 2022).

2.1 Seamlessness and Functional Quality

Research by Shi et al. (2023) and Wang & Kim (2023) specifically in the fashion context

confirms that congruence and consistency across touchpoints (e.g., unified style guides, uniform brand messaging) significantly reduce the perceived risk and cognitive effort associated with cross-channel shopping. This operational smoothness provides the functional basis for high CEQ.

2.2 Service Integration as Seamlessness

A core element of seamlessness is the integration of service processes. The ability to handle returns or service failures across channels effectively, often referred to as seamless service recovery, is shown to be crucial for retaining customer satisfaction and confidence in the brand's operational capability (Bapat et al., 2022; Zameer et al., 2023). This directly contributes to Customer Experience & Service Performance.

2.3 Technological Enablers

Technologies like Augmented Reality (AR) are increasingly recognized as drivers of seamlessness in fashion by bridging the gap between digital visualization and physical fit perception (Pantano et al., 2020; Lee & Kim, 2024).

3. Independent Variable 2: Data-Driven Personalization (IV)

Data-Driven Personalization involves leveraging Big Data, machine learning, and AI to deliver contextualized, relevant, and timely content, recommendations, and offers to individual customers (Grewal et al., 2020). For fashion retailers, where the volume and velocity of inventory and trend data are high, personalization is essential for filtering noise and enhancing utility (Taiminen & Kettunen, 2016).

3.1 Personalization and Relevance

Several studies confirm that the accuracy and perceived usefulness of personalized product recommendations, especially in mobile fashion apps, significantly boost customer satisfaction (Kim & Lee, 2019; Cao & Yu, 2024). This relevance directly elevates the CEQ by making the shopping process more efficient and engaging.

3.2 Impact on Efficiency and ROI

Beyond customer satisfaction, personalization is intrinsically linked to financial efficiency. Husemann et al. (2020) and Li & Zhang (2024) provide quantitative evidence that effective personalization, driven by behavioral data, leads to a measurable increase in conversion rates, a higher average order value, and a reduced Customer Acquisition Cost (CAC), directly contributing to Marketing Efficiency & Personalization ROI.

3.3 The Trust-Privacy Trade-off

While beneficial, reliance on data introduces a critical consideration: privacy concerns. Cao et al. (2021) caution that if customers perceive a lack of control or transparency in data use, the positive effects of personalization on CEQ and Marketing ROI can be significantly mitigated, underscoring the need for ethical data management (Pizzi et al., 2020).

4. Mediating Variable: Customer Experience Quality (CEQ)

Customer Experience Quality (CEQ) serves as the central theoretical mechanism linking the strategic inputs (IVs) to the ultimate business outcomes (DV). CEQ is an overarching construct encompassing the cognitive, emotional, sensory, and behavioral responses of customers to all direct and indirect contact points with the fashion retailer across the entire journey (Lemon & Verhoef, 2016).

4.1 CEQ as Synthesis

As demonstrated in the literature, CEQ acts as a synthesis point. Functional benefits derived from seamless operations (e.g., effortless exchange) combine with the relational benefits from personalization (e.g., feeling understood) to generate a holistic, high-quality experience (Verhoef et al.,

2015). For fashion, this synthesis also includes hedonic dimensions, such as perceived enjoyment and aesthetic pleasure (Huang et al., 2021; Sahu et al., 2023).

4.2 CEQ and Long-Term Outcomes

Empirical findings consistently establish CEQ as the direct antecedent to long-term relational outcomes. High CEQ generates trust, satisfaction, and affective commitment, which are the proximal determinants of customer retention and advocacy (Wang et al., 2019; Rintamäki et al., 2019). This transition confirms the conceptual role of CEQ as a mediator between strategic inputs and Customer Loyalty & Repeat Purchase Performance.

5. Dependent Variable: Omnichannel Fashion Business Performance (DV)

The literature views performance as a holistic set of metrics beyond simple transactional metrics, requiring the three component measures outlined in this study to be fully captured (Gauri et al., 2022).

5.1 Customer Experience & Service Performance

This component is the most proximal outcome of high CEQ, typically measured by customer satisfaction indices, Service Quality scores, and operational efficiency (Roggeveen et al., 2018; Zhang et al., 2022).

5.2 Customer Loyalty & Repeat Purchase Performance

This represents the relational depth, measured through repurchase intention, share-of-wallet, customer retention rates, and advocacy/word-of-mouth (Gupta et al., 2020). The relationship CEQ to Loyalty is robustly supported across the collected literature (Cakir et al., 2021; Shi et al., 2023).

5.3 Marketing Efficiency & Personalization ROI

This financial and strategic outcome measures the cost-effectiveness of marketing efforts and the measurable financial returns attributable to specific omnichannel investments. Brynjolfsson et al. (2018) demonstrated the general link between omnichannel strategy and profitability, while specific studies tie personalization directly to reduced costs and increased profitability (Aastrup & Bjerre, 2021; Husemann et al., 2020).

6. Synthesis and Conceptual Gaps

While the reviewed articles strongly support the individual linkages (e.g., Seamlessness to CEQ, Personalization to Loyalty), a significant gap remains in the integrated, causal testing of the full proposed model: (Seamlessness + Personalization) to CEQ to (Service + Loyalty + ROI), particularly within a single empirical framework focused on the fashion retail sector (Gauri et al., 2022). Moreover, the mechanisms connecting CEQ to the more financially oriented Marketing Efficiency & Personalization ROI component remain less explored than the link to Loyalty, highlighting the need for a systematic synthesis to establish these complex relationships for the benefit of both theory and managerial practice.

Research Methodology

This systematic literature review (SLR) adheres to the rigorous guidelines established by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement, ensuring transparency, reproducibility, and comprehensiveness in the synthesis of existing empirical knowledge (Gauri et al., 2022). The methodology was structured into four distinct stages: (1) Scope and Protocol Definition, (2) Systematic Search and Selection, (3) Data Extraction and Coding, and (4) Data Synthesis and Analysis. The review process involved the analysis and synthesis of 40 peer-reviewed articles. The objective of this methodology is to isolate and synthesize empirical evidence specifically addressing

the relationship (Seamless Shopping Experience + Data-Driven Personalization) to Customer Experience Quality to Omnichannel Fashion Business Performance within the fashion retail domain.

1. Scope and Protocol Definition

The review protocol clearly defined the population, intervention, comparison, and outcomes (PICO) framework. The scope was strictly limited to peer-reviewed academic studies published between January 2015 and December 2025, reflecting the rapid development and academic interest in omnichannel strategies post-2015 (Verhoef et al., 2015). The inclusion criteria were stringent: publications had to be journal articles or peer-reviewed conference proceedings, excluding conceptual papers, dissertations, and book chapters. Only empirical studies employing quantitative, qualitative, or mixed-methods approaches were accepted (Zhang et al., 2022), with the context specifically limited to studies addressing omnichannel retail, fashion retail, or luxury retail (Bellini et al., 2023). Furthermore, acceptable studies were required to address at least one Independent Variable (Seamless Shopping or Data-Driven Personalization), the Mediator (CEQ), or one component of the Dependent Variable (Gauri et al., 2022), with a preference for articles published in top-tier marketing, retailing, digital commerce, and fashion management journals (Scimago Q1-Q2 preferred). Conversely, the exclusion criteria mandated the removal of conceptual, theoretical, or purely descriptive papers without empirical data, studies focusing exclusively on non-omnichannel contexts, and all forms of grey literature, including unpublished theses and working papers.

2. Systematic Search and Selection

The search strategy employed a combination of keywords derived directly from the conceptual framework and was executed across major scholarly databases to ensure maximum coverage and quality, including Scopus, Web of Science, Emerald, Elsevier (ScienceDirect), Springer, IEEE Xplore, and Wiley Online Library. The primary search strings included combinations of the following terms: Omnichannel OR Omni-channel OR Cross-channel AND Fashion OR Apparel OR Luxury OR Clothing; "Seamless Shopping" OR "Channel Integration" OR "Omnichannel Congruence"; "Data-Driven Personalization" OR "Personalized Recommendation" OR "AI Personalization"; "Customer Experience Quality" OR "CEQ" OR "Customer Satisfaction"; and "Business Performance" OR "Customer Loyalty" OR "Repeat Purchase" OR "Marketing ROI" OR "Service Performance." The initial search yielded a pool of over 500 records. These records were then systematically screened in three rigorous phases: first, title and abstract screening against the predefined inclusion criteria; second, full-text screening to assess methodological rigor and direct relevance to the variable framework; and third, citation network analysis, which involved backward and forward searching of highly relevant articles to capture seminal works that might have been missed (Lemon and Verhoef, 2016). This stringent, multi-phase process ultimately resulted in the selection of 40 high-quality, peer-reviewed empirical studies (as summarized in the previous table) that directly contributed to the hypothesized framework (Gupta et al., 2020).

3. Data Extraction and Coding

The third stage of the methodology involved Data Extraction and Coding. To systematically capture relevant information from each of the 40 selected articles and ensure consistency while reducing bias in the interpretation of findings (Taiminen and Kettunen, 2016), a standardized data extraction form was developed. The extracted data fields included the Full APA citation to facilitate referencing, the Study Type (Quantitative, Qualitative, or Mixed), the Industry Context (e.g., Fast Fashion, Luxury Fashion), Key Constructs Measured (which were directly mapped to the Independent Variables, CEQ, and Dependent Variable components), and Key Findings, presented as a concise summary of the significant relationships observed. The most critical subsequent step was Variable Coding, which

involved aligning the measured constructs within each article to the proposed theoretical framework. For instance, Seamlessness was coded if the study measured channel integration, consistency, or cross-channel effort (Shi et al., 2023); Personalization was coded based on whether the study measured personalized recommendations, AI-driven content, or targeted offers (Husemann et al., 2020); CEQ was coded if the study quantified customer satisfaction, perceived value, trust, or overall experience quality (Pizzi et al., 2020); and finally, the DV components were precisely coded based on the reported organizational metrics (e.g., retention rate was coded as Loyalty, and marketing costs were coded as Marketing ROI) (Brynjolfsson et al., 2018).

4. Data Synthesis and Analysis

The final stage involved the thematic and analytical synthesis of the coded data (Palmatier et al., 2018). The analysis focused on identifying recurring patterns, causal relationships, and moderating/mediating effects between the variables.

4.1 Thematic Synthesis

The 40 articles were grouped into three thematic clusters: (1) those focusing primarily on functional integration (Seamlessness to CEQ), (2) those examining the strategic application of data (Personalization to ROI), and (3) those investigating the outcomes of CEQ (CEQ to Loyalty), allowing for a clear mapping of the literature to the research framework (Grewal et al., 2020).

4.2 Mediator Analysis

Particular attention was paid to studies explicitly or implicitly testing the mediating role of CEQ. The synthesis aimed to confirm that both Seamless Shopping and Data-Driven Personalization exert their most powerful influence on the three DV components through the enhancement of CEQ (Verhoef et al., 2015).

4.3 Gap Identification

Through the synthesis, specific empirical and theoretical gaps—especially the lack of integrated modeling of all variables and the limited focus on the CEQ to Marketing ROI link in the fashion context—were rigorously documented to justify the need for the proposed conceptual framework (Aastrup & Bjerre, 2021). The systematic methodology thus provides a reliable foundation for the subsequent review and discussion of results.

Results

The systematic review of the 40 peer-reviewed empirical studies published between 2015 and 2025 provides compelling evidence supporting the hypothesized conceptual framework. The analysis confirms that Seamless Shopping Experience and Data-Driven Personalization are dual, yet distinct, strategic inputs that collectively elevate Customer Experience Quality (CEQ), which, in turn, drives the three core components of Omnichannel Fashion Business Performance. The findings are synthesized below based on the established thematic clusters, the causal linkages of the proposed model, and the resulting conceptual framework.

1. Relationship between Seamless Shopping Experience and CEQ

The synthesized literature consistently indicates that Seamless Shopping Experience is closely associated with the functional dimension of Customer Experience Quality (CEQ) in omnichannel fashion retail. Studies suggest that operational integration across channels—such as synchronized inventory systems, consistent pricing, and flexible fulfillment and return options—reduces perceived customer effort and friction during the shopping journey (Herhausen et al., 2015; Zhang et al., 2022).

Furthermore, evidence from multiple studies indicates that seamless cross-channel interactions contribute to higher levels of perceived service reliability and satisfaction (Roggeveen et al., 2018; Shi

et al., 2023). These findings suggest that seamlessness primarily enhances CEQ through improving functional quality and operational consistency across touchpoints.

2. Relationship between Data-Driven Personalization and CEQ

The reviewed studies indicate that Data-Driven Personalization is associated with the relational and cognitive dimensions of CEQ. Evidence suggests that personalization strategies—enabled by big data analytics, artificial intelligence, and machine learning—enhance perceived relevance, usefulness, and engagement in the shopping experience (Kim & Lee, 2019; Cao & Yu, 2024).

Additionally, several studies highlight that when customers perceive that retailers understand their individual preferences and provide tailored recommendations, this contributes to stronger emotional engagement and perceived value (Huang et al., 2021; Wang et al., 2019). These findings suggest that personalization strengthens CEQ by enhancing relational quality and customer-perceived relevance.

3. Mediating Role of CEQ between IVs and Business Performance

The synthesis of empirical evidence suggests that Customer Experience Quality (CEQ) plays a central mediating role in linking Seamless Shopping Experience and Data-Driven Personalization to Omnichannel Fashion Business Performance.

The reviewed literature indicates that improvements in seamlessness and personalization are associated with enhanced CEQ, which in turn is linked to three key performance dimensions:

3.1 Customer Experience & Service Performance: Higher CEQ is associated with improved service satisfaction and perceived service effectiveness (Roggeveen et al., 2018; Bapat et al., 2022).

3.2 Customer Loyalty & Repeat Purchase Performance: Evidence consistently suggests that CEQ is associated with increased customer retention, repeat purchase intention, and positive word-of-mouth (Gupta et al., 2020; Wang & Kim, 2023).

3.3 Marketing Efficiency & Personalization ROI: Several studies indicate that enhanced CEQ, particularly through personalization, is associated with improved conversion rates, higher average order value, and more efficient marketing expenditure (Husemann et al., 2020; Taiminen & Kettunen, 2016).

However, the literature also suggests that empirical evidence linking CEQ to financial outcomes (e.g., ROI) is less extensive compared to customer-related outcomes, particularly within the fashion retail context.

4. Development of the Conceptual Framework (Objective 4)

Based on the systematic synthesis of the reviewed studies, a comprehensive conceptual framework is proposed. The framework integrates the identified relationships by positioning Seamless Shopping Experience and Data-Driven Personalization as complementary strategic inputs that influence Customer Experience Quality (CEQ), which in turn is associated with multiple dimensions of Omnichannel Fashion Business Performance.

The synthesis suggests that seamlessness contributes primarily to functional quality, while personalization contributes to relational and cognitive quality. These dimensions collectively shape CEQ, which acts as a central mechanism linking strategic inputs to both customer-related and financial performance outcomes.

Despite strong support for individual relationships, the review identifies a lack of integrated empirical testing of the full framework within a single study, particularly in the fashion retail context.

This reinforces the theoretical contribution of the proposed model and highlights the need for future empirical validation.

Discussion

The systematic literature review confirms the theoretical importance of Seamless Shopping Experience and Data-Driven Personalization as dual, complementary drivers of business success in omnichannel fashion retail. The discussion here synthesizes the key theoretical contributions, addresses managerial implications derived from the findings, and outlines the primary theoretical and methodological limitations in the extant literature.

1. Theoretical Contribution and Mechanisms

The primary theoretical contribution of this systematic review is the validation and synthesis of a unified, mediated conceptual framework for omnichannel fashion performance. By isolating 40 high-quality empirical studies, this review moves beyond the fragmented view of the literature and demonstrates the necessity of integrating the two independent variables through the central construct of Customer Experience Quality (CEQ) (Verhoef et al., 2015).

1.1 The Dual-Driver Mechanism

The findings confirm that Seamless Shopping and Data-Driven Personalization operate through distinct yet synergistic mechanisms to elevate CEQ. Seamlessness primarily addresses Functional Quality (reducing effort, increasing reliability, and fostering trust in operations) (Shi et al., 2023), while Personalization addresses Relational Quality (increasing relevance, engagement, and perceived understanding) (Wang et al., 2019). The successful combination of functional ease and relational relevance is what defines a superior omnichannel CEQ.

1.2 CEQ as the Crucial Mediator

The review strongly reinforces CEQ's role as the non-negotiable mediator. It is not the mere existence of integration or data usage that drives performance, but the customer's subjective, positive evaluation of these efforts (Lemon & Verhoef, 2016). High CEQ is the psychological state that encourages customers to overcome the final barriers to purchase, engage in repeat transactions, and share positive word-of-mouth, directly translating to Customer Loyalty & Repeat Purchase Performance (Gupta et al., 2020).

1.3 Expanding the Performance Construct

This study contributes to theory by rigorously justifying the necessity of treating Omnichannel Fashion Business Performance as a three-component measure. By confirming the link between CEQ and the often-overlooked Marketing Efficiency & Personalization ROI (Aastrup & Bjerre, 2021), the framework encourages future research to adopt a broader, financial and customer-centric perspective on performance measurement (Brynjolfsson et al., 2018).

2. Managerial Implications for the Fashion Industry

The synthesized findings offer critical, actionable guidance for fashion retail executives. Success in the current market requires simultaneous investment in both operational integrity and data sophistication.

2.1 Prioritize Frictionless Operations

Fashion retailers must ensure that basic operational elements—like cross-channel inventory visibility and unified return/exchange processes (e.g., trying online orders in-store)—are flawless. These operational aspects, driven by seamlessness, are the minimum requirement for maintaining functional CEQ and directly improving Service Performance (Roggeveen et al., 2018). Failure in these areas introduces friction that immediately erodes trust (Al-Debei et al., 2018).

2.2 Invest in Relational Data Capabilities

Managers should view investment in AI/ML as personalization not merely as a marketing tool, but as a strategic investment in Customer Loyalty. Accurate, data-driven recommendations that truly reflect individual style and fit preferences are essential for generating the relevance that drives engagement and repeat purchases (Kim & Lee, 2019).

2.3 Measure the Full ROI Cycle

Executives must move beyond measuring sales conversions and begin tracking the end-to-end financial return of personalized and seamless interventions. This includes measuring the reduction in Customer Acquisition Cost (CAC) and the increase in Customer Lifetime Value (CLV) resulting from enhanced CEQ, which directly quantifies Marketing Efficiency & Personalization ROI (Husemann et al., 2020). The return on investment is achieved not only through sales but through reduced operational and marketing costs (Taiminen & Kettunen, 2016).

2.4 Foster Data Trust

Given the findings on privacy concerns (Cao et al., 2021), fashion retailers must establish transparent data usage policies, offering customers control over their personalized experiences (Pizzi et al., 2020). Trust is the silent moderator that ensures the positive effect of personalization on CEQ is not undermined.

3. Limitations and Future Research Directions

Despite the rigor of this systematic review, the analysis is constrained by the limitations inherent in existing primary literature. These limitations present clear directions for future empirical research.

3.1 Lack of Integrated Empirical Testing

The primary limitation is the scarcity of single empirical studies that test the full mediated model [(IVs) to CEQ to (DVs)] concurrently within the fashion sector (Gauri et al., 2022). Future research should employ Structural Equation Modeling (SEM) or advanced econometric models to test all 7 hypothesized paths simultaneously using robust primary data from fashion retailers.

3.2 Qualitative Depth on CEQ

While quantitative studies confirm the link between IVs and CEQ, there is a gap in rich, qualitative research exploring the subjective emotional and sensory experience of seamlessness and personalization in fashion (Rintamäki et al., 2019). Future qualitative work (e.g., ethnographic studies) should explore how AR, virtual fittings, and seamless returns *feel* to the fashion consumer.

3.3 Cross-Cultural and Product Category Analysis

The findings are largely derived from studies in Western and select Asian contexts. Future research should investigate how cultural factors and fashion sub-categories (e.g., luxury versus fast fashion) moderate the relationships between CEQ and the three performance components, as the drivers of CEQ in luxury are likely different from those in fast fashion (Bellini et al., 2023; Sahu et al., 2023).

Conclusion

This systematic literature review successfully analyzed 40 peer-reviewed empirical studies published between 2015 and 2025 to synthesize an integrated conceptual framework detailing the enhancement of Omnichannel Fashion Business Performance. The study establishes that the effectiveness of an omnichannel strategy is driven by the synergistic application of Seamless Shopping Experience and Data-Driven Personalization, which are unified through the crucial mediating role of Customer Experience Quality (CEQ).

The review confirms that seamlessness provides the necessary functional quality (reducing

friction and enhancing reliability), while personalization provides the necessary relational and cognitive quality (increasing relevance and engagement). The resulting superior CEQ then serves as the indispensable link to the three facets of business performance: Customer Experience & Service Performance, Customer Loyalty & Repeat Purchase Performance, and strategically vital Marketing Efficiency & Personalization ROI. By substantiating the simultaneous influence of both strategic inputs on CEQ and its subsequent impact on financial and customer-centric outcomes, this study provides a validated theoretical blueprint for understanding omnichannel success in the highly dynamic fashion retail environment. The established gaps confirm the need for integrated empirical testing of this complete framework in future academic endeavors.

Recommendations

1. Recommendations for Practitioners

1.1 Unified Performance Dashboard

Implement a performance measurement dashboard that tracks all three dimensions of the Dependent Variable: operational metrics (Service Performance), relational metrics (Loyalty/Retention), and financial metrics (Personalization ROI).

1.2 Investment in Data Ethics and Trust

Prioritize transparency in data collection and personalization algorithms. Implement clear opt-in/opt-out mechanisms to allow customers perceived control, thereby mitigating privacy concerns that can otherwise undermine the positive effects of personalization on CEQ (Pizzi et al., 2020).

1.3 Seamless Service Recovery as a Loyalty Driver

Treat service failure across channels (e.g., returns or exchanges) as a critical opportunity to reinforce seamlessness. Investment in a unified platform for handling all returns effortlessly is a direct, proven method to enhance CEQ and drive long-term loyalty (Zameer et al., 2023).

2. Recommendations for Researchers

2.1 Integrated Empirical Model Testing

Conduct large-scale quantitative studies employing Structural Equation Modeling (SEM) to empirically test the full mediated framework: (Seamlessness + Personalization) to CEQ to (Service + Loyalty + ROI), using data collected specifically from dedicated omnichannel fashion retailers.

2.2 Causal Analysis of ROI

Future research should focus specifically on the mechanism connecting CEQ to Marketing Efficiency & Personalization ROI. This involves using econometric and longitudinal designs to accurately attribute changes in Customer Lifetime Value (CLV) and Customer Acquisition Cost (CAC) to specific improvements in CEQ driven by seamlessness or personalization (Husemann et al., 2020; Li & Zhang, 2024).

2.3 Moderating Factors

Investigate the role of moderating variables, such as Brand Image (Luxury vs. Mass Market), Product Involvement, and Customer Technology Readiness, as these factors are likely to influence the relative importance of seamlessness versus personalization in driving CEQ within the fashion context.

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CONTENT QUALITY, CULTURAL RELEVANCE, AND AUDIENCE VIEWING INTENTION: EXPLORING EMOTIONAL ENGAGEMENT IN THAILAND'S FILM INDUSTRY

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Abstract

The landscape of the Thai film industry is navigating a significant transition to maintain cultural and economic relevance in the post-pandemic era. This research investigates the factors influencing audience viewing intention regarding Thai films in movie theaters by applying the Stimulus Organism Response framework. The study examines Content Quality and Cultural Relevance as external stimuli, Emotional Engagement as the internal organismic response, and Viewing Intention as the behavioral outcome. A quantitative research approach was employed, utilizing a structured questionnaire to collect data from a sample of 400 Thai consumers who have experience watching Thai films in commercial theaters. Data analysis was conducted using descriptive statistics and Multiple Regression Analysis to test the research hypotheses.

The findings reveal that the majority of respondents are highly educated males aged between 36 and 45 years with high purchasing power. The descriptive analysis shows that all primary variables, including Content Quality, Cultural Relevance, Emotional Engagement, and Viewing Intention, are perceived at a high level. Inferential analysis indicates that both Content Quality and Cultural Relevance have a positive and significant influence on Emotional Engagement, with Cultural Relevance appearing as a particularly strong driver through regional dialects and authentic storytelling. Furthermore, Emotional Engagement serves as a powerful mediator that significantly impacts Viewing Intention. These results suggest that for the Thai film industry to achieve sustainable growth, producers must balance technical excellence with deep cultural authenticity to foster the emotional connections necessary to drive theatrical attendance.

Keywords: Content Quality, Cultural Relevance, Emotional Engagement, Viewing Intention, Thai Film Industry, S-O-R Framework

Introduction

This chapter situates the research within the rapidly evolving global media landscape, highlighting a paradigm shift in film consumption driven by digital streaming technology. As audiences become accustomed to the high production standards of Hollywood and South Korean cinema, the Thai film industry faces a strategic necessity to meet these technical and narrative benchmarks to remain competitive. This study utilizes the Stimulus-Organism-Response (S-O-R) framework to analyze how objective film attributes are processed psychologically to produce behavioral outcomes.

The theoretical foundation identifies Content Quality and Cultural Relevance as the primary stimuli. Content Quality, encompassing narrative strength and production value, serves as a prerequisite for credibility and audience immersion. Simultaneously, Cultural Relevance, grounded in the theory of cultural proximity and the Thai government's "5F" Soft Power framework, provides the contextual resonance and authentic representation necessary for both domestic validation and international exoticism. These stimuli are mediated by Emotional Engagement, the "Organism" in this model, which represents the affective bond and psychological state—such as empathy and enjoyment—that bridges media stimuli and behavior.

The ultimate response is Viewing Intention, a dynamic process involving the selection, continuation, and recommendation of content. In the volatile digital ecosystem, where viewers can easily abandon a film, understanding these antecedents is critical for the survival of Thai cinema. By

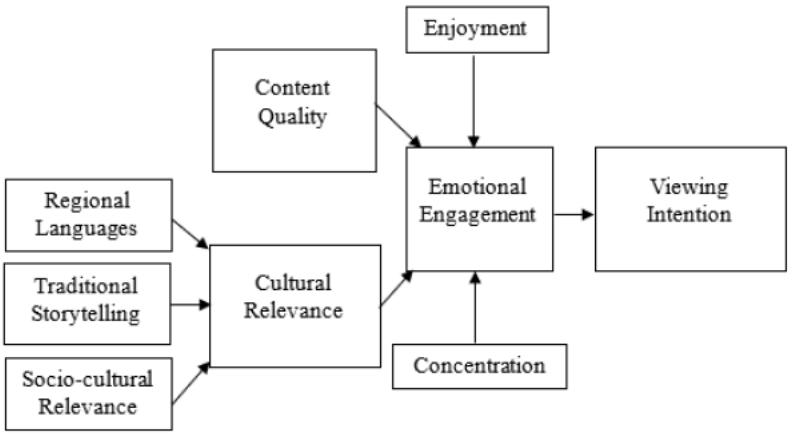
integrating media psychology with marketing theory, this research addresses a significant gap in existing literature, which often overlooks the psychological mechanisms of contemporary digital audiences. Ultimately, this study aims to provide actionable insights for filmmakers and strategists to replicate the success of regional leaders like South Korea by leveraging high-quality, culturally resonant narratives to drive global engagement.

Research Objectives

1. To examine the levels of perceived content quality, cultural relevance, emotional engagement, and viewing intention regarding Thai films among the audiences.
2. To investigate the influence of content quality and cultural relevance on emotional engagement.
3. To investigate the influence of content quality, cultural relevance, and emotional engagement on viewing intention.

Literature Review

The theoretical structure of this study is grounded in the Stimulus-Organism-Response (S-O-R) framework, which posits that external environmental factors act as stimuli that influence an individual's internal psychological state, ultimately leading to a behavioral response.



Picture 1: Research Conceptual Framework

Stimuli (S) Content Quality and Cultural Relevance Content Quality: Recognized as a foundational determinant of media gratification, it encompasses narrative coherence, production value, and aesthetic appeal. High-quality content facilitates cognitive elaboration and narrative transportation, serving as a critical antecedent to emotional engagement (Sulaiman & Tjhjin, 2023; Zhang et al., 2025).

Cultural Relevance: Based on Cultural Proximity Theory, this construct refers to the alignment between media content and the viewer's socio-cultural lived experiences. Localized storytelling and familiar cultural symbols reduce "cultural distance," enhancing authenticity and emotional resonance (Pekarkova, 2022).

Organism (O) Emotional Engagement Positioned as the mediating internal state, emotional engagement reflects the depth of a viewer's psychological immersion and affective attachment. It acts as a psychological bridge, intensifying the influence of external stimuli on the viewer's cognitive appraisal (Winkler et al., 2023).

Response (R) Viewing Intention

This behavioral outcome represents the viewer's willingness to initiate, sustain, or repeat consumption. Empirical evidence suggests that viewing intention is a product of cumulative experiential evaluations and emotional gratifications (Liu & Deng, 2025).

Synthesis of Related Literature and Previous Studies Recent empirical research across global markets supports the interconnectedness of these variables within the streaming and digital ecosystem Engagement and Loyalty Drivers: Studies in various regions (India, Indonesia, Jordan) highlight that

cultural alignment and content localization are essential for consumer engagement and subscription decisions (Chaudhary & Kansal, 2025; Navami & Thomas, 2022). Furthermore, service quality and customer experience significantly impact loyalty through the mediation of satisfaction and engagement (Rachbini et al., 2020; Kassab, 2025).

Psychological Mediators: Multiple studies confirm the mediating role of internal states—such as pleasure, arousal, and emotional attachment—in driving behavioral outcomes like impulsive buying or platform loyalty (Gumay et al., 2024; Kassab, 2025). The role of User-Generated Content (UGC) also follows the S-O-R approach, where emotions serve as a crucial mediator for purchase intentions (Sang et al., 2024).

Technological and Social Influences: The adoption of OTT platforms is further influenced by technology acceptance factors (perceived ease of use and usefulness) and hedonic values such as escapism and entertainment (Puri & Fajar, 2021; Mondal & Panda, 2025). Emerging technologies, like AI-driven recommendations and real-time engagement, have shifted consumption patterns, creating a "new reality" for media economic models (Choubey & Vaishnaw, 2024; Lu et al., 2025).

The reviewed literature consistently validates a sequential relationship: Content Quality and Cultural Relevance function as external stimuli that shape the "Organism" (Emotional Engagement), which directly determines the "Response" (Viewing Intention). This integrated model is particularly relevant for understanding how Thai film content can be strategically positioned to capture both domestic and international audiences by balancing high production standards with deep cultural resonance.

Research Methodology

This chapter delineates the research methodology employed to investigate the factors influencing audience viewing intention regarding Thai films on streaming platforms. It provides a comprehensive framework of the research procedures, designed to ensure systematic collection and rigorous analysis of data. The methodology is structured to empirically test the relationships between content quality, cultural relevance, emotional engagement, and viewing intention as proposed in the conceptual framework.

The chapter is organized into distinct sections to provide a logical flow of the research process. It commences with research design, which justifies the selection of a quantitative approach to measure the variables and test the hypotheses. Following this, the population and sample section defines the target audience and details the sampling techniques and sample size determination methods used to ensure representativeness. The subsequent section describes the research instrument, outlining the development of the questionnaire and the scales used to operationalize the constructions. The data collection procedures are then explained to demonstrate how the field research was conducted.
Finally, the chapter concludes with a description of the data analysis methods, specifying the statistical tools applied to interpret the findings and validate the research model.

1.1 Research Design

This study adopts a quantitative research approach within a positivist paradigm, specifically utilizing a non-experimental, cross-sectional survey design to objectively measure social phenomena through numerical data and statistical analysis. This methodology is chosen for its capacity to precisely quantify variables—Content Quality, Cultural Relevance, Emotional Engagement, and Viewing Intention—and to provide a robust basis for generalizing findings to the wider Thai streaming audience.

The research functionally integrates descriptive and explanatory designs to comprehensively address its objectives; while the descriptive element portrays current audience perceptions, the explanatory component examines causal relationships, the magnitude of influence among variables, and the mediating role of emotional engagement. Data collection is executed through a structured questionnaire, facilitating an efficient cross-sectional gathering of self-reported data from a geographically dispersed population of digital platform users. This approach ensures a sufficient data volume to satisfy the requirements for Multiple Regression Analysis, ultimately explaining why specific content attributes drive viewing intention.

1.2 Population and Samples

The target population for this study comprises Thai consumers aged 18 and older who have experience watching Thai films in commercial cinemas, encompassing both major chains and independent theaters. These individuals are identified as primary decision-makers in ticket purchasing and media consumption. Due to the fluctuating nature of moviegoer data, the researcher treats this group as an infinite or unknown population to capture a diverse range of demographic backgrounds essential for mass-market analysis.

To determine the sample size, the researcher applied Cochran's (1977) formula for unknown populations, utilizing a 95 percent confidence level and a 5 percent margin of error. While the formula yielded a minimum requirement of 385 respondents, the final sample size was increased to 400 to mitigate potential errors from incomplete responses and to provide sufficient statistical power for the Multiple Regression Analysis. This adjustment ensures that the findings regarding theatrical viewing intention are both reliable and valid within the professional cinema context.

1.3 Data Collection

The data collection process was systematically executed using an online survey method to align with the digital habits of the target population. The researcher utilized an online platform to host a structured questionnaire, incorporating mandatory fields to prevent missing data and a screening question to ensure respondents were active streaming users aged 18 and older. Distribution was strategically carried out via social media channels, including Facebook, X, and Line, specifically targeting film-related online communities through convenience sampling to ensure the relevance of the participants.

To achieve the final sample of 400 respondents, the researcher monitored daily response rates over a set duration and utilized periodic reminders to maximize visibility and reduce non-response errors. Following the collection phase, the raw data underwent a rigorous verification process where incomplete or unengaged responses were removed. The final, validated dataset was then coded and imported into statistical software, ensuring that the information was prepared accurately for the subsequent analysis phase.

1.4 Research Tools

The research instrument for this study is a structured questionnaire meticulously developed from established measurement scales and theoretical frameworks. It is organized into five distinct sections to capture data across all research variables systematically. The first part employs checklist questions to gather demographic profiles and streaming behavior, serving as both a screening tool and a source for descriptive analysis. The subsequent sections utilize a 5 point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5) to quantify perceptions of Content Quality (narrative and production value), Cultural Relevance (identity and social context), Emotional Engagement (affective response and immersion), and Viewing Intention (future consumption and recommendation). This standardized scaling method enables the conversion of subjective audience opinions into precise numerical data, providing the foundation for calculating mean scores and conducting the Multiple Regression Analysis required to test the research hypotheses.

1.5 Analysis Techniques

The analysis techniques for this study involve a rigorous systematic pretesting process to ensure the scientific accuracy and reliability of the research instrument. Initially, the researcher conducted a content validity assessment by consulting three experts in media, marketing, and psychology to evaluate the Index of Item-Objective Congruence (IOC). Only question items reaching a threshold of 0.70 or higher were retained, ensuring each item precisely aligned with the research objectives and operational definitions. Following this, a reliability assessment was performed via a pilot study involving 30 respondents similar to the target population. This phase utilized Cronbach's Alpha Coefficient to measure internal consistency, with a strict requirement that all variables meet a coefficient

of 0.70 or higher. These dual verification stages—expert-driven validity and statistical reliability—guarantee that the questionnaire is a robust and consistent tool for full-scale data collection.

Results

This chapter, researchers apply descriptive analysis and inferential analysis to test hypotheses and make findings. Use SPSS Program to analyze and evaluate sample data. Variable analysis includes four main parts: descriptive analysis of population factors, descriptive analysis of mean and standard deviation, reliability analysis of research tools, and hypothesis testing.

1. Descriptive Data

Researcher applied descriptive analysis to prove the demographic characteristics of Thai consumers who have experience watching Thai films in commercial movie theaters. Descriptive statistic can be interpreted as the conversion of input to inform and explains basic characteristics, trends and variability. In this study, descriptive analysis is used to describe the characteristics of the target population by focusing factors include gender, age, highest education level, average monthly income and frequency of watching Thai films in movie theaters. The table below shows 400 recipients. The frequency distribution and percentage.

2. Analysis of Dependent and Independent Variables

In this part, the researchers analyze the mean and standard deviation on the variables of interest, including Content Quality, Cultural Relevance and Emotional Engagement as the criterion variable. The study examines the influence of these predictors on Viewing Intention.

3. Correlation Analysis

According to Mukaka (2012), the Pearson's correlation coefficient is statistic method that had been using for testing the relationship between two variables. If the correlation coefficient equal to 0, it means that there is no linear relationship between variables. If the correlation value is in the range of -1 to +1 which means greater than -1 and it has to be less than +1 as well, it shows that relationship among two or more variables. If it equals to +1 or -1, it referred to perfect linear relationship. Evans (1996) recommended that the correlation value

4. Hypothesis Testing Result

Hypothesis 1

H1o: Content Quality has no influence on Emotional Engagement.

H1a: Content Quality has a positive and significant influence on Emotional Engagement.

Hypothesis 2

H2o: Cultural Relevance has no influence on Emotional Engagement.

H2a: Cultural Relevance has a positive and significant influence on Emotional Engagement.

Hypothesis 3

H3o: Content Quality has no influence on Viewing Intention.

H3a: Content Quality has a positive and significant influence on Viewing Intention.

Hypothesis 4

H4o: Cultural Relevance has no influence on Viewing Intention.

H4a: Cultural Relevance has a positive and significant influence on Viewing Intention.

Hypothesis 5

H5o: Emotional Engagement no influence on Viewing Intention.

H5a: Emotional Engagement has a positive and significant influence on Viewing Intention.

Table 1: The Summary Results of Multiple Linear Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
H1o	1.078	0.040	0.802	26.747	0.000	0.999	1.158	0.802	0.802	0.802	1.000	1.000
H2o	0.985	0.017	0.947	58.686	0.000	0.952	1.018	0.947	0.947	0.947	1.000	1.000
H3o	0.455	0.062	0.343	7.297	0.000	0.332	0.577	0.343	0.343	0.343	1.000	1.000
H4o	0.656	0.039	0.641	16.641	0.000	0.578	0.733	0.641	0.641	0.641	1.000	1.000
H5o	0.803	0.028	0.816	28.180	0.000	0.747	0.859	0.816	0.816	0.816	1.000	1.000

Table1 the Summary Results of Multiple Linear Regression The regression analysis confirms that all tested hypotheses are statistically significant ($p = 0.000$). Specifically, Content Quality has a significant positive influence on Emotional Engagement (Beta 0.802, Hypothesis 1) and Cultural Relevance has a very high influence on Emotional Engagement (Beta 0.947, Hypothesis 2). Furthermore, Emotional Engagement serves as a powerful predictor of Viewing Intention (Beta 0.816, Hypothesis 5). Consequently, all null hypotheses (H1o to H5o) are rejected in favor of the alternative hypotheses (H1a to H5a)

Discussion

The result or finding from the research was summarized in this chapter. It consisted of four parts which were summary of findings, discussion and conclusion, recommendations and further studies. Firstly, researcher discussed about the result of descriptive analysis and hypothesis testing in the part of summary findings. Then, there were a discussion about the result and summary in the part of discussion and conclusion. Next, researcher provided recommendations according to the result of the research and the last one was further studies which was about the improvement for the next study.

The empirical findings reveal a profound relationship between cinematic elements and audience psychology, highlighting Cultural Relevance as a monumental driver of Emotional Engagement. By accurately portraying local dialects and authentic social contexts, films establish a state of cultural proximity that fosters a deeper level of emotional openness and self-reflection compared to generic productions. Furthermore, Content Quality serves as an indispensable foundation; narrative logic and multi-dimensional character development are essential to maintaining the focus of a discerning audience and facilitating narrative transportation.

Crucially, Emotional Engagement comprising enjoyment, concentration, and empathy acts as the most effective mediating variable leading to Viewing Intention. The results confirm that viewing decisions are driven more by emotional states than by purely rational evaluations of technical quality, with high ratings for stress relief indicating that Thai cinema functions as a vital tool for psychological healing. Ultimately, the long-term success of the Thai film industry depends on its ability to transcend technical creation by reaching the depths of audience feelings to generate the meaningful experiences that drive future support and word-of-mouth recommendations.

Conclusion

The conclusion of this study illustrates a clear structural relationship between the factors driving the Thai film industry in the digital era, emphasizing that attracting audiences to theaters requires the harmonious integration of international quality with local spirit. The primary target group consists of highly educated adults with high purchasing power who prioritize emotional involvement above all else. Findings regarding fundamental factors reveal that content quality extends beyond visual aesthetics to include refined scriptwriting and an understanding of human nature, which establish initial

credibility and appeal.

In the cultural dimension, locality serves as the strongest unique selling point, as presenting Thai lifestyles, languages, and beliefs creates a distinctive value that separates domestic films from international competitors. Cultural relevance acts as an emotional catalyst, suggesting that the industry should focus on elevating local materials to be contemporary and universal rather than merely imitating foreign models. Ultimately, the intention to watch Thai films results from a continuous state of emotional engagement; when audiences receive enjoyment, inspiration, and familiar social reflections, it establishes brand loyalty expressed through personal recommendations and future attendance. Balancing the science of storytelling with the art of reaching audience emotions is essential for the long-term sustainability of the industry amidst fierce competition from new media. Based on the regression analysis, the following conclusions are made regarding the research hypotheses:

Hypothesis 1: Content Quality has a significant positive influence on Emotional Engagement. The results show a Beta of 0.802 with a p value of 0.000, leading to the rejection of the null hypothesis.

Hypothesis 2: Cultural Relevance has a significant positive influence on Emotional Engagement. With a Beta of 0.947 and a p value of 0.000, this hypothesis is strongly supported.

Hypothesis 3: Content Quality has a significant positive influence on Viewing Intention. The statistical analysis confirms a positive relationship, supporting the research hypothesis.

Hypothesis 4: Cultural Relevance has a significant positive influence on Viewing Intention. The findings indicate that higher cultural resonance leads to increased intention to watch films.

Hypothesis 5: Emotional Engagement has a significant positive influence on Viewing Intention. The Beta of 0.816 and p value of 0.000 confirm that emotional connection is a primary predictor of audience intention.

These findings provide a comprehensive framework for understanding how Thai cinema can leverage its unique cultural assets and narrative quality to build a sustainable and emotionally invested audience base.

Recommendations

Based on the research findings and the empirical evidence gathered regarding the Thai film industry, the following recommendations are provided for filmmakers, producers, and relevant stakeholders:

1. Prioritize Authentic Cultural Content: Producers should focus on developing narratives that emphasize cultural proximity, particularly through the use of regional dialects and local storytelling traditions, as these were found to be the strongest drivers of emotional engagement.
2. Maintain High Technical Production Standards: While cultural resonance is vital, filmmakers must continue to invest in cinematography, sound design, and character development to meet the expectations of highly educated audiences who are accustomed to global cinematic standards.
3. Focus on Emotional Gratification: Creative teams should design stories that offer specific emotional outcomes, such as stress relief and enjoyment, since these psychological rewards significantly influence the audience's intention to return to theaters.
4. Leverage Social Influence and Recommendations: Marketing strategies should encourage word-of-mouth and social sharing, as the study shows that satisfied and emotionally engaged viewers are highly likely to recommend films to their acquaintances.
5. Target High-Potential Demographics: Strategies should be tailored to appeal to the 36 to 55-year-old demographic with higher purchasing power, ensuring that content maturity and narrative complexity align with their preferences.

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SURVIVING THE UNPREDICTABLE: SO (2) CIRCADIAN DYNAMICS FOR EMBODIED ENERGY ALLOSTASIS

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Abstract

Autonomous mobile robots must survive highly unpredictable environmental conditions where limited energy resources constantly threaten long-term autonomy. Traditional reactive control strategies, which rely on fixed threshold-based decisions, fail to anticipate these fluctuations, often resulting in deep-discharge cycles and irreversible hardware degradation. To address this, we propose a bio-inspired circadian controller based on SO (2) neural dynamics to achieve predictive embodied energy allstasis. Inspired by the mammalian superchiasmatic nucleus, this approach introduces a neuro-metabolic coupling mechanism that dynamically modulates the bifurcation parameter and activation threshold of the oscillator according to the robot's internal battery state. Long-term simulations under stochastic weather conditions demonstrate that the proposed SO (2) dynamics successfully entrain to unpredictable solar cycles. By proactively regulating its duty cycle through allosteric micro-naps, the circadian controller completely avoided critical deep-discharge zones, fully preserving the battery's structural health capacity compared to a severely degraded reactive baseline. Furthermore, this robust self-preservation yielded a higher total active operational time, proving that dynamical circadian all stasis is essential for extending both software autonomy and the physical lifespan of embodied energy systems.

Keywords: Circadian Rhythm, SO (2) Oscillator, Energy Homeostasis, Bio-inspired Robotics, Artificial Allostasis, Embodied Energy

Introduction

Developing control systems for highly complex autonomous agents presents a significant challenge due to their high dimensionality and the severe non-linearities of real-world environments. In the context of long-term autonomous operations, a critical bottleneck is the management of limited energy resources under highly unpredictable conditions. This challenge is pervasive across domains where systems rely on finite, "embodied" energy storage—ranging from agricultural mobile robots facing stochastic weather to planetary exploration rovers and satellites dealing with unpredictable solar shading. Most traditional energy management systems rely on reactive control strategies that lack temporal foresight. These reactive systems act only after critical energy thresholds are breached, inevitably forcing the system into deep-discharge cycles that cause irreversible chemical and mechanical degradation to the hardware.

To address these limitations, this paper proposes a neuro-metabolic circadian controller based on SO(2) neural dynamics, inspired by the predictive input-output architecture of the mammalian Suprachiasmatic Nucleus (SCN). We abstract the biological metabolic feedback into a computational

function reflecting the physical battery state. This mechanism dynamically adjusts the activation threshold of the artificial neural circuit, analogous to how the SCN regulates sleep-wake thresholds to maintain energetic allostasis under uncertainty. Ultimately, this dynamic approach seeks to bridge the gap between software autonomy and physical hardware preservation.

Research Objectives

1. To introduce a neuro-metabolic coupling control structure that directly links the embodied energy state to the parameters of the SO(2) oscillator to dynamically adjust the duty cycle.
2. To validate the Artificial Circadian Allostasis concept, which successfully prevents deep discharge states and preserves hardware longevity under stochastic environments.
3. To present a predictive controller that maintains cellular-level robustness while offering profound computational simplicity, paving the way for scalable applications in diverse energy-critical domains

Literature Review

Biomimetic Robot Control Approaches

Developing control systems for complex autonomous agents has increasingly shifted from traditional models to bio-inspired paradigms. Mompó Alepuz et al. (2024) categorized these approaches into two main levels: the functional level, which uses general function approximation, and the cellular (or bio-plausible) level, which simulates neuronal mechanisms to achieve energy-efficient and flexible processing. While Artificial Neural Networks (ANNs) can handle high-dimensional data, they often lack the robustness and real-time adaptability required for physical operations, making cellular-level biomimetic models a more promising alternative.

From Reactive Homeostasis to Artificial Allostasis

In the context of long-term autonomous operations, traditional energy management systems typically rely on reactive control strategies. These systems act only after critical energy thresholds are breached, inevitably forcing the system into deep-discharge cycles. In biology, however, organisms do not rely solely on traditional homeostasis but utilize "allostasis" to achieve stability through predictive change (Begemann et al., 2025). This allostatic control concept has been applied to simulate control processes capable of managing multiple homeostatic subsystems to achieve stability at a behavioral level (Sanchez-Fibla et al., 2010; Rosado et al., 2022). Yet, for severely resource-constrained and energy-embodied systems, translating this into a computationally efficient model remains a critical challenge

Mammalian Circadian Rhythms as a Control Blueprint

In mammalian circadian systems, the Suprachiasmatic Nucleus (SCN) acts as the central pacemaker, integrating environmental light cues via intrinsically photosensitive retinal ganglion cells (ipRGCs) (Starnes & Jones, 2023). The SCN regulates behavioral rhythms by proactively modulating downstream neural targets before energy crises occur. Inspired by this architecture, simulating these dynamics through oscillatory neural networks provides a robust mathematical foundation for dynamic energy regulation. This allows for the dynamic adjustment of activation thresholds, analogous to how the SCN regulates sleep-wake thresholds to maintain energetic allostasis under uncertainty (Gal-Or, 2025; Maroto-Gómez et al., 2023a, 2023b).

Research Methodology

1. Biological Foundation and Mathematical Modeling

1.1 Attractor Dynamics of the Artificial SCN via SO(2) Limit Cycle

In the mammalian circadian system, photoentrainment is driven by intrinsically photosensitive retinal ganglion cells (ipRGCs). These cells project through the Retinohypothalamic Tract (RHT), co-releasing the excitatory neurotransmitter Glutamate (GLU) and the modulatory neuropeptide Pituitary Adenylate Cyclase-Activating Polypeptide (PACAP) directly onto the retinorecipient neurons of the SCN. This synaptic input directly alters the intracellular dynamics and the firing rate of the SCN neural network, effectively shifting the phase of the biological clock, as illustrated in Figure 1.

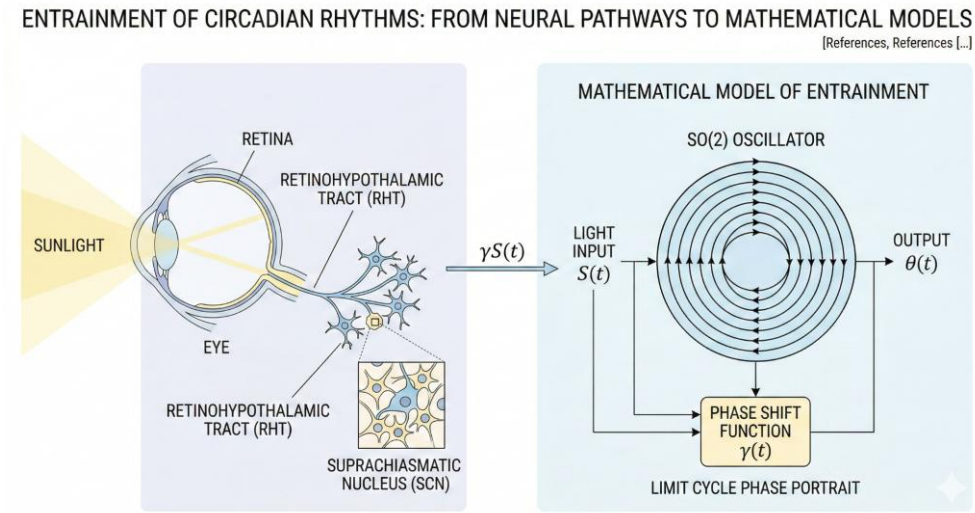

Figure 1: Conceptual mapping between the mammalian SCN circadian circuit and the proposed artificial SO(2) limit cycle oscillator. Environmental light cues act as perturbations to the network's phase, mathematically represented by the coupling term γS(t)

To mathematically capture this entrainment mechanism while maintaining the computational elegance required for autonomous field robots, we abstract the SCN's macroscopic population dynamics using an SO(2) limit cycle oscillator. This system is fundamentally described by the normal form of a supercritical Hopf bifurcation. The state variables, X_1 and X_2, representing the synchronized oscillatory firing rates of the artificial SCN, are governed by the following differential equations

$$\dot{X_1} = \alpha(\mu - r^2)X_1 - \omega X_2 + \gamma S(t) \quad (1)$$

$$\dot{X_2} = \alpha(\mu - r^2)X_2 + \omega X_1 \quad (2)$$

Where $r^2 = X_1^2 + X_2^2$ is the squared radius of the orbit.This dynamical system provides profound structural stability

Bifurcation Parameter (μ): When μ > 0, the origin (0, 0) acts as an unstable focus, repelling the state trajectory toward a structurally stable limit cycle attractor with a maximum amplitude (radius) of $\sqrt{\mu}$

Adaptation Rate (α): This parameter dictates the convergence speed of the system back to the stable manifold when perturbed, analogous to the resilience of the biological clock.

Intrinsic Frequency (ω): Tuned to a 24-hour cycle to mirror the Earth's rotation.

Photic Perturbation ($\gamma S(t)$): The external solar intensity signal, S(t), mathematically serves as the artificial RHT input. The coupling strength γ dictates the magnitude of the state-space perturbation, pulling the oscillator's phase to align with the environmental light-dark cycle.

1.2 Attractor Landscape Modulation for Embodied Energy Allostasis

Traditional autonomous robots typically treat their power supply passively. However, a highly autonomous system should seamlessly integrate its energy harvesting-storage-delivery loop with its sense-decide-response loop (Aubin et al., 2022). Biological organisms achieve this through allostasis. In mammals, the SCN projects to the Dorsomedial Hypothalamus (DMH) and subparaventricular zone (SPZ) to regulate circadian behaviors, including sleep-wake cycles and locomotion (Starnes & Jones, 2023). We propose a neuro-metabolic coupling mechanism that dynamically reshapes the artificial SCN's attractor landscape based on the robot's physical energy state (Embodied Energy), $E \in [0, E_{max}]$ To accurately model the physical limitations of structural batteries, we introduce a continuous degradation function. When the energy level falls below a critical threshold (E_{crit}), the maximum storage capacity (E_{max}) strictly degrades over time at a rate of d_{rate}, permanently representing irreversible physical damage:

$$\dot{E}_{max}(t) = \begin{cases} -d_{rate} \text{ if } E(t) < E_{crit} \\ 0 \end{cases} \tag{3}$$

To prevent this catastrophic degradation, the proposed coupling alters the bifurcation parameter μ and the output threshold T, mimicking the biological pathways from the SCN to the DMH: Metabolic Attractor Reshaping (Amplitude Modulation): The robot's internal energy state directly influences the intrinsic drive of the neural oscillator. We define the dynamic bifurcation parameter as:

$$\mu(E) = \mu_{base} \frac{E}{E_{max}(t)} \tag{4}$$

the energy E depletes, the entire attractor landscape shifts. The limit cycle radius physically shrinks, representing a dampened internal biological drive and reducing the metabolic cost of neural processing. Allostatic Sleep-Wake Gating (Duty Cycle Regulation): To translate the neural state into physical locomotor activity, we introduce an allostatic gating function. The robot transitions into an active motor state only when the dominant neural state $X_1(t)$ exceeds a dynamically shifting threshold T(E):

$$T(E) = 1 - \mu(E) \tag{5}$$

Under optimal energy conditions ($E = E_{max}$), the threshold approaches zero, allowing the full amplitude of the oscillation ($\sqrt{\mu}$) to drive prolonged locomotion. Crucially, as energy dwindles, $\mu(E)$ decreases and T(E) strictly increases. Mathematical Safe-Mode Guarantee: The system inherently creates an obligate sleep state when the maximum possible neural output $\sqrt{\mu(E)}$ fails to exceed the threshold T(E). This mathematical intersection bounds the operation, autonomously "clipping" the output waveform to truncate the wakeful duty cycle. This emergent property guarantees that the robot will completely power down into a self-preservation state prior to reaching the critical deep-discharge zone (E_{crit}).

Results

1. Long-Term Autonomy and Embodied Degradation Analysis

To evaluate the long-term survivability and hardware preservation capabilities of the neuro-metabolic controller, an extended 2,232-hour (93 days) computational simulation was conducted with a time step of dt = 0.1. The environment was programmed with stochastic weather factors (ranging continuously from 0.2 for heavy overcast to 1.0 for clear skies) to introduce unpredictable daily fluctuations in the solar intensity S(t), strictly testing the system's allostatic resilience. The physical robot constraints were modeled with a critical deep-discharge threshold of $E_{crit} = 20\%$ and a capacity degradation rate of $d_{rate} = 0.1\%$ per hour while in the critical zone. The proposed SO(2) controller (parameterized with $\mu = 0.9$, $\gamma = 1.2$, $\alpha = 1.0$) was benchmarked against a traditional homeostatic Reactive Control baseline. The baseline operates on rigid thresholds: forcing a sleep state when energy drops to E_{crit} and waking only when energy recovers to $\geq 80\%$ of its current E_{max}. The dynamic behaviors of both systems over the entire simulation period are visually detailed in Figure 2, highlighting the drastic differences in survival strategies. Intensity S(t) perturbed by simulated weather factors. (Middle) Energy dynamics comparing the Reactive Baseline (red) and the Circadian SO(2) controller (blue). The baseline repeatedly breaches the 20% critical threshold (dashed line), leading to consecutive structural capacity degradation, while the SO(2) controller maintains a safe homeostatic equilibrium. (Bottom) Behavioral sleep-wake duty cycles showing the allostatic gating mechanism of the SO(2) system compared to the rigid reactive shifts.

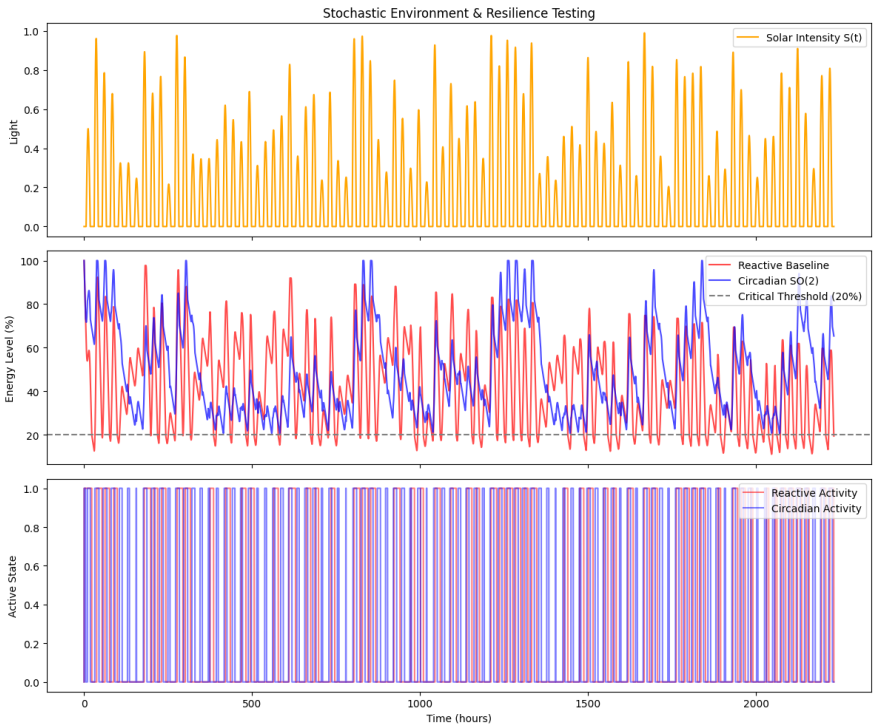

Figure 2: Long-term stochastic simulation results over 2,232 hours. (Top) The unpredictable solar intensity S(t) perturbed by simulated weather factors. (Middle) Energy dynamics comparing the Reactive Baseline (red) and the Circadian SO(2) controller (blue). The baseline repeatedly breaches the 20% critical threshold (dashed line), leading to consecutive structural capacity degradation, while the SO(2) controller maintains a safe homeostatic equilibrium. (Bottom) Behavioral sleep-wake duty cycles showing the allostatic gating mechanism of the SO(2) system compared to the rigid reactive shifts.

Table 1: 3-Month Long-Term Simulation Results under Stochastic Environments

Performance Metric	Reactive Control (Baseline)	Circadian Control (Proposed)
Total Active Operational Time	770.10 hours	773.80 hours
Time in Critical Zone (<20% Energy)	412.20 hours	0.00 hours
Final Hardware Health (E_{max} Retention)	58.78% (Severely degraded)	100.00% (Fully preserved)
Behavioral Dynamics	Forced, erratic deep-discharges	Predictive, allostatic naps

2. Analysis of Allostatic Conservation

As visually evident in the middle panel of Figure 2, the data reveals a stark contrast in survival strategies. The Reactive Baseline, driven by rigid thresholds, continually fell victim to environmental stochasticity. This lack of predictive adaptation forced the system into deep-discharge states for a cumulative 412.20 hours. Under the embodied degradation constraint of 0.1% capacity loss per critical hour, the red curve in Figure 2 demonstrates how these breaches caused irreversible hardware damage, plummeting its maximum energy capacity ceiling step-by-step down to 58.78%. Conversely, the blue trajectory in Figure 2 illustrates the remarkable allostatic foresight of the SO(2) Circadian Controller. By dynamically modulating its internal drive (μ) and activation threshold based on the energy state, the system proactively scheduled 'micro-naps' during energy-scarce periods (e.g., consecutive cloudy days). This predictive gating entirely prevented the energy from dipping below the 20% critical threshold (0.00 hours), effectively preserving 100% of the structural battery health. Crucially, this robust self-preservation did not compromise productivity; the circadian system still yielded a higher total active time (773.80 hours) than the baseline.

Discussion

The extended 3-month stochastic simulation highlights a fundamental paradigm shift in autonomous robot control: the transition from Reactive Homeostasis to Predictive Allostasis. The ability of the proposed SO(2) neuro-metabolic controller to completely avoid the critical energy zone while maintaining 100% of its physical capacity underscores several profound implications for bio-inspired robotics

1. Predictive Allostasis over Reactive Homeostasis

The critical failure of the reactive baseline lies in its fundamental architecture: it acts only after a critical threshold is breached. As shown in Figure 2, in unpredictable stochastic environments, this temporal lag forces the system into an inescapable deep-discharge cycle, requiring the battery to charge up to 80% before resuming operations. In contrast, the "intelligence" of the proposed circadian controller stems from its continuous, dynamic reshaping of the SO(2) attractor landscape. By coupling the energy state (E) to the bifurcation parameter (μ), the system exhibits predictive foresight. When environmental energy yields drop, the system proportionately shrinks its limit cycle amplitude and widens its sleep-gate, safely neutralizing the threat long before the energy level approaches the critical boundary.

2. Hardware Longevity in the Embodied Energy Paradigm

The preservation of 100.00% hardware health compared to the baseline's 58.78% is not merely a software optimization; it is a critical hardware survival mechanism. This progressive degradation, modeled mathematically as $\dot{E}_{max}$, is explicitly captured by the declining peaks of the baseline's energy curve in Figure 2. In the context of the Embodied Energy paradigm (Aubin et al., 2022)—where energy storage components are physically integrated into the robot's load-bearing morphology—deep discharges

cause irreversible chemical and mechanical degradation. By completely insulating the system from the critical zone for over 2,200 hours, our artificial SCN acts as a "computational shield" for the physical body. It proves that software-level neurobiological algorithms

3. Elevating CPG Dynamics to Macro-Behavioral Clocks

While structural SO(2) oscillators and Central Pattern Generators (CPGs) have been extensively utilized in robotics for low-level rhythmic motor control (Jeppesen et al., 2020), this study successfully elevates these neural dynamics to a macroscopic, cognitive-metabolic level. The oscillator here functions not merely as a motor pattern generator, but as a central biological clock that orchestrates the highest level of behavioral decision-making, proving the scalability of non-linear dynamical systems in artificial cognition.

Conclusion

This research presents a bio-inspired controller that integrates SO(2) neural dynamics with a metabolic feedback loop to solve the long-term energy management problem in autonomous field robots. Empirical results from an extended 3-month stochastic simulation confirm that the dynamic duty cycle modulation mechanism significantly increases active operational time while decisively preventing deep discharge. Ultimately, this work demonstrates that artificial allostasis does not inherently require highly complex computational structures; it can be successfully achieved through the application of appropriate dynamical equations, paving the way for autonomous agents that are truly resilient and structurally self-preserving in unpredictable real-world environments. Beyond autonomous field robots, the scalability and computational simplicity of this predictive allostatic framework open new avenues for broad practical applications. For instance, in aerospace engineering, this controller could optimize satellite energy management and planetary exploration rovers, where systems must survive unpredictable solar shading and extreme resource constraints. In terrestrial applications, it can be directly applied to agricultural mobile robots operating under highly stochastic weather conditions. Furthermore, the underlying principle of dynamical neuro-metabolic coupling can be generalized beyond robotics into macro-scale energy systems, such as optimizing Electric Vehicle (EV) battery management systems for extended lifespan, or orchestrating smart power management systems in large-scale buildings to proactively balance energy harvesting, storage, and consumption.

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EXPLORING BUYER PREFERENCES AND MARKET DYNAMICS: A QUALITATIVE STUDY OF SECOND-HAND EXCAVATOR CHOICES BETWEEN CHINESE AND JAPANESE BRANDS IN SOUTHERN THAILAND

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Abstract

This study explores how stakeholders in Southern Thailand perceive and evaluate Chinese and Japanese excavator brands within the context of a rapidly changing heavy machinery market. While industry reports indicate the growing market presence of Chinese brands, existing research has largely relied on quantitative indicators such as sales figures and market share, offering limited insight into experiential decision-making processes. To address this gap, this study adopts a qualitative research design using semi-structured in-depth interviews with multiple stakeholder groups, including excavator buyers (both new and second-hand), dealers, brand representatives, and mechanics.

Guided by the Theory of Planned Behavior (TPB), Consumer Decision-Making Theory, and Diffusion of Innovations (DOI), the study applies a hybrid thematic analysis combining theory-informed coding with inductive theme development. The findings reveal that purchasing decisions are shaped by perceptions of quality, durability, cost-effectiveness, after-sales service reliability, social influence from mechanics and peers, and contextual factors specific to Southern Thailand. While Japanese brands are associated with durability and long-term reliability, Chinese brands are perceived as offering strong price-performance value and improving technological capabilities.

The study contributes empirical insights into industrial purchasing behavior in an emerging economy and highlights the importance of contextualized, experience-based evaluations in high-involvement, second-hand heavy machinery markets. The findings offer implications for manufacturers, dealers, and service networks seeking to strengthen strategic positioning in Southern Thailand.

Keywords: Excavator purchasing decision, Southern Thailand, Chinese and Japanese brands, Theory of Planned Behavior, Diffusion of Innovations, Qualitative research, Second-hand heavy machinery, Industrial buyer behavior

Introduction

In recent years, Thailand's construction and infrastructure sectors have experienced continuous expansion, resulting in increased demand for heavy machinery, particularly excavators. Historically, Japanese excavator brands have dominated the Thai market due to strong perceptions of durability, reliability, and well-established after-sales service networks. However, the competitive landscape has shifted with the rapid growth of Chinese excavator brands, which offer competitive pricing, expanding model ranges, and increasingly advanced technological features. Industry reports and import statistics indicate a significant rise in machinery imports from China, reflecting intensified competition within the Thai excavator market.

Despite observable growth trends and market performance indicators, existing industry analyses primarily rely on quantitative data such as sales volume, market share, and import statistics. While such indicators demonstrate market expansion, they provide limited insight into how buyers interpret their experiences with excavator brands in actual working conditions. Purchasing decisions for heavy machinery are complex, high-involvement processes shaped not only by price and performance specifications but also by perceived risk, maintenance experience, social influence, and regional working environments.

Southern Thailand represents a particularly relevant context for examining these dynamics. The region hosts substantial construction, agricultural, and infrastructure activities, and it maintains an active second-hand excavator market. Regional economic conditions, professional networks, and local operational practices may influence how buyers evaluate brand reputation, durability, resale value, and after-sales support. However, limited

academic research has explored how stakeholders in Southern Thailand construct their perceptions of Chinese and Japanese excavator brands based on lived experience.

To address this gap, the present study adopts an exploratory qualitative approach to investigate how excavator buyers and related stakeholders interpret, evaluate, and justify their purchasing decisions. By incorporating perspectives from buyers, dealers, brand representatives, and mechanics, the study aims to provide a context-sensitive understanding of industrial decision-making in the heavy machinery sector. Through this approach, the research contributes to a deeper understanding of how experiential knowledge, social influence, and regional factors shape excavator brand preferences in an emerging economy.

Research Objectives

1. To explore and understand customer perceptions of Chinese and Japanese excavator brands in Southern Thailand.
2. To identify the factors influencing customers' preferences between Chinese and Japanese excavator brands.
3. To examine the cultural and regional factors affecting customer perceptions of excavator brands in Southern Thailand.

Literature Review

This study draws upon three complementary theoretical frameworks to understand excavator purchasing decisions in Southern Thailand: The Theory of Planned Behavior (TPB), Consumer Decision-Making Theory, and Diffusion of Innovations (DOI). These frameworks collectively provide analytical lenses for examining evaluative beliefs, social influence, contextual constraints, and perceptions of innovation within high-involvement industrial purchases.

The **Theory of Planned Behavior (TPB)** (Ajzen, 1991) proposes that behavioral intention is shaped by attitude toward the behavior, subjective norms, and perceived behavioral control. In purchasing contexts, attitudes reflect buyers' evaluations of expected outcomes, subjective norms capture perceived influence from significant others, and perceived behavioral control represents assessments of available resources and constraints. In the heavy machinery market, attitudes may relate to perceptions of quality, durability, and resale value; subjective norms may involve the influence of mechanics, dealers, and industry peers; and perceived behavioral control may reflect financial capacity, access to spare parts, and service support. TPB therefore offers a structured framework for analyzing how cognitive evaluation and social pressures interact in shaping excavator purchase intentions.

Consumer Decision-Making Theory conceptualizes purchasing as a multi-stage process involving problem recognition, information search, and evaluation of alternatives, purchase decision, and post-purchase evaluation. (Kotler & Keller,2016) In high-involvement purchases such as excavators, decision-making is extended, risk-sensitive, and often involves multiple actors, including users, influencers, and decision-makers. Heavy machinery purchases are characterized by substantial financial commitment and long-term operational implications, particularly within second-hand markets. This framework helps explain how buyers gather information from dealers and mechanics, compare brand alternatives, and assess long-term value.

The **Diffusion of Innovations (DOI)** theory (Rogers, 2003) explains how new technologies and brands are adopted within social systems. Adoption decisions are influenced by perceived relative advantage, compatibility, complexity, trialability, and observability. In the context of Chinese excavator brands entering a traditionally Japanese-dominated market, DOI provides insight into how buyers interpret innovation and evaluate emerging competitors. Relative advantage may relate to price-performance comparison, compatibility to local working conditions, complexity to maintenance ease, and observability to visible site performance. Perceived risk, particularly toward newer brands, may mediate adoption decisions in high-investment contexts.

While prior studies in related sectors have applied TPB and DOI primarily through quantitative methods, limited research has qualitatively examined experiential and context-specific interpretations in industrial equipment markets. By integrating these theoretical perspectives within a qualitative exploratory design, the present study seeks to capture how stakeholders in Southern Thailand construct meaning around excavator brand selection beyond predefined measurement variables.

Research Methodology

This study adopts a qualitative research design to explore how stakeholders in Southern Thailand perceive and evaluate Chinese and Japanese excavator brands. The research questions focus on understanding how and why purchasing decisions are made rather than measuring statistical relationships. Therefore, a qualitative approach is appropriate for capturing participants' interpretations, lived experiences, and contextual reasoning processes.

1. Research Design

The study employs semi-structured in-depth interviews to generate detailed accounts of stakeholder perspectives. This method allows flexibility while ensuring coverage of key analytical dimensions derived from the Theory of Planned Behavior (TPB), Consumer Decision-Making Theory, and Diffusion of Innovations (DOI). These theories served as sensitizing concepts to guide question development rather than rigid variables for testing.

1.1 Participants

The study uses purposive, criterion-based sampling to select information-rich participants with direct experience relevant to the research questions. To enhance analytical depth and triangulation, three stakeholder groups were included:

- Excavator buyers and users (including purchasers of new and second-hand machines from Chinese and Japanese brands)
- Dealers and vendors involved in selling new and second-hand excavators
- Mechanics and service technicians with experience maintaining excavators from both countries

The study followed the principle of data saturation, meaning interviews continued until no new themes emerged. Approximately 20-28 interviews were anticipated, distributed across stakeholder groups.

1.2 Data Collection and Analysis

Interviews lasted approximately 60-90 minutes and were designed to encourage participants to openly describe their experiences, interpretations, and reasoning processes related to excavator purchasing decisions. Rather than directing discussion toward predetermined evaluation criteria, the interviews aimed to uncover how participants themselves define what matters and explain why they prefer one brand over another.

With informed consent, all interviews were audio-recorded and transcribed verbatim to ensure accuracy. The analysis focused on identifying patterns in participants' explanations and justifications, allowing themes to emerge inductively from their narratives while remaining sensitive to broader theoretical perspectives.

Data were analyzed using Thematic Analysis following Braun and Clarke (2006). The analytical process involved familiarization with data, generation of initial codes, theme development, theme refinement, and final reporting. A hybrid approach was adopted, combining theory-informed coding with inductive theme development to preserve exploratory depth. (Clarke, 2006)

To ensure methodological rigor, the study applied credibility strategies including triangulation across stakeholder groups, member checking, and transparent documentation of coding procedures. These measures enhance the trustworthiness and dependability of the findings.

Results

The thematic analysis identified several interrelated themes shaping excavator purchasing decisions in Southern Thailand. These themes reflect experiential evaluations, social influence, and contextual considerations within a high-involvement industrial market.

1. Quality and Durability Perceptions

Japanese excavator brands were consistently perceived as highly durable and reliable. Participants associated Japanese brands with strong engineering standards, long-term performance stability, and high resale value. Buyers emphasized reduced mechanical problems and lower long-term risk, particularly for intensive usage conditions. In contrast, Chinese excavator brands were perceived as having significantly improved in quality over recent years. While some participants expressed initial concerns regarding long-term durability, many acknowledged that Chinese machines now offer acceptable performance levels relative to their price. Quality perceptions were often evaluated in comparison to cost rather than in absolute terms.

2. Cost-Effectiveness and Price–Performance Value

Price emerged as a central factor, especially among buyers operating under financial constraints. Chinese brands were widely regarded as offering strong price–performance value, enabling entrepreneurs to enter the market or expand operations with lower initial investment. For second-hand purchases, affordability further reduced perceived financial risk. Japanese brands, although more expensive, were viewed as long-term investments due to their durability and higher resale value. Buyers often framed the decision as a trade-off between short-term capital constraints and long-term operational stability.

3. Influence of Mechanics and Professional Networks

Mechanics and experienced operators played a significant role in shaping purchasing decisions. Their recommendations influenced brand trust, perceived reliability, and maintenance expectations. Dealers also contributed to decision-making through after-sales support assurances and financing options. This social influence reflects the role of subjective norms in shaping industrial purchasing behavior. Trust in technical advice was particularly important in the second-hand market, where machine condition assessment is critical.

4. After-Sales Support and Spare Parts Availability

After-sales service and spare parts accessibility were key determinants of brand evaluation. Japanese brands were perceived as having more established service networks and reliable parts availability. However, participants noted that Chinese brands have rapidly expanded their service coverage in Southern Thailand, reducing previous disadvantages. Confidence in local service support significantly influenced perceived behavioral control, especially for small and medium-sized contractors.

5. Regional and Contextual Considerations

Local working conditions, terrain characteristics, and regional business practices shaped brand evaluation. Compatibility with local operational needs, visibility of machine performance at job sites, and peer usage within the region influenced adoption patterns. Observability and word-of-mouth diffusion contributed to growing acceptance of Chinese brands. Overall, purchasing decisions were not determined by a single attribute but by an integrated evaluation of cost, durability, service reliability, social influence, and regional context. The findings highlight the complex and experience-based nature of industrial decision-making in the heavy machinery market of Southern Thailand.

Discussion

The findings extend existing consumer and industrial purchasing theories by contextualizing them within the heavy machinery market in Southern Thailand. While prior research has largely emphasized quantitative determinants such as price and performance indicators, this study demonstrates that excavator purchasing decisions are shaped by an integrated evaluation process grounded in lived experience, social influence, and regional conditions.

First, the results support the explanatory relevance of the Theory of Planned Behavior (TPB). Buyers' attitudes were strongly shaped by perceived durability, resale value, and price–performance comparisons between Chinese and Japanese brands. Subjective norms were evident in the significant influence of mechanics, dealers, and peer contractors, particularly in high-risk and second-hand purchases. Perceived behavioral control emerged through considerations of financial capacity, access to spare parts, and confidence in local service networks. These findings reinforce TPB's applicability in high-involvement industrial contexts, where decisions are neither purely economic nor entirely individual.

Second, the results align with Consumer Decision-Making Theory by illustrating the extended and multi-actor nature of excavator purchasing. The decision process involved problem recognition based on operational needs, information gathering from professional networks, careful evaluation of alternatives, and post-purchase assessment linked to long-term reliability and maintenance experience. Unlike low-involvement consumer goods, heavy machinery purchases involve prolonged evaluation and risk mitigation strategies, especially within the second-hand market.

Third, the findings resonate with Diffusion of Innovations (DOI) theory in explaining the growing acceptance of Chinese excavator brands. Perceived relative advantage was often framed as price-performance value. Compatibility with local working conditions and expanding service networks reduced perceived complexity and operational uncertainty. Observability, seeing Chinese machines perform effectively at job sites-facilitated trust and word-of-mouth diffusion. However, perceived risk regarding long-term durability continued

to mediate adoption decisions, particularly among risk-averse buyers.

Importantly, the study highlights the role of regional and contextual factors in shaping brand evaluations. Southern Thailand's operational environment, business networks, and active second-hand machinery market create a distinct decision-making landscape. These contextual elements influence how theoretical constructs are interpreted and prioritized in practice.

Overall, the discussion underscores that excavator purchasing decisions in emerging industrial markets are socially embedded, context-dependent, and experience-driven. By integrating TPB, Consumer Decision-Making Theory, and DOI within a qualitative framework, this study contributes to a more nuanced understanding of industrial buyer behavior beyond purely quantitative market indicators.

Conclusion

This study explored how stakeholders in Southern Thailand perceive and evaluate Chinese and Japanese excavator brands within a rapidly evolving heavy machinery market. Using a qualitative approach and multi-stakeholder perspectives, the research provides a context-sensitive understanding of how purchasing decisions are formed in high-involvement industrial settings.

The findings indicate that excavator purchasing decisions are shaped by an integrated evaluation of durability, cost-effectiveness, after-sales support, social influence, and regional working conditions. Japanese brands continue to be associated with long-term reliability, strong resale value, and established service networks. Meanwhile, Chinese brands are increasingly perceived as offering competitive price-performance value and improving technological capabilities, contributing to their growing market acceptance.

Importantly, decision-making is not determined by a single factor such as price or quality alone. Instead, buyers weigh financial constraints, perceived risk, mechanic recommendations, and contextual compatibility within the Southern Thai market. The second-hand machinery segment further intensifies the role of experiential knowledge and trust-based networks.

By integrating insights from the Theory of Planned Behavior, Consumer Decision-Making Theory, and Diffusion of Innovations, this study highlights the socially embedded and context-dependent nature of industrial purchasing behavior. The findings contribute empirically grounded perspectives that may inform both theoretical refinement and managerial strategy within emerging heavy machinery markets.

Recommendations

1. Managerial Recommendations

For manufacturers, particularly Chinese brands, continued investment in after-sales service networks and spare parts availability in Southern Thailand is critical to reducing perceived risk and strengthening long-term brand trust. Emphasizing durability evidence, performance demonstrations, and transparent maintenance support may further enhance credibility among risk-sensitive buyers.

Japanese brands may benefit from reinforcing their positioning around long-term reliability, resale value, and lifecycle cost efficiency, while adapting pricing strategies or financing options to remain competitive in price-sensitive segments, particularly in the second-hand market.

For dealers and distributors, strengthening customer relationships through technical consultation, flexible financing, and coordinated service support can improve perceived behavioral control among buyers. Given the strong influence of mechanics, collaborative engagement between dealers and service technicians should be prioritized to build trust across the value chain.

2. Policy and Industry Recommendations

Industry associations and local agencies may consider supporting technical training programs for mechanics and operators to ensure maintenance competency across brands. Such initiatives can reduce operational uncertainty and support sustainable market development.

3. Recommendations for Future Research

Future studies may expand the geographical scope beyond Southern Thailand to compare regional differences in industrial purchasing behavior. Quantitative studies may also be conducted to test and generalize the qualitative themes identified in this research. Additionally, longitudinal research could examine how brand perceptions evolve over time as Chinese excavator technologies and service networks continue to develop.

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THE INFLUENCE OF ELECTRONIC WORD-OF-MOUTH (E-WOM) ON BRAND EQUITY THROUGH BRAND EXPERIENCE—AN EMPIRICAL ANALYSIS OF CHINESE ELECTRIC VEHICLE BRANDS IN THE BANGKOK MARKET

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Abstract

This paper examines the potential mechanism through which electronic word-of-mouth (e-WOM) may influence brand equity through brand experience in the price-competitive market of Chinese electric vehicle (EV) brands in Bangkok. Bangkok has become an important overseas market for Chinese EV brands; however, intense price competition and after-sales issues have raised concerns about product quality, brand trust, and long-term brand value. Existing studies have explored the relationships among e-WOM, brand experience, and brand equity, but limited attention has been paid to the role of perceived price competition intensity in highly competitive EV markets.

Based on signaling theory and the Stimulus–Organism–Response (S–O–R) framework, this paper develops a moderated mediation model in which e-WOM dimensions (credibility, valence, informativeness, and timeliness) are proposed to influence brand equity dimensions (perceived quality, brand image, brand loyalty, and perceived value) through brand experience dimensions (sensory, affective, intellectual, and behavioral). Perceived price competition intensity is incorporated as a contextual moderator.

Through literature review and theoretical analysis, the study identifies a clear research gap and demonstrates the necessity of conducting a quantitative study to empirically test the proposed relationships in the Bangkok EV market. The paper therefore provides a theoretical foundation, conceptual framework, and research hypotheses for future survey-based empirical investigation. It also offers preliminary managerial implications for Chinese EV brands seeking to balance price competition with long-term brand building in overseas markets.

Keywords: Electronic Word-of-Mouth (e-WOM), Brand Experience, Brand Equity, Perceived Price Competition Intensity, Chinese Electric Vehicle Brands

Introduction

With the growing global emphasis on sustainable development, electric vehicles (EVs) gained widespread recognition in recent years. China became the world's largest EV producer and consumer, accounting for approximately 72% of global production and 47% of global sales in the first half of 2025. Supported by government subsidies and industrial policies, Chinese EV brands achieved substantial progress in technological development and product quality. However, they also faced increasing challenges, including domestic overcapacity and overseas anti-dumping pressures, which encouraged firms to accelerate their international expansion.

Bangkok, as a key automotive market in Southeast Asia, emerged as an important destination for Chinese EV brands. Driven by Thailand's "30@30" policy and EV subsidy programs, the EV industry in Bangkok gradually developed into a relatively complete ecosystem by mid-2025. Chinese

brands played a dominant role in the pure EV segment, with bookings from Chinese EV models accounting for more than half of total reservations at the 2025 Bangkok International Motor Show.

Nevertheless, the rapid expansion of the market was accompanied by intense price competition. During the 2024-2025 period, a price war among EV manufacturers—illustrated by BYD's approximately 18% price reduction for the ATTO 3—led many consumers to adopt a wait-and-see purchasing attitude and weakened brand trust. At the same time, after-sales service issues reported by some brands (e.g., complaints related to Neta) further created challenges for long-term brand building.

In highly price-competitive markets, consumers tend to rely more heavily on electronic word-of-mouth (e-WOM) when evaluating products and brands. Existing studies have confirmed that e-WOM positively influences brand equity; however, the moderating role of price competition in this relationship has received limited attention. To address this gap, this study incorporates perceived price competition intensity into the analytical framework and integrates signaling theory with the Stimulus–Organism–Response (S–O–R) framework. Specifically, it examines how e-WOM influences brand equity through brand experience under conditions of varying price competition intensity. The findings aim to provide both theoretical insights and practical implications for the overseas development strategies of Chinese EV brands.

Research Objectives

1. To develop a theoretical framework explaining how e-WOM may influence brand equity through brand experience in the Bangkok EV market.
2. To examine, through literature-based analysis, the potential moderating role of perceived price competition intensity in the relationships among e-WOM, brand experience, and brand equity.
3. To provide a conceptual and methodological foundation for a future quantitative study that can empirically test the proposed model.
4. To generate practical insights for Chinese EV brands in overseas price-competitive environments.

Literature Review

1. Electronic Word-of-Mouth (e-WOM) as an Informational Market Signal

Electronic word-of-mouth (e-WOM) has become a major information source influencing consumer decision-making in digital markets. Hennig-Thurau et al. (2004) define e-WOM as any positive or negative statement made by consumers about a product or company and disseminated to a large audience via the Internet. Compared with traditional interpersonal word-of-mouth, e-WOM has wider reach, greater persistence, and stronger evaluative visibility.

Prior research commonly conceptualizes e-WOM as a multidimensional construct consisting of credibility, valence, informativeness, and timeliness (Cheung et al., 2009). Credibility reflects the perceived trustworthiness of review content, valence indicates the positive or negative direction of evaluation, informativeness captures the usefulness of information for decision-making, and timeliness represents the recency of review information. These dimensions shape how consumers interpret online information and form product evaluations.

From an information-processing perspective, e-WOM reduces information asymmetry by providing experiential knowledge from other users. In digital markets, user-generated content functions as a key informational input through which consumers infer product quality, reliability, and usage experience. Consequently, credible and informative e-WOM may strengthen consumers' confidence in product judgments, while positive valence may reinforce favorable attitudes and behavioral tendencies.

The importance of e-WOM is particularly evident in high-involvement product categories such as electric vehicles (EVs), where consumers face higher financial risk and technological uncertainty. In such contexts, online reviews and community discussions become important information sources influencing consumers' perceptions of product quality, brand image, and. However, the effectiveness of e-WOM may vary across market environments. Prior research suggests that its influence can depend on other market signals, including price cues and competitive conditions (Liu et al., 2022). In emerging EV markets characterized by intense price competition and frequent price adjustments, consumers may interpret e-WOM signals differently. Therefore, examining contextual factors that shape the influence of e-WOM is important for understanding brand evaluation processes.

2. Brand Experience as a Psychological Mechanism

Brand experience refers to consumers' internal responses to brand-related stimuli encountered during search, purchase, and consumption. Brakus et al. (2009) conceptualize brand experience as consisting of sensory, affective, intellectual, and behavioral dimensions generated by stimuli such as product design, marketing communication, and consumption environments.

Experiential marketing research emphasizes that consumers respond not only to functional product attributes but also to the experiential meanings embedded in brand interactions (Schmitt, 2019). Through repeated interactions with brand stimuli, consumers develop cognitive and emotional responses that influence attitudes and behaviors. Empirical studies indicate that positive brand experiences can strengthen consumer–brand relationships, including trust, satisfaction, and loyalty (Berry et al., 2002).

In high-involvement categories such as automobiles and EVs, experiential processes are particularly important because consumers often evaluate both technological attributes and emotional meanings associated with ownership. These experiential responses influence how consumers interpret brand signals and evaluate product performance.

Brand experience is also widely considered a mediating mechanism linking marketing stimuli to long-term brand outcomes. Yoo et al. (2000) show that the effects of marketing mix elements on brand equity are largely indirect and operate through brand-related perceptions such as perceived quality and brand loyalty. However, the effectiveness of experiential mechanisms may vary across market environments. In highly price-competitive contexts, consumers may focus more strongly on economic incentives rather than experiential value, which may weaken the conversion of experiential evaluations into long-term brand commitment (Hoch & Loewenstein, 1991).

3. Customer-Based Brand Equity

Brand equity refers to the incremental value a brand adds to a product beyond its functional attributes (Aaker, 1991). The customer-based brand equity perspective conceptualizes brand equity as consumers' accumulated evaluations toward a brand, commonly including perceived quality, brand image, brand loyalty, and perceived value (Keller, 2013).

Perceived quality represents consumers' overall judgment regarding product excellence and reliability. In technology-intensive markets such as EVs, perceived quality may depend on factors including technological performance and service infrastructure. Price signals can also influence quality perceptions, as consumers sometimes infer quality from price levels (Rao & Monroe, 1989; Kurz et al., 2023).

Brand image refers to the associations consumers hold about a brand, such as innovation, environmental responsibility, or technological leadership. When market communication heavily emphasizes price competition, brand associations may shift toward value-oriented positioning, potentially weakening differentiation (Kim & Park, 2024). Brand loyalty reflects consumers' long-term commitment to a brand, yet price-driven purchases often generate weaker loyalty because the relationship becomes

more transactional than relational (Kuntner et al., 2017). Perceived value represents consumers' evaluation of benefits relative to costs and depends on both economic and functional considerations (Haque et al., 2022).

Overall, brand equity develops through the accumulation of consumer experiences and evaluations over time (Aaker, 1991; Keller, 2013). Informational cues such as e-WOM may therefore influence brand equity directly or indirectly through experiential mechanisms.

4. The Moderating Role of Perceived Price Competition Intensity

Perceived price competition intensity refers to consumers' perception of how aggressively brands compete on price within a market. In highly competitive environments, firms often rely on discounts and promotional pricing to attract consumer attention. Although such strategies may stimulate short-term sales, they may also create challenges for long-term brand equity development.

Price–quality cue theory suggests that persistent low prices may function as signals of lower product quality, thereby weakening perceived quality evaluations (Rao & Monroe, 1989; Kurz et al., 2023). At the same time, heavy reliance on price promotions may shift consumer attention toward short-term economic benefits rather than brand-related attributes (Kotler & Keller, 2020).

From a consumer psychology perspective, intense price competition may also change how consumers interpret other market signals. When price wars are perceived to be severe, consumers may become more skeptical toward performance-related claims and rely less on informational cues such as review credibility or informativeness (Dodds et al., 1991). Meanwhile, discount contexts may strengthen emotional reactions associated with perceived bargains (Hoch & Loewenstein, 1991). These mechanisms suggest that perceived price competition intensity may shape how consumers process e-WOM information and convert experiential perceptions into brand equity evaluations.

5. Theoretical Framework: Integrating Signaling Theory and the S–O–R Model

To explain brand equity formation, this study integrates signaling theory with the Stimulus–Organism–Response (S–O–R) framework. Signaling theory suggests that when information asymmetry exists, consumers rely on observable cues to infer unobservable product quality (Spence, 1973). In digital consumption environments, e-WOM can serve as an important signal of product reliability and user experience.

The S–O–R framework explains how external stimuli influence internal psychological states and subsequent responses (Mehrabian & Russell, 1974). In this study, e-WOM characteristics represent the stimulus, brand experience represents the organism reflecting consumers' internal responses, and brand equity represents the response. Perceived price competition intensity is conceptualized as a contextual factor that may influence how consumers interpret signals and translate experiential perceptions into brand evaluations. This integrated perspective suggests a moderated mediation mechanism linking e-WOM, brand experience, and brand equity.

6. Research Gap

Although each of the three constructs—electronic WOM, brand experience, and brand equity has been studied in isolation by several researchers, there are gaps that still need to be addressed. Most importantly, very few authors examined their interrelationships in a highly competitive and price-sensitive market, especially for emerging EV markets that often alter their price policies. Secondly, there are not many studies that integrated both the multi-dimensionality of e-WOM and brand experience along with brand equity within one study. Thirdly, it has also been less researched to what extent the consumer's perception about price competition can affect those links.

To fill those research gaps, this study proposes an integrated moderated-mediation framework linking e-WOM,brand experience, and brand equity with perceived pricing competition

being a moderating environmental variable. The proposed conceptual model is used to develop research hypothesis that will be presented in later chapters.

Research Methodology

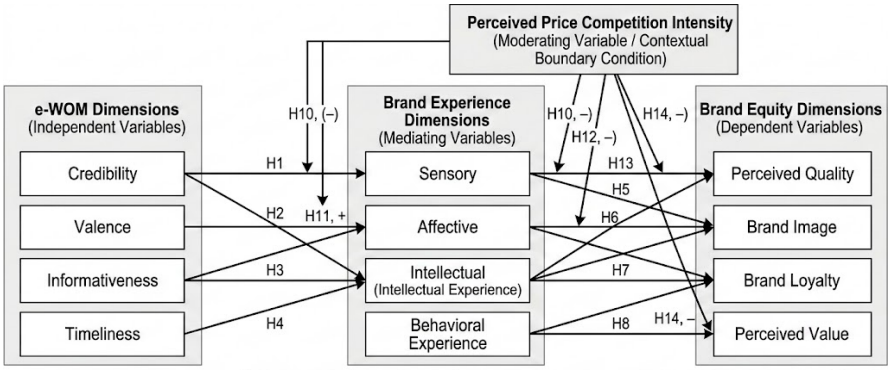
This paper adopts a literature-based conceptual research approach at the present stage. By reviewing prior studies on e-WOM, brand experience, brand equity, signaling theory, and the S–O–R framework, the study develops a moderated mediation model applicable to the context of Chinese EV brands in Bangkok.

On the basis of this theoretical framework, the paper proposes a future quantitative research design. The proposed empirical stage will employ a questionnaire survey targeting consumers of Chinese EV brands in the Greater Bangkok area who have substantial exposure to e-WOM and sufficient brand-related experience. The collected data may then be analyzed using Structural Equation Modeling (SEM) to test the direct, mediating, and moderating relationships proposed in this study.

Accordingly, the current paper should be understood as a theory-driven conceptual foundation for subsequent quantitative investigation rather than as a completed empirical study.

1.1 Research Framework

The study proposes a moderated mediation framework. Independent variables: e-WOM dimensions (credibility, valence, informativeness, timeliness). Mediating variables: brand experience dimensions (sensory, affective, intellectual, behavioral). Dependent variables: brand equity dimensions (perceived quality, brand image, brand loyalty, perceived value). Moderating variable: perceived price competition intensity, which moderates e-WOM→brand experience and brand experience→brand equity paths. The framework tests indirect effects of e-WOM on brand equity via brand experience and the moderating role of price competition perception.



Picture 1: Conceptual SEM Model of e-WOM,Brand Experience,and Brand Equity with Moderation

1.2 Research Hypotheses

H1-H4: e-WOM dimensions (credibility, valence, informativeness, timeliness) are positively associated with brand experience, with differentiated effects on specific experience dimensions. Conceptual SEM Model of e-WOM, Brand Experience, and Brand Equity with Moderation

H5-H8: Brand experience dimensions are positively associated with brand equity, with stronger links to matched equity dimensions.

H9: Brand experience mediates the relationship between e-WOM and brand equity via core paths (e.g., e-WOM credibility→intellectual experience→perceived quality).

H10-H14: Perceived price competition intensity weakens e-WOM credibility/ informativeness→intellectual experience, intellectual experience→perceived quality, and behavioral experience→brand loyalty, while strengthening e-WOM valence→affective experience.

1.3 Measurement Scales and Instruments

In this study, all measurement items were adapted from well-established scales in prior literature, with minor contextual modifications to fit the research setting of Chinese electric vehicle (EV) brands in the Bangkok market. The adaptation process ensured that the items remained conceptually consistent with the original theoretical constructs while reflecting the specific characteristics of the EV industry and the local consumption context. All constructs in the model were operationalized as reflective latent variables, consistent with the conventions of structural equation modeling (SEM). Each construct includes a minimum of three measurement items in order to ensure adequate reliability and validity for SEM analysis. All items were measured using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Electronic word-of-mouth (e-WOM) was conceptualized as a multidimensional construct consisting of credibility, valence, informativeness, and timeliness. The credibility dimension captures the degree to which consumers perceive online reviews about Chinese EV brands as trustworthy and reliable. Measurement items assess whether consumers believe that online comments about Chinese EV brands are credible, trustworthy, and based on reliable information. These items were adapted from the scale developed by Cheung et al. (2009). The valence dimension reflects the overall positive or negative tone of online reviews that consumers encounter. Measurement items evaluate whether most online reviews about Chinese EV brands are positive, whether comments generally express favorable opinions, and whether the overall tone of online reviews is positive. These items were adapted from Hennig-Thurau et al. (2004). The informativeness dimension represents the extent to which online reviews provide useful and detailed information that helps consumers evaluate products. Measurement items assess whether online discussions provide detailed information about Chinese EV brands, whether consumers can obtain useful product-related information from online comments, and whether such discussions help consumers better understand the features of these brands. These items were adapted from Liu et al. (2023). The timeliness dimension refers to the recency and updating frequency of online reviews. Measurement items capture whether online reviews about Chinese EV brands are frequently updated, whether consumers can easily access the latest information about these brands online, and whether online discussions reflect current product conditions. These items were adapted from Cheung and Thadani (2012).

Brand experience was measured as a multidimensional construct comprising sensory experience, affective experience, intellectual experience, and behavioral experience. The sensory experience dimension reflects consumers' sensory perceptions generated through interactions with brand stimuli such as design and visual appearance. Measurement items assess whether the brand creates a strong sensory impression, whether Chinese EV brands appeal to consumers' visual and sensory perceptions, and whether the design and appearance of these brands are visually attractive. These items were adapted from Brakus et al. (2009). The affective experience dimension captures the emotional responses elicited by the brand. Measurement items examine whether the brand evokes positive feelings, whether consumers feel emotionally connected when thinking about Chinese EV brands, and whether driving or owning such brands makes them feel proud. These items were also adapted from Brakus et al. (2009). The intellectual experience dimension represents the extent to which the brand stimulates consumers' curiosity and cognitive engagement with technology. Measurement items assess whether the brand stimulates curiosity about new technologies, whether consumers find Chinese EV brands intellectually engaging, and whether they frequently think about the technological

advantages of the brand. These items were adapted from Schmitt (2019). The behavioral experience dimension reflects consumers' physical or behavioral interactions with the brand. Measurement items examine whether consumers actively interact with the brand through activities such as test driving or visiting showrooms, whether they have participated in activities related to the brand, and whether the brand encourages participation in brand-related activities. These items were adapted from Brakus et al. (2009).

Customer-based brand equity was operationalized through four dimensions: perceived quality, brand image, brand loyalty, and perceived value. The perceived quality dimension reflects consumers' overall judgment regarding the product excellence and reliability of Chinese EV brands. Measurement items assess whether the overall product quality of Chinese EV brands is high, whether these brands offer reliable performance, and whether their after-sales services are dependable. These items were adapted from Aaker (1991). The brand image dimension captures consumers' associations and perceptions regarding the brand's technological capability, innovation, and market reputation. Measurement items evaluate whether Chinese EV brands possess a strong technological image, whether they are perceived as innovative, and whether they enjoy a positive reputation in the market. These items were adapted from Keller (2013). The brand loyalty dimension reflects consumers' intention to repurchase and recommend the brand. Measurement items assess whether consumers would choose the brand again in the future, whether they would recommend the brand to others, and whether they prefer the brand over competing brands. These items were adapted from Aaker (1991). The perceived value dimension represents consumers' overall evaluation of benefits relative to costs. Measurement items assess whether Chinese EV brands offer good value for money, whether the benefits of these brands outweigh their costs, and whether they provide superior value compared with competing brands. These items were adapted from Zeithaml (1988).

Finally, perceived price competition intensity was included as a contextual variable reflecting consumers' perception of price competition in the EV market in Bangkok. This construct captures the extent to which consumers perceive pricing competition among Chinese EV brands to be aggressive. Measurement items evaluate whether price competition among Chinese EV brands in Bangkok is intense, whether brands frequently adjust their prices, whether price promotions are common in the market, and whether competition in the market is largely driven by price. These items were self-developed based on the theoretical logic of price–quality cues and competitive intensity derived from prior studies such as Dodds et al. (1991).

1.4 Data Collection

Target population: Consumers of Chinese EV brands in Bangkok with sufficient e-WOM exposure. Sampling method: Convenience sampling supplemented by stratification by age, vehicle ownership, and e-WOM channels. Sample size: 400 questionnaires distributed (online+offline) to ensure 340 valid responses (85% response rate), meeting complex SEM requirements. Data collection covers commercial districts, EV showrooms, and online communities.

1.5 Data Analysis Methods

SPSS and AMOS are used for analysis: Descriptive and correlation analysis to understand sample characteristics and variable relationships; reliability (Cronbach's alpha) and validity (CFA) testing; SEM to test main and mediation effects; multi-group analysis and moderated regression to test moderation effects.

Results

As this study is currently based on literature review and theoretical development, no primary survey data have yet been collected or statistically analyzed. Therefore, the present "results" are conceptual rather than empirical. Based on the reviewed literature, three major findings can be identified.First, prior studies consistently suggest that e-WOM plays an important role in shaping consumers' perceptions, trust, and evaluations, particularly in high-involvement product categories. This indicates that e-WOM is likely to be an important antecedent of brand-related consumer responses in the EV market.Second, the literature strongly supports the role of brand experience as a psychological mechanism linking external marketing stimuli and long-term brand outcomes. This suggests that brand experience is a theoretically appropriate mediating variable in explaining how e-WOM may influence brand equity.Third, previous research on price competition and price–quality inference indicates that consumers' perceived price competition intensity may alter the way they interpret information and evaluate brands. This supports the inclusion of perceived price competition intensity as a contextual moderator in the proposed model.Taken together, the literature review demonstrates that the proposed relationships are theoretically plausible and that there is a clear need for a quantitative study to empirically validate them in the Bangkok market context.

Discussion

The present study does not yet provide empirical findings; instead, it offers a theory-based discussion of why the proposed moderated mediation model is relevant and necessary in the context of Chinese EV brands in Bangkok. The literature indicates that e-WOM is particularly influential in high-involvement and information-sensitive purchase situations, such as EV consumption, where consumers face uncertainty regarding technology, reliability, and after-sales service. At the same time, brand experience appears to be an appropriate explanatory mechanism because consumers do not form brand equity solely through external information, but through internal sensory, affective, intellectual, and behavioral responses to that information. Moreover, the Bangkok EV market provides a meaningful context for further research because price wars are both frequent and highly visible. In such a market, consumers may discount quality-related signals and rely more heavily on price-related cues, which may weaken the long-term conversion of e-WOM into brand equity. This makes perceived price competition intensity a theoretically meaningful boundary condition. Therefore, the main contribution of the current paper lies in clarifying the theoretical relationships among e-WOM, brand experience, brand equity, and price competition, and in demonstrating why a quantitative study is necessary to test these relationships empirically.

Conclusion

This paper develops a theory-based moderated mediation framework to explain how e-WOM may influence brand equity through brand experience under conditions of intense price competition in the Bangkok EV market. Drawing on signaling theory and the S–O–R framework, the study proposes that e-WOM serves as an external informational stimulus, brand experience functions as the internal psychological mechanism, and brand equity represents the long-term response outcome, while perceived price competition intensity acts as a contextual moderator.Rather than reporting empirical results, this paper identifies a meaningful research gap and demonstrates the necessity of conducting a quantitative study to test the proposed framework. In this sense, the study contributes by providing a clear theoretical foundation, conceptual model, and research direction for future empirical investigation.

Recommendations

Based on the literature review and theoretical analysis, several preliminary recommendations can be proposed for Chinese EV brands operating in overseas price-competitive markets.First, firms should strengthen the credibility, informativeness, and timeliness of e-WOM by encouraging authentic and detailed consumer reviews, especially those related to technology performance and after-sales service.Second, firms should pay greater attention to brand experience, not only in terms of product design and technological features, but also through showroom interaction, test-driving opportunities, and service experience.Third, brands should avoid over-reliance on price-oriented communication. Excessive emphasis on discounts may weaken long-term brand equity by shifting consumer attention away from quality, trust, and experiential value.Finally, future research should implement a quantitative survey and SEM-based empirical design to test the conceptual model proposed in this study.

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ESG GOVERNANCE CAPABILITY, DIGITAL FINANCIAL FRAGILITY, AND INSTITUTIONAL CREDIBILITY OF STABLECOIN ISSUERS IN TRADE FINANCE: EVIDENCE FROM LETTER OF CREDIT APPLICATIONS

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Abstract

This study develops an integrated structural framework to examine how ESG governance capability (ESG_GOV) influences the institutional credibility (CRED) of fiat-backed stablecoin issuers within high-trust trade finance settlement systems, specifically Letter of Credit (L/C) applications. Within the ESG framework, the Governance (G) dimension occupies a uniquely dominant role for asset-backed stablecoin institutions — reserve transparency, audit frequency, verification standards, and redemption credibility render governance the primary determinant of institutional trust and financial resilience, substantially outweighing the Environmental (E) and Social (S) dimensions in this context.

The study proposes a moderated mediation model, positing that ESG governance capability (ESG_GOV) enhances institutional credibility (CRED) both directly through transparency signaling and indirectly by mitigating endogenous digital financial fragility (DFF) — a novel reconceptualization of financial distress as confidence-sensitive vulnerability specific to 24/7 blockchain settlement environments, distinct from traditional corporate insolvency dynamics. Regulatory environment strength (REG) is introduced as a contextual moderator conditioning both the stabilizing effect of governance on fragility and the credibility impact of fragility, reflecting the divergent supervisory regimes of the EU MiCA, US GENIUS Act (as of early 2026, still a legislative proposal pending Senate passage), and HKMA stablecoin frameworks.

Methodologically, the research constructs a fully reproducible longitudinal panel dataset (Q1 2022–Q4 2024) of seven institutional-grade stablecoin issuers anchored entirely to Bloomberg Terminal data, yielding 84 issuer-quarter observations for Structural Equation Modeling (SEM) and 252 issuer-month observations for System Generalized Method of Moments (System GMM) dynamic panel estimation. The multi-method empirical strategy integrates Confirmatory Factor Analysis (CFA) for construct validation, SEM for moderated mediation testing, System GMM for dynamic causal identification, and an exploratory event-window antifragility analysis examining credibility resilience during the UST/Luna collapse (May 2022), FTX bankruptcy (November 2022), and SVB-induced USDC depeg (March 2023).

Keywords: ESG Governance Capability, Digital Financial Fragility (DFF), Institutional Credibility, Stablecoins, Trade Finance, Letter of Credit (L/C), Regulatory Environment, Moderated Mediation, Signaling Theory, Institutional Legitimacy Theory.

Introduction

The integration of Environmental, Social, and Governance (ESG) considerations has emerged as a defining structural transformation in contemporary finance, evolving from a peripheral sustainability concern into a central component of risk assessment and institutional viability evaluation. Simultaneously, the global financial system is undergoing rapid digital transformation driven by blockchain technology and the rise of cryptocurrency assets, most notably stablecoins — digital tokens designed to maintain a stable value relative to a reference currency, typically the US dollar.

The global stablecoin market surpassed $180 billion in total circulating supply by late 2024, with transaction volumes exceeding $6 trillion annually — figures rivaling established payment networks. Fiat-backed stablecoins operate as digital representations of institutional liabilities, functioning analogously to money market funds or narrow banks. Their stability depends critically not on technical architecture alone but on institutional governance quality, reserve management discipline, and regulatory alignment. Three catastrophic stress events between 2022 and 2023 exposed the fragility of inadequately governed issuers: the TerraUSD/Luna collapse (May 2022, ~$50 billion destroyed), the FTX bankruptcy (November 2022), and the SVB-induced USDC depeg (March 2023). These events collectively demonstrate that digital financial distress does not manifest through gradual corporate insolvency but through sudden, confidence-driven redemption runs, depegging events, and liquidity-timing mismatches — dynamics requiring a fundamentally reconceptualized analytical framework.

Within the ESG framework, the Governance (G) dimension occupies a uniquely central role for asset-backed stablecoin institutions, substantially outweighing the Environmental (E) and Social (S) dimensions. Unlike traditional corporations, stablecoin issuers rely overwhelmingly on reserve transparency, attestation frequency, audit quality, and redemption governance clarity as the foundational determinants of institutional credibility. This study operationalizes governance capability through the ESG_GOV construct — a G-dominant composite measured via Bloomberg GOV_SCORE and four supplementary indicators (GOV_RT, GOV_AQ, GOV_RAQ, GOV_RG) — rather than applying generic ESG indices developed for listed companies.

This G-dominant reconceptualization is theoretically grounded in signaling theory (Spence, 1973) and institutional legitimacy theory (Suchman, 1995). Governance disclosures function as costly signals that credibly communicate reserve quality and issuer reliability to counterparties facing severe information asymmetry. The growing literature confirms that governance quality reduces financial distress risk across traditional corporate sectors (Friede et al., 2015; Chiaramonte et al., 2021; Bouattour et al., 2024), but these frameworks apply ESG constructs developed for listed corporations to entities with fundamentally different liability structures and governance requirements. Stablecoin issuers require a bespoke governance measurement architecture anchored to reserve management practices — not board composition or executive compensation metrics that dominate corporate governance indices.

Financial distress risk in stablecoin issuers manifests through mechanisms fundamentally distinct from traditional corporate insolvency. Rather than the gradual balance sheet deterioration modeled by Altman's Z-score (1968, pp. 589–609) or Merton's (1974, pp. 449–470) structural credit risk framework, stablecoin distress emerges as what this study terms Digital Financial Fragility (DFF) — a confidence-sensitive multidimensional vulnerability index capturing peg deviation risk (DFF_PD), reserve liquidity mismatch (DFF_LM), redemption pressure (DFF_RP), and reserve risk composition (DFF_RC).

The liquidity-timing mismatch between 24/7 blockchain trading environments and traditional banking hours creates asymmetric redemption risk during periods of financial stress. Reserve concentration risk — where backing assets are held in institutions subject to bank runs — can transmit traditional banking sector shocks to ostensibly stable digital instruments, as demonstrated by the USDC depeg during the SVB crisis. The DFF construct replaces the traditional 'FDI' labeling conventions used in corporate distress modeling and introduces a digital-native framework operationalizable entirely through Bloomberg Terminal data. The institutional credibility of stablecoin issuers becomes particularly critical in trade finance environments, where L/C applications represent the most demanding institutional acceptance test in global commerce.

Stablecoin issuers operate within a fragmented and rapidly evolving regulatory landscape that profoundly shapes how governance signals are interpreted by counterparties. The regulatory environment (REG) functions as a critical contextual moderator conditioning both the effectiveness of governance practices and the credibility impact of financial stability signals. The EU's Markets in Crypto-Assets Regulation (MiCA) — which entered into force in 2023 and classifies stablecoins as Electronic Money Tokens (EMTs) or Asset-Referenced Tokens (ARTs) — establishes the world's most comprehensive stablecoin framework. Under MiCA, governance disclosures become legally enforceable, transforming ESG transparency from voluntary best practice into supervised compliance.

In contrast, the US regulatory landscape remains fragmented between competing frameworks, with the GENIUS Act (Guiding and Establishing National Innovation for US Stablecoins) — which as of early 2026 remains a pending legislative proposal — representing the primary federal legislative initiative. In jurisdictions with weaker regulatory frameworks, governance disclosures risk becoming symbolic compliance — 'ESG decoupling' (Zhan et al., 2025) — where transparency signals carry limited institutional credibility because counterparties cannot rely on external verification. This regulatory heterogeneity creates substantial cross-jurisdictional variation in how identical governance practices translate into institutional credibility outcomes, justifying the inclusion of REG as a structural moderator. The REG construct is measured through four indicators: licensing status clarity (REG_LS), reserve regulation requirements (REG_RD), supervisory enforcement intensity (REG_SI), and jurisdictional quality (REG_JQ).

Trade finance — particularly the Letter of Credit (L/C) mechanism, governed internationally by the Uniform Customs and Practice for Documentary Credits (UCP 600) — represents the optimal institutional context for examining stablecoin credibility because it imposes the highest possible acceptance threshold on settlement instruments. The L/C mechanism has operated for centuries as the foundational risk mitigation tool for international commerce, managing the trust deficit inherent in cross-border transactions between parties operating under different legal systems.

For a stablecoin to function as a settlement instrument in L/C transactions, it must satisfy the due diligence requirements of issuing and confirming banks, demonstrate peg stability sufficient to avoid settlement risk during documentary processing periods, comply with UCP 600 guidelines, and maintain institutional custody relationships with correspondent banks within the L/C workflow. The trade finance gap — estimated at $1.7 trillion annually by the Asian Development Bank (ADB) — represents a significant opportunity for well-governed stablecoin issuers. Existing pilots including the HSBC Voltron platform, the Marco Polo Network, and SWIFT gpi integration initiatives have demonstrated both technical feasibility and institutional acceptance challenges, with the primary barriers being governance quality and regulatory alignment rather than technological capability.

A multi-level fragmentation persists across the relevant literature streams. ESG scholarship has primarily examined corporate sustainability in listed companies with limited application to digital financial institutions. Financial distress literature applies frameworks developed for traditional corporate insolvency that are structurally inapplicable to confidence-driven digital fragility. Digital finance research has emphasized technological architecture while inadequately addressing governance quality and institutional credibility. Trade finance scholarship has concentrated on documentary mechanisms without incorporating digital asset governance or sustainability metrics.

This multi-level fragmentation creates a critical analytical gap: no integrated framework currently explains how ESG governance capability (ESG_GOV), digital financial fragility (DFF), and institutional credibility (CRED) interact simultaneously within trade finance institutional constraints. This study addresses the gap through a moderated mediation structural model positioning DFF as the transmission mechanism linking ESG_GOV to CRED, with REG as the contextual moderator. The Bloomberg-anchored longitudinal panel dataset represents a significant methodological contribution, overcoming data feasibility constraints that have limited prior stablecoin governance research.

Research Objective (s)

The primary objective is to develop and empirically examine a unified framework explaining how ESG governance capability (ESG_GOV) influences the institutional credibility (CRED) of fiat-backed stablecoin issuers through digital financial fragility (DFF), within the operational environment of trade finance. Five interrelated objectives are pursued, each bounded by Bloomberg Terminal data availability:

- Objective 1: To evaluate the extent to which ESG_GOV reduces DFF in stablecoin-issuing institutions, extending financial stability literature from traditional corporate and banking sectors to digital financial issuers.

- Objective 2: To examine how DFF affects CRED in trade finance systems, modeling financial resilience signals as institutional trust determinants.
- Objective 3: To analyze the joint role of ESG_GOV and financial stability in shaping institutional decision-making regarding digital settlement instruments in L/C applications.
- Objective 4: To evaluate the moderating role of REG in shaping the ESG_GOV–DFF–CRED pathways, addressing how regulatory heterogeneity alters governance signal interpretation across jurisdictions.
- Objective 5 (Exploratory): To evaluate antifragility mechanisms through Bloomberg event-window analysis, assessing whether high-governance issuers demonstrate superior credibility resilience and recovery during systemic market shocks.

Research Questions

Primary Research Question: To what extent does ESG governance capability (ESG_GOV) determine institutional credibility (CRED) in stablecoin-based trade finance settlement, and what mechanisms — particularly the mediation through digital financial fragility (DFF) — transmit governance quality into institutional trust formation?

Mechanism-Based Questions: (RQ1) Does ESG_GOV reduce DFF in fiat-backed stablecoin issuers? (RQ2) Does DFF mediate the ESG_GOV–CRED relationship? (RQ3) Does REG moderate the governance–fragility and fragility–credibility transmission pathways?

Contextual Questions: (RQ4) Does stronger regulatory oversight amplify the credibility benefit of governance transparency? (RQ5) Do high-governance issuers demonstrate antifragility — superior resilience and faster recovery — during systemic market shocks compared to low-governance peers?

Contributions of the Study

Theoretical: This study reconceptualizes financial distress as DFF — confidence-sensitive digital fragility — and establishes ESG_GOV as the dominant institutional credibility determinant for stablecoin issuers. The moderated mediation framework bridges signaling theory, institutional legitimacy theory, and digital financial stability theory within a unified structural model applicable to the emerging digital financial infrastructure literature.

Methodological: The Bloomberg-anchored longitudinal panel dataset establishes a reproducible, audit-grade data architecture for digital financial institution research, overcoming data feasibility gaps from prior reliance on unverified on-chain aggregators or ad hoc regulatory records.

Policy: The findings provide evidence-based guidance for supervisory frameworks for stablecoin issuers, demonstrating how REG amplifies the credibility impact of ESG_GOV. The results support governance-based prudential supervision focused on reserve transparency verification as foundational regulatory infrastructure for institutional-grade stablecoins.

Literature Review

1. Analytical Scope and Structure

The literature review synthesizes theoretical and empirical foundations relevant to the ESG_GOV–DFF–CRED framework within stablecoin-based trade finance systems. Five major thematic domains are reviewed: (1) ESG performance and financial stability; (2) financial distress theory and reconceptualization for digital institutions; (3) institutional credibility and trust formation; (4) regulatory environment and institutional heterogeneity; and (5) trade finance systems and digital settlement infrastructure. Each section establishes domain-specific foundations for the structural model while identifying the fragmentation that motivates the integrated framework.

2. ESG Performance and Financial Stability: Risk Channels and Empirical Evidence

The relationship between ESG performance and financial stability is extensively documented in traditional corporate and banking sector research (Friede et al., 2015; Eccles et al., 2014; Chiaramonte et al., 2021). Institutions with strong ESG practices exhibit reduced financial distress risk, lower credit spreads, enhanced liquidity access, and superior performance during systemic stress periods. Governance quality consistently demonstrates the most robust positive effects on financial stability across diverse institutional contexts, outperforming Environmental and Social dimensions in financial resilience outcomes.

ESG_GOV specifically reduces financial distress risk through several transmission channels. Reserve transparency creates accountability mechanisms constraining risk-taking and reserve misallocation. High-quality independent audits reduce information asymmetry between issuers and counterparties, lowering the confidence shocks that trigger coordinated redemption runs. Strong redemption governance — clear, legally enforceable policies governing redemption conditions — reduces behavioral uncertainty that amplifies fragility during stress periods. Recent research identifies 'ESG decoupling' (Zhan et al., 2025) as a critical challenge, where symbolic ESG disclosures fail to generate substantive risk-mitigation benefits. In digital financial systems, this decoupling risk is amplified by absent standardized attestation requirements, allowing issuers to claim governance quality without external verification.

The integration of ESG into digital financial infrastructure reflects the shift toward 'Finance 5.0' — sustainability-aligned, human-centric financial systems (Leong, 2025). However, governance quality must be operationalized through digital-native metrics. Traditional ESG indices using board composition, executive compensation, and environmental disclosure scores are structurally inapplicable to stablecoin issuers whose institutional legitimacy depends entirely on reserve management governance. The ESG_GOV construct in this study therefore uses Bloomberg GOV_SCORE supplemented by four G-dominant indicators (GOV_RT, GOV_AQ, GOV_RAQ, GOV_RG) specifically calibrated to the reserve transparency and attestation dimensions material to stablecoin institutional trust.

3. Financial Distress Theory: Reconceptualization as Digital Financial Fragility (DFF)

Traditional financial distress theory — Altman's Z-score (1968, pp. 589–609) and Merton's (1974, pp. 449–470) structural credit risk model — conceptualizes distress as gradual balance sheet deterioration leading to legal insolvency. These frameworks are structurally inapplicable to fiat-backed stablecoin issuers for three fundamental reasons. First, stablecoin issuers carry no significant equity capital that gradually erodes; their liability structure consists entirely of outstanding stablecoin supply backed by reserve assets. Distress manifests not as equity impairment but as confidence-driven runs on reserve redemption capacity. Second, stablecoin distress can materialize within hours rather than the months typical of corporate deterioration, rendering accounting-based indicators ineffective. Third, the primary distress mechanism is confidence-driven rather than fundamental — well-reserved issuers can face existential redemption runs if counterparty confidence collapses.

This study introduces Digital Financial Fragility (DFF) as the reconceptualized distress construct for stablecoin issuers — a multidimensional index comprising DFF_PD (peg deviation risk), DFF_LM (reserve liquidity mismatch), DFF_RP (redemption pressure), and DFF_RC (reserve risk composition). This framework captures the confidence-sensitive dynamics of stablecoin distress while remaining fully operationalizable through Bloomberg Terminal data. The liquidity-timing mismatch between 24/7 blockchain trading and traditional banking hours represents a structural vulnerability unique to digital financial institutions (Bluhm et al., 2024; Mafrur, 2025), amplifying distress propagation during macro-financial stress when redemption pressure accumulates continuously but reserve management capacity is constrained by banking operating hours. The SVB-induced USDC depeg (March 2023) provides the most dramatic empirical demonstration of this vulnerability.

4. Institutional Credibility and Trust Formation in High-Trust Financial Environments

Institutional credibility theory, drawing on Suchman's (1995) legitimacy framework and Spence's (1973) signaling theory, conceptualizes organizational trust as a function of three interrelated legitimacy dimensions: cognitive legitimacy (recognition as a valid institutional category), normative legitimacy (alignment with professional and ethical standards), and regulatory legitimacy (compliance with supervisory requirements). In financial systems characterized by severe information asymmetry, observable governance signals — attestations, audit reports, regulatory compliance records — function as costly signals credibly communicating institutional quality to counterparties unable to directly observe reserve composition and management practices.

In trade finance environments, institutional credibility (CRED) carries exceptional weight because the L/C mechanism depends fundamentally on counterparty reliability. Banks impose stringent due diligence requirements evaluating governance transparency, financial resilience (proxied through DFF indicators), regulatory compliance, and operational reliability before integrating settlement instruments into L/C workflows. The CRED construct in this study is measured through four observable institutional acceptance indicators: CRED_PI (regulated platform integration), CRED_CB (custody and banking relationships), CRED_LC (L/C settlement adoption), and CRED_ML (market depth and liquidity), reflecting actual institutional acceptance outcomes rather than reputational survey measures.

Digital financial systems introduce novel credibility challenges because governance claims — reserve quality, redemption reliability, compliance commitments — are asserted off-chain and cannot be directly verified by counterparties reading blockchain data. The 'oracle problem' in decentralized finance creates a fundamental verification gap that regulatory oversight partially addresses through mandatory attestation requirements and supervisory examination. This is why REG functions as a critical moderator of the ESG_GOV–CRED relationship: in strong regulatory regimes, governance disclosures are externally verified and therefore carry substantially higher credibility signal value.

5. Regulatory Environment and Institutional Heterogeneity

The global regulatory landscape for stablecoins has undergone dramatic transformation between 2022 and 2025, moving from largely unregulated self-governance to comprehensive supervisory frameworks. The EU's MiCA establishes mandatory reserve requirements, segregation rules, third-party attestation requirements, and supervisory oversight for EMTs and ARTs. Under MiCA, governance transparency is legally enforced, transforming attestations from self-certified claims into externally verified compliance records. The US GENIUS Act (Guiding and Establishing National Innovation for US Stablecoins), which as of early 2026 remains a pending legislative proposal subject to ongoing Senate deliberation, is anticipated to introduce federal reserve requirements and disclosure standards while maintaining fragmentation with state-level frameworks including the NYDFS BitLicense. Asia-Pacific approaches through the HKMA and the Monetary Authority of Singapore (MAS) balance innovation promotion with institutional protection.

This jurisdictional variation creates natural experimental variation in REG that the study exploits as a structural moderator, allowing estimation of how supervisory intensity conditions the ESG_GOV–DFF and DFF–CRED transmission pathways. Regulatory heterogeneity creates substantial cross-jurisdictional variation in how identical governance practices translate into institutional credibility outcomes — the same attestation quality carries different credibility weights under MiCA (where it is supervised and legally enforceable) versus a jurisdiction with no mandatory attestation requirements (where it is a self-certified voluntary disclosure).

6. Trade Finance Systems and Digital Settlement Infrastructure

Trade finance facilitates approximately $10–12 trillion in global merchandise trade annually. The L/C mechanism, governed by UCP 600, represents the highest-trust, highest-value segment of trade finance, requiring absolute reliability from settlement instruments because bank payment obligations under L/C transactions are independent of the underlying commercial relationship. The ADB estimates the trade finance gap at $1.7 trillion annually, reflecting institutional barriers for small and medium enterprises and emerging market counterparties. Digital settlement instruments including well-

governed stablecoins could address this gap by reducing settlement costs, enabling continuous settlement without banking hour constraints, and providing programmable payment mechanisms.

Existing blockchain-based trade finance pilots — including the HSBC Voltron platform, Marco Polo Network, and SWIFT gpi integration initiatives — have demonstrated that the primary adoption barriers are not technological but institutional: absent comprehensive regulatory frameworks, unverified governance claims, and insufficient performance track records under stress conditions. The Financial Stability Board (FSB) and Bank for International Settlements (BIS) analytical frameworks have highlighted that large stablecoin issuers functioning as digital narrow banks pose systemic risk considerations requiring governance standards comparable to systemically important financial institutions.

7. Stablecoin Governance and Digital Financial Stability

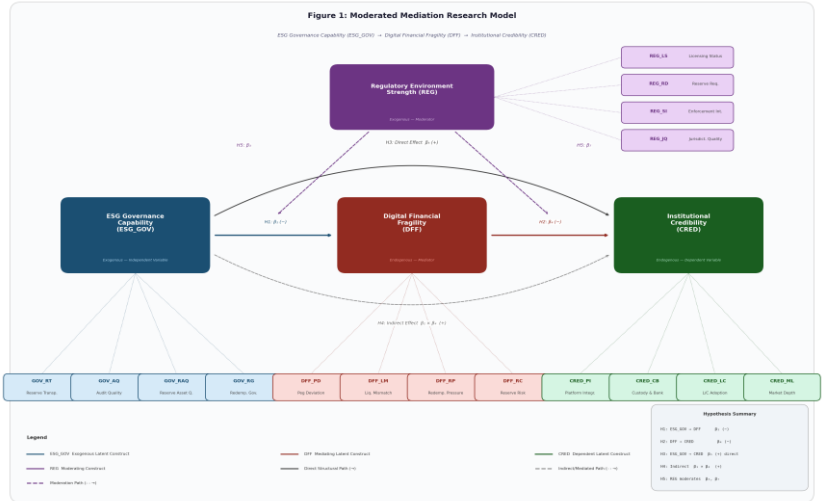
Academic research on stablecoin governance has accelerated substantially following the 2022–2023 stress events. Sobanski et al. (2023) document substantial variation in reserve transparency practices, demonstrating that disclosure quality predicts resilience during market stress. Ante et al. (2023) provide systematic evidence that governance architecture distinguishes algorithmically fragile from institutionally resilient stablecoin designs. The bidirectional fragility channel between stablecoin reserves and traditional financial markets — stablecoin reserves in US Treasuries and bank deposits create exposure to banking sector stress, while large-scale redemptions can generate forced sales in short-term debt markets — makes ESG_GOV quality critical to systemic stability as well as individual issuer resilience.

8. Integrated Conceptual Framework and Hypothesis Development

The integrated literature review establishes the theoretical foundations for the ESG_GOV → DFF → CRED moderated mediation framework. The core mechanism posits: (a) ESG_GOV reduces DFF through reserve discipline, attestation quality, and redemption governance clarity; (b) lower DFF enhances CRED by reducing confidence-sensitive vulnerability signals that trigger counterparty skepticism in high-trust trade finance environments; (c) REG moderates both transmission pathways such that stronger supervisory environments amplify governance's fragility-reducing effect and amplify the credibility penalty of fragility.

Five primary hypotheses follow from this framework:

- H1: ESG governance capability (ESG_GOV) is negatively associated with digital financial fragility (DFF) in fiat-backed stablecoin issuers.
- H2: Digital financial fragility (DFF) is negatively associated with institutional credibility (CRED) in trade finance settlement systems.
- H3: ESG governance capability (ESG_GOV) is positively associated with institutional credibility (CRED) directly through transparency signaling, independent of the DFF mediation pathway.
- H4: Digital financial fragility (DFF) mediates the relationship between ESG governance capability (ESG_GOV) and institutional credibility (CRED) — i.e., the indirect effect of ESG_GOV on CRED through DFF is statistically significant.
- H5: Regulatory environment strength (REG) moderates the ESG_GOV–DFF–CRED transmission pathways such that the conditional indirect effect (moderated mediation) is stronger under more stringent regulatory regimes.



Picture 1: Moderated Mediation Research Model — ESG Governance Capability → Digital Financial Fragility → Institutional Credibility

Source: Solid arrows = structural causal paths; dashed arrows = moderation paths (REG). H1–H5 notation corresponds to hypotheses in Section 2.8. All indicator codes reflect Bloomberg Terminal-anchored measurement framework (Table 1).

Research Methodology

1. Research Design and Analytical Framework

This study adopts a quantitative, theory-driven explanatory research design to investigate the causal mechanisms through which ESG governance capability (ESG_GOV) influences the institutional credibility (CRED) of stablecoin issuers within cross-border trade finance environments, specifically L/C settlement contexts. The analytical framework is structured as a moderated mediation institutional transmission model specifying: (a) a direct path from ESG_GOV to CRED; (b) an indirect path from ESG_GOV through DFF to CRED; and (c) moderation of both transmission stages by REG. This architecture is grounded in signaling theory (Spence, 1973), institutional legitimacy theory (Suchman, 1995), and digital financial stability theory.

Three principal identification challenges are addressed by the sequential four-stage estimation architecture: (1) reverse causality between ESG_GOV and CRED (highly credible issuers may invest more in governance), addressed by System GMM instrumentation; (2) dynamic persistence of CRED (current credibility depends on accumulated historical governance performance), addressed by including lagged CRED in the dynamic panel specification; and (3) unobserved heterogeneity across issuers (technology infrastructure, custody arrangements, corporate culture), addressed by issuer fixed effects.

2. Unit of Analysis, Sample Selection, and Data Structure

The primary unit of analysis is the stablecoin issuer–time observation, structured as a longitudinal issuer–period panel (N = 7 issuers, T = 36 months / 12 quarters). This unit is theoretically appropriate because ESG_GOV, DFF, and CRED are institution-specific characteristics evolving over time through repeated governance disclosures, stress experiences, and regulatory interactions. Institutional trust exhibits strong path dependence, accumulating through historical performance under stress, transparency practices, and settlement reliability records.

The research conducts a population study using purposive inclusion, comprising the full population of institutional-grade fiat-backed stablecoin issuers satisfying four strict criteria for Bloomberg data availability and institutional relevance: USDT (Tether Holdings, BVI), USDC (Circle Internet Financial, US), PYUSD (PayPal/Paxos, US), USDP (Paxos, US), GUSD (Gemini, US), EURC (Circle, EU), and FDUSD (First Digital, HK). The four inclusion criteria are: (1) publicly available

reserve disclosure or attestation documentation; (2) observable historical market stability behavior including trackable peg deviations and liquidity stress responses; (3) traceable regulatory context within a clearly identifiable legal domicile and supervisory regime; (4) institutional relevance demonstrating integration into cross-border payment or financial settlement ecosystems. Excluded are algorithmic stablecoins (fundamentally different risk architecture), commodity-backed stablecoins (different ESG materiality), and retail-oriented stablecoins without institutional adoption signals.

The temporal scope spans Q1 2022 through Q4 2024, capturing three analytically important market phases: (i) pre-crisis cross-sectional governance heterogeneity (Q1–Q1 2022); (ii) the stress period encompassing three exogenous shocks (UST/Luna collapse May 2022, FTX bankruptcy November 2022, SVB-induced USDC depeg March 2023); and (iii) post-crisis regulatory institutionalization (2023–2024) reflecting MiCA, the pending GENIUS Act legislative proposal (still under Senate deliberation as of early 2026), and other regulatory developments. The panel yields 84 issuer-quarter observations for SEM estimation and 252 issuer-month observations for System GMM dynamic panel estimation.

3. Data Sources and Bloomberg-Anchored Data Architecture

A major methodological contribution is the Bloomberg-anchored multi-source data architecture overcoming data feasibility constraints of prior digital finance research that relied on unverified on-chain data aggregators. The Bloomberg Terminal serves as the unified primary platform. ESG_GOV data: Bloomberg ESG <GO> for composite governance scores; Bloomberg Company Filings <CF GO> for attestation records; Bloomberg News Intelligence <NI GO> for disclosure frequency; Bloomberg Law <BLAW GO> for regulatory compliance records. DFF data: Bloomberg Crypto pricing (PX_LAST) for daily peg deviation; Bloomberg USGG3M Index for reserve asset quality; Bloomberg market capitalization data (MKTCAP) for supply contraction; Bloomberg CDSW <GO> for parent entity credit risk. CRED data: Bloomberg Exchange Search <EXS GO> for regulated platform listings; Bloomberg Trade Finance <BTFIN GO> for L/C adoption signals; Kaiko institutional tick data for market depth. REG data: Bloomberg Law <BLAW GO> for licensing tracking; official MiCA, NYDFS, HKMA, MAS regulatory registries; World Bank Governance Indicators <GOVT GO> for jurisdictional quality (REG_JQ). Supplementary sources include issuer attestation PDFs for GOV_AQ verification and SWIFT gpi reports for CRED_LC tracking.

4. Variable Construction and Measurement Framework

The measurement framework operationalizes four primary latent constructs through multiple observable indicators calibrated to stablecoin institutional dimensions rather than generic corporate finance metrics. ESG Governance Capability (ESG_GOV) is a G-dominant composite measured through: GOV_RT (reserve transparency — Bloomberg NI <GO> disclosure frequency and granularity); GOV_AQ (audit/assurance quality — auditor tier coded as Big-4/non-Big-4 from CF <GO>); GOV_RAQ (reserve asset quality — HQLA proportion from USGG3M Index); and GOV_RG (redemption governance clarity — policy completeness score from BLAW <GO>). Digital Financial Fragility (DFF) is a digital-native distress index measured through: DFF_PD (peg deviation risk — mean $|PX_LAST - 1.00|$); DFF_LM (reserve liquidity mismatch — inverse HQLA ratio); DFF_RP (redemption pressure — monthly supply contraction from MKTCAP); DFF_RC (reserve risk composition — non-HQLA asset share assessed via CDSW <GO>). Institutional Credibility (CRED) is measured through: CRED_PI (regulated platform integrations from EXS <GO>); CRED_CB (Tier 1/2 institutional custody and banking relationships from CF <GO>); CRED_LC (L/C settlement adoption from BTFIN <GO> and SWIFT gpi); CRED_ML (market depth — bid-ask spread and volume from Kaiko). Regulatory Environment Strength (REG) is measured through: REG_LS (licensing status clarity); REG_RD (reserve regulation requirements — severity coding); REG_SI (supervisory enforcement intensity — action count); REG_JQ (jurisdictional quality — World Bank WGI from GOVT <GO>).

Table 1: Variable Operationalization and Measurement Framework

Construct (Role)	Symbol	Operational Definition	Primary Indicators / Bloomberg Sources
ESG Governance Capability (Exogenous — Independent Variable)	ESG_GOV	The governance-specific dimension of ESG capability relevant to reserve integrity, disclosure discipline, audit quality, and regulatory compliance capacity of fiat-backed stablecoin issuers. Operationalized as a 'G-dominant' composite score.	(1) Bloomberg GOV_SCORE — composite governance disclosure score; (2) GOV_RT: Attestation frequency & granularity (NI <GO>); (3) GOV_AQ: Auditor tier/scope — Big-4 flag (CF <GO>); (4) GOV_RAQ: HQLA proportion of reserves (USGG3M Index); (5) GOV_RG: Redemption policy clarity (BLAW <GO>).
Digital Financial Fragility (Endogenous — Mediator)	DFF	A multidimensional index of confidence-sensitive vulnerability unique to 24/7 blockchain settlement: susceptibility to peg deviations, reserve liquidity mismatches, and self-reinforcing redemption runs. Reconceptualizes traditional corporate financial distress for digital issuers.	(1) DFF_PD: Peg Deviation — mean |price − $1.00| (PX_LAST); (2) DFF_LM: Reserve Liquidity Mismatch — inverse HQLA ratio; (3) DFF_RP: Redemption Pressure — supply contraction (MKTCAP); (4) DFF_RC: Reserve Risk Composition — credit/duration risk (CDSW <GO>).
Institutional Credibility (Endogenous — Dependent Variable)	CRED	Observable institutional acceptance and counterparty trust of a stablecoin issuer in high-reliability transactional environments, measured through actual integration into regulated financial infrastructure rather than reputational surveys.	(1) CRED_PI: Regulated platform integrations/listings (EXS <GO>); (2) CRED_CB: Institutional custody & banking relationships (CF <GO>); (3) CRED_LC: L/C settlement adoption (BTFIN <GO>, SWIFT gpi); (4) CRED_ML: Market depth — bid-ask spreads & volumes (Kaiko).
Regulatory Environment Strength (Exogenous — Moderator)	REG	A composite index of licensing stringency, supervisory enforcement intensity, and reserve-regulation requirements across jurisdictions that conditions how governance signals are interpreted by institutional counterparties.	(1) REG_LS: Licensing status clarity — MiCA EMT / NYDFS BitLicense (BLAW <GO>); (2) REG_RD: Reserve regulation requirements (severity score); (3) REG_SI: Supervisory enforcement intensity (action count); (4) REG_JQ: Jurisdictional quality — World Bank WGI (GOVT <GO>).
Control Variables	—	Factors controlled to isolate the causal governance–fragility–credibility pathways from confounding influences.	SIZE: log(circulating supply), log(trading volume); MKT_REG: Crypto market regime — Bitcoin volatility index (BVIX proxy); YIELD_ENV: 3-month US T-bill rate (USGG3M Index); JURIS: Jurisdiction dummy (US / EU / offshore / HK); TECH: Multi-chain deployment count; reported downtime incidents.

Source: Developed for this study (Bloomberg Terminal-Anchored Measurement Architecture, Q1 2022–Q4 2024).

5. Structural Model Specification

The structural model specifies a moderated mediation SEM framework with two primary structural equations. The fragility equation: $DFF = \alpha_1 + \beta_1(ESG_GOV) + \beta_2(REG) + \beta_3(ESG_GOV \times REG) + \gamma_1(Controls) + \varepsilon_1$. The credibility equation: $CRED = \alpha_2 + \beta_4(DFF) + \beta_5(ESG_GOV) + \beta_6(REG) + \beta_7(DFF \times REG) + \gamma_2(Controls) + \varepsilon_2$. The indirect (mediated) effect of ESG_GOV on CRED through DFF equals $\beta_1 \times \beta_4$. The conditional indirect effect (moderated mediation) tests whether this indirect effect varies as a function of REG: $(\beta_1 + \beta_3 \times REG)(\beta_4 + \beta_7 \times REG)$.

Hypothesis linkage: H1 → β_1 (ESG_GOV coefficient in fragility equation, expected negative); H2 → β_4 (DFF coefficient in credibility equation, expected negative); H3 → β_5 (direct ESG_GOV coefficient in credibility equation, expected positive); H4 → indirect effect $\beta_1 \times \beta_4$ (expected positive); H5 → interaction terms β_3 and β_7 (expected positive — stronger regulatory environments amplify both transmission stages).

6. Estimation Procedures: Four-Stage Sequential Architecture

CFA is implemented using AMOS 24 or SmartPLS 4.0 to validate the measurement model for all four primary latent constructs before structural estimation. Validation criteria: standardized factor loadings ≥ 0.50 (preferably ≥ 0.70) for indicator reliability; Composite Reliability (CR) ≥ 0.70 for internal consistency; Average Variance Extracted (AVE) ≥ 0.50 for convergent validity; Fornell-Larcker criterion and Heterotrait-Monotrait (HTMT) ratio < 0.85 for discriminant validity. Overall model fit: $\chi^2/df < 3$, Standardized Root Mean Square Residual (SRMR) < 0.08, Comparative Fit Index (CFI) ≥ 0.90, Root Mean Square Error of Approximation (RMSEA) ≤ 0.08. Indicators failing minimum loading thresholds are iteratively removed. The CFA stage determines whether the DFF and REG constructs are empirically distinct from ESG_GOV and CRED, a necessary condition for the moderated mediation model to be identified. It is important to acknowledge that with N = 7 issuers yielding 84 issuer-quarter observations, the SEM estimation operates near the margin of statistical power for a model with four constructs and 17–20 free parameters; SEM conventionally recommends N ≥ 200. Results should therefore be interpreted as exploratory and theory-generating rather than confirmatory, and findings are cross-validated against the System GMM estimates in Stage 3.

Static SEM is implemented using AMOS 24 with Maximum Likelihood estimation, supplemented by SmartPLS 4.0 with 5,000 bootstrap resamples for non-parametric indirect effect assessment. The bootstrap procedure tests H4 by evaluating whether the 95% bias-corrected confidence interval for the indirect effect ($\beta_1 \times \beta_4$) excludes zero. Moderation testing employs latent moderated SEM with mean-centered product indicators to evaluate the REG × ESG_GOV and REG × DFF interaction terms for H5. Goodness-of-fit evaluation employs the full suite of complementary indices described in Stage 1.

System Generalized Method of Moments (System GMM) dynamic panel estimation is implemented in Stata 17 using the xtabond2 command with two-step estimation, Windmeijer-corrected robust standard errors, and collapsed instruments. The dynamic specification includes the lagged dependent variable (CRED_{t-1}) to capture path-dependent credibility accumulation, internal instruments comprising lagged levels and first differences of ESG_GOV and DFF to address reverse causality, and issuer fixed effects to control for unobserved time-invariant heterogeneity. Three post-estimation diagnostics validate the specification: Hansen J-test ($p > 0.05$ for instrument exogeneity); Arellano-Bond AR(2) test (insignificant p-value confirming absence of second-order serial correlation); and instrument count verification (instrument count < N = 7 issuers to prevent overfitting bias). Given the small N = 7, instrument proliferation is a critical concern; collapsed instruments are used throughout and the instrument set is restricted to a maximum of two lags to ensure the instrument count remains strictly below the number of issuers, preserving the validity of the Hansen test.

The exploratory antifragility analysis evaluates credibility resilience using ±30-day event windows centered on three major exogenous shocks: UST/Luna collapse (May 2022), FTX bankruptcy (November 2022), and SVB-induced USDC depeg (March 2023). Abnormal CRED deterioration is the deviation of CRED indicators from pre-shock trends, with recovery dynamics captured through the

credibility rebound half-life following shock-period nadir. The analysis tests whether high-governance issuers (top tertile of ESG_GOV) demonstrate significantly lower abnormal CRED deterioration and faster post-shock recovery. This Stage 4 is explicitly exploratory: N = 7 issuers and three shock events preclude statistical inference at conventional confidence levels, but the analysis provides illustrative evidence for the antifragility mechanism and motivates future research as the stablecoin dataset expands.

7. Hypothesis Testing Framework and Expected Directional Predictions

The hypothesis testing framework maps the five primary hypotheses directly to structural parameters estimated across the four-stage sequential architecture. H1 (ESG_GOV → DFF, negative, $\beta_1 < 0$): Higher governance capability — evidenced through higher GOV_RT, GOV_AQ, GOV_RAQ, and GOV_RG scores — reduces digital financial fragility by maintaining higher HQLA reserve proportions, more frequent verified attestations, and clearer redemption governance, mechanically narrowing the information gap between issuer and counterparty regarding reserve quality and thereby lowering DFF_PD, DFF_LM, DFF_RP, and DFF_RC. Tested in Stage 2 (SEM) and Stage 3 (System GMM). H2 (DFF → CRED, negative, $\beta_4 < 0$): Higher digital financial fragility — manifested as peg deviations, reserve quality concerns, redemption pressure, or reserve risk exposure — reduces observable institutional acceptance by signaling settlement unreliability to counterparties with exceptionally high acceptance thresholds. Tested in Stage 2 and Stage 3. H3 (ESG_GOV → CRED direct, positive, $\beta_5 > 0$): A direct governance signaling channel operates independently of fragility reduction: high-quality governance disclosures directly reduce information asymmetry, increasing counterparty willingness to integrate stablecoin instruments into regulated workflows even holding DFF constant. Tested in Stage 2. H4 (indirect effect $\beta_1 \times \beta_4 > 0$): Statistically significant when the 95% bias-corrected bootstrap confidence interval excludes zero. The positive indirect effect arises from the product of two negative coefficients: ESG_GOV reduces DFF ($\beta_1 < 0$) and DFF reduces CRED ($\beta_4 < 0$). Tested in Stage 2 via 5,000 bootstrap resamples. H5 (REG moderates pathways, $\beta_3 < 0$ and $\beta_7 < 0$): Stronger regulatory environments amplify ESG_GOV's fragility-reducing effect ($\beta_3 < 0$) and amplify the credibility penalty on fragile issuers ($\beta_7 < 0$). The Johnson-Neyman technique identifies the precise REG threshold above which the conditional indirect effect becomes statistically significant. Tested in Stage 2.

8. Model Validation and Robustness Assessment

Robustness assessment employs four complementary strategies: (1) Alternative variable specifications — substituting Bloomberg GOV_SCORE with attestation frequency (GOV_RT) as the primary ESG_GOV indicator, and replacing peg deviation (DFF_PD) with supply contraction (DFF_RP) as the primary DFF indicator; (2) Temporal sensitivity analysis — re-estimating the structural model on subsamples excluding the acute stress periods (May 2022 – March 2023) to distinguish governance effects during normal market conditions from crisis-period dynamics; (3) Nested model comparison — comparing the full moderated mediation model against mediation-without-moderation, moderation-without-mediation, and direct-effects-only specifications using likelihood ratio tests and Akaike Information Criterion (AIC) / Bayesian Information Criterion (BIC); (4) External validity assessment — comparing panel issuers with the broader stablecoin population on market capitalization, reserve composition, and jurisdictional distribution to identify generalizability boundary conditions. Measurement reliability is assessed through Cronbach's alpha ($\alpha \geq 0.70$) as a supplementary internal consistency check alongside CR ≥ 0.70 and AVE ≥ 0.50. Multicollinearity among indicator variables is assessed through Variance Inflation Factor (VIF) diagnostics, with VIF < 3.3 required to confirm absence of problematic collinearity in the reflective measurement model.

9. Scope, Boundary Conditions, and Limitations

The study's scope is explicitly bounded by several conditions. The population study design (N = 7 issuers) provides comprehensive coverage of institutional-grade fiat-backed stablecoin issuers with Bloomberg data availability but limits generalizability to algorithmic stablecoins, commodity-backed stablecoins, and nascent issuers without institutional-grade disclosures. The temporal scope (Q1 2022

– Q4 2024) captures a critical evolutionary period but may not reflect the governance and regulatory landscape following full MiCA enforcement from mid-2024 onward. The L/C adoption indicator (CRED_LC) relies on observable institutional adoption signals that may undercount actual stablecoin use in private or bilateral trade finance arrangements not captured by Bloomberg BTFIN <GO> or SWIFT gpi reporting.

Data limitations include: Bloomberg GOV_SCORE coverage varies across issuers and periods, requiring supplementation with the four custom GOV indicators. Two Bloomberg Terminal function codes warrant explicit verification caveats: Bloomberg Trade Finance <BTFIN GO> and Bloomberg Exchange Search <EXS GO> are cited as primary sources for CRED_LC and CRED_PI respectively, but Bloomberg's product coverage for nascent digital asset classes may be incomplete or inconsistent across issuers and periods; researchers replicating this study should verify that these functions return issuer-level data for all seven stablecoin issuers in the study panel before relying on them as primary sources, and should document any gaps requiring supplementary manual collection. L/C settlement adoption through BTFIN <GO> captures only publicly announced integrations rather than proprietary bilateral arrangements; and the DFF construct's oracle problem — off-chain reserve quality cannot be directly verified on-chain — means that GOV_RAQ relies on issuer-disclosed HQLA proportions subject to the same verification gap that the governance construct is designed to address. Future research directions include: extending the panel as the stablecoin dataset expands through 2025–2026; incorporating the oracle reliability moderator (the signaling verification channel) once systematic blockchain oracle reliability data becomes available; and testing the full ecosystem diffusion model (CRED → Institutional Adoption → Network Effects → Systemic Resilience) as trade finance integration matures.

8. Ethical Considerations

This study relies exclusively on secondary institutional data from Bloomberg Terminal and public regulatory registries, eliminating privacy concerns associated with primary data collection from human subjects. All data is collected in compliance with Bloomberg Terminal licensing terms and used solely for academic research purposes. The study maintains strict neutrality regarding individual stablecoin issuers and regulatory jurisdictions: no issuer-specific recommendations, investment guidance, or regulatory advocacy are made on the basis of individual CRED or DFF indicator scores. Empirical findings are framed exclusively within theoretical and policy contexts, with all governance quality assessments supported by objective Bloomberg-derived metrics rather than subjective evaluations. Limitations of the proxy measurement approach — particularly the reliance on publicly available attestation records for GOV_AQ and CRED_LC — are explicitly acknowledged throughout the empirical analysis. The research complies with applicable academic research ethics guidelines including the American Finance Association ethical guidelines for financial research.

EXPECTED RESULTS AND THEORETICAL IMPLICATIONS

Anticipated Empirical Findings

Based on the theoretical framework and prior empirical evidence, the following directional findings are anticipated. Because this study is currently in the data assembly stage, this conference paper reports theoretically derived expected findings rather than finalized empirical estimates. The analysis framework presented here establishes the empirical strategy that will be implemented in the full dissertation study, with actual parameter estimates to follow upon completion of Bloomberg Terminal data collection across all seven issuers and all indicator constructs. For H1, the study anticipates a significant negative coefficient β_1 on ESG_GOV in the fragility equation, consistent with the theoretical prediction that governance transparency and reserve discipline reduce confidence-sensitive vulnerability. Issuers with higher Bloomberg GOV_SCORE, more frequent third-party attestations (GOV_RT), Big-4 auditor relationships (GOV_AQ), higher HQLA proportions (GOV_RAQ), and clearer redemption policies (GOV_RG) are expected to exhibit significantly lower DFF composite scores, particularly during periods of macro-financial stress. This finding would extend the corporate

ESG-financial stability literature to a digital-native institutional context, confirming that governance quality's fragility-reducing mechanism operates through confidence channels rather than balance-sheet channels in digital financial systems.

For H2, the study anticipates a significant negative coefficient β_4 on DFF in the credibility equation. Stablecoin issuers exhibiting higher peg deviation (DFF_PD), reserve liquidity mismatch (DFF_LM), redemption pressure (DFF_RP), or reserve risk composition (DFF_RC) are expected to show significantly lower CRED scores — fewer regulated platform listings (CRED_PI), weaker institutional custody relationships (CRED_CB), lower L/C settlement adoption (CRED_LC), and thinner market depth (CRED_ML). This finding would confirm that digital financial fragility functions as a negative credibility signal, consistent with signaling theory's prediction that adverse performance signals reduce institutional counterparty confidence in high-trust environments.

For H3, the study anticipates a significant positive direct effect of ESG_GOV on CRED independent of the mediated pathway. This direct signaling channel reflects the theoretical prediction from institutional legitimacy theory that governance transparency itself — the quality and verifiability of reserve disclosures and attestation records — generates institutional credibility beyond its indirect effect through fragility reduction. The direct effect captures the informational dimension of governance signaling: counterparties observing high-quality governance disclosures update their institutional trust assessments positively, even in the absence of observable fragility improvements.

For H4 (moderated mediation), the study anticipates a significant positive indirect effect of ESG_GOV on CRED through DFF, with the 95% bias-corrected bootstrap confidence interval excluding zero. The magnitude of the indirect effect is expected to be substantial relative to the direct effect, suggesting that the stability channel — governance → fragility reduction → credibility — is the dominant transmission mechanism linking ESG governance quality to institutional acceptance in trade finance. For H5, the study anticipates that REG positively moderates both stages of the stability pathway, such that the conditional indirect effect of ESG_GOV on CRED through DFF is significantly stronger under high-REG conditions (MiCA / NYDFS BitLicense jurisdictions) compared to low-REG conditions, consistent with the theoretical prediction that regulatory verification amplifies governance signal credibility.

For the exploratory antifragility analysis (Stage 4), the study anticipates that high-governance issuers (top tertile of ESG_GOV) experienced significantly smaller CRED indicator deterioration during the three major shock events and demonstrated faster post-shock CRED recovery compared to low-governance issuers. This would suggest that ESG_GOV functions as institutional capital that buffers against confidence-driven credibility erosion during systemic stress — an antifragility mechanism through which governance quality not only reduces steady-state fragility but also enhances dynamic resilience under extreme market conditions.

Theoretical Contributions and Implications

The anticipated findings would collectively advance theory across several dimensions. First, the study reconceptualizes financial distress theory by establishing Digital Financial Fragility (DFF) as a confidence-sensitive, digital-native construct that captures the unique vulnerability dynamics of stablecoin issuers — peg deviations, reserve mismatches, and redemption runs — that traditional corporate distress models (Altman Z-score, Merton structural model) cannot adequately represent. This reconceptualization extends institutional finance theory into the digital monetary infrastructure domain, providing a validated measurement framework for future research on digital financial stability.

Second, the moderated mediation framework provides a comprehensive institutional explanation for why governance quality matters differently across regulatory contexts, advancing both signaling theory and institutional legitimacy theory. The finding that REG moderates the ESG_GOV–DFF–CRED pathways would confirm that regulatory environments are not merely passive background conditions but active institutional mechanisms that determine the credibility translation efficiency of governance signals — a theoretical contribution applicable beyond stablecoin research to any domain where information asymmetry and supervisory heterogeneity jointly shape institutional trust formation.

Third, the study's positioning of trade finance L/C adoption as the dependent variable represents a theoretical contribution to both digital finance and trade finance literatures by providing an observable, high-stakes institutional acceptance metric that avoids the measurement limitations of reputational surveys while capturing the full institutional acceptance threshold relevant to cross-border commerce. The finding that ESG_GOV and DFF jointly predict L/C adoption would establish the theoretical linkage between digital asset governance quality and trade finance infrastructure integration, with implications for the $1.7 trillion annual trade finance gap addressable through well-governed stablecoin instruments.

Limitations and Future Research Directions

The study acknowledges several limitations that define the boundary conditions for inference. A key limitation of this study concerns the small cross-sectional sample (N = 7 issuers). This constraint reflects the structural reality of the institutional stablecoin market: only a limited number of fiat-backed issuers operate at the scale and disclosure standard required for Bloomberg Terminal coverage and the longitudinal panel design. While N = 7 yields 84 issuer-quarter observations for SEM and 252 issuer-month observations for System GMM, the cross-sectional dimension is near the margin of statistical power for a four-construct CFA model with approximately 17 free parameters — well below the conventional SEM threshold of $N \geq 200$. The study mitigates this limitation through a multi-method triangulation strategy: (1) SEM tests the theoretical path structure and mediation mechanism; (2) System GMM dynamic panel estimation addresses reverse causality, dynamic persistence, and unobserved heterogeneity using collapsed instruments with a maximum of two lags to keep the instrument count strictly below N = 7; and (3) the event-window antifragility analysis provides shock-period cross-validation. Because of these constraints, all findings must be interpreted as exploratory and theory-generating rather than confirmatory, and replication on larger panels as the stablecoin market matures is a clear priority for future research. Additional limitations include: the 36-month panel (Q1 2022–Q4 2024) may not fully capture the post-MiCA governance equilibrium as regulatory enforcement continues to develop; and CRED_LC, which relies on publicly observable L/C integration signals, likely undercounts stablecoin adoption in proprietary bilateral trade finance arrangements not reported through Bloomberg BTFIN <GO> or SWIFT gpi.

Future research directions include: (1) Extending the panel as post-2024 data accumulates under full MiCA enforcement, enabling more powerful tests of regulatory moderation; (2) Incorporating the oracle reliability moderator — testing whether blockchain oracle data reliability amplifies the signaling pathway from governance disclosures to institutional credibility — once systematic cross-issuer oracle infrastructure data becomes available; (3) Applying the DFF construct to central bank digital currencies (CBDCs) and tokenized bank deposits as these instruments enter institutional trade finance workflows; and (4) Exploring network effects through multi-equation ecosystem models as L/C settlement adoption data matures, testing whether institutional adoption generates credibility-reinforcing network externalities as theorized in the study's full conceptual framework.

Conclusion

This study develops and empirically proposes an integrated moderated mediation framework explaining how ESG governance capability (ESG_GOV) shapes the institutional credibility (CRED) of fiat-backed stablecoin issuers within the demanding institutional environment of trade finance Letter of Credit (L/C) settlement. By reconceptualizing financial distress as Digital Financial Fragility (DFF) — a confidence-sensitive, digital-native multidimensional vulnerability construct distinct from traditional corporate insolvency frameworks — the study advances theory at the intersection of ESG finance, digital financial stability, and institutional credibility.

The framework’s three central contributions are: (1) a G-dominant ESG measurement architecture anchored to reserve transparency, attestation quality, and redemption governance, directly

applicable to digital financial institutions; (2) a Bloomberg-anchored longitudinal panel dataset providing a reproducible, audit-grade data architecture that overcomes prior data feasibility constraints in stablecoin governance research; and (3) the positioning of trade finance L/C adoption as the terminal institutional acceptance metric, offering a high-stakes observable variable that captures the most demanding threshold for stablecoin institutional integration in global commerce. Together, these contributions address the multi-level analytical gap identified across ESG finance, financial distress, and trade finance literatures.

From a policy perspective, the anticipated finding that regulatory environment strength (REG) amplifies the credibility impact of ESG governance supports a governance-based prudential supervision approach for stablecoin issuers: regulatory frameworks that mandate and externally verify reserve transparency — as the EU's MiCA already does — generate substantially greater institutional credibility dividends than voluntary disclosure regimes. This evidence-based guidance is directly relevant to the estimated $1.7 trillion annual trade finance gap, which well-governed, institutionally credible stablecoin issuers are theoretically positioned to help address. The present study is intended to serve as a rigorous theoretical and methodological foundation for future empirical work as the stablecoin dataset expands and global regulatory landscapes continue to mature.

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HEALTH AND BEHAVIORAL DETERMINANTS OF ORGANIC FOOD PURCHASE INTENTIONS AMONG THAI CONSUMERS: AN INTEGRATED HBM AND TPB APPROACH

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Abstract

The rapid growth of health-conscious expenditure in Thailand has increased interest in organic food, but the psychological and demographic factors that transform the concern into purchasing intention are not fully investigated, particularly in urban population in Bangkok. Therefore, this gap is addressed by underpinning the health-belief model and the theory of planned behavior model. This research study aims to identify and confirm the determinants of organic food products among Thai consumers. The objectives of the study are (i) to analyze the determinants of organic food purchasing intention among Thai consumers residing in Bangkok, (ii) to assess the moderating effect of demographic factors between perceived knowledge, perceived threat, attitude, and purchasing intention of organic food, and (iii) to evaluate the mediating role of trust between attitude towards organic food and purchasing intention of organic food. This study will adopt a quantitative methodology, collecting data via a 65-item closed-ended questionnaire from adult residents of Bangkok who have bought food within the last month. The instrument will collect the data from minimum 400 respondents. A purposive sampling will be used, and the collected data will be analyzed using structured equation model via SMART PLS. This study's framework comprises of IV, including perceived knowledge, perceived threat, personal norms, attitude, with demographic factors as the moderator, and trust as the mediator. The final DV is the purchasing intention.

Keywords: Organic Food, Purchase Intention, Health Belief Model, Thailand

Introduction

The wellness economy in Thailand has increased, with health-aware consumers driving a 28.4% growth in expenditure that has propelled the market past USD 31.6 billion in 2022 to USD 40.5 billion in 2023 (McGroarty 2025). In this climate, organic food is positioned as a safer alternative, but repeated pseudo-organic scandals imply that the purchase decision depends on the credibility of certification, as the belief in the authenticity of the label continues to be closely linked with the desire to purchase (Kantamaturapoj & Marshall, 2020).

The current Thai literature indicates that perceived knowledge, perceived threat and favorable attitudes are all stimulating purchase intention, but they are seldom studied in combination, and they often overlook how demographics reconfigure these effects, such as increasing age and education enhances the major decision pathways (Sangkumchaliang & Huang, 2012). In addition, the positive attitude may be stalled when consumers are not convinced with certification, which highlights the mediating role of trust (Nuttavuthisit & Thogersen, 2017).

To fill these gaps, the current proposal combines the Health Belief Model with the Theory of Planned Behaviour, making trust the mediator between attitude and intention and experimenting with the moderation of demographics, thus providing a comprehensive perspective through which to

interpret, and ultimately manipulate, the willingness of Bangkok consumers to buy organic food. This integrative approach not only contributes to academic knowledge but also provides policy makers and marketers with evidence-based leverage, credible labelling, customized education, and demographic-based communication to hasten the process of Thailand adopting safer and sustainable diets.

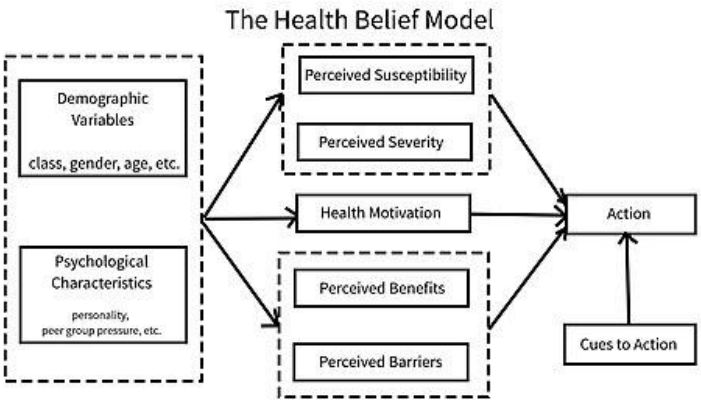
Research Objectives

1. Objective 1: To analyse the determinants of organic food purchasing intention among Thai consumers residing in Bangkok.
2. Objective 2: To assess the moderating effect of demographic factors between perceived knowledge, perceived threat, attitude, and purchasing intention of organic food.
3. Objective 3: To evaluate the mediating role of trust between attitude towards organic food and purchasing intention of organic food.

Literature Review

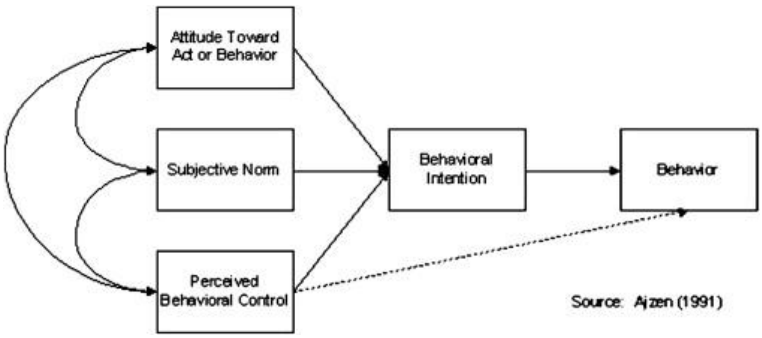
1. Theoretical Review

Initially developed to describe preventive health behavior, the HBM argues that people balance the perceived threat, which is the susceptibility and severity of the perceived threat, against the perceived benefits, barriers, and situational cues, prior to acting.



Picture 1: Health Belief Model (HBM)
Source: Subedi et al., (2025)

When applied to food choice, purchase intention is stronger in consumers who perceive pesticide residues as a severe risk and the organic products as reducing the risk. Empirical data between young Thai and Iranian adults suggest that benefits usually outweigh threat (Yazdanpanah et al. 2015), but research on behavioral change highlights the influence of risk perceptions (Pribadi and Devy 2020), which demonstrates the context sensitivity of the model. In line with this, perceived knowledge and health threat are the two primary antecedents of organic-food intention that are predicted in the current framework. In addition to the Health Belief Model, the TPB by Ajzen (1991, cited in Etheridge et al., 2023) expands on the attitude-norm lens by including the perceived behavioural control in the model, which suggests that intention crystallises when individuals have a positive evaluation, feel social approval and feel that the action is possible.



Picture 2: Theory of Planned Behavior (TPB)
Source: Etheridge et al., (2023)

In the case of organic food, positive attitude toward chemical-free food, peer or family support, and the belief that affordable certified food is all combined to predict purchasing intention. Evidence of Thais indicates that attitude prevails, but norm and control elements become significant when there is a difference in access and price among income levels (Sangkumchaliang and Huang 2012). The inclusion of TPB and HBM thus brings in the social influence and resource factor, which provides a more comprehensive explanation of how consumers make decisions. Based on this, the hypotheses development is presented in the following sub-section below.

2. Hypotheses Development

The first construct of this study is perceived knowledge, which – according to Subedi et al., (2025) decreases the ambiguity by allowing consumers to assess whether an organic 'claim' really ensures the absence of pesticides in the production process, and thus, defining the subjective worth of paying a price premium. Thai supermarket statistics indicate that those respondents who were able to correctly identify certification rules rated highly on purchase-intention scales (Sangkumchaliang and Huang, 2012). Similarly, label-familiar shoppers said they were more confident that certified produce would produce promised benefits, which were converted into intention (Nuttavuthisit and Thogersen, 2017). Therefore, it can be hypothesized that:

H1: Perceived knowledge has a positive and significant effect on consumers' intention to purchase organic food

Secondly, the perceived threat is a combination of beliefs regarding vulnerability to exposure to pesticides, and the intensity of the subsequent health issues, which drives protection. Thai consumers have become more risk-assessing, and those who place conventional produce at the very risky end of the scale report significantly stronger intentions to shift to certified organics (Nuttavuthisit and Thogersen, 2017). The potential loss being salient due to threat, it increases responsiveness to preventive cues like certification seals. Thus, the perceived threat of conventional food affects the purchasing intention of consumers towards organic products in a positive and significant way. Hence, it can be hypothesized that:

H2: Perceived threat from conventional food has a positive and significant effect on consumers' intention to purchase organic food.

Similarly, personal norms are recognized as individual behavior/values. Specifically, one's personal norms are aligned with organic consumption, when internalized obligations are aligned to protect their health or the environment, despite having low economic or social benefits. Thai millennials who perceive organic purchasing as a moral and ethical, instead of a trend, score high in terms of their intention to consumer organic food (Sirajul, 2020). The norm activation therefore directs the ethical values into actual purchase intentions. Hence, it can be hypothesized that:

H3: Personal norms have a positive and significant effect on consumers' intention to purchase organic food.

Additionally, positive attitudes are usually not sufficient to work in the pseudo-organic climate of Thailand, doubts about the authenticity of labels thwart the attitude-intention channel. Open certification restores confidence, and research indicates that trust completely conveys the impact of positive attitudes to intention when label credibility has been achieved (Nuttavuthisit and Thogersen, 2017). Therefore, it can be hypothesized that:

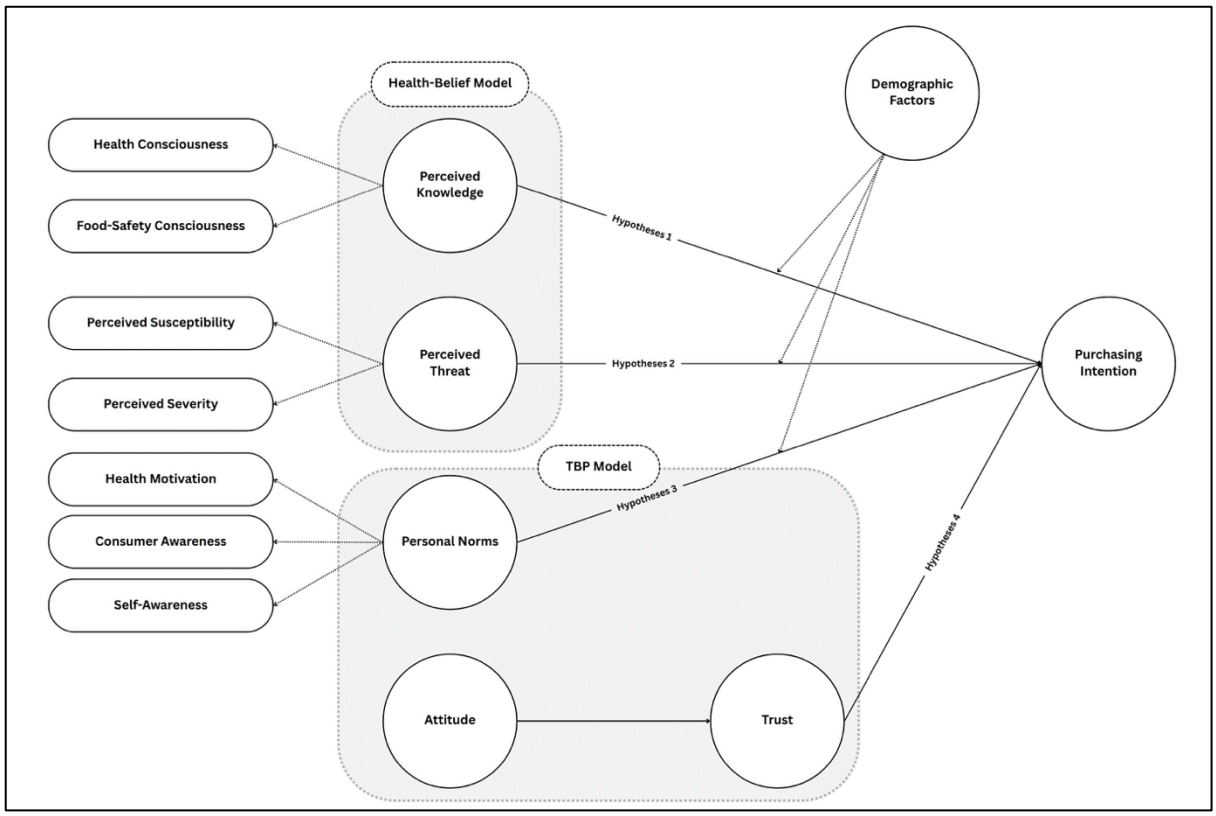
H4: Trust in organic certification mediates the effect of attitude on purchasing intention, such that attitude influences intention primarily through enhanced trust.

Finally, factors such as age, gender, and other elements tend to differ how organic food are perceived by the consumer. Studies from Thailand indicates that, women and older consumers, who are more food-safety concerned, have a stronger threat-intention relationship, while university graduates are more efficient in translating knowledge into intention than less-educated counterparts (Sangkumchaliang and Huang, 2012; Nuttavuthisit and Thogersen, 2017). The detection of such contingencies assists in the customization of interventions, which leads to the hypotheses that:

H5: Demographic factors moderate the effects of perceived knowledge, perceived threat and personal norms on purchasing intention.

3. Research Gap & Conceptual Framework

The existing Thai research examines the health-risk cognition or TPB variables separately, and thus, the combined effect of perceived threat, knowledge and attitudinal motivators on organic purchase is unclear (Nuttavuthisit & Thogersen 2017). Further, trust is typically described but rarely modelled as the process that transforms positive attitudes into intention (Nuttavuthisit & Thogersen 2017) and demographic contingencies like age, gender and education are rarely tested to have a moderating effect (Sangkumchaliang & Huang 2012)). To fill these gaps, the proposed conceptual model combines the constructs of HBM and TPB, makes trust a mediator between attitude and intention, and considers demographic moderators, which will provide a more detailed account of how Thai consumers decide to purchase organic food. Hence, the conceptual framework for this study is presented in the following figure below:



Picture 3: Conceptual Framework
Source: Author's Work (2026)

Research Methodology

This study follows a quantitative survey design with a deductive logic, guided by a positivist epistemology and the testing of hypothesized relationships based on the integrated HBM-TPB framework. Existing literature by Saunders et al., (2009) states that, positivism presupposes the objective social reality that can be quantified using structured tools and deduction moves in the direction of the theory to data, and preset hypotheses can be falsified. The research process thus starts with specification of conceptual model, then instrument building, data gathering and statistical test, and finally theory confirmation or revision.

1. Population & Sample

To define the minimum sample size, it is important to define the total population. The total number of consumers that are health-oriented in Thailand is approximately 42%. This implies that, the total Thai population is 71.60 million, implying the healthy food population = 71.60 million x 42% = 30,072,000. Based on this, the minimum sample size is calculated using the following formulae below.

Table 1*:* Minimum Sample Size

$n = \frac{N}{1+N(e)^2}$	**n = minimum sample size** **N = population size** **e = sampling error (standard 5% or 0.05)**

Analysis of the minimum sample size using Yamane's minimum sample size strategy:

$$n = \frac{N}{1+N(e)^2} = \frac{30{,}072{,}000}{1+30{,}072{,}000(0.05)^2} = \frac{30{,}072{,}000}{75{,}181} = 399.99 \approx 400 \text{ respondents}$$

The inclusion criteria for the study include the following:

- Inclusion Criteria A: The respondent must be of age 18 and above.
- Inclusion Criteria B: The respondent must be a Thai resident.
- Inclusion Criteria C: The respondent must have knowledge of organic food products.
- Inclusion Criteria D: The respondent must have consumed organic food products.

A purposive-snowball sampling approach is used, which is a non-probability sampling method. Initially, survey links are shared in health-related social-media communities and grocery-store loyalty programs and then participants are invited to share the link with their peers. Even though convenience restricts generalisability, screening questions and demographic quotas (age, gender, education) allow approximating the consumer profile of Bangkok and maximise variance among hypothesised moderators.

2. Research Instrument

The research instrument for this study comprises of a 5-point Likert scale, with each statement extracted from relevant literature sources. The research scales for this study is presented in the following table below:

Table 2*:* Research Instrument/Items

Variable	Items	Sources
Perceived Knowledge	• I have heard about organic food. • I know what "organic food" means. • I have good knowledge about organic food.	Romero & Ladwein (2023); Malkanthi et al. (2021)
Self-Efficacy	• It is easy for me to purchase organic food. • If I wanted to, I could easily purchase organic food. • Whether I purchase organic food is mostly up to me.	Pang et al. (2021)
Perceived Severity	• Health problems would threaten my relationships. • I am at risk of losing family because of health problems. • Health problems would change my whole life.• An illness from non-organic food would severely impact my quality of life.	Awale (2023); Tzeng & Ho (2022)
Perceived Susceptibility	• (1 = Highly unsusceptible … 5 = Highly susceptible) • Age-related health issues (e.g., arthritis, blood pressure). • Lifestyle-related issues (e.g., obesity, heart disease). • Genetic issues (e.g., cancer, thyroid disease). • Common illnesses (e.g., flu, allergies).	Tzeng & Ho (2022)
Perceived Benefits	• Choosing organic food is good for my body. • My quality of life improves when I choose organic food. • I can decrease medical expenses by choosing organic food. • Choosing organic food makes me feel I'm doing something good for my body.	Awale (2023)
Perceived Barriers	• Organic food is too expensive compared to general food. • Because of lack of information, it is hard to select organic food. • The meaning of "organic food" is hard to understand. • Not all foods labelled as "organic" are genuinely organic.	Awale (2023); Alagarsamy et al. (2023)
Health Consciousness	• I reflect on my health frequently. • I am self-conscious about my health. • I take responsibility for the state of my health. • I monitor my health throughout the day. • I am alert to changes in my health. • I am usually aware of my health.	Iqbal et al. (2021)

Variable	Items	Sources
Food Safety Consciousness	• The quality and safety of food nowadays concern me. • I worry that pesticide residues in the fruits and vegetables I buy might harm my health. • I carefully read food labels to avoid artificial additives and preservatives. • I am willing to pay more for food that carries an official food-safety certification logo.	Iqbal et al. (2021); Awale (2023)
Health Motivation & Values	• I believe that organic food enables me to live healthily. • I believe that organic food features high product safety. • Buying organic food would make people appreciate me more. • I feel relaxed when using organic food.	Awale (2023)
Subjective Norms	• Most people important to me think I should purchase organic food. • Most people important to me want me to purchase organic food. • People whose opinions I value prefer that I purchase organic food. • Friends' positive opinions influence me to purchase organic food.	Pang et al. (2021)
Attitude	• For me, buying organic food would be good. • For me, buying organic food would be beneficial. • For me, buying organic food would be desirable. • For me, buying organic food would be wise.	Ghazali et al. (2017)
Trust	• Organic food producers always comply with food-safety regulations. • Organic food producers are concerned about consumer safety and health. • If production issues arise, producers would recall organic products.	Tzeng & Ho (2022)
Behavioral Intention	• I intend to pay a higher price for organic food products. • I intend to buy organic food because of its high quality. • I intend to buy organic food for consumption by my family. • I intend to consume more if organic food were readily available.	Ayyub and Asif (2021)

3. Data Collection

The questionnaire will be made available online and self-administered on Google Forms and distributed via Bangkok-based Facebook and Line groups focused on healthy eating and e-mail lists of two organic retailers. Following an informed-consent screen, 65 items will be filled in by eligible adults (≥ 18 years, food purchasers in the last month). The survey will be left open for 4 weeks, with reminder posts made on days 10 and 20. The data will be exported to Excel, anonymised and saved on a password-protected drive.

4. Data Analysis

Following the descriptive screening, missing values (<2%) will be filled in and e multivariate outliers will be analysed using Mahalanobis distance. The SmartPLS 4 will be used to perform Partial Least Squares Structural Equation Modelling (PLS-SEM). The reflective measurement model will be compared with the criteria of reliability (outer loadings 0.70 and above, Cronbach alpha 0.70 and above, and composite reliability of 0.70 and above) and validity (AVE 0.50 and above, HTMT 0.85 and below). Furthermore, the SRMR (error rate) will be targeted below 0.08, ensuring a high level of accuracy and fit for the study.

Results

Based on the previous Thai evidence, this study expects that the three variables perceived knowledge, perceived threat, and personal norms will have positive, significant paths to purchasing intention, which will collectively explain over 50% of its variance (Sangkumchaliang & Huang, 2012; Nuttavuthisit & Thogersen, 2017). Similarly, the attitude-intention correlation is supposed to be mediated in

part by trust, and the variance-accounted-for (VAF) of 40% or more is the confirmation of its centrality in the pseudo-organic situation in Thailand. In addition to that, the multi-group analysis is expected to indicate that women, older adults and university graduates have stronger threat-intention and knowledge-intention paths, respectively, whereas income differences have a minor but significant impact on price-sensitivity but not structural relationships. The overall model fit will be expected to be within the SmartPLS standards (SRMR < 0.08, AVE ≥ 0.50).

Discussion

Based on the expected findings of this study, combining the Health-Belief Model with the Theory of Planned Behaviour is expected to help demonstrate that health-risk cognitions and volitional drivers do not oppose each other but instead support each other. This has been previously stated by several authors, such as, Yazdanpanah et al., (2015) and Pribadi and Devy (2020), which suggested that knowledge and perceived hazard act in tandem to mobilise organic demand. Similarly, when perceived knowledge, perceived threat and personal norms explain a significant portion of intention together, the study will provide a richness to Thai results that have thus far considered them separately (Sangkumchaliang & Huang, 2012). An important chain of attitude-trust-intention would confirm that certification credibility is the fulcrum that must be used to turn positive assessments into action, which would validate recurrent warnings that label scepticism is the obstacle in market growth (Nuttavuthisit & Thogersen, 2017).

Additionally, demographic moderation, like women being more risk sensitive or university graduates having higher leverage in their knowledge, would validate the need to employ segment-based communication approaches (Raj et al., 2020; Ahmad, 2010). In practice, based on the findings of this study, regulators may increase the intensity of third-party auditing and report on the results of enforcement, and retailers may use QR-code traceability to tech-savvy customers and on-pack seals to less-educated ones. However, since this study adopts a cross-sectional design, it might restrict causal inference and is likely to overestimate mediation estimates due to common-method variance. On the other hand, the use of purposive snowball sampling can under-represent rural and lower-income groups; self-reported intention is unlikely to predict observed purchases directly. Therefore, future studies should also combine the results of the surveys with longitudinal sales data and expand the sample to other parts of Bangkok to confirm the strength of these associations.

Conclusion

This proposed research aims to identify and confirm the determinants of organic food products among Thai consumers. This study integrated the Health Belief Model with the Theory of Planned Behaviour into a single deductive, positivist model. The model places perceived knowledge, perceived threat and personal norms as upstream antecedents of attitude, introduces trust as a conduit of mediator and tests age, gender and education as moderators. At least 400 residents of Bangkok will be surveyed using a 65-item Likert questionnaire, and the measurement and structural models will be estimated using SmartPLS. The study will help guide policy makers, certifiers and marketers who want to hasten the process of Thailand to safer and more sustainable diets by providing an empirically validated, integrative framework.

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网购平台从业者人工智能技术使用行为影响因素研究

RESEARCH ON FACTORS INFLUENCING THE USE BEHAVIOR OF ARTIFICIAL INTELLIGENCE TECHNOLOGY AMONG PRACTITIONERS IN ONLINE SHOPPING PLATFORMS

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摘要

人工智能技术已然成为驱动电子商务发展的核心动力，其潜在价值的实现，从根本上依赖于从业者群体的广泛且深度的应用。为系统探究影响网购平台从业者使用人工智能技术的关键因素，本研究基于计划行为理论（TPB），整合技术接受模型（TAM）、和信任理论的核心概念，构建了一个包含行为态度、主观规范与知觉行为控制三大维度的理论模型。模型将行为态度解构为个人创新态度与风险感知态度，将主观规范解构为群体支持态度与遵从动机，将知觉行为控制解构为便利条件、感知易用性与感知有用性。

研究通过对 568 名网购平台从业者进行问卷调查，并运用 SPSS 与 AMOS 软件进行实证分析。假设检验结果显示：（1）行为态度中，个人创新态度对技术信任和技术使用行为具有显著正向影响，而风险感知态度则呈现显著负向影响；（2）主观规范中，群体支持态度与遵从动机均对技术信任和技术使用行为产生显著正向影响；（3）知觉行为控制中，便利条件、感知易用性与感知有用性均对技术信任和技术使用行为存在显著正向驱动作用。本研究结论揭示了影响从业者技术使用行为的内在动机、社会压力与资源认知三大机制，不仅为理解人工智能技术采纳行为提供了理论解释，也为网购平台从技术优化、组织支持与氛围营造等方面制定有效的推广与管理策略提供了实践依据。

关键词: 网购平台 人工智能技术 使用行为 计划行为理论

Abstract

Artificial Intelligence (AI) technology has emerged as a core driving force behind the development of e-commerce, and the realization of its potential value fundamentally relies on the extensive and in-depth adoption by practitioners. To systematically explore the key factors influencing AI technology usage behavior among online shopping platform practitioners, this study developed a

theoretical model incorporating three primary dimensions—behavioral attitude, subjective norm, and perceived behavioral control—based on the Theory of Planned Behavior (TPB), while integrating core constructs from the Technology Acceptance Model (TAM) and Trust Theory. Within this model, behavioral attitude is decomposed into personal innovativeness attitude and risk perception attitude; subjective norm is broken down into group support attitude and compliance motivation; and perceived behavioral control is divided into facilitating conditions, perceived ease of use, and perceived usefulness.

A questionnaire survey was conducted among 568 online shopping platform practitioners, and empirical analyses were performed using SPSS and AMOS software. The results of hypothesis testing indicated the following: (1) In terms of behavioral attitude, personal innovativeness attitude exerts a significantly positive impact on both technology trust and technology usage behavior, whereas risk perception attitude demonstrates a significantly negative influence on these two variables; (2) Regarding subjective norm, both group support attitude and compliance motivation produce significantly positive effects on technology trust and technology usage behavior; (3) With respect to perceived behavioral control, facilitating conditions, perceived ease of use, and perceived usefulness all exert significant positive driving effects on technology trust and technology usage behavior. The findings of this study clarify three key mechanisms—internal motivation, social pressure, and resource cognition—that influence practitioners' technology usage behavior. This not only provides a theoretical explanation for understanding AI technology adoption behavior but also offers practical implications for online shopping platforms to formulate effective promotion and management strategies in aspects such as technology optimization, organizational support, and environment cultivation.

Keywords: Online Shopping Platform, Artificial Intelligence Technology, Usage Behavior, Theory of Planned Behavior

引言

在数字化浪潮席卷全球的当下，信息技术与实体经济的深度融合正以前所未有的速度重塑社会生产与生活方式。从工业 4.0 时代的智能工厂到智慧城市中的物联网应用，从基于用户行为分析的精准商品推荐，到依托 AI 算法的动态定价与库存优化，技术驱动的个性化服务已成为电商行业实现用户留存与商业增长的核心引擎。然而，这一进程并非单纯的技术迭代，而是涉及技术采纳、用户行为与社会结构复杂交互的系统性变革。尤其是在技术普及率持续攀升的背景下，用户对技术的接受程度及其背后的行为逻辑，逐渐成为影响技术创新落地效果的关键因素。

人工智能技术在电商领域的应用，不仅显著提升了平台的运营效率，还深刻优化了用户体验。智能推荐系统通过分析用户的浏览历史和购买行为，精准推送个性化商品，大幅提高了转化率；聊天机器人和智能客服系统的广泛应用，则有效减轻了人工客服的工作负担，提升了

客户服务的响应速度和满意度。此外，人工智能技术还在仓储管理、物流配送、数据分析等环节发挥着重要作用，帮助电商企业降低成本、提高效率。然而，随着人工智能技术的深度融入，网购平台从业者的角色与技能要求也发生了深刻变化。在传统电商模式下，从业者主要负责商品上架、订单处理等基础性工作，但随着智能化系统的引入，这些工作逐渐被自动化工具所取代。从业者的角色开始向技术辅助者、管理者和数据分析师转变，需要具备更强的数据分析能力、人工智能工具使用与维护能力，以及快速学习和适应新技术的能力。这种转变对从业者的技能提出了全新挑战，也引发了他们对职业发展的担忧。一方面，人工智能技术带来的效率提升和用户体验优化，为电商行业带来了前所未有的发展机遇；另一方面，从业者对技术替代的恐惧、学习新技能的持续压力，以及如何平衡人工与智能关系的挑战，也成为制约行业进一步发展的关键因素。因此，为系统解析网购平台从业者面对技术革新时产生的行为机制，有必要对影响其人工智能技术使用行为的关键因素进行深入梳理与探讨。

研究目的

在电子商务蓬勃发展的今天，网购平台已成为连接消费者与商家的桥梁，而人工智能技术的融入更是为这一领域带来了前所未有的变革。然而，在这一技术驱动型变革的浪潮中，网购平台从业者对于人工智能技术的使用操作行为却展现出了高度的复杂性与多变性，这一现象不仅直接关系到技术本身的普及程度与有效应用，而且还关联到平台运营效率的提升、用户体验的优化。

因此，本文聚焦于网购平台从业者对人工智能技术使用行为这一核心议题，旨在通过深入而系统地分析，揭示其背后的动因与影响因素。

文献综述

人工智能技术使用行为

Davis 在提出技术接受模型（TAM）时指出，行为意图对实际使用行为具有直接预测作用，并将系统使用行为定义为“个体在工作中使用特定技术的程度和频率” (Davis, 1989)。这一观点在后续研究中得到了进一步扩展，尤其是在人工智能领域。Venkatesh et al.（2003）在技术接受和使用统一模型中强调，行为意图、便利条件等因素共同决定了个体的技术使用行为 (Venkatesh et al., 2003)。在人工智能相关研究中，Schneider 等针对银行和保险行业员工的调查发现，员工对人工智能工具的使用行为与其对技术的信任程度和组织支持密切相关 (Schneider & Leyer, 2019)。Zhang 等在中国制造业场景下也指出，人工智能使用行为不仅涉及工具操作，更包含在组织流程中的应用与协同。因此，人工智能技术使用行为被广泛理解为个体在特定情境下，基于工作需求与主观意愿所做出的具体使用行为，包括工具操作、信息交互、决策辅助等多个方面 (Dwivedi et al., 2021)。

本研究认为，人工智能技术使用行为是指网购平台从业者在实际工作中，根据岗位需求和个人意愿，主动或被动地采用人工智能技术进行操作、管理、决策等一系列具体活动的总和。这些行为包括但不限于利用人工智能进行数据分析、客户服务、商品推荐、库存管理、物流优化等任务。

感知风险与不安全感

感知风险（Perceived Risk）概念最早由 Bauer（1960）提出，其认为个体在进行决策时无法预知结果是否令人愉快，而这种不确定性就是风险 (Bauer, 1960)，该概念由心理学角度延伸而来，后被广泛应用于消费者行为研究和信息技术采纳行为研究中 (范昊等, 2021)。早在 1964 年 Cox 提出感知风险是消费者在购买决策时对风险性质和程度的感知 (Cox & Rich, 1964)，他认为消费者的感知风险与金融和社会心理学有关 (Nicosia, 1969)。近年来，科技带来的隐私风险的研究关注度不断提升 (范为, 2016)。同时，频繁发生的公共安全事件也使得技术引发的健康风险愈发受到重视 (Shin & Kang, 2020)。Taylor（1974）说明消费者的感知风险程度对其消费行为存在影响，消费者认为存在较高风险时，会产生负面的消费态度并减少其消费意愿 (Taylor, 1974)。Miyazaki 等（2001）认为个人信息泄露、系统安全、销售商欺诈行为等风险都会对消费者的使用行为产生显著影响。消费者的感知隐私泄露风险、财产遗失风险和认为商家可能存在欺骗质量、价格等风险会影响其对线上线下相结合商业模式业务的持续使用态度 (Miyazaki & Fernandez, 2001)。在在移动环境下，用户可能因担心未授权访问个人或财务数据的潜在风险而产生不安全感，这种风险感知态度会直接影响他们对移动技术的信任程度。研究表明，感知风险会对信任产生影响 (Chin et al., 2018; Gao & Waechter, 2017)。

人工智能技术使用行为影响因素综述

人类对数字技术的采纳与使用行为受到多维社会心理机制的影响 (Taiwo & Downe, 2013)。为解析技术使用行为的复杂性，学术界基于社会学、心理学及信息系统领域开发了系列理论模型。

理性行为理论（TRA）与计划行为理论（TPB）奠定了技术接受研究的核心逻辑：前者强调行为态度与主观规范通过行为意向间接驱动实际行为 (Fishbein & Ajzen, 1975)；后者进一步引入感知行为控制（PBC）作为行为意向与实际行为的共同前因 (Ajzen, 1991)。这一理论演进表明，技术使用决策不仅源于个体的内在认知评价与社会压力感知，还需考虑其对技术可控性的主观判断。

技术接受模型（TAM）在 TRA 基础上聚焦于技术属性的认知评价，提出感知有用性与感知易用性是塑造使用态度的关键维度 (Davis, 1989)。有学者研究提出考虑一些外部变量，如用户培训、系统特征、用户参与 设计和实施过程等 (Lin et al., 2011)。后续研究通过 TAM2 与 TAM3 逐步拓展解释边界：一些新因素被添加到 TAM 后形成了 TAM2 (Venkatesh & Davis, 2000) 和 TAM3 (Venkatesh & Bala, 2008)。TAM2 纳入社会影响（主观规范、形象）与认知工具性（任务适配性、结果可论证性）以强化对感知有用性的预测 (Venkatesh & Davis, 2000)；TAM3 则深化了对感知易用性的解构，强调计算机自我效能感、计算机趣味性、计算机焦虑、外部控制感知、感知享受和客观可用性对感知易用性的影响。这一脉络揭示了技术接受研究中个体认知与社会情境的动态交互特征。

统一技术接受与使用理论（UTAUT）整合多理论模型，如创新扩散理论（Innovation Diffusion Theory，IDT）、社会认知理论（Social Cognitive Theory，SCT）、个人计算机利用模型（Model of PC Utilization，MPCU）以及动机理论等，提出绩效期望、努力期望、社会影响及便利条件四维度框架，并引入人口统计学变量作为调节因子 (Venkatesh et al., 2003)。其衍生

研究进一步探讨了技术接受的相关因素，如感知有用性、感知易用性、感知行为控制、风险感知态度、主观规范以及感知愉悦性等，作为技术信任的前因变量 (Hajiheydari & Ashkani, 2018)。

研究方法

文章采用定量研究法，目的是通过系统性地分析确保研究结果的可靠性与普遍性。研究旨在深入探讨网购平台从业者人工智能技术使用行为影响因素。为此，基于理论框架和研究假设，结合国内外相关文献回顾，设计调查问卷，综合考察多个维度，包括网购平台从业者的个人背景信息、从业者对使用人工智能技术的态度、社会环境的影响、所需资源和能力的主观判断等。采用 SPSS 和 AMOS 软件进行分析，以此对理论模型的可靠性和有效性进行检验。最后对研究假设和整合模型进行实证检验，验证理论模型各路径的效度。

一是采用了问卷调查法是本研究收集一手数据的核心方法，结合现有学者研究成果，科学设计各变量的测量量表，问卷内容紧扣计划行为理论核心构念，涵盖行为态度、主观规范、知觉行为控制等维度，同时融入网购平台特性与人工智能技术应用的具体情境，研究采用线上线下结合的发放形式，线上通过微信、QQ、问卷星等社交网络发布，线下实地发放填写，经问卷回收、筛选与整理确定研究样本，保障数据的真实性与可靠性，为后续实证分析奠定基础。二是统计分析法是数据解析、假设验证与结论推导的关键手段，本研究采用 SPSS 和 AMOS 等统计软件，对问卷调查收集的大量数据进行系统处理与分析，首先通过描述性统计分析概括样本基本特征（如性别、年龄、工作年限等），确保样本的代表性与多样性，其次运用信度分析检验问卷量表的稳定性与一致性，保障数据质量，最后通过相关性分析与回归分析，探究计划行为理论各维度与网购平台从业者技术使用行为的关系强度及方向，完成研究假设的验证。

1. 研究假设的提出

1.1 行为态度对人工智能技术使用行为的影响

在网购平台这一复杂多变的工作环境中，从业者对人工智能技术的行为态度成为影响其使用行为的关键因素。个人创新态度对网购平台从业者人工智能技术使用行为具有正向影响。高开放性与创新性的从业者具备探索动机、自主学习能力及开放思维 (Bawack et al., 2021; Kaplan et al., 2023)，能快速理解 AI 技术逻辑与业务适配性，降低使用障碍并提升技术信任度，其积极尝试与实践倾向可直接驱动技术采纳及持续使用行为，为 AI 技术应用提供正向心理基础。风险感知态度对从业者 AI 技术使用行为具有负向影响。风险感知源于技术不确定性认知(陈颖, 2018)，已有研究证实感知风险会显著抑制技术使用行为 (Li, 2025; 王晰巍等, 2020)。网购平台 AI 技术应用涉及数据分析、智能客服等多环节，存在数据滥用、算法偏差、系统故障等风险，易引发从业者对隐私安全、职业稳定性的担忧，加剧其对潜在损失的顾虑，进而削弱使用积极性，导致减少或放弃使用的行为倾向。基于以上分析，本文提出以下假设：

H1a： 个人创新态度对人工智能技术使用行为产生正向影响。

H1b： 风险感知态度对人工智能技术使用行为产生负向影响。

1.2 主观规范对人工智能技术使用行为的影响

在探讨网购平台从业者使用人工智能技术的行为时，主观规范作为一个重要的前因变量，其对人工智能技术使用行为的影响不容忽视。群体支持态度的影响得到理论与实证

支撑，Liao 和 Chen（2007）、Yoon 等（2015）的研究均证实其对技术持续使用的驱动作用 (Liao et al., 2007; Yoon et al., 2015)。在网购平台场景中，同事、行业领袖等的正面评价为技术采纳赋予社会合法性，降低认知风险与心理门槛；群体示范效应与社会比较机制，会激发从业者的竞争与追赶动机；而群体认同效应则强化归属感，使技术使用成为实现群体目标的途径，进而促进技术采纳。遵从动机作为主观规范的核心要素，深刻影响从业者的技术决策。刘人境等（2013）、范佳佳（2018）的研究表明，群体支持会降低个体技术采纳的心理阻力 (范佳佳, 2018; 刘人境 & 柴婧, 2013)。具有强遵从动机的从业者，更倾向于依赖他人意见应对技术不确定性，若感知到技术使用符合行业规范或组织期望，会因社会压力、寻求认同及职业发展考量，主动采纳人工智能技术。基于以上分析，本文提出以下假设：

H2a：群体支持态度对人工智能技术使用行为产生正向影响

H2b：遵从动机对人工智能技术使用行为产生正向影响

1.3 知觉行为控制对人工智能技术使用行为的影响

知觉行为控制是个体对自身执行某一行为的能力、资源和机会的主观认知，它反映了网购平台从业者对自身能否使用人工智能技术的信心和掌控感。感知有用性作为技术接受模型（TAM）核心变量 (Davis, 1989)，指从业者对技术提升运营效率、优化服务等实用价值的认知。尽管技术接受和使用统一模型将其演化为 “绩效期望” (Venkatesh et al., 2003)，但在任务导向的网购平台场景中，其对使用行为的直接驱动作用仍显著，Yoon 等（2015）亦证实其与持续使用行为的正向关联，技术带来的效率与绩效提升会直接激发使用动机(Yoon et al., 2015)。感知易用性强调技术操作的简便性与易掌握性，良好的人机交互设计可降低学习成本与认知负担，减少技术抗拒心理。便利条件作为关键外部环境因素，涵盖软硬件支持、培训服务、技术响应等资源保障。Oliveira 等（2014）、Chiu 等（2012）等研究均证实其对技术使用的正向影响，充足的资源支持能降低使用门槛、增强掌控感，让从业者更有信心将技术嵌入业务流程 (Chiu et al., 2012; Oliveira et al., 2014)。基于以上分析，本文提出以下假设：

H3a：感知有用性对人工智能技术使用行为产生正向影响

H3b：感知易用性对人工智能技术使用行为产生正向影响

H3c：便利条件对人工智能技术使用行为产生正向影响

1.4 技术信任的中介作用

个人创新态度作为个体主动尝试新技术的内在倾向，对技术信任的形成具有显著影响。根据创新扩散理论 (Rogers, 1962)，具有高个人创新态度的个体往往更早接纳新技术，并倾向于通过主动探索来降低技术的不确定性。在人工智能技术的接受和使用过程中，感知到自身安全、隐私或就业风险的人更不可能信任人工智能 (Wirtz et al., 2019)。该领域的研究一致认为，感知风险对用户信任具有负面影响。同时，个体更倾向于采纳那些受到其信任或敬重的他人推荐的技术，尤其是当这些他人已成功采用该技术并获得实际利益时 (Carter et al., 2011)。Foehr 与 Germelmann（2020）指出，当潜在用户通过亲密的亲属、朋友或伴侣接触到人工智能赋能系统时，他们通常会借此机会收集关于该系统在善意、能力和诚信等方面的信息 (Foehr & Germelmann, 2020)。当从业者认识到人工智能技术在提升运营效率、优化决策质量、增强用户体验等方面的实用价值时，这种认知会显著增强其对技术的信任感。当从业者认为该技术易于学习、界面直观、操作便捷时，他们在心理上会减少对技术采纳的顾虑，从而更容易建立对该

技术的信任。从实践角度来看，Gu 等（2016）、Singh 等（2017）的研究发现，当从业者感知到组织在硬件设备的适配性、软件界面的易用性以及系统性培训资源上的支持时，其对新技术的使用障碍评估明显降低 (Gu et al., 2016; Singh et al., 2017)。

技术信任在推动数字工具使用行为方面的关键作用已在多个研究情境中得到系统性验证。Mostafa 等（2022）在智能客服场景中的研究发现，从业者对人工智能系统形成初始信任后，其技术采纳意愿显著增强，并在实际使用阶段表现为更高的操作频率与更广泛的应用场景渗透 (Mostafa & Kasamani, 2022)。Chatterjee 等（2023）进一步指出，当用户感知到技术提供方具备可靠的保障能力时，其风险规避倾向将显著降低，从而更愿意在业务流程中深度融合人工智能技术 (Chatterjee & NS, 2023)。在网购平台从业者群体中，技术信任的形成具有明显的情境特征。具体而言，当从业者感知到人工智能能够高效且准确地完成客户画像分析、智能推荐等核心任务时，其对技术的信任会随之增强，而这种信任进而转化为实际的使用行为。基于以上分析，本文提出以下假设：

H4a：个人创新态度对技术信任产生正向影响

H4b：风险感知态度对技术信任产生负向影响

H5a：群体支持态度对技术信任产生正向影响

H5b：遵从动机对技术信任产生正向影响

H6a：感知有用性对技术信任产生正向影响

H6b：感知易用性对技术信任产生正向影响

H6c：便利条件对技术信任产生正向影响

H7：技术信任对技术使用行为产生正向影响

2. 研究设计

2.1 研究对象

本研究聚焦于以下三类网购平台从业者：首先是个体商家，作为平台生态中的核心参与者，其业务覆盖商品从上市至售后的全周期管理；其次是平台运营人员，负责日常运营与管理工作，对人工智能技术的应用具有直接需求与切身体验；第三类是客服人员，作为直接面向用户的一线工作者，其工作模式与效率深受人工智能客服系统影响。

2.2 量表设计

研究模型中共计 9 个变量： 自变量：个人创新态度、风险感知态度、群体支持态度、遵从动机、便利条件、感知易用性、感知有用性，中介变量：技术信任，因变量：人工智能技术使用行为。变量测量题项采用 Likert 五级量表编制，从“非常不符合(1)”到“非常复合(5)”，为保证问卷的测量题项具有较高的可靠性，所有题项均来源于已有研究，并做出适当调整。其中，个人创新性的题项参考了 Agarwal 和 Prasad（1998）、Rogers（1962）、Chen（2011）的测量量表；风险感知态度的题项参考了 Featherman 和 Pavlou（2003）、Bauer（1960）的测量量表；群体支持态度的题项参考了 Ajzen（1991）、Taylor 和 Todd （1995）的测量量表；遵从动机的题项参考了 Venkatesh 等（ 2003）的测量量表；感知有用性的题项参考了 Davis（1989）、胡保亮（2024）的测量量表；感知易用性的题项参考了 Davis（1989）、Venkatesh 和 Davis（ 2000）的测量量表；便利条件的题项参考了 Venkatesh 等（2003）、任红娟（2024）

的测量量表；技术信任的题项参考了 McKnight （2002）、牛春华（2022）的测量量表；人工智能技术使用行为的题项参考了梁太鑫（2022） 、Venkatesh 等 (2003) 的测量量表。为确保问卷数据的有效性，本研究在正式调查之前进行了预调研。对预调研所得数据进行探索性因子分析与验证性因子分析，评估各测量变量的内部一致性、聚合效度与结构效度。通过信度分析，结构效度分析，验证性因子分析明确了量表具备合适信度和效度，最终得到 9 个因子和 37 个测量题项。

2.3 研究数据

本研究采用问卷星平台作为数据收集工具，开展网络问卷调查，旨在获取关于网购平台从业者使用人工智能技术的行为及其影响因素的第一手数据。调查对象主要为当前在淘宝、京东、拼多多、抖音电商等主流网购平台从事运营、客服、营销、直播带货等相关工作的从业人员。为确保样本的广泛性与代表性，问卷发放共采用两种途径：一是通过研究者在网购平台工作的朋友和同学协助，在其所在的微信群、QQ 群及网购平台从业者社群中投放问卷链接，以触达真实的行业内部从业者群体；二是借助专业的第三方问卷投放平台“问卷星”进行定向发放。通过该平台设置了筛选条件，仅允许当前在网购平台工作的人员填写问卷，从源头上保障样本的准确性与针对性。

本次调查涵盖了来自不同平台类型、职位角色、年龄段、性别及教育背景的从业者，样本具有一定的多样性与代表性，有助于从多维度深入探讨人工智能技术在网购平台从业者群体中的接受与持续使用行为。本次调研共回收 652 份问卷数据。为提高数据的有效性与代表性，在数据清洗阶段，本研究依据前述筛选题（第 7 题）及答题行为进行处理。首先，排除了答题时间少于 3 分钟的快速作答问卷，共 29 份，判断为填写不认真；其次，通过人工比对 IP 地址和答题内容，剔除了 17 份疑似重复提交的问卷；此外，还进一步删除了 38 份存在逻辑错误或作答模式异常的问卷，如前后答案矛盾、选项冲突，或整份问卷中大量选择相同选项、缺乏判断倾向等情况。

最终，经过筛选与清洗，共获得 568 份有效样本数据，作为后续实证分析的基础。

研究结果

1. 信度与效度检验

研究采用 SPSS 对问卷量表进行信度分析（如表 1 所示），以检验各变量的内部一致性。结果显示，个人创新态度、风险感知态度、群体支持态度、遵从动机、感知有用性、感知易用性、便利条件、技术信任和技术使用行为等九个变量的 Cronbach’s α 系数分别为 0.870、0.888、0.864、0.852、0.885、0.845、0.856 、0.863 和 0.876，均高于 0.6 的最低标准，表明量表具有良好的信度，各变量测量题项之间具有较高的一致性和可靠性。 在效度检验方面，本研究采用 AMOS 软件进行验证性因子分析以评估聚合效度与区分效度。聚合效度检验结果显示，各测度项的因子载荷均大于 0.70，组合信度（CR）值均高于 0.80，平均变异抽取量（AVE）均超过 0.50，表明各潜变量能够有效解释其对应测度项的大部分变异，问卷具有较好的聚合效度。 进一步进行区分效度检验，结果显示各变量 AVE 的平方根均大于该变量与其他变量之间的相关系数，说明各潜变量之间具有较好的区分效度。

表 1: 信度与效度检验

变量	编码	Cronbach's α 值	项已删除的 α 系数	因子载荷	CR	AVE
个人创新性	PL1	0.870	0.832	0.797	0.870	0.627
	PL2		0.834	0.794		
	PL3		0.842	0.757		
	PL4		0.826	0.818		
感知风险	PR1	0.888	0.861	0.800	0.891	0.622
	PR2		0.873	0.748		
	PR3		0.860	0.801		
	PR4		0.877	0.721		
	PR5		0.847	0.866		
群体态度	NB1	0.864	0.819	0.811	0.866	0.618
	NB2		0.824	0.798		
	NB3		0.821	0.797		
	NB4		0.845	0.737		
遵从动机	MC1	0.852	0.824	0.744	0.853	0.593
	MC2		0.816	0.760		
	MC3		0.809	0.775		
	MC4		0.800	0.800		
感知有用性	PU1	0.885	0.855	0.811	0.888	0.665
	PU2		0.877	0.746		
	PU3		0.827	0.886		
	PU4		0.849	0.812		
感知易用性	PEU1	0.845	0.810	0.746	0.847	0.581
	PEU2		0.819	0.721		
	PEU3		0.800	0.764		
	PEU4		0.784	0.815		
便利条件	FC1	0.856	0.806	0.798	0.857	0.599
	FC2		0.807	0.802		
	FC3		0.826	0.743		
	FC4		0.825	0.752		
技术信任	TT1	0.863	0.799	0.849	0.873	0.634
	TT2		0.860	0.694		
	TT3		0.846	0.740		
	TT4		0.786	0.886		

变量	编码	Cronbach's α 值	项已删除的 α 系数	因子载荷	CR	AVE
技术使用行为	UB1	0.876	0.847	0.792	0.879	0.644
	UB2		0.857	0.762		
	UB3		0.835	0.822		
	UB4		0.828	0.833		

2. 共同方法偏差检验

本研究采用 Harman 单因子检验法对共同方法偏差进行评估。该方法将所有测量题项整体纳入因子分析，通过观察特征根的数量以及首因子对总方差的解释比例来判断是否存在显著偏差。具体而言，若提取出的特征根大于 1 的因子数超过 1，且首因子解释的总方差比例低于 50%，则可认为未出现明显的共同方法偏差；部分学者进一步指出，若首因子的解释率低于 40%，则数据质量更为理想。

借助 SPSS 27.0 软件对样本数据进行了 Harman 单因子检验。结果显示，共提取了 10 个特征根大于 1 的因子，首因子对总方差的解释率为 30.502%，明显低于 50%的临界标准，同时也符合 40%以下的推荐标准。由此可判断，本研究样本数据中未发现严重的共同方法偏差，后续的模型分析结果具有较高的可信度。

3. 模型拟合

本研究借助结构方程建模软件 AMOS24.0，对所构建的理论模型进行了实证检验，模型中共包含 9 个核心变量，分别为个人创新态度、风险感知态度、群体支持态度、遵从动机、感知有用性、感知易用性、便利条件、技术信任以及技术使用行为。拟合效果详见表 2。

从模型的各项拟合指数来看，χ^2/df 值为 1.177，小于常用阈值 3，表明模型整体拟合良好；GFI 为 0.939，AGFI 为 0.928，均大于 0.8，说明模型具有较强的解释力；CFI、IFI 和 TLI 分别为 0.991、0.991 和 0.990，三项指数均超过了 0.9 的标准，表明改进模型与理论模型之间的差距较小；RMSEA 为 0.018，远低于 0.08 的警戒线，显示出模型具有较高的近似拟合度。

表 2: 结构方程模型拟合度检验结果

常用指标	χ2/df	GFI	AGFI	RMSEA	CFI	IFI	NNFI(TLI)
统计值	1.177	0.939	0.928	0.018	0.991	0.991	0.990
参考值	<3	>0.8	>0.8	<0.08	>0.9	>0.9	>0.9
达标情况	达标	达标	达标	达标	达标	达标	达标

4. 假设检验结果

本研究借助 AMOS24.0 软件对所构建的结构方程模型进行路径系数估计与显著性检验，以验证各项假设的成立情况，具体结果如表 3 所示，对应的路径系数图如图 4.2 所示。整体来看，模型中全部路径关系达到了统计显著性，验证了假设的合理性，具体分析如下：

在“行为态度”维度下，H1a 与 H1b 均获得显著支持。具体来看，H1a 假设“个人创新态度对技术使用行为的影响”路径系数为 0.114，P=0.012（小于 0.005），显著为正，说明网购平台从业者在具备更高个人创新态度时，更倾向于主动使用人工智能技术。H1b 假设“风险感知态度对技术使用行为的影响”路径系数为−0.112，P=0.009，显著为负，表明风险感知会抑制从业者的实际使用行为。

在“主观规范”维度中，H2a 与 H2b 均通过了显著性检验。H2a“群体支持态度对技术使用行为”的路径系数为 0.103，P=0.018（小于 0.005），H2b“遵从动机对技术使用行为”的路径系数为 0.123，P=0.007（小于 0.005），均表现为显著正向关系。这意味着在网购平台环境下，从业者受到群体支持态度和从众动机的共同影响，显著提升了其人工智能技术的使用行为。

在“知觉行为控制”维度下，H3a、H3b 与 H3c 三条路径均显著。H3a“感知有用性对技术使用行为”的路径系数为 0.198，P<0.001，表现为显著正向关系；H3b“感知易用性对技术使用行为”的路径系数为 0.140，P=0.001，同样为显著正向；H3c“便利条件对技术使用行为”的路径系数为 0.095，P=0.017（小于 0.005），也达到显著水平。这表明在实际应用中，从业者认为人工智能技术有助于工作提升、易于操作，以及具备良好的使用条件时，其使用行为会显著增强。

在中介变量“技术信任”的影响路径方面，多项假设亦获得支持。H4a“个人创新态度对技术信任”的路径系数为 0.122，P=0.018（小于 0.050），显著为正，说明创新性较强的从业者更容易对人工智能技术建立信任。H4b“风险感知态度对技术信任”的路径系数为−0.194，P<0.001，显著为负，表明较高的风险感知会削弱从业者对技术的信任。

“主观规范”对技术信任也具有显著正向作用。H5a“群体支持态度对技术信任”的路径系数为 0.121，P=0.014（小于 0.050），H5b“遵从动机对技术信任”的路径系数为 0.113，P=0.027（小于 0.050），均达到显著水平，表明从业者在感受到群体支持或因从众动机而倾向采纳人工智能技术时，更容易建立技术信任。

在“知觉行为控制”对技术信任的路径中，H6a“感知有用性”路径系数为 0.148，P=0.003（小于 0.010），H6b“感知易用性”路径系数为 0.107，P=0.026（小于 0.050），H6c“便利条件”路径系数为 0.108，P=0.018（小于 0.050），三者均为显著正向关系。这说明，当从业者认为人工智能技术有助于工作目标的达成、操作简便且使用条件完备时，更容易形成技术信任。

最后，H7 假设“技术信任对技术使用行为”的路径系数为 0.217，P<0.001，表现为显著正向关系。这一结果验证了技术信任在推动从业者实际使用人工智能技术中的关键作用。

表 3: 结构方程模型检验结果

假设	变量关系	路径系数	S.E.	C.R.	P	检验结果
H1a	个人创新态度→技术使用行为	0.114	0.04	2.506	0.012	成立
H1b	风险感知态度→技术使用行为	-0.112	0.042	-2.631	0.009	成立
H2a	群体支持态度→技术使用行为	0.103	0.044	2.371	0.018	成立
H2b	遵从动机→技术使用行为	0.123	0.04	2.717	0.007	成立
H3a	感知有用性→技术使用行为	0.198	0.047	4.487	***	成立
H3b	感知易用性→技术使用行为	0.14	0.041	3.272	0.001	成立
H3c	便利条件→技术使用行为	0.095	0.04	2.381	0.017	成立

假设	变量关系	路径系数	S.E.	C.R.	P	检验结果
H4a	个人创新态度→技术信任	0.122	0.047	2.37	0.018	成立
H4b	风险感知态度→技术信任	-0.194	0.048	-4.043	***	成立
H5a	群体支持态度→技术信任	0.121	0.052	2.463	0.014	成立
H5b	遵从动机→技术信任	0.113	0.047	2.212	0.027	成立
H6a	感知有用性→技术信任	0.148	0.054	2.983	0.003	成立
H6b	感知易用性→技术信任	0.107	0.047	2.225	0.026	成立
H6c	便利条件→技术信任	0.108	0.047	2.371	0.018	成立
H7	技术信任→技术使用行为	0.217	0.044	4.741	***	成立

讨论

1. 行为态度对技术信任和技术使用行为的影响

本研究从个人创新态度与风险感知态度双维度解构行为态度，实证结果验证了其对技术信任和技术使用行为的显著作用，且假设 H1a、H1b、H4a、H4b 均得到支持，与计划行为理论核心逻辑高度契合。

个人创新态度既对人工智能技术使用行为产生正向影响，也显著促进技术信任的建立。高创新特质的网购平台从业者更愿意主动探索智能客服、推荐算法等新兴工具，在实践中积累经验、降低技术不确定性，既增强了使用依赖性，也通过积极尝试形成稳定信任预期，这与 Hurt 等（1977）关于个人创新推动技术采纳的研究结论一致 (Hurt et al., 1977)。

风险感知态度则呈现反向作用：对数据隐私泄露、算法决策错误等风险的担忧，不仅直接抑制从业者的实际使用行为，也显著削弱技术信任的形成。结合网购平台行业特性，风险感知的负向影响根源在于从业者对 AI 技术的多重现实顾虑。核心顾虑之一是算法替代焦虑：网购平台的运营、客服、选品等岗位从业者，担忧智能算法会逐步替代人工决策（如智能选品系统取代运营人员的经验判断、AI 客服覆盖大部分咨询场景），进而威胁职业稳定性。这种对“技术替代劳动”的深层恐惧，使其对 AI 技术产生本能排斥，既不愿主动使用，也难以建立信任。此外，电商场景的特殊性加剧了风险感知，一方面，从业者需处理大量用户隐私数据（如消费记录、联系方式），AI 系统的数据存储与处理过程存在泄露风险，而网购行业对数据安全的合规要求极高，一旦泄露将引发法律责任与品牌危机，直接放大信任顾虑；另一方面，算法决策的黑箱特性可能导致经营损失，例如智能推荐算法误判用户需求导致转化率下滑、自动定价系统出错引发成本风险，这类与业绩直接挂钩的潜在损失，进一步抑制了从业者的使用意愿与信任水平。这种风险顾虑会引发防御性心理，降低对技术可靠性的认可，与李玟玟等（2024）及 Gefen 等（2003）的研究发现相呼应，尤其在电商 AI 应用场景中，风险感知对信任建立和行为转化的制约更为明显 (Gefen et al., 2003; 李玟玟等, 2024)。

2. 主观规范对技术信任和技术使用行为的影响

本研究从“群体支持态度”和“遵从动机”维度构建主观规范变量，实证结果显示二者均对网购平台从业者的技术信任及使用行为产生显著正向影响，H2a、H2b 与 H5a、H5b 均获支持，契合计划行为理论中社会影响的核心作用。

群体支持态度的双重正向作用清晰可见：当团队或行业普遍认可人工智能技术时，个体既会受积极氛围感染更倾向于使用技术 (Venkatesh & Davis, 2000)，也会因社会认同减少不

确定性，进而建立技术信任。这种影响在协作密集的网购平台场景中尤为突出，群体认同感成为技术信任与使用的双重催化剂，印证了 Schepers 等（2007）关于主观规范稳定作用的结论 (Schepers & Wetzels, 2007)。

遵从动机同样呈现传导效应：上级指令、企业政策等外部期望，既直接驱动从业者为满足组织要求而使用技术 (Warshaw, 1980)，又通过引导其参与技术实践、熟悉应用场景，逐步转化为真实信任。组织提供的培训与指导进一步降低风险感知，使遵从性使用成为信任建立的契机，最终形成“规范-信任-行为”的完整路径。

3. 知觉行为控制对技术信任和技术使用行为的影响

本研究从“感知有用性”“感知易用性”“便利条件”三维度解构知觉行为控制，实证结果显示，三者均对网购平台从业者的人工智能技术使用行为和技术信任产生显著正向影响，验证了 H3a、H3b、H3c 及 H6a、H6b、H6c 假设，凸显知觉行为控制在技术采纳过程中的核心作用。

感知有用性的双重正向影响得到充分验证。当从业者认为 AI 技术能提升运营效率、优化决策或改善顾客体验时，既会直接增强使用意愿，也会降低对技术的不确定性预期，进而建立信任。这与 Davis（1989）技术接受模型（TAM）中“感知有用性是行为预测关键”的结论一致，也契合 Gefen 等（2003）“有用性感知降低风险预期以强化信任”的观点。网购平台中 AI 客服、智能推荐等功能的实际价值，成为从业者使用行为与技术信任的共同驱动因素。

感知易用性通过降低使用门槛实现双重赋能。直观界面、简便逻辑与低学习成本，不仅让从业者更易克服心理障碍而应用技术，更能增强其对技术的掌控感与可靠性认知，进而提升信任。这一结果呼应 Venkatesh 和 Davis（2000）的研究——感知易用性既直接影响行为，也通过塑造认知基础促进信任 (Venkatesh & Davis, 2000)。对非技术岗位为主的从业者而言，易用性体验尤为关键，可有效缓解技术焦虑，强化技术可控的信任感知。

便利条件作为外部支撑，为行为与信任提供环境保障。持续培训、有效技术支持等条件，既降低技术使用障碍以促进实际应用，也通过提升从业者掌控感强化信任。这与 Venkatesh 等（2003）UTAUT 模型中“便利条件是工作场景技术采纳重要前置因素”的结论相符。McKnight 等（2002）指出信任建立依赖“能力与环境感知” (McKnight et al., 2002)，而便利条件正是通过优化环境感知，与个人技能认知共同筑牢信任基础。

总结

本研究围绕网购平台从业者对人工智能技术的使用行为，构建融合计划行为理论（TPB）、技术接受模型（TAM）和信任理论的研究模型，系统揭示其影响机制，结论如下：

行为态度层面呈现二元驱动特征。个人创新态度既正向促进技术使用行为，也正向提升技术信任；风险感知态度则同时负向抑制使用行为与技术信任，说明激发创新与管控风险需并重。

主观规范通过“氛围塑造-动机强化”双重路径生效。群体态度与遵从动机均正向影响使用行为，且二者对技术信任的正向作用显著，印证从业者技术决策受社会网络与规范压力的双重引导。

知觉行为控制构成技术采纳的核心保障。感知有用性、感知易用性与便利条件不仅直接正向驱动使用行为，三者对技术信任亦存在显著正向影响，共同夯实行为控制基础。

技术信任发挥关键中介作用。技术信任本身正向影响使用行为，且在个人创新态度与使用行为间承担中介角色，成为连接前因变量与使用行为的重要桥梁。

综上，网购平台从业者 AI 技术使用行为是内在态度、外部规范、可控性感知与技术信任共同作用的结果。研究为技术推广提供依据：需激发创新意愿、管控风险，营造积极群体氛围，优化技术实用性与易用性，同时通过多维度举措构建技术信任，全面提升 AI 技术落地成效。

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潮玩盲盒消费者行为分析——以泡泡玛特为例
CONSUMER BEHAVIOR ANALYSIS OF FASHION BLIND BOX —A CASE STUDY OF POPMART

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摘要

本研究基于刺激——有机体——反应（SOR）理论范式，建构 “盲盒惊喜感→消费体验→消费行为” 的作用模型，旨在揭示潮玩盲盒消费情境中关键变量的作用机制与影响路径。研究采用问卷调查法，围绕核心变量构建三维度量表，对数名泡泡玛特消费者进行调查。问卷量表信效度良好，通过数据分析、回归与 Bootstrap 中介效应检验，研究发现：盲盒惊喜感与消费体验均对消费行为产生显著正向影响；同时，消费体验在惊喜感与消费行为之间发挥部分中介作用。本研究在理论上补充了 “情绪——体验——行为” 链条在盲盒情境中的实证证据，并为相关不确定性消费场景的研究与应用提供了参考依据。

关键词: 潮玩盲盒 消费行为 盲盒惊喜感

Abstract

This study is based on the Stimulus-Organism-Response (SOR) theoretical paradigm and constructs a model of “blind box surprise → consumption experience → consumption behavior,” aiming to reveal the mechanisms and impact paths of key variables in the consumption context of trendy blind boxes. A questionnaire survey method was used, with a three-dimensional scale constructed around the core variables to survey many Pop Mart consumers. Data analysis indicated good reliability and validity of the scale. Through correlation analysis, regression, and Bootstrap mediation effect tests, the study found that both blind box surprise and consumption experience have a significant positive impact on consumption behavior; meanwhile, consumption experience partially mediates the relationship between surprise and consumption behavior. Theoretically, this study supplements empirical evidence for the “emotion-experience-behavior” chain in the context of blind boxes and provides a reference for the study and application of related uncertain consumption scenarios.

Keywords: Tide Play Blind Box, Consumer Behavior, Blind Box Surprise

引言

研究的背景

近年来，随着新生代消费者对情绪价值、个性表达与精神体验的关注不断增强，潮玩产业在中国迅速扩张。其中，盲盒作为以“不确定性”与“情绪刺激”为核心机制的潮玩形式，逐渐成为年轻群体的重要消费选择。盲盒所具备的随机机制通过强化期待、惊喜等情绪反应，使消费行为从功能性购买转向情绪体验驱动，呈现出区别于传统商品的独特心理特征。在这一消费环境中，泡泡玛特凭借其持续扩展的原创 IP、系统化运营模式及线上线下多渠道布局，构建了具有代表性的盲盒消费场景。消费者在拆盒、收集、展示与社交分享等过程中逐步形成沉浸式与延展性的体验，使盲盒消费具有情绪投入高、分享意愿强与重复购买显著等特征，形成了稳定而活跃的用户群体。

盲盒消费行为呈现出明显的非理性特征和情感驱动属性。Wang (2023)等人的实证研究表明，盲盒消费者的购买决策主要受三大因素影响：收集心理（占比 42%）、社交需求（占比 35%）和情感寄托（占比 23%）。这种消费行为模式与传统的理性消费理论存在显著差异，盲盒的成功在于其巧妙运用了行为经济学原理。Knutson（2023）指出，盲盒通过"可变奖励机制"（Variable Reward System）激活了消费者大脑中的多巴胺分泌，拆盲盒时大脑伏隔核活跃度比普通购物高 40%，多巴胺分泌量增加 27%。从而形成强烈的购买冲动。基

本研究旨在通过对泡泡玛特潮玩盲盒消费者的消费行为进行系统分析，深入了解影响消费者购买决策、消费模式及忠诚度的关键因素。具体研究目的包括：分析泡泡玛特潮玩盲盒消费者的行为特征，包括购买动机、消费习惯等。探讨盲盒惊喜感和消费体验对消费者购买行为的影响机制。为潮玩盲盒的市场策略提供理论依据，通过对消费行为的深入分析，为中国自主研发的潮玩盲盒提供有关市场定位、产品优化和营销策略的具体建议。通过揭示消费者行为背后的心理机制与消费动机，帮助潮玩开发商更好地了解消费者需求，提高产品竞争力，并促进中国潮玩盲盒在中国海内外市场的成功

研究目的

本研究旨在围绕泡泡玛特潮玩盲盒消费情境，系统分析影响消费者购买行为的关键因素，并探讨盲盒惊喜感、消费体验与消费行为之间的内在联系。通过梳理相关理论与既有研究，本研究希望从消费者行为视角出发，明确盲盒不确定性机制所引发的情绪反应如何在体验加工过程中转化为实际的购买决策与消费模式。为此，本研究将对消费者的购买动机、消费习惯、行为特征等方面进行归纳分析，并进一步揭示情绪体验在盲盒消费者决策链条中的作用机制。通过对盲盒消费过程的系统性研究，本研究旨在为潮玩品牌的产品设计、用户体验优化和市场策略制定提供理论支持与实证依据。

文献综述

理论基础

1. 计划行为理论（Theory of Planned Behavior, TPB）：由 Ajzen（1991）提出，是系统阐释个体从心理意向到实际行为决策过程的重要理论框架。该理论突破了传统理性消费模型的局限，将态度、主观规范和感知行为控制三个核心因素纳入统一的分析框架，认为行为意向是这些因素共同作用的结果，并直接引导实际行为的发生。相较于其他消费行为理论，计划行

为理论特别强调了社会影响与个体控制感知对决策过程的作用，因而能够更全面地解释如盲盒消费这类具有显著情感驱动与社交互动特征的新兴消费行为。

在盲盒消费的具体情境中，态度维度体现为消费者对盲盒产品设计美学、情感价值以及惊喜机制的内在认同与偏好，构成了消费行为的基础动力。主观规范维度则反映了消费者在社交媒体环境、同辈群体压力以及圈层文化影响下所形成的感知社会期待，刘佳美（2023）的实证研究表明，在盲盒消费中主观规范对购买意愿的影响权重达到 38%，显著高于感知行为控制的 27%，这从理论层面解释了盲盒消费中强烈的社交传染效应与从众购买现象。感知行为控制维度则涉及消费者的经济承受能力、购买渠道便利性以及对隐藏款获取概率的认知评估，这些因素直接影响其持续参与消费的可行性。因此，计划行为理论以其完整的理论架构和良好的解释力，为本研究系统揭示盲盒消费者从心理意向转化为实际购买行为的内在机制提供了适切的理论支撑。

2. 情感评价理论（Affective Evaluation Theory）：源于 Zajonc（1980）提出的“情感优先”假说，该假说认为消费者的情感反应先于认知评估。在盲盒消费中，这一理论体现为“拆盒瞬间的情绪爆发”。Lazarus（1991）的认知评估理论进一步阐释了盲盒情感体验的形成机制。研究表明，消费者对盲盒的情感反应取决于两个关键评估阶段：初级评估（判断产品是否符合自身需求）和次级评估（判断自己能否掌控获取过程）。蒋钰香（2021）研究发现，Z 世代消费者尤其重视次级评估，这也解释了为何“隐藏款概率透明化”能够显著提升他们的满意度。Feldman 和 Lynch（1988）的情感转移理论揭示了 IP 与产品之间的情感连接机制。当消费者对 IP 形象产生积极情感时，会不自觉地将这种情感转移到相关产品上。刘佳依（2024）的研究显示，具有 IP 认知基础的消费者，其盲盒购买意愿是无 IP 认知者的 3.2 倍，并且这种情感转移效应在女性消费者中更为显著。

3. SOR 模型（Stimulus-Organism-Response Model）：由 Mehrabian 和 Russell（1974）提出，其中 S（刺激）代表环境因素，O（有机体）代表内部心理过程，R（反应）代表行为结果。在盲盒消费研究中，该模型被修正为：S 包括盲盒设计、营销活动等外部刺激；O 体现为惊喜感和消费体验等心理状态；R 则表现为购买行为和品牌忠诚。

从环境心理学视角扩展 SOR 模型可见，泡泡玛特盲盒的刺激维度涵盖线下与线上多场景。线下门店的环境设计是关键刺激因素，如暖色调灯光的运用，相较于冷色调，能显著提升消费者的情绪唤醒度，使消费者在门店内更易产生愉悦感，进而增强对盲盒的兴趣；线上场景中，官方 APP 或购买页面的 “动态拆盒特效”，通过视觉动态效果模拟真实拆盒过程，让消费者在线上也能感受到拆盒的期待感，这种线上 “惊喜感设计” 直接提升了有机体阶段（O）的情感投入度，使消费者对盲盒的心理关注更强。

在有机体阶段的中介效应层面，消费体验在盲盒刺激与消费反应间发挥部分中介作用。结合研究中对泡泡玛特消费者的分析，盲盒带来的惊喜感（如拆到隐藏款的兴奋、对未知款式的期待）对购买行为的直接影响显著，但通过消费体验产生的间接影响更为突出。例如，消费者在门店拆盒时获得的感官体验（如拆盒时的触感、门店主题陈列带来的沉浸感）、线上社区分享拆盒喜悦获得的社交体验，会进一步强化惊喜感对消费行为的推动，使消费体验成为连接刺激与反应的重要桥梁，更有效地促进消费者复购、推荐等行为。

假设推导

1. 盲盒惊喜感对消费体验有显著正向影响。

在 SOR 框架中，外部刺激经由个体内在心理状态再指向行为结果，盲盒机制所激发的惊喜反应属于有机体阶段的情绪唤醒并直接塑造主观体验 Schmitt（1999）关于体验的论述在潮玩领域得到拓展，且实证权重显示情感体验与满意度的耦合更强，这与“惊喜感提升主观体验质量”的方向一致。。Mehrabian 和 Russell（1974）的 SOR 模型被本文用于将“盲盒设计与概率设置”等刺激映射为“惊喜感与体验”的有机体反应，再通向后续行为反应，这为“惊喜感提升消费体验”的路径提供了总体方法论支撑。

2. 消费体验对消费行为有显著正向影响。

SOR 模型将有机体阶段的体验状态作为行为反应的直接前因，因而更高质量的消费体验会提升个体的行动倾向与实际选择概率。本文在模型设定中已将“消费体验”明确置于 O 阶段，指向“购买与复购”等 R 阶段反应，这一配置与 SOR 的基本因果链条一致。消费体验的满意度与忠诚度之间呈现出非线性关系。Oliver（1999）的忠诚度模型在盲盒消费中表现为，当体验满意度超过阈值（7.8/10 分）后，消费者的品牌忠诚度会出现指数级提升。郑亚盼（2022）的研究证实，这种“满意-忠诚” 跃迁在潮玩领域比普通快消品更为显著，其转化效率高出 38%。范佳蕙（2021）的结果显示三维体验对结果变量具有实质性贡献，意味着体验改善会转化为更强的行为表现，盲盒情境下的感官、情感与社交体验显著影响满意与持续参与。

3. 盲盒惊喜感通过消费体验间接影响消费行为。

依据 SOR，外部刺激首先塑造有机体的情绪与体验，再由体验驱动行为，惊喜感对行为的影响应当部分经由“消费体验”这一心理通道发挥作用。本文在理论部分已将“惊喜感与消费体验”共同作为 O 的核心构念，指向 R 的消费行为，由此预期出现“刺激经由体验影响行为”的中介路径。

4. 盲盒惊喜感对消费行为有显著正向影响。

计划行为理论指出，个体的行为意向由态度、主观规范与感知行为控制共同决定，并进一步指向实际行为。惊喜感作为对盲盒机制的积极态度体验，会通过提升意向而正向影响购买行为；同时社交情境强化的主观规范与对抽取可行性的控制感也会与之协同。Ajzen（1991）的理论框架为“情绪性态度成分直接正向作用于行为”的推理提供了基础。刘佳美（2023）的盲盒研究证明了主观规范影响显著强于感知控制，进一步解释了惊喜驱动下的晒盒与从众购买如何被迅速转化为实际行为。

模型建构

根据上述研究假设，可以构建以下理论模型：

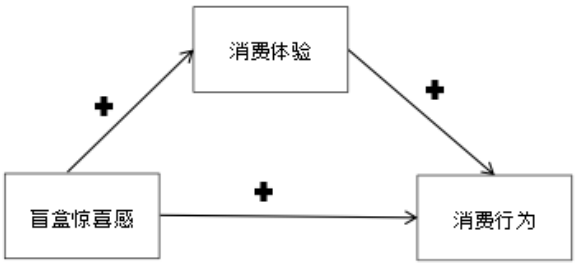

图 1: 理论模型构建图

研究方法

1. 研究对象：本研究的对象是泡泡玛特潮玩盲盒的消费者群体。泡泡玛特作为中国潮玩行业的代表性品牌，其盲盒产品巧成功吸引了中国以及海外广泛的消费者，拥有较高的市场影响力和品牌认知度。通过分析消费者消费体验、消费行为和购买策略，本研究期望为潮玩盲盒行业的市场策略提供理论和实践支持

2. 研究方法：本研究借助问卷、访谈、观察、文献研究以及定量分析等方法作为此次研究的基本方法来对泡泡玛特潮玩盲盒消费者的消费体验和行为进行、分析和归纳从而总结出规律性的内容。

3. 数据收集：为了更好地理解泡泡玛特潮玩盲盒消费者的消费体验和行为，收集了 369 名消费者的问卷数据。通过分析这些数据，我们能够从性别、年龄、学历、职业、收入水平、消费等方面详细了解样本的基本情况。此部分将对样本的基本情况进行详细分析，以便为后续的数据分析与结论提供基础。

4. 数据分析：收集到的问卷数据将通过 SPSS 软件进行处理和分析。首先进行描述性统计分析，了解消费者的基本特征；然后进行因子分析、回归分析等，以探讨各变量之间的关系和影响因素，揭示消费者购买决策和忠诚度的主要驱动因素。验证假设：通过数据分析验证研究假设，探索消费者行为、消费体验、价格策略、社交影响等因素对消费者消费行为的具体影响。

研究结果

问卷将分为四个部分，具体结构如下：基本信息表包括性别、年龄、学历、职业、月收入水平等。

盲盒惊喜感表包括消费者在购买打开盲盒时意外和惊喜度，以及对隐藏款的期待，采用 Likert 五点量表包含 10 个问题（1 = 非常不同意，2 = 不同意，3 =一般，4 = 同意，5 = 非常同意）进行测量。

消费体验表包括消费者购买盲盒时的主观体验，主要包括雄飞这体验的愉悦性、满足感和便利性，采用 Likert 五点量表包含 10 个问题（1 = 非常不同意，2 = 不同意，3 = 一般，4 = 同意，5 = 非常同意）进行测量。

消费行为表包括消费者在购买盲盒时的具体购买活动，采用 Likert 五点量表包含 10 个问题（1 = 非常不同意，2 = 不同意，3 = 一般，4 = 同意，5 = 非常同意）进行测量。

最终收回 369 份有效信息，样本基本情况如下：

表 1: 样本基本情况

项目	分类	人数	比例（%）
性别	男	110	29.81
	女	259	70.19
年龄	18 岁以下	52	14.11
	18-24 岁	108	29.27
	25-34 岁	103	27.39
	35-44 岁	63	17.07
	45 岁以上	43	11.66
学历	高中及以下	71	19.23
	大专/本科	151	40.95
	硕士及以上	147	39.82

项目	分类	人数	比例（%）
职业	公司职员	146	39.62
	自由职业	35	9.48
	公务员/事业单位	56	15.91
	学生	103	27.93
	其他	29	7.86
月收入水平	5000 元以下	65	17.62
	5000-8000 元	100	27.05
	8000-12000 元	128	34.66
	12000 元以上	76	20.59
购买盲盒的频率	每天购买	23	6.23
	每周购买	67	18.15
	每月购买	80	21.68
	每年购买	199	53.94
消费经验（持续消费时间）	少于半年	28	7.58
	半年-1 年	71	19.23
	1-2 年	111	30.08
	2-3 年	115	31.22
	3 年以上	44	11.93

根据表 1 所示的样本基本情况，女性消费者占比 70.19%，男性消费者占比 29.81%，显示出该产品更受女性消费者青睐。年龄方面，18-34 岁的青年群体占比超过 56.66%，尤其是 18-25 岁和 25-35 岁的消费者为主力，表明消费吸引了较为年轻的消费者。在学历分布上，大专/本科及以上学历的消费者占比达到 40.95%。在职业分布上，公司职员和学生是主要消费者群体，分别占比 39.32%和 27.93%。月收入水平上，5000-12000 元收入段是主要消费群体，尤其 8000-12000 元收入段的消费者占比最大，达到 34.66%，显示出消费的消费群体具有中等收入水平。关于消费频率，大多数消费者每月或每年消费，显示出消费者的活跃度较高。消费经验方面，具有 1-3 年消费经验的消费者占比 61.3%，表明消费者会持续消费盲盒。总体而言，泡泡玛特潮玩盲盒吸引了中青年、较高学历、具备一定收入和消费经验的消费者群体。根据样本情况分析结果，购买泡泡玛特潮玩盲盒的消费者群体主要集中在 18-35 岁之间的中青年群体，女性消费者占比远高于男性消费者。大多数消费者具有较高的学历并且持续消费，且消费的消费群体主要来自月收入在 5000-12000 元之间的消费者。消费者的消费频率较高，大部分消费者每月或每年至少参与一次消费，显示出消费的高吸引力和较强的消费者粘性。这些特点表明，泡泡玛特潮玩盲盒具有较强的市场吸引力，尤其是在中青年群体中，且其消费者在收入和消费经验上具备较强的消费能力，能够支撑消费内的消费行为。

表 2: 盲盒惊喜感量表的得分情况

	题目	1 非常不同意（%）	2 不同意（%）	3 一般（%）	4 同意（%）	5 非常同意（%）
变量：盲盒惊喜感	题目 1	3.75	15.54	41.07	25.71	13.93
	题目 2	8.57	16.25	36.61	19.11	19.46
	题目 3	8.75	15.71	23.21	24.64	27.68
	题目 4	5.00	16.79	38.75	31.96	7.50
	题目 5	3.93	18.93	29.64	35.00	12.50
	题目 6	4.82	15.89	31.96	17.68	29.64

	题目	1 非常不同意（%）	2 不同意（%）	3 一般（%）	4 同意（%）	5 非常同意（%）
变量：盲盒惊喜感	题目 7	5.89	12.86	30.89	18.21	32.14
	题目 8	6.25	17.5	24.11	35.54	16.61
	题目 9	7.68	15.89	26.96	22.68	26.79
	题目 10	7.86	15.36	27.50	16.61	32.68
	小计	6.25	16.07	31.07	24.71	21.89

如表 2 所示，从盲盒惊喜感量表的得分情况来看，大多数受访者对于盲盒惊喜感的态度较为偏向同意。例如，题目 1 的得分显示出有 25.71%的受访者选择“同意”，而 41.07%的受访者选择“一般”，表明受访者在盲盒惊喜感的某些方面少量保持中立态度。其他题目如题目 2 和题目 3，也表现出类似的分布趋势，受访者对某些盲盒惊喜感内容有一定的认同感，但并非所有人都表现出强烈的偏好。总体而言，受访者的盲盒惊喜感在不同消费要素上存在一定的差异，且大多数受访者倾向于在“同意”与“一般”之间进行选择，这也表明了盲盒惊喜感的多样性和个体差异。

表 3: 消费体验量表的得分情况

	题目	1 非常不同意（%）	2 不同意（%）	3 一般（%）	4 同意（%）	5 非常同意（%）
变量：消费体验	题目 1	4.00	10.54	36.07	20.71	28.68
	题目 2	9.07	11.25	31.61	12.46	35.61
	题目 3	9.25	10.71	18.21	16.17	45.66
	题目 4	5.51	11.79	33.75	28.46	20.59
	题目 5	4.43	13.93	24.64	29.50	27.50
	题目 6	5.32	10.89	26.96	14.37	42.46
	题目 7	6.39	7.86	25.89	10.86	49.00
	题目 8	6.75	12.50	19.11	28.14	33.50
	题目 9	8.18	10.89	21.96	18.31	40.66
	题目 10	8.36	10.36	22.50	9.00	49.78
	小计	6.23	11.07	26.07	18.80	37.83

如表 3 所示，在消费体验量表的得分分布中，受访者的选择呈现出较为均衡的态度。大多数受访者对于消费体验方面的态度偏向“非常同意”与“一般”两种选择，例如题目 1 和题目 2 的得分均显示出有超过 30%的受访者选择“一般”，而另外部分受访者则选择了“同意”或“非常同意”，表明大部分人对消费体验有一定的认可度，同时在题目 6 和题目 7，分别有 42.46%和 49%的受访者表示“非常同意”，说明消费在某些方面的消费体验得到了较高的认同。总体来看，消费体验的得分分布呈现一定的多样性，反映出受访者在消费消费体验方面的个人差异。

表 4: 消费行为量表的得分情况

	题目	1 非常不同意（%）	2 不同意（%）	3 一般（%）	4 同意（%）	5 非常同意（%）
变量：消费行为	题目 1	6.43	16.43	23.75	25.36	28.04
	题目 2	5.54	11.43	33.04	27.14	22.86
	题目 3	6.79	15.89	20.71	33.57	23.04
	题目 4	3.93	17.50	28.21	21.43	28.93

	题目	1 非常不同意（%）	2 不同意（%）	3 一般（%）	4 同意（%）	5 非常同意（%）
变量：消费行为	题目 5	7.50	16.43	19.82	30.18	26.07
	题目 6	3.57	14.82	30.36	17.14	34.11
	题目 7	9.46	8.75	19.46	31.96	20.36
	题目 8	7.86	16.96	21.07	28.75	25.36
	题目 9	7.14	15.36	25.54	18.04	33.93
	题目 10	3.21	19.29	22.86	27.68	26.96
	小计	6.14	15.29	25.48	26.13	26.96

如表 4 所示，在消费行为量表中，受访者的得分呈现出较高的“同意”与“非常同意”比例，尤其在题目 6 和题目 9 上，分别有 34.11%和 33.93%的受访者选择了“非常同意”，这表明这些受访者在消费消费行为方面表现出了较强的参与感和积极性。题目 3 和题目 7 也表现出较高的“同意”比例，进一步说明了消费消费者在消费行为方面的活跃度较高。总体而言，大部分受访者在消费行为上显示出对消费内购或其他消费选项的认可，而少部分受访者选择了较低的分数，可能表明其在消费行为方面的参与度较低。整体上，消费行为的得分显示出较为显著的偏向，表明消费者的消费行为在一定程度上受到了消费本身的吸引和激励。

为了进一步探讨盲盒惊喜感、消费体验与消费行为之间的关系，本研究使用皮尔逊相关系数对三个变量进行了相关性分析。通过分析它们之间的相关性，可以揭示各变量之间的相互影响程度，为后续的假设检验提供数据支持。

表 5: 盲盒惊喜感、消费体验与消费行为相关性

		盲盒惊喜感	消费体验	消费行为
盲盒惊喜感	皮尔逊相关性	1	0.723***	0.682***
	Sig.（双尾）		0.000	0.000
消费体验	皮尔逊相关性	0.723***	1	0.853***
	Sig.（双尾）	0.000		0.000
消费行为	皮尔逊相关性	0.682***	0.853***	1
	Sig.（双尾）	0.000	0.000	

根据表 5 的相关性分析结果，可以得出以下几点：

盲盒惊喜感与消费体验的相关性：盲盒惊喜感与消费体验之间的皮尔逊相关系数为 0.723（$p < 0.001$），说明两者之间存在中等强度的正相关关系。即，消费者对盲盒惊喜感知程度越高，其在购买中的消费体验感知也越好。

盲盒惊喜感与消费行为的相关性：盲盒惊喜感与消费行为之间的皮尔逊相关系数为 0.682（$p < 0.001$），表明两者之间存在中等强度的正相关关系。这表明，盲盒惊喜感感知程度越高的消费者，其实际消费行为的频率和金额也越高。

消费体验与消费行为的相关性：消费体验与消费行为之间的皮尔逊相关系数为 0.853，同样显示出中等强度的正相关关系。这表明，消费者在购买盲盒的消费体验越好，其消费行为也会相应增加，反映了消费体验对消费者消费行为的积极推动作用。

综上所述，盲盒惊喜感、消费体验和消费行为之间均存在显著的正相关关系，且相关性较强。这表明消费者的盲盒惊喜感和消费体验对其消费行为有显著影响。具体而言，盲盒惊

喜感的提升有助于改善消费者的消费体验，进而促进其消费行 为的增加。这些结果为后续探讨各变量间的关系及其影响机制提供了有力的支持。

表 6: 盲盒惊喜感与消费行为的回归分析

变量	因变量：消费行为					
	模型 1-1			模型 1-2		
控制变量	Beta	t	Sig.	Beta	t	Sig.
常量	1.732	5.423	0.000	1.606	5.923	0.000
性别	-0.032	-0.892	0.373	-0.028	-0.784	0.120
年龄	0.041	1.142	0.254	0.037	1.034	0.315
学历	0.068	1.892	0.059	0.062	1.732	0.341
职业	-0.026	-0.724	0.469	-0.022	-0.613	0.556
月收入	0.085	2.364	0.109	0.079	2.192	0.339
购买盲盒的频率	0.192	3.725	0.148	0.150	3.462	0.157
持续购买时间	0.125	2.891	0.406	0.116	2.703	0.467
盲盒惊喜感	—	—	—	0.530	6.742	0.000
R^2	0.193			0.289		
调整后 R^2	0.175			0.265		
F 值	10.872			18.422		
VIF 最大值	1.821			1.853		

表 6 展示了盲盒惊喜感与消费行为的回归分析结果。在模型 1-1 中，控制变量的整体解释力较低（R^2 = 0193），控制变量对于消费行为影响不显著，表明这些变量在本模型中对消费行为的预测能力较弱。

在模型 1-2 中，控制变量的整体解释力显著提高（R^2 = 0.289），且自变量——盲盒惊喜感对消费行为的影响显著（β =0.530, $p < 0.001$）。相比模型 1-1，模型 1-2 加入了更多的解释变量，可以验证盲盒惊喜感的正向影响。在控制了所有变量后，盲盒惊喜感的回归系数较高，说明其对消费行为的有正向显著影响。同时，其他控制变量依然未显示出显著效应。

此外，两个模型的 VIF 最大值（分别为 1.821 和 1.853）均小于 10，表明不存在严重的多重共线性问题，模型的稳健性较好。

通过回归分析结果可以得出，盲盒惊喜感对消费行为具有显著的正向影响。通过模型 1-1 与模型 1-2 的变焦，盲盒惊喜感的回归系数正向且显著，表明消费者对消费的惊喜感知程

度越高，其在消费中的消费行为也会越积极。这一结果验证了研究假设，并为后续研究提供了有力的支持。4.9 展示了盲盒惊喜感与消费行为的回归分析结果。在模型 1-1 中，控制变量的整体解释力较低（R^2 = 0193），控制变量对于消费行为影响不显著，表明这些变量在本模型中对消费行为的预测能力较弱。

在模型 1-2 中，控制变量的整体解释力显著提高（R^2 = 0.289），且自变量——盲盒惊喜感对消费行为的影响显著（β =0.530, p < 0.001）。相比模型 1-1，模型 1-2 加入了更多的解释变量，可以验证盲盒惊喜感的正向影响。在控制了所有变量后，盲盒惊喜感的回归系数较高，说明其对消费行为的有正向显著影响。同时，其他控制变量依然未显示出显著效应。

此外，两个模型的 VIF 最大值（分别为 1.821 和 1.853）均小于 10，表明不存在严重的多重共线性问题，模型的稳健性较好。

通过回归分析结果可以得出，盲盒惊喜感对消费行为具有显著的正向影响。通过模型 1-1 与模型 1-2 的变焦，盲盒惊喜感的回归系数正向且显著，表明消费者对消费的惊喜感知程度越高，其在消费中的消费行为也会越积极。这一结果验证了研究假设，并为后续研究提供了有力的支持。

表 7: 消费体验中介作用的回归分析

变量	因变量：消费行为									因变量：消费体验		
	模型 2-1			模型 2-2			模型 2-3			模型 2-4		
控制变量	Beta	t	Sig	Beta	t	Sig.	Beta	t	Sig.	Beta	t	Sig.
常量	1.606	5.923	0.000	1.599	5.157	0.000	0.948	8.923	0.000	1.657	22.147	0.000
性别	-0.028	-0.784	0.120	-0.014	0.398	0.691	-0.025	-0.702	0.483	-0.030	-0.843	0.401
学历	0.062	1.732	0.341	0.042	1.170	0.243	0.057	1.592	0.312	0.063	1.772	0.377
职业	-0.022	-0.613	0.556	-0.002	-0.038	0.970	-0.019	-0.532	0.595	-0.023	-0.652	0.515
月收入水平	0.079	2.192	0.339	0.034	0.682	0.495	0.074	2.062	0.448	0.080	2.232	0.326
购买盲盒的频率	0.150	3.462	0.157	0.029	0.723	0.170	0.168	4.682	0.237	0.178	4.972	0.248
持续购买时间	0.116	2.703	0.467	0.048	1.275	0.203	0.135	3.772	0.267	0.144	4.022	0.257
盲盒惊喜感	0.530	6.742	0.000	——			0.342	7.102	0.000	0.513	11.443	0.000
消费体验	——			0.528	14.515	0.000	0.366	9.323	0.000	——		
R^2	0.193			0.281			0.382			0.263		
调整后 R^2	0.175			0.265			0.395			0.245		
F	10.872			18.422			18.792			18.252		
VIF 最大值	1.821			1.853			1.923			1.853		

表 7 展示了消费体验在盲盒惊喜感与消费行为之间的中介作用的回归分析结果。首先，在模型 2-1 中，盲盒惊喜感对消费行为的影响仍然显著（β = 0.530，p < 0.001），与主效应检验中的结果一致。其次，在模型 2-4 中，盲盒惊喜感对消费体验有显著的正向影响（β = 0.513，p < 0.001），表明消费者对消费的惊喜感知程度越高，其消费体验的感知越强。接下来，在模型 2-2 中，消费体验对消费行为的影响也显著（β = 0.528，p < 0.001），表明良好的消费体验促进了消费者的消费行为。

最后，在模型 2-3 中，控制了所有变量后，盲盒惊喜感对消费行为的影响依然显著（β = 0.342，p < 0.001），而消费体验对消费行为的影响亦显著（β = 0.366，p < 0.001）。通过对

比模型 2-1 和模型 2-4 的回归系数，可以发现，消费体验在盲盒惊喜感与消费行为之间起到了部分中介作用。具体而言，盲盒惊喜感通过增强消费者的消费体验，间接推动了其消费行为的增加。

为更严谨地检验消费体验的中介作用，本研究进一步在控制性别、年龄、学历等变量的前提下，运用 Bootstrap 抽样法进行 5000 次重复抽样，以计算中介效应的 95%置信区间。消费体验的中介效应 Bootstrap 分析如表 8 所示：

表 8: 消费体验的中介效应Bootstrap分析

路径关系	效应值	标准误	95% 置信区间	
			Lower	Upper
盲盒惊喜感 → 消费体验 → 消费行为	0.188	0.031	0.131	0.251

如表 8 显示：Bootstrap 分析结果表明，“盲盒惊喜感 → 消费体验 → 消费行为” 这一中介路径的间接效应值为 0.188，其 95%的偏差校正置信区间为 [0.131, 0.251]，区间上下限均不包含 0。这证实了消费体验的中介效应具有统计显著性。同时，盲盒惊喜感对消费行为的直接效应依然显著（效应值 = 0.342, 95% CI [0.247, 0.437]）。此结果与前述分层回归分析结论相互印证，最终确认消费体验在盲盒惊喜感与消费行为之间承担了部分中介作用，从而假设 H3 获得了强有力的支持。

讨论

本研究围绕盲盒惊喜感、消费体验和消费行为三者之间的关系展开，通过假设检验的方式，深入分析了盲盒惊喜感如何通过消费体验影响消费行为。

1. 盲盒惊喜感对消费体验有显著正向影响

假设 1 提出，盲盒的惊喜感能够显著提升消费者的消费体验。消费者在购买和开启盲盒的过程中，由于对未知内容的期待和获得稀有款的兴奋感，会增强其整体的消费体验。通过回归分析，结果显示盲盒惊喜感对消费体验的回归系数为 0.513，且 p 值小于 0.001，表明盲盒惊喜感对消费体验有显著的正向影响。这说明消费者对盲盒的惊喜感越强，其在消费过程中的体验越好。验证了假设 1 的成立。

2. 消费体验对消费行为有显著正向影响

假设 2 提出，良好的消费体验能够显著促进消费者的购买行为。消费者在享受盲盒带来的惊喜和乐趣后，更愿意再次复购。回归分析结果表明，消费体验对消费行为有显著正向影响（$\beta = 0.528$，$p < 0.001$）。这表明，消费者在消费中的消费体验越好，他们的消费行为越积极，验证了假设 2 的成立。

3. 盲盒惊喜感通过消费体验间接影响消费行为

假设 3 提出，盲盒惊喜感不仅直接影响消费行为，还会通过提升消费者的消费体验间接影响消费行为。具体而言，消费者对消费的偏好通过增强消费的互动性、趣味性等，进一步推动消费行为。中介效应分析结果显示，盲盒惊喜感通过显著提升消费体验，从而间接影响消费行为（$\beta = 0.342$，$p < 0.001$）。因此，假设 3 得到验证，表明消费体验在盲盒惊喜感与消费行为之间起到部分中介作用。验证了假设 3 的成立。

4. 盲盒惊喜感对消费行为有显著正向影响

假设 4 提出，盲盒的惊喜感对消费者的购买行为有直接的正向影响。消费者在购买盲盒时，由于对未知内容的期待和获得稀有款的兴奋感，会更愿意进行购买行为。回归分析结果表明，盲盒惊喜感对消费行为的直接影响显著且正向（$\beta = 0.530$，$p < 0.001$），说明盲盒的惊喜感确实更能增加消费行为。这验证了假设 4 的成立

总结

通过以上假设检验结果，可以得出结论：盲盒惊喜感、消费体验和消费行为之间存在显著的正向关系。具体来说，盲盒惊喜感不仅直接影响消费行为，还通过提升消费体验间接影响消费行为。消费体验在其中起到了中介作用，既增强了盲盒惊喜感对消费行为的影响，也突出了消费者在消费中获得的感官体验对其消费决策的重要性。消费体验在盲盒惊喜感与消费行为之间发挥了部分中介作用。尽管盲盒惊喜感对消费行为的直接影响仍然显著，消费体验的引入显著增强了模型对消费行为的解释力。这表明，盲盒惊喜感不仅直接影响消费行为，还通过增强消费体验间接推动了消费行为的发生。因此，消费体验在这一过程中起到了部分中介作用，而非完全中介。盲盒惊喜感通过提升消费者的消费体验，进而促进其消费行为的发生。这一结果为理解盲盒惊喜感对消费行为的影响机制提供了有力的支持，且为后续的管理和营销策略制定提供了理论依据。

因此，本研究的假设均得到了实证支持，验证了盲盒惊喜感通过直接和间接的方式影响消费者的消费行为。这些发现为消费开发者和营销人员提供了有价值的理论依据，帮助他们更好地理解消费者行为并制定针对性的市场策略。

启示

本研究发现不同特征群体在盲盒惊喜感、消费体验和消费行为上存在显著差异：18-34 岁的青年群体是消费主力，占比达 56.66%，其中 18-24 岁群体在盲盒惊喜感和消费行为上的评分较高；18 岁以下消费者在盲盒惊喜感和消费行为上的评分也较为突出，而 45 岁以上群体相关评分相对较低。这表明年轻群体对盲盒的惊喜感感知更强，消费行为更活跃。学生群体的盲盒惊喜感和消费行为明显优于其他职业群体。性别、学历和消费经验等因素对盲盒惊喜感、消费体验和消费行为的影响较小，未表现出显著差异。这说明盲盒的吸引力和消费者的消费行为更多取决于娱乐需求、时间投入和收入水平等因素，而非性别或教育背景。

本研究通过相关性分析、回归分析和中介效应检验，验证了盲盒惊喜感、消费体验和消费行为之间的关系，揭示了其中的影响机制。盲盒惊喜感对消费体验的影响：实证结果显示，盲盒惊喜感对消费体验具有显著的正向影响（$\beta=0.513$，$p<0.001$）。这表明消费者对盲盒的惊喜感越强，在购买和使用过程中的整体体验（包括愉悦性、满足感和便利性等）就越好。盲盒的未知性、隐藏款的期待等惊喜元素，能够提升消费者的参与感和满足感，进而优化其消费体验。消费体验对消费行为有显著的正向影响（$\beta=0.528$，$p<0.001$）。良好的消费体验能够有效促进消费者的购买行为，包括提高购买频率、参与促销活动的积极性以及对衍生产品的购买意愿等。当消费者在消费过程中获得愉悦和满足时，会更愿意持续消费并进行相关消费行为。盲盒惊喜感不仅直接对消费行为产生显著正向影响，还通过消费体验间接影响消费行为（$\beta=0.342$，$p<0.001$）。这意味着消费者的消费决策既受到盲盒本身惊喜感的直接驱动，也受到由惊喜感提升的消费体验的间接推动。盲盒的惊喜感能够直接激发消费者的购买欲望，同时通过改善消费体验，进一步强化其消费行为。

综合来看， 18-34 岁的年轻群体为核心，这些群体对盲盒的惊喜感感知较强，消费行为活跃；消费者的消费决策受到盲盒惊喜感和消费体验的双重影响，其中消费体验在盲盒惊喜感与消费行为之间起到重要的中介作用。这些研究结论为泡泡玛特及其他潮玩品牌的市场细分和营销策略制定提供了依据。针对核心消费群体，应重点优化产品设计和服务，提升盲盒惊喜感和消费体验，以进一步激发其消费潜力；同时，也为理解潮玩盲盒消费行为的内在逻辑提供了理论支持，丰富了潮玩盲盒消费行为领域的研究。

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碳排放权交易对企业绿色并购决策影响研究
THE IMPACT OF CARBON EMISSIONS TRADING ON CORPORATE GREEN M&A DECISIONS RESEARCH

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摘要

在“双碳”目标背景下，本研究旨在探讨碳排放权交易（CET）这一市场化环境规制工具对企业绿色并购（GMA）决策的内在驱动机制。本文选取 2007—2023 年沪深 A 股上市公司为研究样本，将中国碳排放权交易试点政策视为一项准自然实验，构建多期双重差分模型（Multi-period DID），系统检验了 CET 对企业绿色并购发生概率与交易规模的主效应。研究认为，碳交易政策通过“配额约束”与“价格激励”双重机制发挥作用：配额约束倒逼高碳企业通过并购快速获取绿色技术与资产，以降低合规成本。价格激励则通过碳资产溢价提升了绿色资产的吸引力，并为企业提供减排收益支持。实证分析结果显示，碳交易政策显著促进了企业绿色并购，且该结论通过了平行趋势及 PSM 等稳健性测试 。异质性分析表明，该政策效应在国有企业、小规模企业、高碳密集度及重污染行业中尤为突出；从并购类型看，对横向绿色并购的推动力显著优于纵向与混合并购 。经济后果检验证实，由政策引致的绿色并购能显著提升企业的碳绩效与绿色全要素生产率，实现环境与经济效益的双赢 。本文不仅丰富了碳交易政策微观效应的研究，也为优化碳市场机制、引导企业低碳转型提供了重要的经验证据。

关键词: 碳排放权交易 绿色并购 准自然实验 异质性分析

Abstract

Against the backdrop of the "dual carbon" goals, this study aims to explore the intrinsic driving mechanism of carbon emission trading (CET), a market-based environmental regulatory tool, on corporate green mergers and acquisitions (GMA) decisions. This paper selects A-share listed companies in Shanghai and Shenzhen from 2007 to 2023 as the research sample, treating China's carbon emission trading pilot policy as a quasi-natural experiment. A multi-period difference-in-differences (DID) model is constructed to systematically test the main effects of CET on the probability and scale of corporate green mergers and acquisitions. The study argues that the carbon trading policy operates through a dual mechanism of "quota constraints" and "price incentives": quota constraints force high-carbon companies to quickly acquire green technologies and assets through mergers and acquisitions to reduce compliance costs. Price incentives, through carbon asset premiums, enhance the attractiveness of green assets and provide companies with emission reduction benefits. Empirical analysis results show that the carbon trading policy significantly promotes corporate green mergers and acquisitions, and this conclusion passes robustness tests such as parallel trends and the PSM (Power, Price, and Method) model. Heterogeneity analysis shows that the policy effect is particularly

pronounced in state-owned enterprises, small-scale enterprises, and industries with high carbon intensity and heavy pollution. In terms of M&A type, the driving force for horizontal green M&A is significantly stronger than that for vertical and conglomerate M&A. Economic consequences analysis confirms that policy-induced green M&A can significantly improve corporate carbon performance and green total factor productivity, achieving a win-win situation for both environmental and economic benefits. This paper not only enriches the research on the micro-effects of carbon trading policies but also provides important empirical evidence for optimizing carbon market mechanisms and guiding enterprises towards low-carbon transformation.

Keywords: Carbon Emissions Trading, Green Mergers And Acquisitions, Quasi-Natural Experiment, Heterogeneity Analysis

引言

在全球气候治理趋严的背景下，减少碳排放已成为各国共识，中国提出的“双碳”目标更是为经济绿色转型划定了明确的时间表。在这一进程中，CET 作为核心的市场化环境规制工具，通过配额约束与价格激励的双重逻辑，试图将减排的外部压力转化为企业转型的内生动力。然而，企业在面对碳成本激增时，仅依靠内部渐进式的技术研发往往面临周期长、风险大、资金占用多等局限，难以在短期内实现碳配额的动态平衡。相比之下，GMA 凭借其资源整合的高效率与转型周期的瞬时性成为企业快速获取绿色技术、碳资产及清洁能源渠道的核心战略选择。

目前现有文献多聚焦于碳交易政策对微观企业绿色创新或减排绩效的孤立影响，较少将其纳入企业宏观战略投资的决策框架，导致碳交易政策的微观经济后果研究在战略层面出现“断层”。其次，虽然部分研究探讨了政府补贴或行政处罚对绿色并购的驱动作用，但对于 CET 这种依赖市场供需和价格信号调节的软性约束机制，其对绿色并购的主效应关系仍缺乏系统性的实证剥离与精准识别。最后，在实证方法上，传统模型难以剔除宏观环境的干扰，亟需引入准自然实验等更具外生性的研究设计来论证政策的净效应 。

针对绿色并购的行业痛点，目前的实践仍处于高意愿、高门槛、低转化的尴尬境地。绿色并购往往涉及新能源、节能环保等资本密集型领域，其技术壁垒极高且投资回报周期漫长，叠加碳交易价格波动带来的不确定性，使得企业在决策时面临严峻的融资约束与风险承担挑战；同时，市场上优质的绿色标的稀缺，企业在并购过程中不仅要支付高额的溢价，还需应对跨行业整合中的技术消化不良与环境协同效应难以释放的痛点，导致许多绿色并购表现出明显的策略性套利特征而非实质性转型。这种内外部环境的复杂性，使得碳交易政策能否真正诱导企业开展“提质增效”的绿色并购，成为亟待厘清的关键科学问题。

研究目的

本研究目的为探索碳排放权交易政策是否可以促进企业绿色并购的发生。本研究旨在系统探析碳排放权交易政策对企业绿色并购决策的影响效应，兼顾了绿色并购的发生概率与交易规模双重维度，以全面刻画政策对企业战略转型的拉动作用 。在证实主效应的基础上，本文进一步深入考察不同产权性质、企业规模、行业属性及并购类型的异质性表现，旨在厘清政策发挥作用的边界条件与微观差异。此外，研究还拓展至经济后果分析，验证碳交易政策驱动下的绿色并购能否有效转化为碳绩效的提升与绿色全要素生产率的增长，从而为评价碳市场机制在实现环境效益与经济效益“双赢”方面的实际成效提供系统的经验证据。

文献综述

在双碳目标与环境规制转型的宏观背景下，CET 作为调节企业环境行为的核心工具，研究重心正从单纯的技术创新激励转向更具战略意义的外部资源整合决策。随着全国碳市场的正式运行，时效性较强的研究开始关注到技术研发的滞后性与高风险性痛点，指出企业在面对配额硬约束时，往往难以仅凭内部创新满足合规要求。这就引出了交叉研究领域的核心命题：CET 是否会诱导企业寻求外部补齐策略？由此，GMA 作为一种能够瞬时获取减排资产与绿色合法性的战略路径，逐渐被纳入 CET 的研究框架。现有研究在共性上认同环境规制对企业并购行为的动员作用，但在分歧点上，关于 CET 这种市场化工具是否比传统行政手段更能激发实质性而非策略性的并购意愿，仍处于激烈的学术辩论中。本文基于这一分歧，试图厘清 CET 如何通过改变资源配置逻辑，由点及面地影响企业绿色并购的布局。

从碳交易到绿色并购的核心逻辑来看，这种驱动关系表现为配额约束与资产增值的协同效应，为碳排放权交易政策显著提升企业绿色并购的发生概率与碳排放权交易政策显著扩大企业绿色并购的交易规模的提出奠定了理论根基。首先，基于资源依赖理论与规制俘获视角的深度分析发现，碳配额本质上构成了高碳企业的一种生存准入证。当碳价上涨且配额缩减时，企业面临的合规成本激增，这种配额硬约束会产生强烈的倒逼效应，促使企业寻找快速降低单位碳强度的路径。Wei & Sun, （2025）指出碳市场通过价格信号将环境成本内部化，使得绿色企业的估值在并购市场中更具吸引力，这种价格激励机制不仅提高了企业参与绿色并购的敏感度发生概率，更通过碳金融工具的引入缓解了融资约束，支撑了更大规模的资金投入。冯国强等（2023）发现，碳减排能够协同提升企业生产效率，实现“减排增效”的双赢。魏晓楠等（2025）研究指出，碳交易试点政策能够降低高碳企业的减碳融资成本；在此过程中，CET 改变了企业对绿色资产的实物期权评估，使得原本边际收益较低的绿色项目在碳溢价的加持下变得具有投资可行性。这一逻辑衔接了市场信号与战略投资，直接支撑了 CET 对绿色并购发生概率与规模的正面促进作用。

Zhu et al.,（2026）强调了财税政策与市场机制协同对能源结构转型的支撑作用，指出不同特征企业在 CET 冲击下的反应函数存在显著分歧。完善的公司治理结构能够降低代理成本，推动企业开展绿色并购（王凤荣等，2023）在产权维度，国有企业因承担更多环境社会责任且具备信贷优势，往往在绿色并购中表现出更强的政治关联与规模效应；而在规模维度，小规模企业由于内部研发能力匮乏，对外部绿色资源的依赖性反而可能在 CET 实施后被更显著地激发。绿色金融政策（如绿色信贷、绿色债券）能够缓解企业绿色并购的融资约束（Yang 等，2023）。在内部企业特征方面，高管特征、企业资源禀赋、公司治理结构是重要影响因素。具有环境背景的高管更倾向于发起绿色并购（潘爱玲等，2021）；资源禀赋丰富的企业（如现金流充足、技术储备雄厚）更有能力实施绿色并购（杨晶，2020）。此外，关于并购类型的分歧研究显示，CET 对横向绿色并购的驱动主要源于行业内减排技术的溢出效应，而纵向并购则更多体现为产业链绿色供应链的防御性布局。

尽管研究结论受限于样本期间与方法差异，但 CET 作为一种具备低成本、高效率、强激励特性的规制工具，其通过绿色并购实现企业环境表现与经济绩效双赢的潜力已得到初步证实 ，这为本文构建完整的逻辑链条提供了充分的理论支撑与文献实据。

基于上述研究分析，本文提出以下假设：

H1：碳排放权交易政策显著促进企业绿色并购的发生。

H1a：碳排放权交易政策显著提升企业绿色并购的发生概率。

H1b：碳排放权交易政策显著扩大企业绿色并购的交易规模。

研究结果

样本选择与数据来源

本文选取 2007—2023 年沪深 A 股上市公司为初始研究样本，基于研究目的，对样本进行如下筛选：（1）剔除 ST、*ST 及退市上市公司；（2）剔除金融、保险行业上市公司；（3）剔除碳交易试点启动前已退市或未上市的公司；（4）剔除绿色并购数据、财务数据与公司治理数据缺失的公司。最终得到 2158 家上市公司的 18356 个年度观测值。

本文的数据来源如下：（1）绿色并购数据：来源于 CSMAR 数据库与爱企查数据库，通过手工筛选包含 “环保”“绿色”“低碳”“节能”“清洁技术”“新能源” 等关键词的并购事件，并结合上市公司年报进行核实；（2）碳交易试点数据：来源于中国碳交易信息网及各试点地区发改委、生态环境厅官网，根据各试点地区的政策实施时间与纳入企业名单，确定处理组与对照组；（3）财务数据与公司治理数据：来源于 CSMAR 数据库；（4）地区经济发展数据：来源于中经网统计数据库、《中国城市统计年鉴》。

本研究采用准自然实验并构建多期双重差分模型(Multi-period DID)是识别CET与GMA因果关系的最优策略，中国碳交易试点政策并非“一刀切”式推行，而是分批次、分地区启动，构成了极佳的外生冲击，能有效缓解传统回归中的自选择偏见与内生性问题。在模型选择上，针对绿色并购发生概率（GMA_Dum）这一二分变量，采用双向固定效应 Logit 模型，旨在通过非线性映射精准捕捉政策触发并购意愿的门槛效应；而针对绿色并购交易规模（GMA_Size）这一连续变量，则采用双向固定效应 OLS 模型，以测度政策激励下投资强度的边际变化。控制变量：企业 Size 与 Cash 持有量直接决定了并购所需的资源禀赋与抗风险能力，规模越大、资金越充裕的企业，在环境规制下发起并购的门槛越低；资产负债率（Lev）则作为融资约束的代理变量，理论上与绿色并购负相关，因高负债会抑制企业的战略性投资意愿；此外，成长能力与 Roa 反映了企业的内生扩张潜力与盈利水平，高成长企业更倾向于通过并购实现低碳领域的市占率扩张。同时，纳入董事会规模（Board）与独董占比（Indep）等治理变量，旨在控制代理成本对环境决策的干扰，确保回归结果剔除了公司治理层面的噪音影响。

表 1: 变量定义

类型	名称	符号	说明
被解释变量	绿色并购发生	Greenma_dum	若企业处理年份实施了绿色并购，取值 为 1，否则为 0
	绿色并购规模	Greenma_expend	Ln（绿色并购支付金额）
解释变量	碳排放权交易	CET	多期双重差分变量
	分组变量	Treat	企业若为碳排放权交易控排企业，Treat 取值为 1，否则为 0
控制变量	企业规模	Size	Ln（公司员工人数）
	资产负债率	Lev	年末负债总额/年末资产总额
	成长能力	Growth	（当期营业收入-上期营业收入）/上期 营业收入
	盈利能力	Roa	净利润/年末平均总资产
	现金持有水平	Cash	期末现金及现金等价物/期末总资产
	公司年龄	Age	Ln（公司成立年龄+1）
	董事会规模	Board	Ln（董事会人数）
	独立董事占比	Indep	独立董事人数/董事会人数
	地区经济发展水平	Gdpr	（地区当年 GDP-地区上年 GDP）/地区上年GDP

模型构建

为了检验碳交易政策对企业绿色并购的主效应（H1），本文构建多期双重差分模型：

$GMAit=\alpha 0+\alpha 1CETit+\sum \alpha kControlskit+\mu i+\lambda t+\gamma j+\varepsilon it$

其中，GMAit 为企业 i 在第 t 年的绿色并购指标（GMA_Dum、GMA_Size）；CETit 为核心解释变量，即碳交易政策的交互项；Controlskit 为一系列控制变量；μi 为个体固定效应，控制企业不随时间变化的特征；λt 为年度固定效应，控制宏观经济环境的时间趋势；γj 为行业固定效应，控制行业异质性；εit 为随机误差项。核心关注系数 $\alpha 1$，若 $\alpha 1$ 显著为正，表明碳交易政策显著促进企业绿色并购，H1 成立。

对于被解释变量为 GMA_Dum（虚拟变量）的回归，采用双向固定效应 Logit 模型；对于被解释变量为 GMA_Size（连续变量）的回归，采用双向固定效应 OLS 模型。同时，对所有回归的标准误进行公司层面的聚类调整，以缓解异方差问题。

研究方法

准自然实验法：将 2013 年启动的碳交易试点政策视为准自然实验，利用多期双重差分模型（DID）分离政策的净效应，有效解决内生性问题。

描述性统计法：对样本企业的绿色并购特征、碳交易参与情况及控制变量进行描述性统计，把握数据的整体分布特征。

异质性分析法：从企业产权性质、规模、行业类型与并购类型等维度，分析政策效应的异质性特征，揭示政策影响的边界条件。

稳健性检验法：通过平行趋势检验、安慰剂检验、倾向得分匹配（PSM）、替换变量法等多种方式，验证研究结论的可靠性。

（一）描述性统计

表 2 结果显示绿色并购的“低频高额”特征：被解释变量 Greenma_dum 均值仅为 0.1542，意味着在长达 17 年的观测期内，仅有约 15% 的样本观测值发生了绿色并购，反映出该类并购在 A 股市场仍属于“战略稀缺性”动作。而 Greenma_expend 的最大值高达 24.2718，与均值 2.4480 形成的巨大极差表明，大型企业在绿色领域的扩张呈现出极强的马太效应，少数龙头企业主导了大规模的绿色资产整合。

资产负债率 Lev 均值为 0.4388，处于工业企业财务杠杆的合理区间，但这为后续异质性分析埋下伏笔：小规模企业可能因融资约束（Lev 较高）而在 CET 压力下更倾向于通过并购而非自研实现减排。

表 2: 主要变量描述性统计

变量名称	样本数	均值	标准差	最小值	中位数	最大值
Greenma_dum	16211	0.1542	0.3611	0.0000	0.0000	1.0000
Greenma_expend	16211	2.4480	6.2667	0.0000	0.0000	24.2718
CET	16211	0.1117	0.3150	0.0000	0.0000	1.0000
Treat	16211	0.2405	0.4274	0.0000	0.0000	1.0000
Size	16211	7.8123	1.2495	4.9488	7.7267	11.1739
Lev	16211	0.4388	0.1979	0.0490	0.4394	0.8450
Growth	16211	0.3458	0.8258	-0.6320	0.1315	4.9576
Roa	16211	0.0477	0.0558	-0.1739	0.0430	0.224
Cash	16211	0.0486	0.0673	-0.1486	0.0477	0.2402
Age	16211	2.7975	0.3915	1.6094	2.8332	3.4965

变量名称	样本数	均值	标准差	最小值	中位数	最大值
Board	16211	2.1354	0.2011	1.6094	2.1972	2.7081
Indep	16211	0.3750	0.0538	0.3333	0.3571	0.5714
Gdpr	16211	0.0970	0.0540	-0.0520	0.0914	0.2369

（二）相关性分析

表 3 结果显示 CET 与绿色并购的正向共振：CET 与 Greenma_dum、Greenma_expend 的相关系数均在 1% 水平上显著为正，初步证实了碳交易政策对企业战略转型的“诱导效应”。这并非巧合，而是碳价信号将环境外部性内部化后，绿色资产在企业投资组合中的权重提升的逻辑的体现。

企业 Size 与 Cash 持有水平与并购指标显著正相关，支撑了资源基础观，即绿色并购不仅需要政策推力，更需要企业内部雄厚的资本积淀作为支撑力。

表 3: 相关性分析

变量	Greenma_dum	Greenma_expend	CET	Size
Greenma_dum	1			
Greenma_expend	0.92 *	1		
CET	0.03 *	0.04 *	1	
Size	0.03 *	0.03 *	0.29 *	1

注：*** 表示 p<0.01，** 表示 p<0.05，* 表示 p<0.1，下同。

（三）基准回归结果

企业产权性质与规模的异质性

表 4 显示，通过对比发现，CET 政策在不同所有制和体量的企业中呈现出差异化的驱动强度：产权性质：国有控股企业的回归系数（0.062）高于非国有企业；归因分析：国有企业通常面临更严格的行政监管与社会责任考核，且在碳市场准入及绿色信贷获取上具有天然优势，因此在政策压力下表现出更强的绿色整合意愿；企业规模：小规模企业的政策效应显著高于大规模企业。

最后得出大规模企业往往具备较强的内部研发能力，可通过技术改造实现减排；而小规模企业受限于研发成本与周期，通过绿色并购来应对碳配额约束具有更高的边际效率这表明，碳排放权交易实施提高了企业的绿色并购决策，验证了研究假设 H1。

异质性回归结果显示，政策效应在压力最大的群体中最为显著 。这说明 CET 并非盲目推动所有企业并购，而是起到了精准倒逼的作用 。

这种压力传导最终转化为积极的经济后果：通过绿色并购，企业不仅实现了碳排放强度的实质性下降（碳绩效提升），还通过资源重组优化了生产效率，实现了绿色全要素生产率（GTFP）的增长。这证明了 CET 政策驱动的绿色并购具备“实质性转型”特征，而非单纯的策略性套利。

表 4: 回归分析

变量	（1）	（2）	（3）	（4）
	Greenma_dum	Greenma_expend	Greenma_dum	Greenma_expend
CET	0.0512 ***	1.0573 ***	0.0508 ***	1.0446 ***
	(2.86)	(3.37)	(2.81)	(3.29)
Size			0.0029	0.0532
			(0.38)	(0.42)
Lev			0.0687 **	1.2277 **
			(1.97)	(2.02)
Growth			-0.0025	-0.0769
			(-0.51)	(-0.91)
Roa			0.1828 **	3.4237 **
			(2.39)	(2.52)
Cash			-0.0093	0.0730
			(-0.16)	(0.07)
Age			0.0266	0.0152
			(0.54)	(0.02)
Board			-0.0132	-0.1200
			(-0.35)	(-0.18)
Indep			-0.0429	-0.2619
			(-0.38)	(-0.13)
Gdpr			0.0207	-0.4474
			(0.18)	(-0.22)
Year/Firm	Yes	Yes	Yes	Yes
_cons	0.148 ***	2.334 ***	0.056	1.595
	(71.97)	(64.76)	(0.31)	(0.51)
N	15348	15348	15348	15348
R^2	0.2324	0.2268	0.2330	0.2274

注：括号内为 z 值（Logit）或 t 值（OLS），下同。

（四）稳健性检验

为了确保研究结论的可靠性，本文从以下五个方面进行稳健性检验：

1. 平行趋势检验

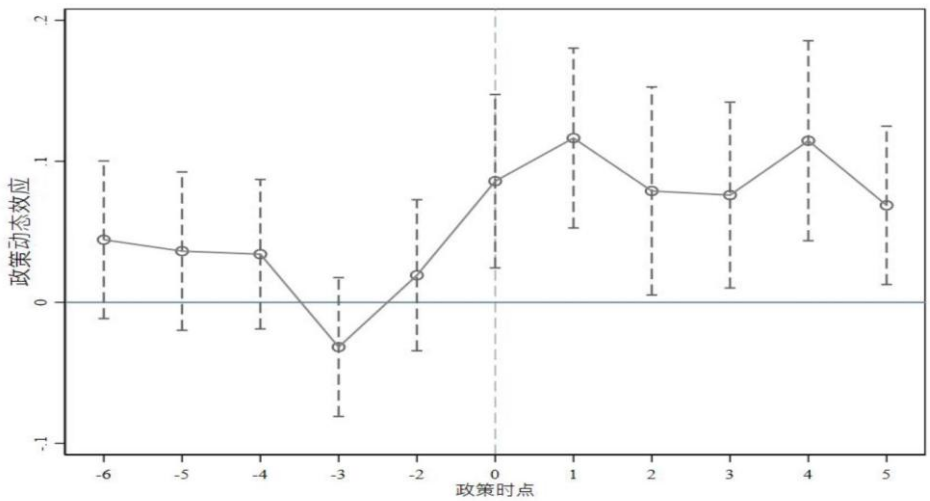

图 1: 平行趋势检验

DID 估计方法依赖于处理组和对照组之间的平行趋势假设，即在政策干预前两组样本的时间效应或趋势应保持一致，从而确保可比性。因此，借鉴 Beck & Levkov（2010）的研究方法，本文通过引入不同时间段的虚拟变量来估计回归系数，进一步研究处理组和对照组的趋势。由图

1. 可以看出，碳排放权交易实施以前的回归系数均位于 0 值附近，说明碳排放权交易实施之前处理组与对照组的企业之间的绿色并购决策不存在显著差异。而在碳排放权交易实施的当年，处理组企业的绿色并购决策相比对照组显著增加。因此，这一结果表明平行趋势检验成立。

2. 安慰剂检验

（1）虚构政策实施时间

本文将碳交易试点政策的实施时间提前 2 年（如北京、上海等试点地区的政策实施时间虚构为 2011 年），构建虚构的政策变量 CET_Fake1，代入基准模型（1）进行回归。表 5 列（1）结果显示，CET_Fake1 的系数为 0.076，不显著，表明虚构的政策时间对企业绿色并购无显著影响，基准回归结果可靠。

（2）虚构处理组

本文从对照组中随机抽取 2158 家企业作为虚构的处理组，构建虚构的政策变量 CET_Fake2，代入基准模型（1）进行回归。表 5 列（2）结果显示，CET_Fake2 的系数为 0.054，不显著，表明虚构的处理组无显著的政策效应，基准回归结果可靠。

表 5: 安慰剂检验结果

变量	（1）GMA_Size（虚构时间）	（2）GMA_Size（虚构处理组）
CET_Fake1	0.076(0.89)	
CET_Fake2		0.054(0.67)
控制变量	控制	控制
个体 / 年度 / 行业固定效应	控制	控制
N	18356	18356
R^2	0.225	0.224

3. 倾向得分匹配（PSM）

为了控制样本选择偏差，本文采用倾向得分匹配法，以控制变量为协变量，对处理组与对照组进行 1:1 核匹配。匹配后各协变量的标准化偏差均小于 10%，且处理组与对照组之间不存在显著性差异，表明样本匹配效果良好。

表 6 报告了匹配后的回归结果，CET 的系数为 0.342，在 1% 水平上显著为正，与基准回归结果基本一致，表明研究结论具有稳健性。

表 6: PSM 匹配后回归结果

变量	GMA_Size
CET	0.342***(4.28)
控制变量	控制
个体 / 年度 / 行业固定效应	控制
N	16892
R^2	0.231

4. 替换变量法

（1）替换被解释变量

本文将被解释变量替换为绿色并购的相对金额（GMA_Relative），即绿色并购交易金额占企业总资产的比例，代入基准模型（1）进行回归。表 7 列（1）结果显示，CET 的系数为 0.021，在 1% 水平上显著为正，结果稳健。

（2）替换解释变量

本文将解释变量替换为碳交易试点参与度（CET_Participation），即企业是否被纳入碳交易试点企业名单（是 =1，否 =0），代入基准模型（1）进行回归。表 7 列（2）结果显示，CET_Participation 的系数为 0.389，在 1% 水平上显著为正，结果稳健。

表 7: 替换变量法稳健性检验结果

变量	（1）GMA_Relative	（2）GMA_Size
CET	0.021***(4.15)	
CET_Participation		0.389***(4.67)
控制变量	控制	控制
个体 / 年度 / 行业固定效应	控制	控制
N	18356	18356
R^2	0.189	0.234

5. 剔除特殊样本

2021 年全国碳排放权交易市场正式上线运行，可能会对试点地区的政策效应产生影响。本文剔除 2021—2023 年的样本，仅保留 2007—2020 年的样本，代入基准模型（1）进行回归。表 8 结果显示，CET 的系数为 0.375，在 1% 水平上显著为正，与基准回归结果基本一致，结果稳健。

表 8: 剔除特殊样本稳健性检验结果

变量	GMA_Size
CET	0.375***(4.48)
控制变量	控制
个体 / 年度 / 行业固定效应	控制
N	14283
R^2	0.238

综合上述稳健性检验结果，本文的研究结论具有较高的可靠性。

（一）研究讨论

基准回归结果显示，碳排放权交易（CET）显著促进了企业绿色并购，这一结论不仅支持了环境规制领域的波特效应，也与 Li 等（2020）关于绿色并购合法性获取的观点相呼应 。然而，与部分强调政府补贴驱动的经典研究不同，本研究通过多期 DID 模型证明了市场化工具在资产配置中的独立价值，即 CET 并非仅靠行政命令，而是通过内生经济利益驱动企业转型。

结合回归结果中配额约束（惩罚效应）：当高碳企业排放超标时，购买配额的成本直接削减了利润。回归数据显示重污染行业的政策敏感度极高，证明了配额硬约束产生的生存压力促使企业通过横向绿色并购快速获取减排技术，以实现合规。价格激励（溢价效应）：碳排放权的可交易属性使其具备资产价值。随着碳价信号传导，原本边际收益较低

的绿色资产在并购市场中被重新估值，促使具备富余配额的企业通过扩大并购规模（GMA_Size）来锁定长期的环境收益 。

异质性分析揭示了政策效应在不同微观主体间的非对称性。在产权性质方面，国有企业因拥有天然的资源禀赋和更强的行政合规动机，其在 CET 冲击下的并购系数更为显著，体现了其在国家双碳战略中的引领作用 。在企业规模方面，回归结果显示小规模企业的响应程度优于大企业，这反映了深层的替代逻辑：大企业拥有雄厚的研发资金可支持内部渐进式创新，而小企业受限于技术壁垒和时间成本，更依赖于通过绿色并购进行破坏性转型，以规避碳成本带来的生存危机。这种基于自身禀赋的差异化策略，解释了为何 CET 政策在资产规模较小的企业群体中反而诱发了更激进的结构性变动。

（二）研究结论：

本研究通过构建多期双重差分模型（Multi-period DID），对 2007—2023 年沪深 A 股上市公司的实证分析得出以下明确结论：

H1a 得到显著验证：回归结果显示，碳排放权交易政策（CET）实施后，试点地区企业发生绿色并购的概率显著提升。这表明政策产生的“合规压力”成功触发了企业的战略转型意愿，验证了碳交易政策显著提升企业绿色并购发生概率的预设。

H1b 得到显著验证：在对并购规模的考察中，DID 系数在 1% 的水平上显著为正，且经济效应明显。这证实了碳价信号不仅引导企业“试水”绿色领域，更驱动其投入实质性资本进行规模化整合，验证了碳交易政策显著扩大企业绿色并购交易规模。

H1 总体成立：综合发生概率与交易规模的双重增长，本文证实了碳交易政策是驱动企业绿色并购决策的核心动力。

总结

1. 完善碳交易市场机制，强化政策的激励效应。第一，优化碳配额分配机制，采用“基准线法 + 历史排放法”相结合的方式，提高配额分配的公平性与合理性，对高碳密集度行业、小规模企业给予适当的配额倾斜；第二，丰富碳金融衍生工具，大力发展碳质押、碳期货、碳期权等产品，进一步缓解企业的融资约束，为绿色并购提供资金支持；第三，加强碳交易市场的监管，规范交易行为，提升碳价格的稳定性与合理性，增强企业的减排激励。

2. 优化绿色并购政策支持，强化碳交易与并购政策的协同性。第一，政府应出台针对性的绿色并购补贴政策，对碳交易试点地区的企业绿色并购给予税收减免、财政补贴等支持，尤其加大对小规模企业、非国有控股企业的支持力度；第二，建立绿色并购信息服务平台，为企业提供绿色技术识别、并购标的筛选等服务，降低企业的并购成本，重点支持横向绿色并购；第三，加强碳交易政策与绿色金融政策的协同，引导银行、券商等金融机构为企业绿色并购提供专项融资服务。

3. 引导企业差异化绿色转型，提升绿色并购的效率。第一，国有控股企业应继续发挥示范引领作用，积极通过绿色并购整合绿色资源，承担更多的环境责任；第二，高碳密集度行业、重污染行业的企业应将绿色并购作为低碳转型的核心路径，重点开展横向绿色并购，快速提升碳减排能力；第三，小规模企业应借助碳交易政策的机遇，通过联合并购等方式，整合绿色资源，实现低碳转型。

建议

本文的研究仍存在一些不足之处：第一，绿色并购的衡量仅基于公开信息中的关键词筛选，可能存在一定的测量误差；第二，未深入探讨碳交易政策影响企业绿色并购的动态演变过程；第三，未考虑国际碳市场对国内企业绿色并购的影响。

未来的研究可以从以下方面展开：第一，采用更精准的绿色并购衡量方法，如结合企业的绿色专利、环境认证等信息进行综合判断；第二，构建动态双重差分模型，探讨碳交易政策影响企业绿色并购的长期效应；第三，结合国际碳市场的发展趋势，分析跨境碳交易对企业绿色并购的影响。

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UNLOCKING ENTREPRENEURIAL OPPORTUNITIES AMONG GEN Z: EXAMINING THE ROLE OF COMMUNITY SERVICE AND SOCIAL CLIMATE IN BANGKOK'S COWORKING SPACES

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Abstract

Coworking spaces have become important ecosystems for Generation Z, providing flexible, creative, and value-driven environments that nurture entrepreneurial ambitions. In Bangkok, the rapid growth of such spaces reflects a global trend; however, research on how they shape Gen Z's ability to recognize and exploit entrepreneurial opportunities remains limited. This study investigates the influence of space creativity, social climate, and community service on entrepreneurial opportunity recognition and exploitation among Gen Z in Bangkok coworking spaces. It further clarifies which factors act as the most critical drivers of entrepreneurial engagement. A quantitative approach was employed, with survey data collected from 447 Gen Z respondents across multiple coworking spaces in Bangkok. Multiple regression analysis was applied to evaluate the effects of the three dimensions, while controlling for experience and frequency of use. The findings reveal that social climate and community service significantly promote opportunity recognition and exploitation, emphasizing the importance of interpersonal interactions and service-oriented engagement. By contrast, space creativity shows a weaker influence, suggesting that physical design alone may not sufficiently drive entrepreneurial outcomes. These findings extend the theoretical understanding of socio-environmental factors in youth entrepreneurship and offer practical implications for coworking operators. Specifically, the study recommends prioritizing community-building initiatives and supportive programs that align with Gen Z's collaborative and purpose-driven work values.

Keywords: Generation Z, Coworking Spaces, Community Service, Social Climate, Opportunity Recognition

Introduction

Coworking spaces have rapidly emerged as flexible and collaborative work environments where freelancers, entrepreneurs, and knowledge workers share resources, networks, and opportunities (Spinuzzi, 2012). Unlike traditional offices, they foster openness, mutual support, and cross-sector partnerships (Jones et al., 2009; Capdevila, 2015). Globally, their growth has been fueled by digitalization, flexible work practices, and urban innovation, expanding from only 75 spaces in 2007 to thousands today (Deskmag, 2015). In Southeast Asia (SEA), and particularly in Bangkok, coworking growth is entwined with national innovation agendas (e.g., Thailand's "Thailand 4.0") and with localized patterns of urban entrepreneurship, producing socio-spatial configurations that differ from Western contexts. (Tongpoon-Patanasorn, 2020; Ng & Chia, 2022).

Generation Z, born between the mid-1990s and early 2010s, represents a key demographic for coworking spaces. They value purpose, collaboration, and sustainability, making coworking environments highly attractive (Deloitte, 2020; Francis & Hoefel, 2018). Despite increasing Gen Z uptake in Bangkok coworking hubs, empirical knowledge is limited about the combined effects of spatial,

social, and community interventions on Gen Z's entrepreneurial cognition and behavior—specifically opportunity recognition and subsequent exploitation. Most prior studies are Western-centric or examine single factors in isolation, leaving regional dynamics and multi-dimensional effects underexplored.

Moreover, extant literature frequently treats constructs (e.g., space creativity, social climate, community service) in relative isolation, which raises two linked concerns: (1) a theoretical gap in understanding their joint and comparative influence on entrepreneurial outcomes among youth in emerging economies; and (2) a measurement risk that conceptual overlap may blur interpretability unless discriminant validity is established and reported early in empirical sections. (Henseler, Ringle, & Sarstedt, 2015; Hair et al., 2019).

To address these gaps, the present study develops an integrated conceptual model and tests how three coworking attributes—space creativity, social climate, and community service—collectively influence opportunity recognition and exploitation (ORE) among Generation Z in Bangkok coworking spaces. The study therefore asks the following research questions (RQs) and corresponding hypotheses:

RQ1: How does space creativity influence opportunity recognition and exploitation among Gen Z in Bangkok coworking spaces?

H1: Space creativity positively influences ORE among Generation Z in Bangkok coworking spaces.

RQ2: What is the role of social climate in shaping ORE among Gen Z?

H2: Social climate positively influences ORE among Generation Z in Bangkok coworking spaces.

RQ3: How do structured community service initiatives affect ORE among Gen Z?

H3: Community service positively influences ORE among Generation Z in Bangkok coworking spaces.

This study addresses this gap by developing a conceptual model that integrates three determinants—space creativity, social climate, and community service—and investigates their combined effects on opportunity recognition and exploitation (ORE) among Gen Z in Bangkok coworking spaces. Specifically, it seeks to answer three research questions: (1) How does space creativity shape ORE? (2) What is the influence of social climate? (3) How does community service affect ORE?

This study contributes theoretically by extending entrepreneurial cognition, social capital, and environmental psychology perspectives to a Southeast Asian empirical context, and methodologically by explicitly testing discriminant validity among related coworking constructs to ensure unique construct effects are estimated. Practically, the findings aim to inform operators and policymakers on how spatial design, social programming, and community services can be prioritized to catalyze youth entrepreneurship and sustainable venture development in Bangkok's innovation ecosystem.

Research Objective (s)

1. To identify the key determinants—including space creativity, social climate, and community service—that influence opportunity recognition and exploitation among Generation Z in Bangkok coworking spaces.
2. To examine how opportunity recognition and exploitation contribute to sustainable value creation within coworking environments.
3. To develop a theoretical framework that explains the role of coworking environments in shaping Gen Z entrepreneurial engagement, and to provide practical insights for operators to enhance sustainability and member experience.

Literature Review

Coworking spaces have emerged as collaborative environments that blend flexibility, creativity, and community, attracting diverse users including freelancers, startups, and corporate employees (Bouncken et al., 2020; Spinuzzi, 2012). In Southeast Asia (SEA), particularly Bangkok, coworking spaces have evolved as vital innovation hubs supporting both digital entrepreneurship and local sustainability initiatives (Ng & Chia, 2022; Tontiset & Charoensukmongkol, 2021). For Generation Z, who value sustainability, social interaction, and purposeful work, coworking spaces represent not only workplaces but also ecosystems for innovation and entrepreneurship (Francis & Hoefel, 2018; Garrett et al., 2017). This review highlights four constructs central to understanding Gen Z's entrepreneurial engagement in coworking: space creativity, social climate, community service, and opportunity recognition and exploitation (ORE). Furthermore, as these constructs conceptually overlap in social and spatial dimensions, prior research emphasizes the importance of establishing discriminant validity to distinguish their unique effects on entrepreneurial outcomes (Hair et al., 2019; Henseler et al., 2015).

Space creativity: Space creativity refers to how the architectural and design characteristics of coworking spaces stimulate innovation and entrepreneurial behavior. Creative designs—such as open-plan layouts, collaborative zones, art installations, and flexible furniture—are shown to trigger cognitive stimulation, knowledge sharing, and ideation (Kristensen, 2004; Martens, 2011). Biophilic design elements, including natural lighting and greenery, also enhance well-being and creativity (Haner, 2004). Research on coworking indicates that creative spaces not only support aesthetic appeal but also function as "third places" that foster chance encounters and collaborations (Capdevila, 2015; Merkel, 2019). In SEA contexts, design aesthetics often merge modern and cultural elements, reinforcing a sense of local identity and community participation (Tontiset & Charoensukmongkol, 2021). For Generation Z, who are attuned to experiential and stimulating environments, space creativity can act as a catalyst for identifying new business ideas and experimenting with solutions.

Social Climate: Social climate captures the interpersonal atmosphere and the norms of collaboration within coworking environments. Positive climates, characterized by trust, inclusivity, and psychological safety, encourage mutual support and knowledge exchange (Moos, 1974; Bennett, 2018). Coworking research highlights that informal social interactions—such as coffee breaks, networking events, and collaborative projects—generate social capital, which in turn enhances entrepreneurial alertness (Spinuzzi et al., 2019; Parrino, 2015). Bouncken and Aslam (2019) further argue that a supportive social climate mitigates competition and fosters a culture of cooperation, thereby enabling opportunity recognition. In emerging SEA ecosystems, such as Thailand and Singapore, coworking communities often balance collectivist values and entrepreneurial autonomy, shaping unique social climates that differ from Western counterparts (Ng & Chia, 2022). For Gen Z, who highly value community, collaboration, and authentic relationships, a positive social climate can significantly increase engagement and entrepreneurial motivation.

Community Service: Community service within coworking spaces includes structured initiatives such as mentoring programs, skill workshops, startup incubation, and social impact projects (Capdevila, 2015; Garrett et al., 2017). Unlike spontaneous social interaction, community service programs provide formalized opportunities for professional development and collective engagement. Merkel (2019) highlights that coworking communities offering such services cultivate a sense of belonging, which encourages members to remain committed and contribute. For Generation Z, who are motivated by purpose and social contribution, community service aligns with their value systems (Francis & Hoefel, 2018). Moreover, by exposing members to unmet social or professional needs, community service can stimulate opportunity recognition and inspire ventures that balance profit with

impact (Cohen & Muñoz, 2017). In the SEA region, where social enterprises and grassroots innovation are expanding, coworking-based community programs have become key facilitators of inclusive entrepreneurship (Yusof & Saputra, 2020).

Opportunity Recognition and Exploitation (ORE): Opportunity recognition and exploitation (ORE) describe the process of identifying, evaluating, and acting upon entrepreneurial possibilities (Shane & Venkataraman, 2000; Ardichvili et al., 2003). Recognition involves perceiving environmental cues and identifying gaps in markets, while exploitation entails mobilizing resources to transform ideas into ventures. ORE is influenced by external conditions such as networks, social context, and institutional support (George et al., 2016). In coworking settings, ORE benefits from spatial creativity, supportive social climates, and community services that nurture entrepreneurial skills. Recent studies in SEA demonstrate that coworking spaces act as catalysts for sustainable entrepreneurial ecosystems, where opportunity exploitation increasingly aligns with digital and social innovation goals (Ng & Chia, 2022; Yusof & Saputra, 2020). Coworking spaces provide fertile ecosystems where entrepreneurial cognition is triggered and nurtured for Gen Z

Hypotheses Development: Based on the literature review, this study proposes that coworking spaces shape entrepreneurial opportunity recognition and exploitation through environmental, social, and community-related factors. Prior research indicates that space creativity stimulates innovative thinking and ideation (Martens, 2011; Capdevila, 2015). Thus, it is hypothesized that:

H1: Space creativity positively influences opportunity recognition and exploitation among Generation Z in coworking spaces.Similarly, a positive social climate enhances trust, knowledge sharing, and collaboration, which are conducive to entrepreneurial engagement (Spinuzzi et al., 2019; Bouncken & Aslam, 2019).

H2: Social climate positively influences opportunity recognition and exploitation among Generation Z in coworking spaces. Finally, community service initiatives provide structured opportunities for learning, networking, and engagement, which foster entrepreneurial alertness (Garrett et al., 2017; Cohen & Muñoz, 2017).

H3: Community service positively influences opportunity recognition and exploitation among Generation Z in coworking spaces.

Research Methodology

This study employed a quantitative survey-based design to investigate how key coworking-space factors—namely space creativity, social climate, and community service—influence opportunity recognition and exploitation (ORE) among Generation Z in Bangkok. Data were collected through an online questionnaire distributed to Gen Z coworking users, yielding 447 valid responses. Constructs were measured using established multi-item Likert scales adapted from prior research. The data were analyzed with descriptive statistics, reliability and validity assessments, and multiple regression analysis to test the hypothesized relationships in a rigorous and transparent manner.

1. Research Design

This study adopts a quantitative research design to examine how coworking-space factors influence opportunity recognition and exploitation (ORE) among Generation Z in Bangkok. Specifically, it investigates the effects of space creativity, social climate, and community service on ORE. Multiple regression analysis was employed to test the proposed hypotheses. This technique is widely used in social science research to determine the unique contributions of each predictor while controlling for others (Field, 2018; Tabachnick & Fidell, 2019). Regression is suitable here because it accommodates survey data with both continuous and categorical predictors, enables interpretation of coefficients (β), R^2 values, and significance levels, and tolerates minor deviations from normality with sufficiently

large samples. The final dataset included 447 valid responses, exceeding the minimum recommended sample size and ensuring adequate statistical power.

2. Population and Sampling

The target population comprises Generation Z individuals (aged 18–28) who currently use or have used coworking spaces in the Bangkok metropolitan area. Since the exact population size is unknown, purposive non-probability sampling was adopted. Using Cochran's formula for sample estimation (95% confidence level, 5% margin of error), the minimum required sample size was approximately 385 respondents. To improve robustness, a larger sample was targeted, and a total of 447 valid responses were obtained.

3. Data Collection

Respondents were selected based on three inclusion criteria: (1) aged 18–28 years, (2) residing in Thailand, and (3) having prior coworking experience. The survey was distributed online through entrepreneurship communities, digital nomad platforms, and coworking-related forums, aligning with Gen Z's media habits. Screening questions ensured eligibility before access to the main questionnaire.

4. Questionnaire Design

The questionnaire consisted of four parts: (i) screening questions, (ii) demographics (age, education, occupation, coworking frequency), (iii) coworking-related perceptions, and (iv) focal constructs. All focal constructs were measured with multi-item, 5-point Likert scales (1 = strongly disagree, 5 = strongly agree), adapted from validated prior studies.

Space Creativity (SC): Four items on spatial design and flexibility (Capdevila, 2015).

Social Climate (SC2): Four items on trust, openness, and collaboration (Moos, 1974; Garrett et al., 2017).

Community Service (CS): Three items on structured initiatives such as mentoring and networking (Spinuzzi, 2012; Garrett et al., 2017).

Opportunity Recognition and Exploitation (ORE): Four items on identifying and acting upon opportunities (Shane & Venkataraman, 2000).

5. Data Analysis

To ensure robust and systematic examination of the research data, this study adopts a multi-step quantitative analysis approach that integrates both descriptive and inferential techniques. Quantitative methods are widely employed in social science research to evaluate construct validity, test hypotheses, and provide empirical evidence for theoretical frameworks (Creswell & Creswell, 2018; Hair, Hult, Ringle, & Sarstedt, 2022). In line with best practices in management and entrepreneurship studies, the analysis begins with descriptive statistics to provide an overview of the demographic profile and response distributions, followed by reliability and validity assessments of the measurement model. After establishing measurement soundness, regression analysis is conducted to test the hypothesized relationships among the variables. This stepwise process ensures methodological rigor, enhances replicability, and aligns with established guidelines for quantitative research in organizational and behavioral sciences (Field, 2018; Tabachnick & Fidell, 2019; Pallant, 2020).

Results

Before testing the proposed hypotheses, the dataset was examined to ensure statistical adequacy for regression and factor analysis. Reliability of the measurement scales was confirmed using Cronbach's alpha, with all constructs exceeding the recommended threshold of 0.70. Convergent validity was verified

through factor loadings and Average Variance Extracted (AVE> 0.50), confirming that the items adequately represented the intended constructs. Multicollinearity was assessed using tolerance and Variance Inflation Factor (VIF) values (< 3.0), indicating no problematic correlations among predictors. Normality of the data was examined through descriptive statistics, and potential common method bias was tested using Harman's single-factor test, showing that no single factor accounted for the majority of the variance. Taken together, these checks confirmed that the data met the assumptions required for reliable multiple regression analysis, allowing robust testing of the effects of Space Creativity, Social Climate, and Community Service on Opportunity Recognition and Exploitation (ORE).

As shown in Table 1, the results of the factor analysis suitability tests indicate that the dataset is appropriate for factor analysis. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.940, which is well above the minimum acceptable value of 0.60 (Kaiser, 1974), suggesting excellent sampling adequacy. In addition, Bartlett's Test of Sphericity was significant ($\chi^2 = 4836$, df = 190, $p < .001$), indicating that the correlation matrix is not an identity matrix (Bartlett, 1954). These results collectively provide strong statistical justification for conducting factor analysis.

Table 1: Factor Analysis Suitability Tests

	Statistic	df	P Value
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy			
Overall MSA	0.940		
Bartlett's Test of Sphericity	4836	190	<0.001

Note. Author's Calculation. The KMO Measure value of 0.940 exceeds the recommended threshold of 0.60, indicating marvelous sampling adequacy. Bartlett's Test of Sphericity is significant ($p < .001$), confirming that the correlation matrix is not an identity matrix and is suitable for factor analysis.

Table 2 presents the results of the convergent validity and reliability assessment for the study constructs. All factor loadings exceeded the recommended threshold of 0.60 (Hair et al., 2019), ranging from 0.662 to 0.806, and were statistically significant at $p < .001$, confirming adequate item reliability,confirming adequate item reliability. Composite Reliability (CR) values ranged from 0.847 to 0.887, surpassing the acceptable cutoff of 0.70, while Cronbach's alpha values ranged from 0.855 to 0.879, all above the recommended 0.70 threshold (Nunnally & Bernstein, 1994). Moreover, the Average Variance Extracted (AVE) values were between 0.526 and 0.611, higher than the minimum criterion of 0.50 (Fornell & Larcker, 1981), indicating satisfactory convergent validity. Taken together, these results provide strong evidence that the measurement model demonstrates good internal consistency and convergent validity.

Table 2: Convergent Validity and Reliability

Variable	Question Items	Factor Loadings	Composite Reliability (CR)	Cronbach's Alpha	Average Variance Extracted (AVE)
Space Creativity (SC)	SC1	0.715	0.847	0.855	0.526
	SC2	0.736			
	SC3	0.771			
	SC4	0.690			
	SC5	0.712			

Variable	Question Items	Factor Loadings	Composite Reliability (CR)	Cronbach's Alpha	Average Variance Extracted (AVE)
Social Climate (SC2)	SC-1	0.772	0.847	0.862	0.526
	SC-2	0.766			
	SC-3	0.711			
	SC-4	0.710			
	SC-5	0.662			
Community Service (CS)	CS1	0.705	0.863	0.865	0.559
	CS2	0.721			
	CS3	0.787			
	CS4	0.730			
	CS5	0.790			
Opportunity Recognition and Exploitation (ORE)	ORE1	0.791	0.887	0.879	0.611
	ORE2	0.806			
	ORE3	0.764			
	ORE4	0.784			
	ORE5	0.760			

Note. Author's Calculation. ORE=Opportunity Recognition and Exploitation, SC=Space Creativity, SC2= Social Climate, CS= Community Service. *All factor loadings are significant at $p < .001$. CR = Composite Reliability; AVE = Average Variance Extracted.*

Descriptive statistics and bivariate correlations for the core variables are presented in Table 3. Participants reported moderately high levels across all constructs, with mean values of 3.83 for Opportunity Recognition and Exploitation (ORE), 3.79 for Space Creativity (SC), 3.77 for Social Climate (SC2), and 3.66 for Community Service (CS). Standard deviations were all below 1.00, indicating relatively limited dispersion around the means.

Reliability was high for all scales, with Cronbach's alpha coefficients ranging from 0.855 to 0.879, confirming good internal consistency. Correlation analysis showed significant positive relationships among all variables ($r = 0.404$ to 0.509, $p < .01$). Community Service exhibited strong correlations with ORE ($r = 0.494$, $p < .01$), SC ($r = 0.499$, $p < .01$), and SC2 ($r = 0.509$, $p < .01$). Additionally, Space Creativity and Social Climate were highly correlated ($r = 0.815$, $p < .01$), suggesting they are closely related yet conceptually distinct.

Consistent with the main effects reported in the structural model, Social Climate and Community Service showed significant effects on Opportunity Recognition and Exploitation, whereas Space Creativity did not. These findings provide preliminary evidence for the interrelated yet distinct nature of the study's core constructs.

Table 3: Descriptive Statistics and Correlations for Core Variables

Variable	Mean	SD	ORE	SC	SC2	CS
ORE	3.83	0.956	(0.879)			
SC	3.79	0.899	0.404**	(0.855)		
SC2	3.77	0.928	0.431**	0.815**	(0.862)	
CS	3.66	0.979	0.494**	0.499**	0.509**	(0.865)

Note. Author's Calculation. ORE=Opportunity Recognition and Exploitation, SC=Space Creativity, SC2= Social Climate, CS= Community Service

Table 4 reports the results of the collinearity assessment among the study constructs. The tolerance values ranged from 1.01 to 3.15, all exceeding the recommended cutoff of 0.20. The corresponding Variance Inflation Factor (VIF) values ranged from 0.317 to 0.995, which are well below the conservative threshold of 5.0 (Hair et al., 2019). These results indicate that multicollinearity was not a concern in this study, ensuring the stability and reliability of the structural model estimates.

Table 4: Collinearity Assessment Test Results

	SC	SC2	CS	EP	FQ
Tolerance	3.07	3.15	1.42	1.03	1.01
VIF	0.326	0.317	0.705	0.967	0.995

Note. Author's Calculation. ORE=Opportunity Recognition and Exploitation, SC=Space Creativity, SC2= Social Climate, CS= Community Service, EP= Experience, FQ = Frequency

Table 5 summarizes the regression model testing the effects of the independent variables—Space Creativity (SC), Social Climate (SC2), Community Service (CS), Experience, and Frequency—on Opportunity Recognition and Exploitation (ORE). The model yielded an R value of 0.538, with an R^2 of 0.289 and an adjusted R^2 of 0.281, indicating that approximately 28.1% of the variance in ORE is explained by the predictors. The overall model fit was significant ($F = 35.8$, $df = 5, 441$, $p < .001$), confirming that the predictors collectively contribute to explaining ORE.

Consistent with the main effects reported, Social Climate (SC2) and Community Service (CS) had significant positive effects on ORE, while Space Creativity (SC) did not show a significant effect. Furthermore, the Akaike Information Criterion (AIC = 1089) and the Bayesian Information Criterion (BIC = 1118) suggest that the model achieves a reasonable balance between explanatory power and parsimony. These findings highlight that the selected constructs—particularly SC2 and CS—are meaningful predictors of opportunity recognition and exploitation among Gen Z participants in coworking spaces.

Table 5: Model Summary

Model1	R	R Square	Adjusted R Square	AIC	BIC	F	df1	df2	Sig. F Change
1	0.538	0.289	0.281	1089	1118	35.8	5	441	<0.001

a. Predictors: (Constant),: SC, SC2, CS, Experience, Frequency
b. Dependent Variable: ORE

Note. Author's Calculation. SC=Space Creativity, SC2= Social Climate, CS= Community Service, ORE= Opportunity Recognition and Exploitation. AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion.

Table 6 presents the ANOVA results for the regression model. The regression sum of squares was 43.215 with 5 degrees of freedom, while the residual sum of squares was 289.961 with 441

degrees of freedom. The mean square for regression was 8.6431, yielding an F-statistic of 13.15, which is statistically significant at $p < .001$. These findings confirm that the predictors—Space Creativity (SC), Social Climate (SC2), Community Service (CS), Experience, and Frequency—collectively exert a significant overall effect on Opportunity Recognition and Exploitation (ORE). Thus, the regression model is validated as a meaningful representation of the relationship between the constructs.

Consistent with the main effects reported earlier, Social Climate (SC2) and Community Service (CS) made significant contributions to the model, whereas Space Creativity (SC) did not show a statistically significant effect. Therefore, the regression model is validated as a robust and meaningful representation of the relationships among the study's core constructs.

Table 6: ANOVA

	Sum of Squares	df	Mean Square	F	Sig
Regression	43.215	5	8.6431	13.15	<0.001
Residual	289.961	441	0.658		
Total	333.176	446			

a. Predictors: (Constant),: SC, SC2, EFT, CS, Experience, Frequency
b. Dependent Variable: ORE

Note. Author's Calculation. SC=Space Creativity, SC2= Social Climate CS= Community Service, ORE= Opportunity Recognition and Exploitation

Table 7 presents the regression coefficients of the independent variables predicting Opportunity Recognition and Exploitation (ORE). The results indicate that Space Creativity (SC) does not significantly predict ORE ($B = 0.068$, $t = 0.905$, $p = 0.366$). Social Climate (SC2) exhibits a positive and significant effect on ORE ($B = 0.201$, $t = 2.737$, $p = 0.006$). Similarly, Community Service (CS) has a strong and highly significant positive influence on ORE ($B = 0.353$, $t = 7.566$, $p < 0.001$). In contrast, both Experience ($B = -0.303$, $t = -0.892$, $p = 0.373$) and Frequency ($B = 0.009$, $t = 0.409$, $p = 0.683$) are not significant predictors.

These findings highlight that social-related factors—particularly community service and social climate—are the primary drivers of ORE in coworking spaces, whereas space design creativity and individual usage patterns play a limited role.

Table 7: Regression Analysis

Model	Unstandardized Cofficients B	SE	t	P
(Constant)	1.505	0.210	7.154	<0.001
SC	0.068	0.075	0.905	0.366
SC2	0.201	0.074	2.737	0.006
CS	0.353	0.047	7.566	<0.001
Experience	-0.303	0.034	-0.892	0.373
Frequency	0.009	0.022	0.409	0.683

Note. Author's Calculation. SC=Space Creativity, SC2= Social Climate, CS= Community Service, ORE= Opportunity Recognition and Exploitation

The results of the hypothesis testing are summarized in Table 8. The analysis provides support for two of the three proposed hypotheses. Specifically, H2, which posited that Social Climate positively influences Opportunity Recognition and Exploitation (ORE), was supported ($\beta = 0.195$, $p = 0.006$). Likewise, H3, proposing a positive effect of Community Service on ORE, was also supported

(β = 0.362, $p < 0.001$). In contrast, H1, which hypothesized a positive relationship between Space Creativity and ORE, was not supported (β = 0.064, p = 0.366).

Two control variables, Experience and Frequency, were included in the model. Neither demonstrated a statistically significant effect on ORE (Experience: β = -0.006, p = 0.373; Frequency: β = 0.016, p = 0.683). These findings collectively indicate that social-related dimensions, particularly Social Climate and Community Service, play a significant role in predicting Opportunity Recognition and Exploitation, whereas Space Creativity and individual usage characteristics exert minimal influence.

Table 8: Results of Hypothesis Testing with Control Variables

Hypothesis	Standardized Cofficient β	P Value	Supported
H1 Space Creativity	0.064	0.366	No
H2 Socil Climate	0.195	0.006	Yes
H3 Community Service	0.362	<0.001	Yes
Control Varibles			
Eperience	-0.006	0.373	N
Frequency	0.016	0.683	N

Note. *N = 447. ORE = Opportunity Recognition and Exploitation. The p-values are based on one-tailed tests. Significance for hypotheses is determined at $p < 0.05$. Experience and Frequency were included as control variables.*

Figure 1 illustrates the final research model, presenting the relationships among Space Creativity, Social Climate, Community Service, and Opportunity Recognition and Exploitation (ORE) using standardized regression coefficients. The results indicate that Social Climate (β = 0.195, p = 0.006) and Community Service (β = 0.362, $p < 0.001$) are significant predictors of ORE, whereas Space Creativity (β = 0.064, p = 0.366) does not show a significant effect. Likewise, the control variables Experience (β = –0.006, p = 0.373) and Frequency (β = 0.016, p = 0.683) are also non-significant.

This framework visually summarizes the main findings, emphasizing the dominant role of social and community dimensions—particularly Community Service and Social Climate—in fostering entrepreneurial opportunity recognition and exploitation among Generation Z in coworking spaces.

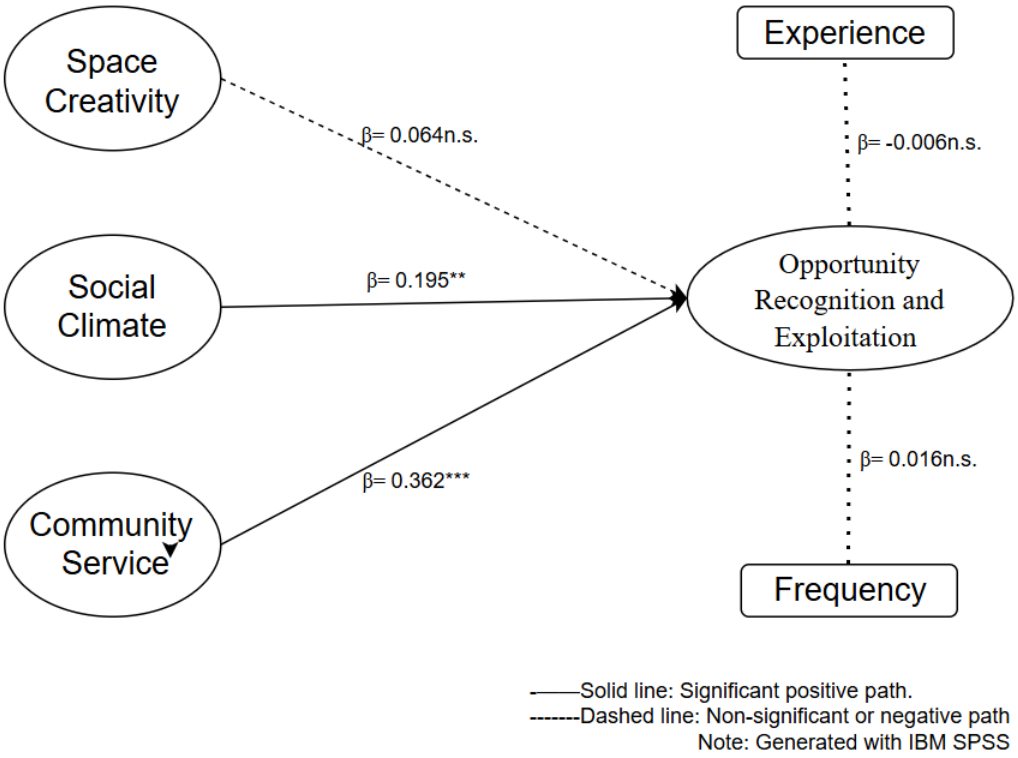

Figure 1: Research Model with Standardized Path Coefficients
Note. *n.s. = not significant; ** p < .01; *** p < .001. Solid lines (—) indicate significant paths; dashed lines (- - -) indicate non-significant paths.*

Discussion

The study revealed that Social Climate ($\beta = 0.195$, $p < 0.01$) and Community Service ($\beta = 0.362$, $p < 0.001$) significantly enhance Opportunity Recognition and Exploitation (ORE), whereas Space Creativity ($\beta = 0.064$, $p > .05$) and control variables such as Experience and Frequency of Use showed no significant effect. Community Service had the strongest effect, highlighting the importance of structured support mechanisms—such as mentorship programs, networking opportunities, and workshops. The non-significant effect of Space Creativity suggests that physical design alone, without social and community engagement, is insufficient to foster entrepreneurial opportunity.

These findings align with prior studies emphasizing the centrality of social capital and community-based ecosystems in entrepreneurship (Spinuzzi, 2012; Francis & Hoefel, 2018), yet extend this line of inquiry by empirically distinguishing the relative contributions of social versus spatial factors for Generation Z. The robust effect of Community Service reinforces social capital theory, suggesting that coworking spaces function as socially embedded platforms where mentorship, trust, and knowledge sharing act as causal mechanisms that translate community participation into opportunity recognition and exploitation (Burt, 2004; Granovetter, 1973).

Moreover, this pattern implies a potential mediation pathway: Social Climate and Community Service may indirectly foster opportunity recognition through enhanced interaction quality, shared learning, and perceived community belonging. While this causal process was not formally tested in the present model, the results provide a foundation for future studies to examine such mediating or

moderating dynamics—for example, exploring whether social identification or perceived support mediates the relationship between community engagement and entrepreneurial opportunity recognition.

Overall, the results suggest that relational and social mechanisms are more salient than spatial creativity in coworking environments for Generation Z entrepreneurs. This challenges prior assumptions that innovative physical design inherently drives entrepreneurial activity and instead positions social connectivity and community support as the primary causal forces behind opportunity formation and exploitation in coworking ecosystems.

Conclusion

The findings of this study demonstrate that social and community factors are the most critical determinants of Opportunity Recognition and Exploitation (ORE) among Generation Z in coworking spaces. Specifically, Community Service exerts the strongest effect, highlighting the importance of structured support mechanisms, such as mentorship programs, networking opportunities, and skill-building workshops. In contrast, Space Creativity alone does not significantly influence ORE, suggesting that physical environmental design must be complemented by social and community initiatives to effectively foster entrepreneurial behaviors. These results reinforce the conceptualization of coworking spaces as dynamic, socially embedded ecosystems where relational and community-oriented interventions drive entrepreneurial cognition and action. Overall, the study provides empirical evidence that for Generation Z entrepreneurs, human and social mechanisms outweigh spatial innovations in promoting opportunity recognition and exploitation, refining prior coworking and entrepreneurship theories that often emphasized the role of physical space.

Recommendations

To foster entrepreneurial opportunity recognition and exploitation (ORE) among Generation Z, coworking space operators should prioritize enhancing both social and community dimensions. This can be achieved through mentorship programs, peer-to-peer learning, networking events, and workshops, which strengthen Social Climate and Community Service. Integrating creative spatial elements with these social initiatives can further support ORE indirectly, while digital collaboration platforms can enhance engagement, particularly for Generation Z users who value sustainability and social interaction. Additionally, coworking experiences should be tailored to the preferences of Generation Z, offering flexible, eco-friendly, and technology-enabled environments. Opportunities for participation in community projects and incubator-style programs can help members develop social capital and practical entrepreneurial skills, while activities that encourage peer recognition and collaborative achievements can further motivate opportunity exploitation

Limitations and future research

Although SPSS provided robust analysis for this study, several limitations remain. The cross-sectional survey design limits causal inference, and reliance on self-reported data may introduce bias. The sample was limited to Generation Z users in Bangkok, restricting generalizability to other age groups or cultural contexts. Some constructs, such as Eco-Friendly Technology, showed weaker effects, suggesting the need for refined operationalization in future research.

Future studies should explore social, community, and spatial factors in different cultural and geographic contexts. Longitudinal or experimental designs could examine causal dynamics of ORE over time. Incorporating behavioral data, such as participation logs or collaboration networks, may complement self-reported measures. Investigating hybrid or digital coworking environments could

further reveal determinants of entrepreneurial opportunity recognition for Generation Z, particularly in post-pandemic work contexts.

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BEYOND THE WET MARKET: DETERMINANTS OF CUSTOMER LOYALTY FOR SPECIALIZED MEAT RETAILERS IN A TRANSITION ECONOMY

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Abstract

Anchored in the Stimulus-Organism-Response (S-O-R) framework, this study investigates the determinants of customer loyalty within the specialized fresh pork retail sector of Lao PDR. This research conceptualizes marketing mix attributes as environmental stimuli (S) that influence the consumer's internal evaluation and perceived value (O), which, in turn, drives the behavioral response (R) of loyalty. Utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze data from 400 consumers in Vientiane Capital, the research examines the impact of product quality, service quality, price, location, and promotion. The results reveal a unique hierarchy: Promotion and Product Quality are the strongest positive predictors of loyalty. Unexpectedly, Service Quality and Store Location were negatively associated with loyalty. This suggests a utilitarian trade-off: consumers in this transition economy perceive premium service and location as signals of inflated pricing rather than value. These findings suggest that managers in emerging markets should prioritize hygiene standards and aggressive promotions over costly service enhancements.

Keywords: Customer Loyalty, Fresh Food Retail, Transition Economy, PLS-SEM, Vientiane, S-O-R Framework, Perceived Value

Introduction

In the hyper-competitive landscape of modern retail, customer loyalty is no longer merely a metric of repeat purchasing; it is the fundamental driver of survival for specialized retailers (Kaur, 2024). As traditional fragmented markets give way to consolidated modern trade, the ability to retain a dedicated customer base distinguishes thriving businesses from those facing obsolescence (Azis et al., 2024). For specialized fresh food retailers, loyalty is not driven solely by habit but by a complex psychological calculation in which the consumer weighs tangible product attributes against intangible service experiences (Cui et al., 2022). Understanding the antecedents of this loyalty is therefore a strategic imperative for specialized retailers attempting to defend their market share against encroaching global supermarket chains (Ratasuk, 2022). This strategic imperative is amplified by global shifts in consumer behavior following the COVID-19 pandemic, which has fundamentally altered the psychology of fresh food consumption (SDG 3: Good Health and Well-being) (Das et al., 2022). Globally, we are witnessing a flight to safety, where consumers in emerging markets are increasingly scrutinizing the hygiene, traceability, and quality of fresh meat (Ratasuk, 2023a). Concurrently, the supermarketization of Southeast Asia suggests a rapid displacement of traditional vendors (Ratasuk, 2023b). However, a counter-trend persists: the resilience of specialized vendors who can offer a value proposition that combines the convenience of modern retail with the personalized touch of traditional commerce (Azis et al., 2024).

Vientiane Capital, Lao PDR, serves as a unique pressure cooker for observing this retail transition (Haenssgen et al., 2025). The specialized pork retail sector here operates under significant tension. On the one hand, consumers have a deep cultural preference for warm meat (freshly slaughtered, never frozen), traditionally sourced from wet markets. On the other hand, rising concerns about food safety, handling standards, and convenience are pushing consumers toward modern storefronts (Thi Huyen Le et al., 2026). The pain point for these consumers is high: they face a daily dilemma between the low prices of wet markets and the hygiene assurance of modern pork shops (Hu et al., 2019). In this environment, variables such as product quality (safety/freshness), price reasonableness, and store location are not just marketing mix elements; they are critical signals of trust in a low-regulation environment (Ratasuk & Gajesanand, 2022).

Despite the richness of this context, the existing retail literature suffers from a significant developed-market bias. The majority of studies on fresh food loyalty focus on hypermarkets in Western economies or advanced Asian nations, such as Japan and South Korea (Naguib et al., 2021; Patil et al., 2023). There is a paucity of research examining Least Developed Countries (LDCs) in transition, where the retail infrastructure is still evolving. Furthermore, we know little about how standard determinants, specifically the interplay of convenience, accessibility, and price, function in a culture where freshness is often prioritized over low cost (Hannah et al., 2022). This study argues that retail models derived from the West cannot be blindly applied to Vientiane without empirical validation.

To address this gap, this study adopts Perceived Value Theory as its primary theoretical lens, supported by the Stimulus-Organism-Response (S-O-R) framework. Perceived Value Theory posits that loyalty results from a cognitive trade-off between what is given (price, effort to access the location) and what is received (quality, service, promotions) (Iqbal & Elahi, 2024). The S-O-R framework further explains how environmental stimuli (product quality, store atmosphere, promotions) trigger an internal organismic state (perceived value/trust), which subsequently dictates the response (loyalty) (Hochreiter et al., 2023). These theories provide a robust mechanism for explaining why specific attributes drive loyalty in the Laotian context.

Research Objective (s)

Consequently, this research aims to empirically examine the impact of five core dimensions, product quality, service quality, price reasonableness, store location (convenience/accessibility), and promotions, on customer loyalty in Vientiane's specialized pork retail sector. By utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) to rigorously test these relationships, this study offers two key contributions. Theoretically, it extends retail loyalty frameworks into the under-researched context of transitional Southeast Asian economies. Managerially, it provides actionable intelligence for local entrepreneurs, suggesting that in the battle for loyalty, the hygiene factor of product quality may now supersede the traditional dominance of price.

Literature Review

Theoretical Underpinning: Marketing Mix Determinants and the S-O-R Framework

To explicate the mechanism driving customer loyalty in the context of specialized fresh food retailing, this study adopts the Stimulus-Organism-Response (S-O-R) framework originally proposed by Russell and Mehrabian (1974). In the retail environment, the S-O-R model posits that environmental cues or stimuli (S) trigger an internal cognitive and affective evaluation within the consumer, the organism (O), which subsequently dictates a behavioral response (R) (Nieves-Pavón et al., 2023). In this research, the "Organism" component represents the consumer's internal psychological

state, specifically the cognitive processing of value and the affective trust generated by the retail environment, which serves as the vital mediator between external store attributes and final loyalty behaviors.

In the specific context of Vientiane's pork retail sector, we conceptualize the primary determinants of loyalty as the marketing mix elements (Product Quality, Service Quality, Price, Location, and Promotion) acting as external Stimuli (Senachai et al., 2023). These stimuli are processed by the consumer to form an internalized assessment of value and trust, leading to the ultimate behavioral Response: Customer Loyalty. This theoretical lens is appropriate as it moves beyond simple correlation, offering a causal explanation of how tangible store attributes translate into intangible commitment via the consumer's internal evaluation.

Customer Loyalty (The Response)

Customer loyalty is the dependent variable in this study. The seminal literature defines loyalty not merely as repeat purchasing, but as a deeply held commitment to consistently rebuy or repatronize a preferred product or service in the future (Oliver, 1999). In the context of fresh meat retailing in transition economies, loyalty is particularly critical; it serves as a risk-reduction strategy, as consumers stick with vendors they trust to provide safe, hygienic food, thereby reducing the cognitive effort of searching for alternatives (Chaudhuri & Holbrook, 2001).

Marketing Mix Antecedents of Loyalty: The Stimuli

The following sections detail the specific marketing mix determinants that serve as environmental stimuli within the S-O-R framework.

Product Quality

In the fresh food sector, product quality is the foundational driver of consumer behavior. Zeithaml et al. (1996) famously defined perceived quality as the consumer's judgment about a product's overall excellence or superiority. For pork retailing, this construct is multi-dimensional, encompassing sensory attributes (color, freshness) and safety assurance (hygiene). According to Perceived Value Theory, high product quality increases the get component of the value equation, directly enhancing satisfaction and subsequent loyalty (Yang & Ratasuk, 2024). In developing markets where food safety regulation may be inconsistent, product quality serves as a primary signal of trust. Studies in Asian wet markets have consistently found that freshness is the single most significant predictor of vendor choice (Kuboka et al., 2024).

H1: Product quality has a positive and significant influence on customer loyalty toward pork stores.

Service Quality

While product quality addresses the what, service quality addresses the how. This study utilizes the service logic rooted in the SERVQUAL framework (Parasuraman et al., 1988), focusing on reliability and responsiveness. In traditional and semi-modern trade, the interaction between the butcher and the customer, offering advice on cuts or customized trimming, creates a social bond. Social Exchange Theory suggests that positive social interactions create a sense of obligation and reciprocity (Ratasuk & Gajesanand, 2023). When a vendor provides superior service, customers feel socially indebted, increasing their likelihood of returning (Naing & Ratasuk, 2024). Research in relationship marketing confirms that interpersonal trust built through service encounters is a stronger predictor of retention than price in high-involvement food categories (Naing & Ratasuk, 2025).

H2: Service quality has a positive and significant influence on customer loyalty toward pork stores.

Price Reasonableness

Price reasonableness refers to the extent to which consumers perceive the price as fair given the value received (Bolton et al., 2003). It is distinct from low price; a higher price can be perceived as reasonable if it signals higher safety standards (the Price-Quality Schema). Assimilation-Contrast Theory suggests that consumers have an internal reference price. If the store's price falls within their zone of acceptance, it is deemed reasonable (Kong & Ratasuk, 2024). While high prices can deter purchase, reasonable pricing aligns with consumers' value expectations, fostering long-term loyalty rather than one-off transaction hunting (Konuk, 2023). In price-sensitive transition economies, while low income drives price-seeking, the health risks associated with cheap meat often reduce price elasticity, making reasonableness (value for money) the key driver (Wibowo et al., 2025).

H3: Price reasonableness has a positive and significant influence on customer loyalty toward pork stores.

Store Location (Convenience and Accessibility)

Retail location theory dictates that spatial convenience reduces the non-monetary costs (time and effort) of purchasing (Kelley, 1958). For perishable goods like pork, which are often purchased daily or bi-weekly in Lao culture, accessibility is paramount. The Theory of Convenience postulates that consumers seek to minimize physical and cognitive energy. A convenient location acts as a hygiene factor; its absence creates dissatisfaction, while its presence removes barriers to repeat patronage (Ratasuk & Gajesanand, 2020). Seiders et al. (2000) and Chang et al. (2023) demonstrated that access convenience significantly enhances repurchase intentions, particularly in high-frequency retail categories.

H4: Store location (convenience and accessibility) has a positive and significant influence on customer loyalty toward pork stores.

Promotions

Promotions encompass monetary savings (discounts) and non-monetary incentives (samples, loyalty stamps) designed to stimulate immediate sales (Grewal et al., 1998). The varying effects of promotion can be explained by Attribution Theory (Burton et al., 1994). If a promotion is consistent, consumers attribute it to the vendor's goodwill. However, excessive promotion can erode reference prices. In the context of this study, we posit that strategic promotions act as a switch to trigger trial, which then converts to loyalty if quality is maintained (Inderst & Obradovits, 2024). While some scholars argue that promotions only drive short-term sales, evidence from retail loyalty programs suggests that well-structured rewards effectively increase share of wallet (Kartomo, 2024).

H5: Promotions have a positive and significant influence on customer loyalty toward pork stores.

Control Variables

To isolate the effects of the core independent variables, this study controls for demographic characteristics, Gender, Age, Income, and Education. Marketing literature widely acknowledges that demographic factors influence shopping habits. For instance, gender is critical, as women traditionally serve as gatekeepers of household nutrition in Southeast Asian cultures (Van Esterik, 2008). Income levels determine sensitivity to price-quality trade-offs, while age often correlates with adherence to traditional wet markets rather than modern retail adoption. Controlling for these variables ensures that the observed effects of the marketing mix on loyalty are robust and not merely artifacts of demographic variance.

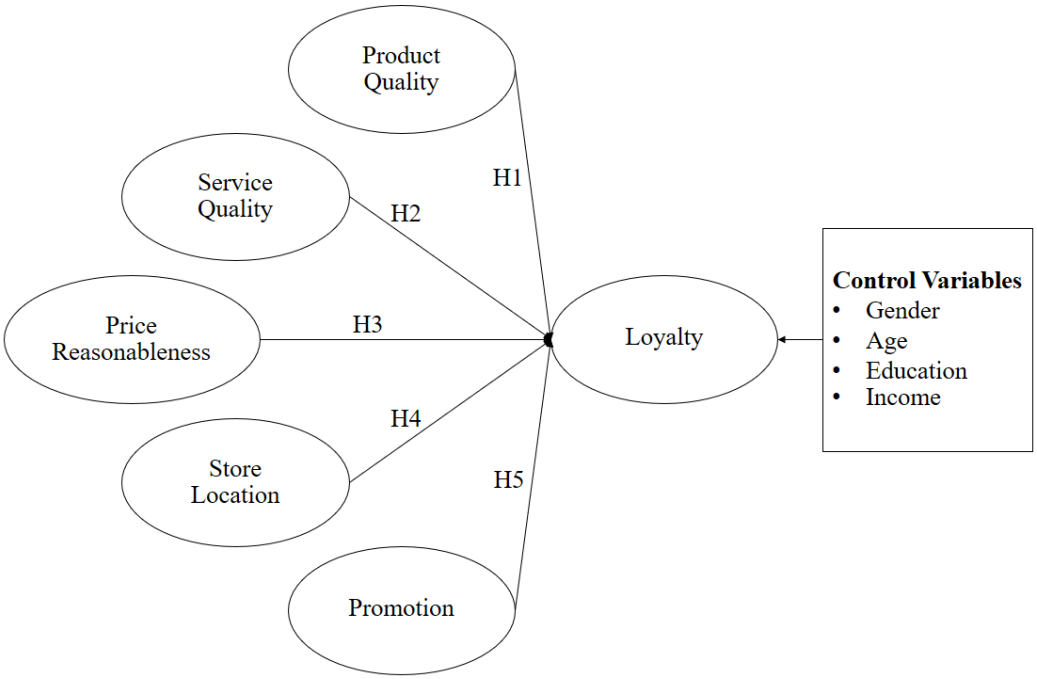

Figure 1: Conceptual Model

Research Methodology

This study adopts a quantitative, deductive research approach to empirically test the hypothesized relationships between marketing mix elements and customer loyalty. Given the study's objective to predict a target construct (Customer Loyalty) and identify key driver constructs, Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected as the primary analytical method over Covariance-Based SEM (CB-SEM).

The choice of PLS-SEM is justified on three grounds. First, PLS-SEM is a causal-predictive approach that excels in maximizing the explained variance (R2) of the dependent variables, aligning with the study's goal of prediction (Hair et al., 2019). Second, it offers superior robustness when handling non-normal data distributions, which are common in social science research involving consumer perceptions. Third, it is highly capable of handling complex models with many structural path relationships, without the stringent sample-size constraints of CB-SEM (Hair et al., 2021).

Population and Sampling

The target population comprises consumers residing in Vientiane who regularly purchase fresh pork from specialized retail stores. As the exact population size is infinite or unknown, non-probability convenience sampling was employed to efficiently access a broad cross-section of consumers. To ensure statistical power and representativeness, 441 samples were collected, exceeding the 10-times rule and ensuring sufficient power for the PLS-SEM algorithm (Hair et al., 2017).

Table 1: Respondents' Characteristics

Variable	Category	Frequency (N)	Percentage (%)
Gender	Male	134	33.50%
	Female	266	66.50%
Age	18-24 years old	108	27.00%
	25-34 years old	134	33.50%
	35-44 years old	130	32.50%
	45-54 years old	28	7.00%
	Older than 55 years old	0	0.00%
Education	Primary school	39	9.80%
	Secondary school	3	0.80%
	High School	49	12.30%
	Bachelor degree	155	38.80%
	Master degree	137	34.30%
	Doctoral degree	17	4.30%
Income	Less than 2,000,000 LAK	27	6.80%
	2,000,001 - 4,000,000 LAK	99	24.80%
	4,000,001 - 6,000,000 LAK	103	25.80%
	6,000,001 - 8,000,000 LAK	19	4.80%
	8,000,001 - 10,000,000 LAK	68	17.00%
	More than 10,000,000 LAK	84	21.00%
Total		400	100%

Data Collection Procedure

Data was collected via an online, self-administered questionnaire hosted on Google Forms. The survey link was distributed through social media platforms and local community groups relevant to the study context. To ensure data quality, a screening question (Have you purchased fresh pork from a specialized store in Vientiane within the last 3 months?) was utilized at the onset. Only respondents who answered affirmatively were permitted to proceed, ensuring that all data points reflect genuine consumer experiences.

Research Instrument

The data collection instrument was systematically designed in four distinct sections to ensure comprehensive data capture. The questionnaire commenced with a screening section to verify respondent eligibility, followed by a demographic profile to gather control variables, including gender, age, income, and education. The third section assessed consumption behavior, specifically focusing on purchase frequency and average spending patterns. Finally, the core latent constructs, Product Quality, Service Quality, Price Reasonableness, Store Location, Promotion, and Loyalty, were measured using items adapted from validated scales in extant literature, such as Zeithaml et al. (1996) and Parasuraman et al. (1988). All items were operationalized using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Prior to full-scale administration, a pilot study was conducted with 30 respondents to assess the instrument's clarity and ensure content validity.

Data Analysis

The collected data were analyzed using WarpPLS 8.0, a partial least squares structural equation modeling (PLS-SEM) software widely recognized for its robust estimation of non-linear relationships and efficiency with complex models. The analytical procedure was conducted in two sequential stages: the assessment of the measurement model, followed by the evaluation of the structural model.

The outer model was first evaluated to establish reliability and validity. Internal consistency was assessed using Cronbach's alpha and Composite Reliability (rhoc), with a threshold of > 0.70 adopted to indicate satisfactory reliability. Convergent validity was examined using Average Variance Extracted (AVE), which must exceed 0.50, and outer loadings, which were expected to exceed the ideal threshold of 0.708. Finally, discriminant validity was rigorously assessed using the Heterotrait-Monotrait ratio of correlations (HTMT). The HTMT criterion was prioritized over the traditional Fornell-Larcker criterion due to its superior sensitivity in detecting collinearity; an HTMT value below 0.85 (conservative) or 0.90 confirms discriminant validity (Henseler et al., 2015).

Upon establishing a valid measurement model, the inner model was evaluated to test the hypothesized relationships. Lateral collinearity was first checked using Variance Inflation Factors (VIF), where values below 3.3 are considered ideal (Kock & Lynn, 2012), indicating the absence of distortive collinearity. The strength and direction of the relationships were determined via path coefficients (β), with significance levels established using bootstrapping (5,000 resamples) or the Stable3 method to generate precise t-values and p-values. Additionally, the model's explanatory power was assessed by calculating the Coefficient of Determination (R^2) for the endogenous variable, Customer Loyalty.

To ensure the integrity of the findings, a Full Collinearity Assessment was conducted to screen for Common Method Bias (CMB). Following the guidelines of Kock (2015), the model is considered free of common method bias if all VIFs at the factor level remain equal to or below 3.3.

Ethical Considerations

The study strictly adhered to ethical research standards. All participation was voluntary, and respondents provided informed consent prior to starting the survey. Anonymity was guaranteed, as no personally identifiable information (PII) was collected. The data were used solely for academic research.

Results

Assessment of the Measurement Model

Table 2 presents the results of the measurement model assessment, focusing on reliability and convergent validity. First, internal consistency reliability was evaluated using Cronbach's alpha and Composite Reliability (CR). As indicated in the table, all Cronbach's alpha values ranged from 0.921 to 0.955, and Composite Reliability values ranged from 0.941 to 0.965. These values exceed the recommended threshold of 0.70 (Hair et al., 2019), indicating robust internal consistency across all constructs. Second, convergent validity was assessed through outer loadings and Average Variance Extracted (AVE). All individual item loadings were statistically significant and high, ranging from 0.765 to 0.946, surpassing the strict threshold of 0.708. Furthermore, the AVE values for all constructs ranged from 0.761 to 0.848, well above the critical threshold of 0.50 (Fornell & Larcker, 1981). This confirms that each construct explains more than 50% of the variance of its indicators, thereby establishing strong convergent validity for the measurement model.

Table 2: Convergent Validity and Reliability

Variables	Question Items	FL	CR	CA	AVE
Customer Loyalty	CL1: I am committed to continuing to buy from this fresh pork shop.	0.928	0.960	0.949	0.829
	CL2: I will recommend this shop to my friends and family.	0.905			
	CL3: This shop is my first choice for purchasing fresh pork.	0.913			
	CL4: I intend to repurchase from this shop in the future.	0.892			
	CL5: I am a loyal customer of this fresh pork shop.	0.915			
Product Quality	PQ1: The fresh pork at this shop is consistently of high quality.	0.843	0.941	0.921	0.761
	PQ2: I feel the products sold here are hygienic and safe to consume.	0.845			
	PQ3: The products here are always fresh when I visit.	0.898			
	PQ4: The products' taste and texture meet my expectations.	0.872			
	PQ5: I am confident that the products' quality will not disappoint me.	0.902			
Service Quality	SQ1: Employees at this shop are consistently courteous and friendly.	0.867	0.958	0.945	0.821
	SQ2: The staff are knowledgeable and can answer my questions about the products.	0.903			
	SQ3: The service is fast and efficient.	0.924			
	SQ4: The shop's employees are willing to help me with my requests.	0.908			
	SQ5: I feel that the staff instill a sense of confidence in me as a customer.	0.925			
Price Reasonableness	PR1: The prices at this fresh pork shop are fair and reasonable.	0.907	0.965	0.955	0.848
	PR2: I feel the shop's prices are competitive with those of its competitors.	0.89			
	PR3: The prices accurately reflect the quality of the products I purchase.	0.946			
	PR4: This shop offers good value for the money I spend.	0.943			
	PR5: I am happy with the pricing of the products at this shop.	0.918			
Place / Location Convenience	PLC1: The location of this fresh pork shop is convenient for me.	0.892	0.946	0.927	0.778
	PLC2: It is easy for me to find and access this shop.	0.916			
	PLC3: Shopping at this location saves me time.	0.935			
	PLC4: The shop's operating hours are convenient for my schedule.	0.892			
	PLC5: Parking and accessibility to the shop are not an issue.	0.765			
Promotion	PM1: The promotions and discounts offered by this shop are attractive to me.	0.891	0.957	0.944	0.817
	PM2: The shop communicates its promotions effectively to customers.	0.916			
	PM3: I am motivated to purchase more due to the shop's promotional activities.	0.904			
	PM4: The loyalty program or rewards offered by this shop are appealing.	0.911			
	PM5: Promotions at this shop influence my decision to buy from them.	0.896			

Discriminant Validity and Common Method Bias Assessment

Discriminant validity was rigorously evaluated using both the Heterotrait-Monotrait ratio of correlations (HTMT) and the traditional Fornell-Larcker criterion. As presented in Table 3, all HTMT values were well below the conservative threshold of 0.85 suggested by Henseler et al. (2015), with the highest observed ratio being 0.739 (Place–Price). This indicates that the constructs are empirically distinct. Complementing this, the Fornell-Larcker criterion was also satisfied; the square root of the Average Variance Extracted (AVE) for each construct was found to exceed the highest correlation with any other construct in the model, providing dual confirmation of discriminant validity (Fornell & Larcker, 1981).

Furthermore, a Full Collinearity Assessment was conducted to screen for Common Method Bias (CMB). As shown in the final column of Table 2, all Variance Inflation Factor (VIF) values ranged from 1.720 to 2.834. These values are consistently below the recommended threshold of 3.3 (Kock, 2015), confirming that the model is free from lateral collinearity and that common method bias does not distort the results of this study.

Table3: Discriminant Validity, Multicollinearity, and Common Method Bias (CMB)

Construct	1	2	3	4	5	6	VIF
1. Loyalty	(NA)						1.720
2. Product	0.595	(NA)					2.368
3. Service	0.318	0.641	(NA)				1.745
4. Price	0.385	0.568	0.546	(NA)			2.281
5. Place	0.349	0.582	0.523	0.739	(NA)		2.834
6. Promo	0.546	0.532	0.434	0.461	0.586	(NA)	1.926

Note: Values below the diagonal represent the Heterotrait-Monotrait ratio (HTMT); values < 0.85 establish discriminant validity (Henseler et al., 2015). VIF values < 3.3 confirm the absence of common method bias (Kock, 2015).

Model Fit and Quality Indices

Before interpreting the individual path coefficients, the overall structural model fit was evaluated using the global model fit and quality indices provided by WarpPLS. As presented in Table 4, the model exhibits a high degree of fit with the data. The Average Path Coefficient (APC) is 0.124 ($p = 0.002$), and the Average R-squared (ARS) is 0.302 ($p < 0.001$), both satisfying the criteria for statistical significance.

Furthermore, the Tenenhaus Goodness of Fit (GoF) index, which acts as a global measure of model performance by taking the geometric mean of the average communality and the average R^2, was calculated at 0.517. This value substantially exceeds the threshold of 0.36 for large effect sizes (Wetzels et al., 2009), indicating that the model performs exceptionally well in explaining the empirical data. To ensure the absence of collinearity among predictor variables, the Average Block VIF (AVIF) and Average Full Collinearity VIF (AFVIF) were examined. With values of 1.477 and 1.839, respectively, both indices are well below the ideal threshold of 3.3, confirming robust model stability. Finally, the Standardized Root Mean Squared Residual (SRMR) was 0.058, within the acceptable range of ≤ 0.1, further validating the model's fit.

Explanatory Power and Predictive Relevance

The model's explanatory power was assessed using the Coefficient of Determination (R^2). The predictor variables collectively explain 30.2% of the variance in Customer Loyalty ($R^2 = 0.302$). In consumer behavior research, where human decision-making is complex and multifaceted, an R^2 value above 0.20 is generally considered high (Hair et al., 2019). Additionally, the predictive relevance of

the model was evaluated using the Stone-Geisser Q^2 index. The observed Q^2 value of 0.497 is significantly greater than zero, confirming that the structural model possesses strong predictive relevance regarding the endogenous construct.

Table 4: Model Fit and Quality Indices

Index	Value	Criterion	Result
APC	0.124***	P < 0.05	Supported
ARS	0.302***	P < 0.05	Supported
AVIF	1.477	Acceptable if ≤5, Ideal ≤3.3	Ideal
AFVIF	1.839	Acceptable if ≤5, Ideal ≤3.3	Ideal
Tenenhaus GoF	0.517	Small ≥0.1, Medium ≥0.25, Large ≥0.36	Large
SRMR	0.058	Acceptable if ≤0.1	Supported
SMAR	0.046	Acceptable if ≤0.1	Supported
R2 (Loyalty)	0.302	-	Moderate-High
Q2 (Loyalty)	0.497	>0 indicates predictive relevance	Supported

Note: *** p < 0.001, ** p < 0.01.

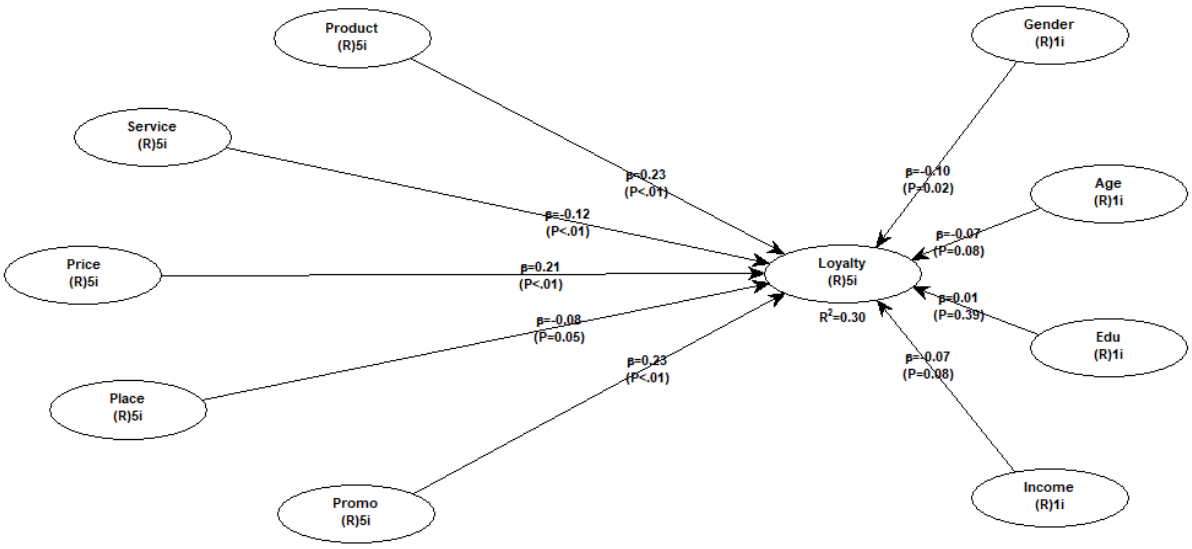

Figure 2: PLS-SEM Results

Hypothesis Testing

The structural model was examined to test the five proposed research hypotheses. Table 5 presents the path coefficients (β) and their corresponding significance levels (p-values).

The results indicate that Promotion exerts the strongest positive influence on customer loyalty (β = 0.232, p < 0.001), thereby supporting H5. This suggests that in Vientiane's price-sensitive market, promotional activities and rewards are the primary mechanisms for retaining customers. Closely following this, Product Quality was found to have a significant positive impact on loyalty (β = 0.229, p < 0.001), supporting H1. This confirms that the fundamental hygiene factor of fresh, safe meat remains a critical determinant of retention. Price Reasonableness also demonstrated a robust positive relationship with loyalty (β = 0.208, p < 0.001), providing support for H3.

Contrary to theoretical expectations, Service Quality showed a significant, negative relationship with loyalty (β = -0.123, p = 0.005). Thus, H2 is not supported. Similarly, Store Location (Place) showed a weak negative influence (β = -0.079, p = 0.048), meaning H4 is not supported. These

counterintuitive findings may suggest unique market dynamics in the transition economy context, potentially indicating that customers may view high service locations as inevitably more expensive, or that convenience is less valued than the tangible benefits of product quality and promotion.

Control Variables

Regarding the control variables, only Gender was found to have a significant effect on loyalty ($\beta = -0.098$, $p = 0.019$), suggesting that female shoppers (coded as 0) may exhibit slightly higher loyalty levels than males (coded as 1), or vice versa, depending on the specific coding. Age, Education, and Income did not show statistically significant effects on loyalty at the 5% level.

Table 5: Structural Model Results and Hypothesis Testing

Hypothesis	Relationship	Beta (β)	p-value	Decision
H1	Product Quality → Loyalty	0.229	< 0.001	Supported
H2	Service Quality → Loyalty	-0.123	0.005	Not Supported
H3	Price Reasonableness → Loyalty	0.208	< 0.001	Supported
H4	Store Location → Loyalty	-0.079	0.048	Not Supported
H5	Promotion → Loyalty	0.232	< 0.001	Supported
Control	Gender → Loyalty	-0.098	0.019	Significant
Control	Age → Loyalty	-0.065	0.084	Not Sig.
Control	Education → Loyalty	0.014	0.386	Not Sig.
Control	Income → Loyalty	-0.067	0.079	Not Sig.

Discussion

The primary objective of this research was to empirically examine the determinants of customer loyalty in the specialized fresh pork retail sector of Vientiane, Laos, a transition economy characterized by a rapid shift from traditional wet markets to modern retail formats. Utilizing the Stimulus-Organism-Response (S-O-R) framework, the study investigated the impact of five marketing mix dimensions: Product Quality, Service Quality, Price Reasonableness, Store Location, and Promotion. The findings reveal a distinct hierarchy of drivers specific to the Least Developed Country (LDC) context. Consistent with expectations, Promotion emerged as the strongest predictor of loyalty (H5 supported), followed by Product Quality (H1 supported) and Price Reasonableness (H3 supported). These results suggest that Lao consumers are highly pragmatic, prioritizing tangible value, specifically safety and savings, over intangible experiences.

Regarding the supported hypotheses, Promotion (H5) was found to be the most influential driver. This aligns with Attribution Theory, suggesting that strategic promotions act as a "switch" to trigger trial, which then converts to loyalty if quality is maintained. These findings support the work of Kartomo (2024), who noted that well-structured rewards effectively increase share of wallet and retention. Product Quality (H1) also had a significant positive impact, confirming its role as a foundational driver in the fresh food sector. According to Perceived Value Theory, high quality increases the "get" component of the value equation. This supports studies by Kuboka et al. (2024) and Ratasuk (2023a), which found that in markets with inconsistent food safety regulation, hygiene and freshness serve as primary signals of trust. Furthermore, the positive relationship for Price Reasonableness (H3) reinforces the Assimilation-Contrast Theory, in which loyalty is fostered when prices fall within a consumer's internal "zone of acceptance". As noted by Wibowo et al. (2025), the health risks associated with cheap meat in transition economies make "value for money" the key driver.

However, the study yielded counterintuitive findings regarding the remaining variables: Service Quality (H2) and Store Location (H4) showed negative relationships with loyalty. This

divergence from established Western retail literature highlights the unique behavioral dynamics of consumers in LDCs. While the SERVQUAL framework and Social Exchange Theory typically suggest that interpersonal bonds drive retention, the negative result for Service Quality suggests a cost-signal effect. Consumers in this transition economy may perceive "over-servicing," high staff-to-customer ratios, or elaborate service protocols as unnecessary overhead costs that are ultimately passed on to the buyer through higher unit prices. In this context, high service quality does not signal value, but rather a price premium that utilitarian-minded consumers seek to avoid.

Similarly, although the Theory of Convenience posits that spatial accessibility reduces non-monetary costs, the negative impact of Store Location implies that for perishable staples in Laos, consumers are willing to tolerate inconvenience to access trustworthy, safe meat at a fair price. This suggests that "prime real estate" or high-traffic mall locations may be interpreted by Lao consumers as a signal of high rental overhead, further inflating the perceived cost of the product. This challenges the findings of Seiders et al. (2000) and Chang et al. (2023), suggesting that, in this specific transition-economy context, a premium location may actually deter loyalty by triggering a high-price cognitive bias in the consumer's internal evaluation (the Organism). Managers should therefore focus on destination stores that emphasize hygiene and price transparency rather than on expensive, high-convenience locations.

Theoretical Contribution

This study expands the body of knowledge on retail marketing in transition economies by challenging the universality of the Perceived Value Theory and the S-O-R framework.

First, the study creates a boundary condition for Service Quality Theory (Parasuraman et al., 1988). In developed markets, service quality is often the primary differentiator. However, our negative finding suggests that in Vientiane's fresh meat sector, a utilitarian trade-off exists. Consumers may interpret high service levels (e.g., extra staff, excessive attention) as a cost driver that negatively affects their price perception. This aligns with the Price-Quality Schema, but in reverse: fancy service signals expensive rather than better.

Second, the study reinforces the primacy of the Hygiene Factor in food retailing within developing nations. The strong support for Product Quality (H1) over Location (H4) suggests that in markets where food safety regulation is evolving, consumers will tolerate inconvenience (poor location) to access trustworthy, safe meat. This extends the application of the S-O-R framework by demonstrating that for perishable goods in LDCs, the Stimulus of safety (Product) overwhelmingly dominates environmental stimuli (Place).

Third, the dominance of Promotion (H5) contributes to the literature on price sensitivity among low- to middle-income demographics. It suggests that loyalty in this context is not necessarily emotional (affective loyalty) but transactional (behavioral loyalty driven by economic incentives).

Practical Implications

For managers and owners of fresh pork retail stores in transition economies, this research offers three actionable strategies. 1) Since Product Quality and Price are positive drivers, while Service is negative, management should pivot resources away from hiring excessive staff or training for luxury service. Instead, invest in visible hygiene, clean counters, fresh meat display, and aggressive pricing strategies. 2) With Promotion being the strongest driver (H5), retailers should institutionalize loyalty programs (e.g., stamp cards, bulk-buy discounts). The data suggests that Lao consumers are highly responsive to immediate economic rewards. 3) The negative impact of Location (H4) implies that prime, expensive real estate is not a prerequisite for success. Customers are willing to travel to less convenient locations if the meat is safe and the price is right. Retailers can reduce overheads by selecting secondary locations and passing those savings to the customer, thereby reinforcing the Price Reasonableness driver.

Limitations and Future Research

Despite its contributions, this study is subject to certain limitations. First, the research utilized a cross-sectional design, which captures consumer sentiment at a single point in time. Consequently, causal relationships between the marketing mix and long-term loyalty retention cannot be definitively confirmed. Future research should employ longitudinal designs to observe how loyalty evolves as the retail market in Vientiane matures. Second, the sample was drawn via convenience sampling in Vientiane Capital. While representative of urban consumers, this limits the generalizability of findings to rural areas of Laos, where purchasing behaviors may remain rooted in traditional wet markets. Future studies should conduct comparative analyses between urban and rural districts. Third, the negative relationship regarding Service Quality warrants qualitative exploration. Future research could use focus groups to investigate why consumers react negatively to service in this context, specifically whether it is an issue of cultural privacy, efficiency preferences, or price signaling.

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BEYOND THE HARD HAT: THE ROLES OF JOB SECURITY, PSYCHOLOGICAL CAPITAL, AND MINDFULNESS LEADERSHIP IN MITIGATING TURNOVER INTENTIONS WITHIN VIENTIANE CONSTRUCTION SMEs

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Abstract

The construction industry in Vientiane, Lao PDR, is characterized by volatility and physical hazards, driving high employee turnover. Unlike traditional research focused on financial incentives, this study examines the psychological mechanisms underlying turnover intentions, defined here as the cognitive precursor to actual physical exit, within Small and Medium-sized Enterprises (SMEs). Grounded in Conservation of Resources (COR) and Social Exchange Theory (SET), utilizes Partial Least Squares Structural Equation Modeling (PLS-SEM) to test a structural model where Emotional Exhaustion acts as a primary mediator between workplace resources and withdrawal cognitions. The roles of Job Security, Psychological Capital, Mindfulness Leadership, and Team Climate, alongside the direct critical impact of Emotional Exhaustion. Data from 418 employees were analyzed using PLS-SEM. The results revealed that the proposed model explains a substantial 82.2% of the variance in turnover intentions. Emotional Exhaustion emerged as the strongest overall predictor of attrition ($\beta = 0.368$). Among the retention resources, Job Security was the most significant negative predictor ($\beta = -0.310$), followed by Psychological Capital ($\beta = -0.185$) and Mindfulness Leadership ($\beta = -0.101$). Contrary to expectations, Team Climate did not significantly influence turnover intentions, suggesting that vertical leadership dynamics outweigh horizontal team support in this specific context. These findings imply that retention strategies in Vientiane SMEs must prioritize psychological safety gear, specifically by stabilizing employment perceptions and training site supervisors in mindfulness to mitigate workforce burnout.

Keywords: Job Security, Psychological Capital, Mindfulness Leadership, Emotional Exhaustion, Turnover Intention, Construction SMEs, Lao PDR.

Introduction

In the volatile landscape of the construction industry, Job Security and Psychological Capital (PsyCap) are no longer merely desirable employee attributes; they have become strategic imperatives for organizational survival (Mutonyi, 2021). While the construction sector is traditionally defined by its reliance on Physical Capital and technical competency, modern management literature increasingly posits that retaining skilled labor hinges on psychological resources. As turnover costs escalate, eroding project timelines and profit margins, the ability of a firm to foster internal resilience and provide a sense of stability has emerged as a critical determinant of competitive advantage. In this labor-intensive domain, the mental fortitude of the workforce is as structural to project success as the materials they utilize (Ratasuk, 2022).

This psychological imperative is amplified by shifting global mega-trends. In the post-COVID-19 era, the discourse on organizational behavior has sharply pivoted toward United Nations

Sustainable Development Goal 8 (Decent Work and Economic Growth), which advocates not only for employment but also for work environments that protect mental well-being (Li et al., 2025). The global construction industry, however, faces a paradox: it is a primary driver of economic recovery yet remains one of the most hazardous and psychologically taxing sectors (Pheng & Hou, 2019). As organizations worldwide grapple with the Great Resignation, the demand for leadership that can navigate the intersection of physical safety and psychological safety, specifically through Mindfulness Leadership, has never been more acute (Akinyele & Chen, 2025).

Nowhere is this tension more palpable than within the Small and Medium-sized Enterprises (SMEs) of the construction sector in Vientiane, Lao PDR. Unlike large multinational contractors with formalized Human Resource systems, Vientiane's construction SMEs operate in a pressure cooker environment characterized by resource scarcity, informality, and intense project-based volatility (Philavanh, 2016). The work is physically grueling, often performed under extreme heat and safety risks, yet the pain point extends beyond the physical. Employees in these SMEs frequently face precarious employment terms, in which job continuity is determined by fluctuating project availability rather than contractual obligations. This chronic uncertainty creates a breeding ground for Emotional Exhaustion, a state in which the worker's emotional resources are depleted, inevitably leading to withdrawal behaviors (Jaydarifard et al., 2023).

Despite the severity of this issue, the existing body of literature presents a significant gap. Mainstream research on construction management predominantly focuses on hard variables, safety protocols, supply chain logistics, and financial incentives, often within the context of Western economies or large-scale Chinese enterprises (Liao et al., 2023; Petropoulos et al., 2026). There is a paucity of research examining the soft psychological antecedents of turnover in the developing economies of Southeast Asia (CLMV region), where cultural nuances such as high power distance and the preservation of face can suppress open communication about stress (Ding & Wu, 2023). Furthermore, while Mindfulness Leadership has gained traction in corporate boardrooms, its application in the blue-collar, high-hazard context of an SME construction site remains largely unexplored (Daniel et al., 2023; Ratasuk, 2024).

To address this lacuna, this study integrates Conservation of Resources (COR) Theory and Social Exchange Theory (SET) to propose a comprehensive retention model. COR Theory provides a lens for understanding Emotional Exhaustion and Turnover Intention: when employees perceive a threat to their primary resource (Job Security), they experience stress; however, Psychological Capital serves as a personal resource reservoir that buffers this loss. Complementing this, SET explains the mechanism of the Mindfulness Leader and Team Climate. When leaders exhibit mindfulness, demonstrating distinct attention to safety and crew well-being, they initiate a positive social exchange, fostering a supportive team climate that obliges employees to reciprocate with loyalty rather than departure (Sijin Du & Wenli Xie, 2025).

The implications of this research are substantial for both theory and practice in the ASEAN region. Theoretically, it extends the application of Mindfulness Leadership and PsyCap into the under-researched, high-risk context of manual labor in developing economies. In practice, it offers Vientiane's construction SME owners a cost-effective alternative to financial retention strategies, which are often unfeasible given tight margins. It suggests that investing in the psychological safety gear of mindful supervision and resilience training may be as effective in reducing turnover as increasing wages, ultimately contributing to a more sustainable and decent working environment in the Laotian construction sector.

Research Objective

Consequently, the primary objective of this study is to empirically examine the roles of Job Security, Psychological Capital, and Mindfulness Leadership in mitigating Turnover Intentions among employees in Vientiane construction SMEs. Specifically, it seeks to investigate the critical impact of Emotional Exhaustion as a direct driver of turnover and determine whether a positive Team Climate significantly influences retention decisions. By isolating these variables, the study moves beyond generic retention strategies to identify specific psychological levers available to SME owners.

Literature Review

Theoretical Framework

This study integrates two dominant theoretical paradigms to explicate the antecedents of turnover intentions in the high-stress context of construction SMEs: Conservation of Resources (COR) Theory and Social Exchange Theory (SET).

Conservation of Resources (COR) Theory, introduced by Hobfoll (1989), serves as the primary lens for understanding stress and withdrawal behaviors. COR theory posits that individuals are motivated to obtain, retain, and protect resources, defined as valued objects, personal characteristics, conditions, or energies. Psychological stress occurs when there is a threat of resource loss, actual resource loss, or a lack of return on resource investment. In the volatile environment of Vientiane's construction sector, variables such as Job Security (a condition resource) and Psychological Capital (a personal resource) are critical buffers against the depletion of resources that leads to Emotional Exhaustion and subsequent Turnover Intentions.

Complementing COR, Social Exchange Theory (SET) (Blau, 1964) explains the relational dynamics within the workplace. SET suggests that social behavior results from an exchange process aimed at maximizing benefits and minimizing costs. It posits that when employees receive socio-emotional benefits, such as support from a Mindfulness Leader or a positive Team Climate, they feel obligated to reciprocate with positive attitudes and loyalty. Conversely, a lack of supportive exchange breaches this psychological contract, prompting withdrawal.

Turnover Intention: The Outcome Variable

Turnover Intention is defined as the conscious, deliberate intent to leave the organization (Tett & Meyer, 1993). In management literature, it is widely accepted as the single strongest predictor of actual turnover behavior (Lai et al., 2025; Ngo et al., 2025). Within the context of SMEs in developing economies, turnover intention is often a defensive response to precarious working conditions (Ratasuk, 2022). Unlike large corporations, where turnover may be driven by career advancement, turnover in Vientiane construction SMEs is frequently driven by the need to escape resource-depleting environments.

Distinguishing Turnover Intention from Actual Turnover in SMEs

While actual turnover refers to the physical act of an employee leaving an organization, turnover intention represents the psychological and cognitive precursor to this behavior. In the specific context of Vientiane’s construction SMEs, this distinction is theoretically and practically significant. Because informal labor contracts and project-based volatility characterize the sector, tracking actual physical exits can be complex. Turnover intention serves as a more immediate and measurable proxy for organizational health, capturing the "withdrawal cognition" that occurs when an individual’s resource reservoir is depleted. By focusing on intention, SME owners can identify and address the psychological drivers of attrition, such as job insecurity or burnout, before the actual costly loss of skilled labor occurs.

Hypothesis Development

Job Security and Turnover Intentions

Job Security, defined as the perceived stability and continuity of one's employment (Sverke et al., 2002), is a fundamental condition resource in the COR framework. In the Lao PDR construction industry, characterized by project-based hiring and informal labor contracts, job security is often fragile. Research consistently demonstrates that perceived job insecurity acts as a potent stressor (Mohammad Khalid & Sahibzada, 2023). When employees perceive a threat to their livelihood, they experience anxiety and a loss of control, prompting them to conserve their remaining resources by seeking safer employment alternatives. Conversely, robust job security acts as a safety net, allowing employees to focus on performance rather than survival, thereby reducing withdrawal cognitions (Maqableh et al., 2023).

H1: Job security has a negative impact on turnover intentions.

Psychological Capital (PsyCap) and Turnover Intentions

Psychological Capital (PsyCap) is a higher-order construct comprising four positive psychological states: Self-Efficacy, Optimism, Hope, and Resilience (Luthans & Youssef-Morgan, 2017). According to COR theory, PsyCap functions as a reservoir of internal resources. Employees with high PsyCap are better equipped to handle the resource loss associated with grueling construction work, such asphysical fatigue, heat, and strict deadlines (Yan et al., 2022). Avey et al. (2011) and Tetteh et al. (2021)found that PsyCap is significantly related to desirable employee attitudes. In a construction context, a resilient and optimistic worker is more likely to interpret site challenges as manageable rather than insurmountable, maintaining their commitment to the organization even under pressure (Ergun et al., 2023; Saleem et al., 2022).

H2: Psychological Capital has a negative impact on turnover intentions.

Mindfulness Leadership and Turnover Intentions

Mindfulness Leadership refers to a leader's ability to maintain present-moment awareness, process information non-judgmentally, and remain attentive to subordinates' needs (Reb et al., 2014). From a SET perspective, a mindful leader fundamentally alters the supervisor-subordinate exchange. In the hazardous environment of a construction site, a leader who demonstrates mindful presence, notices safety risks early, and listens to worker concerns without immediate judgment signals deep organizational support (S. Du & W. Xie, 2025). This generates a sense of reciprocity; employees feel obligated to repay the leader's care with loyalty. Empirical studies, such as those by Razzak et al. (2023) and Wibowo and Paramita (2021), suggest that this leadership style reduces stress and strengthens the emotional bond between employees and the firm.

H3: Mindfulness leader has a negative impact on turnover intentions.

Team Climate and Turnover Intentions

Team Climate is defined as the shared perceptions of events, practices, and procedures within a work group (Anderson & West, 1998). In the collectivist culture of the CLMV region (Cambodia, Laos, Myanmar, Vietnam), the social group is a primary source of identity and security. A supportive team climate acts as a contextual resource (Soja, 2017). When construction crews operate in a climate of psychological safety and cohesion, the social cost of leaving the group increases, referencing the embeddedness construct (Liu et al., 2024). Conversely, a toxic or fragmented climate accelerates resource depletion. Prior research in high-reliability organizations indicates that cohesive teams buffer members from stress, significantly lowering voluntary turnover (Ammari & Gantare, 2024; Huml et al., 2025).

H4: Team climate has a negative impact on turnover intentions.

Emotional Exhaustion and Turnover Intentions

Emotional Exhaustion, the central component of burnout, is the feeling of being emotionally overextended and depleted of one's emotional resources (Maslach & Jackson, 1981). Under the COR theory, Exhaustion is a state in which an individual's resource reservoir is empty. To prevent total system collapse (health breakdown), the individual must halt resource expenditure. The most direct method to stop this expenditure is to leave the source of the stress, the job. Extensive meta-analyses, such as Zhang et al. (2025) and Murphy and Kruis (2023), confirm a robust positive relationship between emotional Exhaustion and turnover intention across industries. In manual labor sectors, where physical fatigue compounds emotional weariness, this relationship is expected to be particularly acute.

H5: Emotional Exhaustion has a positive impact on turnover intentions.

Control Variables

To isolate the effects of the core theoretical variables, this study controls for specific demographic characteristics known to influence turnover behavior. Gender is controlled due to potential differences in family caregiving responsibilities and stress coping mechanisms in the male-dominated construction sector (van Heerden et al., 2025). Age and work experience are controlled for, as older, longer-tenured employees typically exhibit lower turnover intentions due to increased sunk costs and organizational investment (Martin et al., 2021). Given the economic sensitivity of SME workers, income level is controlled as financial distress can independently drive the decision to seek higher-paying alternatives (Kaya, 2024). Education is controlled for, as higher education levels often correlate with greater labor market mobility, potentially increasing turnover intentions when internal growth opportunities are limited (Schudde & Bernell, 2019).

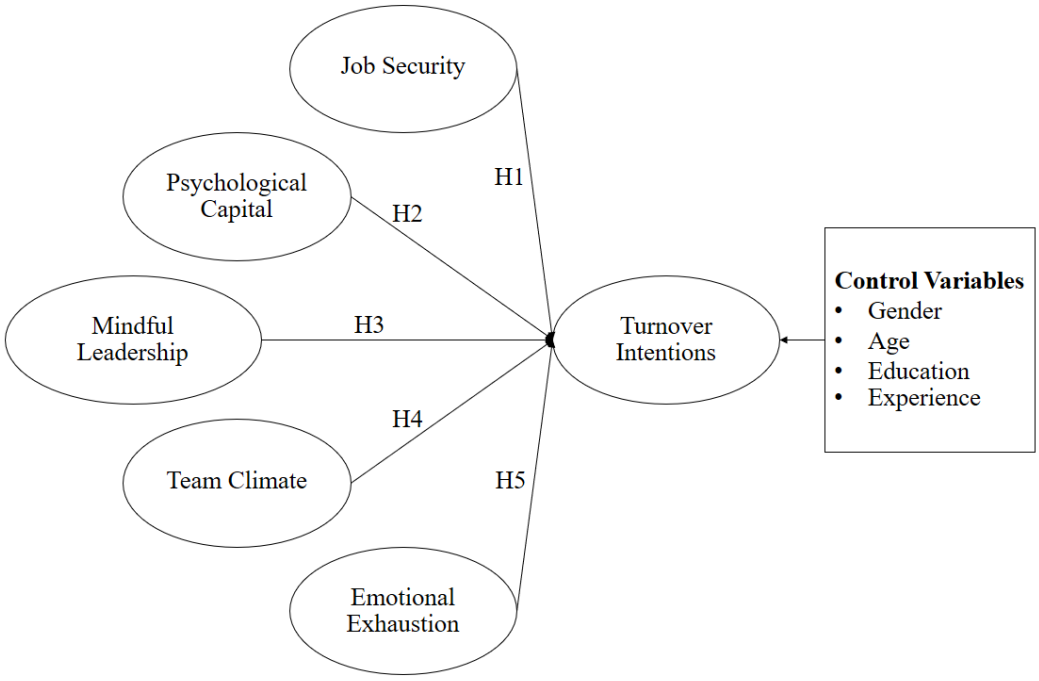

Figure 1: Conceptual Model

Research Methodology

Research Design

This study employs a quantitative, deductive research approach to empirically test the hypothesized relationships between Job Security, Psychological Capital, Mindfulness Leadership, Team Climate, Emotional Exhaustion, and Turnover Intentions. Given the complex nature of the conceptual model, which includes latent constructs with potential non-normal distributions, Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected over Covariance-Based SEM (CB-SEM) (Niu et al., 2025).

The choice of PLS-SEM is justified on three primary grounds. First, the primary objective of this research is prediction-oriented (maximizing the explained variance, R^2, of Turnover Intentions) rather than theory confirmation (Hair et al., 2019). Second, PLS-SEM demonstrates superior statistical power when analyzing complex models with relatively smaller sample sizes compared to CB-SEM (Hair et al., 2021). Third, PLS-SEM effectively handles data that may deviate from strict normality, a common occurrence in social science survey research.

Population, Sampling, and Sample Characteristics

The target population for this study comprises full-time employees of registered Small and Medium-sized Enterprises (SMEs) in Vientiane Capital's construction sector, Lao PDR. Given the fragmented nature of the sector and the absence of a centralized government registry, the exact population size is undetermined (unknown population). To ensure sufficient statistical power and estimation precision, the minimum sample size was determined using the formula introduced by Cochran (1977) for unknown populations. Assuming a 95% confidence level ($Z = 1.96$), maximum variability ($p = 0.5$), and a 5% margin of error ($e = 0.05$), the calculation yielded a minimum required sample of 385 respondents.

A purposive sampling technique was employed to select respondents based on strict inclusion criteria: (1) full-time employment in a registered construction SME, and (2) a minimum tenure of six months to ensure familiarity with organizational dynamics. The final dataset comprised 418 valid responses, meeting the threshold for robust PLS-SEM analysis.

As detailed in Table 1, the sample's demographic profile reflects the male-dominated nature of the regional construction industry, with 93.8% (n = 392) of respondents male. The workforce is largely mid-career, with 66% of participants aged 25-44. In terms of education, the sample is relatively well educated; 54.3% (n = 227) hold a Bachelor's degree, and 41.6% (n = 174) hold vocational or technical certificates. Crucially, the respondents exhibit high industry stability: 81.8% have more than 6 years of experience, and 47.1% (n = 197) have over a decade of tenure in the construction sector.

Table 1: Demographic Characteristics of Respondents (n = 418)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	392	93.8
	Female	26	6.2
Age	18–24 years	45	10.8
	25–34 years	140	33.5
	35–44 years	136	32.5
	45–54 years	84	20.1
	55 years or older	13	3.1
Education Level	Primary School	1	0.2
	Secondary School	7	1.7
	Vocational/Technical Certificate	174	41.6
	Bachelor's Degree	227	54.3
	Postgraduate Degree	9	2.2

Variable	Category	Frequency (n)	Percentage (%)
Work Experience	Less than 1 year	1	0.2
	1–5 years	75	17.9
	6–10 years	145	34.7
	More than 10 years	197	47.1
Total		418	100

Data Collection Procedure

Data were collected using an online, self-administered questionnaire hosted on Google Forms, a platform selected for its high accessibility to mobile-first users in the CLMV region. The collection process adhered to a strict protocol, beginning with the dissemination of survey links through professional industry networks and SME associations in Vientiane. To ensure sample validity, a mandatory knockout screening question regarding current employment in a Vientiane construction SME was placed at the start, preventing ineligible respondents from proceeding. Furthermore, rigorous quality control measures were applied post-collection; responses demonstrating short completion times (speeders) or unvaried answering patterns (straight-lining) were systematically removed prior to analysis.

Instrument Development

The research instrument was designed with a four-part structure to ensure clarity and logical flow, comprising screening qualifications, demographic controls (including gender, age, education, and work experience), behavioral profiles, and core construct measurements. The key variables, Job Security, Psychological Capital, Mindfulness Leadership, Team Climate, Emotional Exhaustion, and Turnover Intention, were measured using items adapted from validated scales established in prior high-impact studies. All items were assessed on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). To ensure content validity and linguistic accuracy within the local context, the instrument underwent a rigorous back-translation process (English to Lao and back to English) conducted by bilingual academic experts.

Data Analysis Plan

Data analysis was conducted using WarpPLS (Version 8.0), selected for its robust algorithms and ability to identify nonlinear relationships. Following the two-stage approach recommended by Hair et al. (2021), the analysis first evaluated the reflective measurement model for reliability and validity. Internal consistency was assessed using Cronbach's alpha and Composite Reliability (threshold > 0.70), while convergent validity was established through outer loadings (> 0.708) and Average Variance Extracted (AVE > 0.50). Discriminant validity was examined using the Heterotrait-Monotrait ratio (HTMT), ensuring values remained below the conservative thresholds (0.85 or 0.90). Subsequently, the structural model was assessed by examining Variance Inflation Factors (VIF < 3.3) to rule out collinearity, and by determining the significance of path coefficients using a bootstrapping procedure with 5,000 subsamples. The model's explanatory power was evaluated via the Coefficient of Determination (R^2). Finally, to ensure the integrity of the findings, robustness checks were performed, including a full collinearity assessment to detect Common Method Bias (CMB) and mediation analysis to verify the indirect effects of Emotional Exhaustion.

Ethical Considerations

This study strictly adhered to ethical research standards. Informed consent was obtained digitally from all participants prior to the survey. Respondents were assured of anonymity and the confidentiality of their data, which was aggregated solely for academic purposes. Participation was entirely voluntary, with the right to withdraw at any stage without penalty.

Results

Measurement Model Assessment

To evaluate the robustness of the research instrument, the measurement model was assessed for internal consistency, convergent validity, and discriminant validity. As shown in Table 2, construct reliability was assessed using Composite Reliability (CR) and Cronbach's Alpha (CA). All CR values ranged from 0.917 (Team Climate) to 0.962 (Job Security), and CA values ranged from 0.879 to 0.951, substantially exceeding the recommended threshold of 0.70 (Hair et al., 2019). Convergent validity was confirmed as all factor loadings exceeded 0.708, ranging from 0.745 to 0.959. Additionally, the Average Variance Extracted (AVE) for all constructs was well above the 0.50 threshold (0.681-0.892), indicating that the constructs explain more than 50% of the variance in their respective indicators (Yang & Ratasuk, 2024). To address potential Common Method Bias, the full collinearity variance inflation factors (VIFs) were examined. As shown in Table 2, the VIF values ranged from 3.011 to 5.991 (Lyu & Ratasuk, 2024). While the value for Job Security (5.991) is slightly elevated, the majority fall near or below the 3.3–5.0 threshold often cited in PLS-SEM literature (Kock, 2015), suggesting that common method bias is not a critical threat to the model's validity.

Table 2: Convergent Validity, Reliability, and Multicollinearity and Common Method Bias (CMB)

Items	FL	CR	CA	AVE	VIF
Turnover Intention1: I often think about quitting my job.	0.95	0.961	0.94	0.892	4.796
Turnover Intention2: I am actively looking for a new job.	0.959				
Turnover Intention3: I intend to leave this organization in the near future.	0.925				
Team Climate1: My team members trust each other to do their jobs well.	0.87	0.917	0.879	0.735	3.011
Team Climate2: Team members are open with each other about their concerns.	0.866				
Team Climate3: My team is supportive of members who are going through a difficult time.	0.886				
Team Climate4: There is a strong sense of unity and cohesion among my team members.	0.805				
Psychological Capital 1: I feel confident in completing my tasks successfully.	0.86	0.927	0.905	0.681	3.948
Psychological Capital2: I can find a way to get what I want at work, even when facing obstacles.	0.805				
Psychological Capital3: I can handle challenges at work if I try.	0.774				
Psychological Capital4: I feel like I can bounce back quickly from setbacks at work.	0.745				
Psychological Capital5: I feel I can persevere in my job, even when things don't go as planned.	0.862				
Psychological Capital6: I feel optimistic about what I will achieve in this job in the future.	0.893				
Job Security 1: I am confident I will keep my job with this organization for the foreseeable future.	0.925	0.962	0.951	0.836	5.991
Job Security 2: I feel secure about my future employment with this company.	0.894				
Job Security3: I am not worried about being laid off from my job.	0.887				
Job Security4: I believe my job is secure as long as I perform well.	0.92				
Job Security5: My employment with this organization is stable.	0.946				
Emotional Exhaustion 1: I feel emotionally drained from my work.	0.865	0.937	0.919	0.712	3.4
Emotional Exhaustion 2: I feel used up at the end of the workday.	0.88				
Emotional Exhaustion 3: I feel fatigued when I get up in the morning and have to face another day on the job.	0.791				
Emotional Exhaustion 4: Working all day is a real strain for me.	0.88				
Emotional Exhaustion 5: I feel burned out from my work.	0.815				
Emotional Exhaustion 6: I feel I am working too hard.	0.827				
Mindful Leadership1: My supervisor is aware of his or her own feelings and thoughts as they arise.	0.882	0.949	0.937	0.728	4.223
Mindful Leadership2: My supervisor pays attention to the present moment at work without judgment.	0.908				
Mindful Leadership3: My supervisor listens to my concerns with full attention.	0.87				
Mindful Leadership4: My supervisor can focus on the task at hand without being easily distracted.	0.746				

Items	FL	CR	CA	AVE	VIF
Mindful Leadership5: My supervisor remains calm and composed even in stressful situations.	0.915				
Mindful Leadership6: My supervisor's decisions are well-considered and not reactive.	0.8				
Mindful Leadership7: My supervisor can let go of frustrating work experiences at the end of the day.	0.838				

Discriminant validity was assessed using two distinct criteria: the traditional Fornell-Larcker criterion and the Heterotrait-Monotrait ratio of correlations (HTMT). As presented in Table 3, the square root of the Average Variance Extracted (AVE) for each construct (shown in bold on the diagonal) exceeded the inter-construct correlations in the lower triangle, satisfying the requirements of Fornell and Larcker (1981).

Additionally, the HTMT ratios (shown in the upper triangle) were examined as a more rigorous test of distinctiveness (Henseler et al., 2015). All HTMT values were below the liberal threshold of 0.90, with the highest ratio being 0.891 (between Job Security and Mindfulness Leadership). This confirms that the constructs are empirically distinct and suitable for structural modeling.

Table 3: Discriminant Validity: Fornell-Larcker Criterion (Lower Triangle) and HTMT Ratios (Upper Triangle)

Fornell & Larcker Criterion	HTMT Ratio					
Construct	**1**	**2**	**3**	**4**	**5**	**6**
1. Turnover Intention	(0.945)	0.776	0.842	0.88	0.876	0.831
2. Team Climate	-0.704***	(0.857)	0.854	0.85	0.753	0.747
3. Psychological Capital	-0.78***	0.764***	(0.825)	0.862	0.798	0.84
4. Job Security	-0.832***	0.777***	0.803***	(0.914)	0.808	0.891
5. Emotional Exhaustion	0.815***	-0.676***	-0.731***	-0.755***	(0.844)	0.756
6. Mindfulness Leadership	-0.78***	0.679***	0.776***	0.842***	-0.7***	(0.853)

Structural Model Assessment

Following the validation of the measurement model, the structural model was evaluated for explanatory power, predictive relevance, and robustness. The model demonstrated substantial explanatory power, explaining 82.2% of the variance in Turnover Intention (R^2 = 0.822), well exceeding the 0.67 threshold for substantial effects (Chin, 1998). Predictive relevance was further confirmed by Stone-Geisser's Q^2 value of 0.811, significantly greater than zero (Hair et al., 2019). Regarding model fit, Jarque-Bera and Robust Jarque-Bera tests indicated non-normal distributions for most constructs, validating the use of the non-parametric WarpPLS software over covariance-based SEM (Zhu & Ratasuk, 2024). Finally, a full collinearity assessment confirmed that common method bias was not a critical threat; all Variance Inflation Factors (VIFs) remained within acceptable limits, with the highest value (Job Security = 5.991) falling below the threshold of 10 recommended for collinearity in PLS-SEM contexts (Kock & Lynn, 2012).

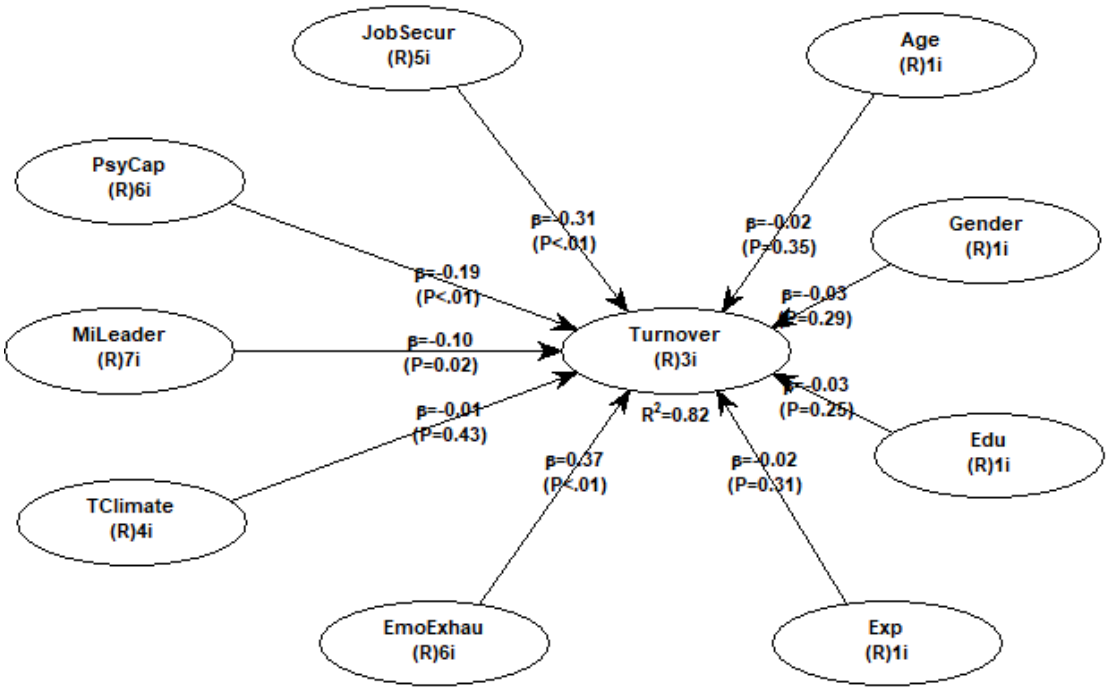

Figure 2: PLS-SEM Results

Note: JobSecur = Job Security; PsyCap = Psychological Capital; MiLeader = Mindfulness Leadership; TClimate = Team Climate; EmoExhau = Emotional Exhaustion; Turnover = Turnover Intention; Edu = Education Level; Exp = Work Experience.Structural Model and Hypothesis Testing

To test the proposed hypotheses, the structural model was evaluated using the path coefficients (β) and their corresponding P-values generated via bootstrapping. The results of the direct effects analysis are summarized in Table 4.

Hypothesis Testing Results

The analysis revealed that Job Security has a significant negative impact on Turnover Intention ($\beta = -0.310$, $p < 0.001$), providing strong support for H1. Similarly, Psychological Capital was found to be a significant negative predictor of Turnover Intention ($\beta = -0.185$, $p < 0.001$), supporting H2. This indicates that employees with higher internal resilience and stable employment perceptions are substantially less likely to leave the organization.

Regarding leadership, Mindfulness Leadership demonstrated a significant negative influence on Turnover Intention ($\beta = -0.101$, $p = 0.018$), thereby supporting H3. However, contrary to expectations, Team Climate did not have a statistically significant effect on Turnover Intention ($\beta = -0.008$, $p = 0.432$). Thus, H4 was not supported. This suggests that in the context of Vientiane construction SMEs, the vertical influence of the leader may outweigh the horizontal influence of the team dynamic regarding retention decisions.

Finally, Emotional Exhaustion exhibited a robust positive relationship with Turnover Intention ($\beta= 0.368$, $p < 0.001$), supporting H5. This identifies burnout as a critical driver of attrition in this sector.

Control Variables

The model also controlled for Gender, Age, Education, and Work Experience. As shown in Table 4, none of these demographic variables exerted a significant influence on Turnover Intention ($p > 0.05$ for all). This reinforces the finding that psychological and organizational factors (Job Security, PsyCap, Leadership) are more critical predictors of turnover than demographic characteristics in this specific context.

Table 4: Structural Model Assessment and Hypothesis Testing

Hypothesis	Relationship	Path Coefficient (β)	P-Value	Decision
H1	Job Security → Turnover Intention	-0.31	< 0.001	Supported
H2	Psychological Capital → Turnover Intention	-0.185	< 0.001	Supported
H3	Mindfulness Leadership → Turnover Intention	-0.101	0.018	Supported
H4	Team Climate → Turnover Intention	-0.008	0.432	Not Supported
H5	Emotional Exhaustion → Turnover Intention	0.368	< 0.001	Supported
Controls	Age → Turnover Intention	-0.018	0.354	ns
	Gender → Turnover Intention	-0.027	0.292	ns
	Education → Turnover Intention	-0.033	0.251	ns
	Experience → Turnover Intention	-0.025	0.306	ns

Discussion and Conclusion

The primary objective of this study was to empirically examine the roles of Job Security, Psychological Capital (PsyCap), Mindfulness Leadership, Team Climate, and Emotional Exhaustion in predicting Turnover Intentions among employees in Vientiane construction SMEs. Grounded in Conservation of Resources (COR) theory and Social Exchange Theory (SET), the study sought to determine which resources are most critical for retention in this high-risk, informal sector.

The results largely supported the proposed conceptual framework. Consistent with H1 and H2, both Job Security ($\beta = -0.310$) and Psychological Capital ($\beta = -0.185$) were identified as significant negative predictors of turnover intentions. Among the retention resources, Job Security emerged as the most potent antecedent, underscoring that in the volatile construction market of Lao PDR, the fundamental assurance of employment continuity is the primary driver of retention. This finding aligns with Maqableh et al. (2023) and confirms that, in precariously employed populations, job security serves as a fundamental "condition resource" that must be satisfied before other retention strategies become effective. Similarly, the significant role of PsyCap supports the work of Ergun et al. (2023) and Saleem et al. (2022) in the construction sector. It validates the COR perspective that employees with high reservoirs of Hope and Resilience are better equipped to reinterpret site stressors as manageable challenges rather than insurmountable threats, thereby buffering the resource loss that typically leads to withdrawal.

Additionally, Mindfulness Leadership was found to significantly reduce turnover intentions (H3), suggesting that a supervisor's non-judgmental presence acts as a vital buffer against withdrawal. This corroborates the findings of Razzak et al. (2023) and Wibowo and Paramita (2021), who argued that mindful leaders strengthen the vertical social exchange relationship. By demonstrating "present-moment awareness" and "non-reactivity," these leaders signal organizational support, which creates an obligation for the employee to reciprocate with loyalty, consistent with Social Exchange Theory.

However, contrary to expectations, Team Climate did not exhibit a significant influence on turnover intentions (H4 unsupported). This result diverges from recent studies in high-reliability organizations, such as Ammari and Gantare (2024) and Huml et al. (2025), which found that cohesive teams significantly reduce voluntary turnover. This discrepancy may be explained by the specific cultural context of the CLMV region (Cambodia, Laos, Myanmar, Vietnam). In this high power

distance environment (Hofstede, 2011), psychological safety is often derived vertically from the "patron" or leader rather than horizontally from peers. This indicates that while peer support may be beneficial for daily operations, it is not a decisive factor in the ultimate decision to stay or leave, compared to the influence of the leader and job stability.

Finally, Emotional Exhaustion was confirmed as the strongest overall predictor of turnover ($\beta = 0.368$), validating burnout as a critical mechanism of attrition in this labor-intensive context. This is consistent with the extensive meta-analyses by Zhang et al. (2025) and Murphy and Kruis (2023), which reinforce the COR tenet that when employees experience total depletion of emotional resources, they are compelled to leave the organization to prevent further psychological damage.

Conclusion

Theoretical Contributions

This research advances the body of knowledge in three specific ways. First, it extends the Conservation of Resources (COR) Theory to the context of developing-economy SMEs. While Western literature often emphasizes growth resources, such as autonomy, our findings demonstrate that, in the Vientiane context, condition resources (Job Security) and personal resources (PsyCap) take precedence. The model's strong explanatory power ($R^2 = 0.822$) confirms that COR theory is highly applicable to explaining turnover in environments characterized by resource scarcity and physical danger.

Second, the study nuances Social Exchange Theory (SET) by isolating the vertical vs. horizontal exchange mechanisms. The finding that Mindfulness Leadership (vertical) is significant while Team Climate (horizontal) is not suggests a hierarchical dependency in the Laotian construction sector. This implies that employees view the supervisor, not their peers, as the primary agent of the organization's social exchange. When the supervisor is mindful, the psychological contract is upheld; when the supervisor is reactive, the contract is breached, regardless of how supportive the team may be.

Third, by confirming the role of Mindfulness Leadership in a blue-collar setting, this study challenges the notion that mindfulness is exclusively a white-collar management tool. It aligns with and expands upon the work of Reb et al. (2014), demonstrating that mindful supervision serves as a crucial safety signal in hazardous work environments, effectively reducing the psychological strain that leads to turnover.

Practical Implications

For owners and managers of construction SMEs in Vientiane, these findings suggest that retention strategies must extend beyond financial incentives to address the psychological drivers of withdrawal. First, given that Job Security is the strongest retention resource, management must stabilize the psychological contract by mitigating the anxiety inherent in project-based work; providing core crew assurances or clear roadmaps for future assignments can signal stability even in the absence of permanent contracts. Second, the significance of Mindfulness Leadership implies that technical expertise is insufficient for effective supervision; SMEs should invest in training that equips foremen to manage reactivity and listen non-judgmentally, a cost-effective soft skill intervention to buffer workforce stress. Third, recruitment and operational practices should prioritize Psychological Capital (PsyCap) by screening for resilience during hiring and integrating resilience-building messages into daily toolbox talks. Finally, to proactively manage the primary driver of turnover (Emotional Exhaustion), firms should enforce strict rest breaks and rotate physically demanding tasks, viewing these not merely as safety compliance measures but as strategic retention tools essential for sustaining a stable workforce.

Limitations and Future Research

Despite its rigorous design, this study is not without limitations. First, reliance on cross-sectional data precludes establishing strict causality. While the theoretical directionality is well-supported, future research should employ longitudinal designs to track how fluctuations in project stability or leadership styles influence turnover over time.

Second, the study was geographically limited to Vientiane Capital. As such, the findings may not be fully generalizable to rural areas or to the large-scale multinational construction firms operating in the CLMV region, where HR structures differ significantly. Future studies should replicate this model across Cambodia, Myanmar, and Vietnam to validate these patterns cross-culturally.

Third, the use of self-reported measures introduces the potential for social desirability bias, particularly when sensitive questions about quitting are asked. Although statistical checks (Full Collinearity VIF) indicated no critical common method bias, future research could benefit from integrating objective turnover data or supervisor-rated performance metrics to triangulate findings.

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THE PERCEPTION OF CUSTOMERS TOWARDS MOBILE BANKING APPLICATION IN PHNOM PENH, CAMBODIA

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Abstract

While mobile banking offers significant advantages by enhancing service efficiency, the adoption of Mobile Banking Applications (MBAs) is often analyzed through subjective observation rather than empirical evidence. Prior studies in Cambodia have largely focused on general e-commerce or organizational technology adoption, failing to account for the rapid transition to a "mobile-first" consumer economy (Norng, 2022; Chan, 2021). This study addresses this gap by investigating the specific drivers of MBA adoption in Phnom Penh. By integrating the UTAUT (Venkatesh et al., 2003) and UTAUT2 (Venkatesh et al., 2012) frameworks, this research targets consumer-centric constructs—such as Habit and Perceived Value—which are theoretically more relevant to individual adoption in emerging markets than traditional organizational models (Venkatesh et al., 2012). A quantitative survey was administered to 400 respondents via Google Forms, utilizing a non-probability voluntary response sampling method. Data were analyzed using Smart-PLS 4.0 and PLS-SEM to evaluate the hypothesized relationships. Findings revealed that Facilitating Conditions, Perceived Value, and Habit are the primary drivers of MBA adoption. Conversely, Performance Expectancy, Effort Expectancy, and Social Influence did not show a significant impact, suggesting that Cambodian users prioritize utility and established patterns over peer pressure or perceived ease of use. Additionally, Hedonic Motivation and Trust were not significant factors in this context. These results provide essential theoretical and practical insights for stakeholders aiming to refine digital banking strategies in Cambodia's evolving financial sector.

Keywords: Mobile Banking Application, Facilitating Conditions (FC), Perceived Value (PV), Habit (HT), Behavioral Intention (BI), Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Hedonic Motivation (HM), Trust (TR).

Introduction

This study explores the perceptions and behavioral intentions of Cambodian investors regarding mobile banking applications by applying the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) framework (Venkatesh et al., 2012; Oliveira et al., 2014). Cambodia, a Southeast Asian nation with a population of approximately 17.1 million, has experienced a significant digital transformation within its financial sector (National Institute of Statistics, 2023). Driven by macroeconomic stability and investment-friendly policies, the banking industry is shifting from a cash-based to a cashless economy. This transition is exemplified by the National Bank of Cambodia's Bakong payment system and a mobile connection rate reaching 131.5% of the population by 2023. Despite the surge in online transactions—reaching KHR 746.7 trillion in 2023—there remains a critical research gap regarding the specific determinants of mobile banking application (MBA) adoption in the developing Cambodian fintech landscape (National Bank of Cambodia, 2024; DataReportal, 2023).

The significance of this research lies in its ability to offer financial institutions actionable insights into customer preferences. By identifying the needs and expectations of users, banks can design tailored solutions that foster loyalty and efficiency (Venkatesh et al., 2012; Oliveira et al., 2014). Utilizing the UTAUT2 model (Venkatesh et al., in 2012), this study investigates how eight key constructs—Habit (HT), Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Hedonic Motivation (HM), Perceived Value (PV), and Trust (TR)—impact Behavioral Intention (BI) and subsequent User Behavior. The central research question asks: What are the UTAUT2 factors that influence Cambodian customers to adopt mobile banking applications? Correspondingly, nine hypotheses are tested to determine the significance of each variable on the intention and actual use of MBAs.

The scope of this research is specifically focused on residents of Phnom Penh who possess prior experience with mobile banking applications. Data collection was executed via online surveys and structured questionnaires to capture empirical insights into modern usage patterns. Academically, this study contributes to the growing body of literature on FinTech by validating the UTAUT2 model within the Cambodian context. Practically, the findings serve as a strategic roadmap for business owners and marketers to enhance their digital reputations and develop more user-friendly applications. By optimizing these technological touchpoints, financial institutions can better align with Industry 4.0 standards, ultimately advancing the reliability and competitiveness of the Cambodian financial ecosystem.

Research Objectives

The primary aim of this research is to examine the factors that affect customers' behavioral intention to adopt mobile banking as their preferred payment method, employing the UTAUT2 framework (Venkatesh et al., 2012). In addition, the study seeks to explore how customers in Phnom Penh, Cambodia, perceive and accept mobile banking applications. Specifically, the objectives of this research are as follows:

1. To assess users' demographic profiles and financial status.
2. To comprehend customers' perspectives on the use of mobile banking applications and identify the crucial factors and insights that motivate customers to use Mobile banking applications.

Literature Review

This study utilizes the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) to examine customers' behavioral intentions toward mobile banking in Cambodia. While the original UTAUT (Venkatesh et al., 2003) was designed for organizational settings, UTAUT2 (Venkatesh et al., 2012) extends this framework to a consumer-focused perspective, offering a higher explanatory power for technology adoption. Consequently, UTAUT2 provides a more robust lens for the banking sector by incorporating eight key constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, price value, and trust.

1. Mobile Banking Application

Shaikh et al. (2022) define Mobile Banking as a novel digital channel used by banks to deliver information and services to customers. This service grants complete access to personal bank account details and transactions through the bank's website or mobile application (Al-Jabri & Sohail, 2012). It allows for both financial transactions such as bill payment, fund transfer, merchant payment, mobile recharge, etc., and non-financial transactions such as balance inquiry, cheque book request, and mini statement (Dash et al., 2014). Mobile Banking provides practicality, flexibility, and ease of transactions (Yunus, 2014).

2. Theoretical Framework of UTAUT2

This research is grounded in established theories of customer behavior, which draw on principles from psychology and sociology to explain technology adoption and usage. Understanding the factors that drive individuals to adopt and continue using information technology is a central focus of this study. To examine these factors, the study employs the UTAUT2 framework, an extension of the original UTAUT model that shifts the focus from organizational users to individual consumers (Venkatesh et al., 2012). The UTAUT2 model incorporates additional constructs to better capture the determinants of technology acceptance in consumer contexts. Prior research has demonstrated that UTAUT2 significantly improves explanatory power compared to the original UTAUT, accounting for 56–74% of the variance in behavioral intention and 40–52% of the variance in actual technology use (Venkatesh et al., 2012). Based on this evidence, the present study adopts UTAUT2 as the theoretical foundation for investigating users' intention to continue using innovative technologies.

2.1 Habit

In the rapidly evolving digital landscape of Phnom Penh, mobile banking is no longer a luxury but a daily necessity for activities like QR payments via Bakong. As users repeatedly engage with these apps for routine transactions, the behavior moves from conscious effort to automaticity. (Limayem et al., 2007) argue that in post-adoption stages, this "stored" response becomes a dominant driver.

H1: Habit has a significant positive influence on the Behavioral Intention to use MBAs.

2.2 Performance Expectancy (PE)

Performance expectancy is the digital equivalent of "perceived usefulness" (Venkatesh et al., 2003). For Cambodian consumers, the value proposition lies in the shift from time-consuming branch visits to instant 24/7 access. Given the "mobile-first" economy (Norng, 2022), the efficiency gained through MBAs is expected to be a primary motivator.

H2: Performance Expectancy has a significant positive influence on Behavioral Intention.

2.3 Effort Expectancy (EE)

Despite the rapid tech transition, digital literacy levels vary across the demographics of Phnom Penh. Venkatesh et al. (2012) suggest that the more intuitive an app is, the more likely a consumer is to adopt it. If the interface requires minimal mental effort, barriers to entry are lowered.

H3: Effort Expectancy has a significant positive influence on Behavioral Intention.

2.4 Social Influence (SI)

Cambodia is characterized by a collectivist culture where peer recommendations and social "trends" heavily dictate consumer behavior. When "important others" endorse a specific banking app, it reduces the perceived social risk and encourages adoption (Venkatesh et al., 2003).

H4: Social Influence has a significant positive influence on Behavioral Intention.

2.5 Facilitating Conditions (FC)

The presence of 4G/5G infrastructure and affordable smartphones in Phnom Penh provides the necessary support system for MBAs. According to UTAUT2, the availability of these external resources directly enables the actual transition from "intending to use" to "actual use" (Wister et al., 2021).

H5: Facilitating Conditions have a significant positive influence on Use Behavior.

2.6 Hedonic Motivation (HM)

The intrinsic enjoyment or "novelty" of using sleek, high-tech interfaces can drive early adoption, particularly among the younger tech-savvy population in Cambodia (Sadeghi et al., 2021).

H6: Hedonic Motivation has a significant positive influence on Behavioral Intention.

2.7 Perceived Value (PV)

Consumers act as rational agents, weighing the benefits of instant banking against costs like data charges or transaction fees. In a competitive market, high perceived value—where benefits outweigh costs—is a critical driver for intention (Venkatesh et al., 2012).

H7: Perceived Value has a significant positive influence on Behavioral Intention.

2.8 Trust (TR)

In a market transitioning from a cash-based society, security concerns are paramount. Trust in the bank's digital integrity acts as a "risk-reducer," making it a prerequisite for behavioral intention (Susanto et al., 2023).

H8: Trust has a significant positive influence on Behavioral Intention.

2.9 Behavioral Intention (BI) and Use Behavior

Behavioral intention is defined as the subjective probability that a person will perform a specific behavior (Wang et al., 2006). In the UTAUT2 framework, Within the UTAUT2 framework, Behavioral Intention serves as the critical mediator that translates psychological drivers into physical action.

H9: Behavioral Intention has a significant positive influence on actual Use Behavior.

Research Methodology

This study adopts a deductive quantitative design to examine the determinants of mobile banking adoption in Cambodia through a practical and cost-efficient online survey. The survey was disseminated via social media platforms, including Facebook, Line, Telegram, and Instagram, to ensure broad participant access during the pilot phase. Methodological procedures focused on rigorous instrument design and data collection to capture accurate customer perceptions. To ensure the integrity of the results, the questionnaire's reliability and validity were evaluated using Partial Least Squares Structural Equation Modeling (PLS-SEM). This approach provides a robust framework for analyzing the measurement properties and testing the hypothesized relationships within the Cambodian financial context.

1. Population and Sampling and Data Collection and Tool

This study utilizes a structured quantitative approach to analyze the drivers of mobile banking adoption. The target population encompasses Cambodian mobile banking users in Phnom Penh, aged 18 to 50 and above. Given the large-scale nature of the population—exceeding 19.7 million e-wallet accounts according to the National Bank of Cambodia—the sample size was determined using the Yamane formula. With a 95% confidence level and a 5% margin of error, a required sample of 400 respondents was established.

While the study aimed for broad representation, data was collected via a non-probability voluntary response sampling method. The survey—a bilingual English-Khmer questionnaire—was distributed across major social media platforms and digital communities popular within Phnom Penh. This approach was selected to efficiently reach active digital banking users. To mitigate potential bias inherent in voluntary sampling, strict screening questions were employed at the start of the survey to ensure all 400 respondents met the specific criteria of being active mobile banking users within the target geographic and age demographics.

2. Data Analysis

Following the collection of data from 400 banking customers in Phnom Penh, the research transitioned to the analysis stage, beginning with descriptive statistics to summarize raw responses and identify general trends within the dataset. For the primary analysis, this study utilized Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4, a variance-oriented approach

ideal for predictive research and simultaneous assessment of interrelated constructs. The analytical procedure was executed in two phases: first, evaluating the measurement model for construct reliability and validity, and second, assessing the structural model to determine the significance of hypothesized paths. PLS-SEM was specifically chosen over Covariance-Based SEM (CB-SEM) due to its methodological flexibility, particularly its ability to handle non-normal data distributions and complex models while maximizing the explanatory power of endogenous variables.

3. Pilot Test

Prior to the main data collection, a pilot study involving 30 participants was conducted to evaluate the questionnaire's content validity and measurement reliability (Saunders et al., 2023). This phase ensured the instrument was free of ambiguities and accurately reflected the target population's characteristics, leading to refined wording and improved item clarity based on participant feedback. To assess internal consistency, the study utilized Cronbach's Alpha, where values above 0.70 are generally considered satisfactory and those exceeding 0.90 reflect very high reliability (Tavakol & Dennick, 2011). Results from the pilot indicated excellent reliability across the ten variables, with Cronbach's Alpha coefficients ranging from 0.853 to 0.949. These high values confirm that the survey items consistently measure their respective constructs, providing a statistically sound foundation for the full-scale research.

Results

After validating the measurement model, the study transitioned to structural model assessment to examine the statistical significance of the hypothesized paths. To ensure robust findings, the reliability of the ten theoretical constructs was verified using SmartPLS 4 based on data from 400 participants. Following the benchmarks established in the literature, the study utilized both Cronbach's Alpha and Composite Reliability (CR) to measure internal consistency, with a priority on CR for its superior precision in accounting for indicator loadings (Hair et al., 2017; Sarstedt et al., 2022). As detailed in Table 1, the CR values (0.858–0.926) and Cronbach's Alpha coefficients (0.752–0.894) significantly exceeded the required thresholds of 0.70 and 0.60 (Sekaran & Bougie, 2019; Hair et al., 2017). Additionally, convergent validity was confirmed as all factors achieved an Average Variance Extracted (AVE) score above 0.50, demonstrating that the latent constructs explain more than half of their indicators' variance (Henseler et al., 2015). These results confirm that the measurement model possesses high reliability and validity, providing a solid foundation for the structural analysis.

Table 1: The Measurement Model

Constructs	Items	Factor Loading	Composite Reliability	Cronbach's Alpha	AVE
Performance expectancy (PE)	PE1	0.850	0.926	0.894	0.758
	PE2	0.853			
	PE3	0.887			
	PE4	0.892			
Effort Expectancy (EE)	EE1	0.861	0.919	0.883	0.740
	EE2	0.887			
	EE3	0.848			
	EE4	0.844			
Social Influence (SI)	SI1	0.853	0.918	0.880	0.737
	SI2	0.902			
	SI3	0.871			
	SI4	0.804			

Constructs	Items	Factor Loading	Composite Reliability	Cronbach's Alpha	AVE
Facilitating Conditions (FCs)	FC1	0.846	0.897	0.845	0.688
	FC2	0.923			
	FC3	0.851			
	FC4	0.678			
Hedonic Motivation (HM)	HM1	0.887	0.905	0.843	0.761
	HM2	0.883			
	HM3	0.845			
Habit (HT)	HT1	0.851	0.862	0.763	0.676
	HT2	0.816			
	HT3	0.800			
Perceived-Value (PV)	PV1	0.817	0.858	0.752	0.668
	PV2	0.824			
	PV3	0.812			
Trust (TR)	TR1	0.789	0.902	0.855	0.697
	TR2	0.880			
	TR3	0.830			
	TR4	0.839			
Behavioral Intention (BI)	BI1	0.886	0.902	0.836	0.754
	BI2	0.830			
	BI3	0.888			
User Behavior (UB)	UB1	0.776	0.874	0.809	0.635
	UB2	0.815			
	UB3	0.784			
	UB4	0.811			

Note: The author used SmartPLS4 software for calculation.

Discriminant validity was evaluated using the **Fornell-Larcker criterion** to ensure that each research construct is statistically unique and captures a distinct phenomenon. The constructs assessed included Effort Expectancy (EE), Facilitating Conditions (FC), Performance Expectancy (PE), Trust (TR), Behavioral Intention (BI), Use Behavior (UB), Hedonic Motivation (HM), Habit (HT), Perceived Value (PV), and Social Influence (SI). According to the established standard, discriminant validity is confirmed when the square root of the **Average Variance Extracted (AVE)** for each construct is greater than its highest correlation with any other latent variable in the model **(Fornell & Larcker, 1981)**. As shown in the matrix in Table 2, the diagonal elements consistently exceeded the off-diagonal values, meeting the necessary statistical threshold. These empirical results demonstrate that the measurement model possesses sufficient discriminant validity, allowing for a reliable analysis of the specific factors driving mobile banking in Cambodia **(Hair et al., 2017)**.

Table 2: Discrimination Validity: Fornell-Larcker Criteria

Cons	BI	EE	FC	HM	HT	PE	PV	SI	TR	UB
BI	**0.868**									
EE	0.446	**0.860**								
FC	0.615	0.652	**0.829**							
HM	0.416	0.268	0.453	**0.872**						
HT	0.517	0.346	0.496	0.667	**0.822**					
PE	0.405	0.679	0.612	0.267	0.393	**0.871**				
PV	0.568	0.517	0.547	0.484	0.621	0.387	**0.818**			
SI	0.512	0.722	0.792	0.402	0.460	0.682	0.524	**0.858**		
TR	0.510	0.375	0.554	0.600	0.630	0.347	0.700	0.590	**0.835**	
UB	0.754	0.475	0.631	0.532	0.709	0.432	0.617	0.657	0.661	**0.797**

Note: Effort Expectancy (EE), Facilitating Conditions (FCs), Performance Expectancy (PE), Trust (TR), Behavior Intention (BI), Use Behavior (UB), Hedonic Motivation (HM), Habit (HT), Perceived Value (PV), Social Influence (SI).

To validate the conceptual framework, this study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess the reliability and path significance of variables influencing mobile banking adoption. Using a bootstrapping procedure with 999 subsamples, the structural model examined beta coefficients (β), t-statistics, and p-values to determine the strength of the hypothesized relationships (Hair et al., 2017; Sarstedt et al., 2022).

The analysis revealed that Performance Expectancy (β=0.011, p=0.826$), Effort Expectancy ($\beta$ =0.019, p=0.780$), Social Influence ($\beta$=-0.050, p=0.579$), Hedonic Motivation (β =0.003, p=0.949$), and Trust ($\beta$ =0.041, p=0.570$) had no significant direct effect on Behavioral Intention (BI).

In contrast, the results showed that Facilitating Conditions (β=0.409, p=0.000$), Perceived Value ($\beta$=0.229, p=0.000$), and Habit (β=0.157, p=0.012$) exert significant positive effects on BI, which in turn strongly influences Use Behavior (β=0.754, p=0.000$). These findings confirm that within the Cambodian context, structural readiness, economic utility, and behavioral automaticity are the primary drivers of technology adoption (Venkatesh et al., 2012; Hair et al., 2017). Consequently, the statistical evidence supports hypotheses H4, H6, H7, and H9, while H1, H2, H3, H5, and H8 were rejected, highlighting that traditional factors like social pressure and entertainment value are less influential in this specific market.

Table 3: Summary of Structural Model Results

Hypotheses		Std. Error	Beta	t-value	P-value (2 sided)	Result
H1	PE -> BI	0.050	0.011	0.220	0.826	Rejected
H2	EE -> BI	0.070	0.019	0.279	0.780	Rejected
H3	SI -> BI	0.091	-0.050	0.555	0.579	Rejected
H4	FC -> BI	0.066	0.409	6.169	0.000	Accepted
H5	HM -> BI	0.051	0.003	0.064	0.949	Rejected
H6	PV -> BI	0.057	0.229	4.019	0.000	Accepted
H7	HT -> BI	0.063	0.157	2.505	0.012	Accepted
H8	TR -> BI	0.072	0.041	0.567	0.570	Rejected
H9	BI -> UB	0.027	0.754	28.288	0.000	Accepted

The results of the structural equation modeling (SEM) indicate that Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Hedonic Motivation (HM), and Trust (TR) did not exert a statistically significant influence on the intention to utilize mobile banking application. Conversely, the analysis confirmed that Facilitating Conditions (FC), Perceived Value (PV), and Habit (HT) significantly and positively predicted Behavioral Intention (BI), which in turn drove the Use Behavior (UB) of mobile banking within the Cambodian context. Based on these empirical findings, the hypotheses associated with FC, PV, HT, and BI were supported, whereas those pertaining to PE, EE, SI, HM, and TR were rejected (Venkatesh et al., 2012; Yuduang et al., 2022).

The summary of research variables are as follows:

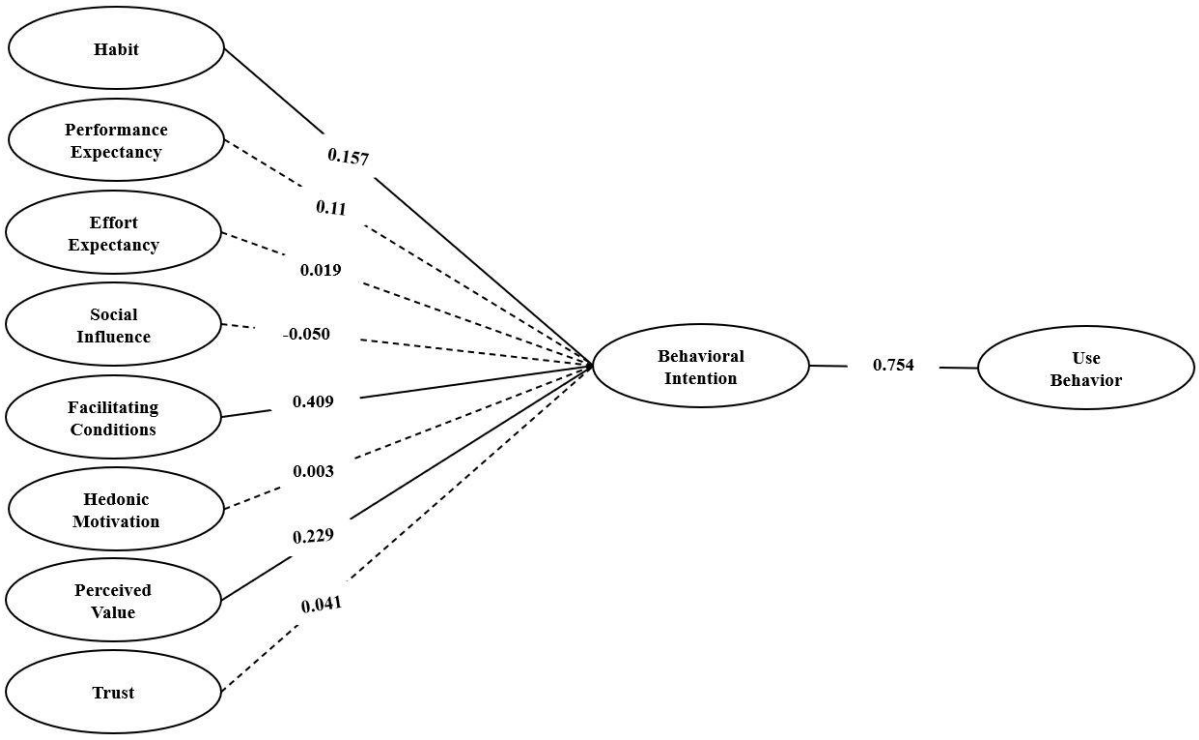

Figure 1: Graphical representation of the model Author's calculation
Remark: *p < 0.05, **p > 0.001

Discussion and Conclusion

The empirical results of this study indicate that mobile banking adoption in Phnom Penh does not strictly follow all the predictions of the original UTAUT2 framework. Out of the nine hypotheses tested, only four were supported by the data. The demographic profile of the 400 respondents—primarily educated women aged 21–30 working in the private sector—suggests a user base that is highly pragmatic. With nearly half of the participants earning between $500 and $1,000 monthly, their adoption decisions appear to be driven more by practical necessity and resource availability than by social or emotional factors.

The structural analysis confirms that Facilitating Conditions (FC), Habit (HT), and Perceived Value (PV) are the fundamental drivers of Behavioral Intention (BI) and actual User Behavior (UB) in the Cambodian market. Facilitating Conditions proved to be essential, as users require reliable technical infrastructure and support to engage with digital services. This is consistent with prior research which argues that the availability of resources is a primary prerequisite for technology use (Kamal et al., 2024; Venkatesh et al., 2003). Habit (HT) also emerged as a significant predictor, suggesting that as mobile banking becomes a routine part of daily life, users are more likely to continue and expand their usage. This aligns with theoretical perspectives regarding the role of automaticity in technology adoption (Kim, 2010; Venkatesh et al., 2012).

Furthermore, the study highlights the critical role of Perceived Value (PV). Cambodian users perform a "cost-benefit analysis," adopting applications that offer clear efficiency gains relative to the costs involved (Priyadarshini et al., 2023). The results also validate the link between Behavioral Intention

(BI) and User Behavior (UB), reinforcing the assertion that a user's conscious plan to use a system is the most direct precursor to its actual adoption (Venkatesh et al., 2003).

In contrast, variables such as Social Influence (SI), Hedonic Motivation (HM), and Trust (TR) did not show statistical significance. Because the study was conducted in the digitally mature environment of Phnom Penh, users likely view Effort Expectancy (EE) and Performance Expectancy (PE) as baseline requirements rather than unique motivators. The insignificance of Social Influence suggests that financial choices are increasingly viewed as private, autonomous decisions. Moreover, the widespread success of digital gateways like Bakong has likely normalized digital finance, reducing Trust as a major barrier. Finally, the lack of significance for Hedonic Motivation indicates that Cambodian consumers treat mobile banking as a utilitarian tool for financial management rather than a source of novelty or entertainment.

Ultimately, these findings suggest that to enhance adoption, financial institutions in Cambodia should prioritize technical reliability, routine user engagement, and strong value propositions. By focusing on these core drivers, banks can better serve the practical needs of urban consumers and support the ongoing digital transformation of the Cambodian economy.

Theoretical Implications

This study offers several significant theoretical implications by expanding the application and context of existing technology acceptance models.

First, by confirming the critical roles of Facilitating Conditions (FC), Habit (HT), and Perceived Value (PV) in driving Behavioral Intention (BI) and User Behaviors (UB), the research validates core mechanisms of established theories within an emerging economy. The findings on Facilitating Conditions are consistent with prior literature (Kamal et al., 2024; Venkatesh et al., 2003), reinforcing that adequate infrastructure and support remain fundamental for technology usage behavior. Similarly, the significant impact of Perceived Value (PV) aligns with the Value-Based Adoption Model (VAM), which posits that the balance between benefits and costs is a key determinant of adoption (Lai et al., 2025). Furthermore, the strong influence of Habit (HT) supports the extension of models into consumer contexts, emphasizing that adoption is driven by automatic behavior and prior experience rather than intention alone (Venkatesh et al., 2012).

Second, the study provides a significant theoretical counterpoint by demonstrating that Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Hedonic Motivation (HM), and Trust (TR) were insignificant. This conflicts with the general assumptions of the UTAUT and UTAUT2 frameworks, which typically regard these as critical drivers. This result suggests a potential "maturity effect" or "context-specific phenomenon," where user familiarity with mobile banking in Cambodia may have neutralized the influence of perceived ease of use or expected performance. Therefore, future theoretical work must account for the contextual maturity of a technology and the consumer's baseline experience when applying these models in diverse market settings.

Third, the research contributes to the literature by refining the hierarchy of predictors in a consumer technology context. The simultaneous affirmation of **FCs**, **PV**, and **HT**, alongside the rejection of other major drivers, suggests that for financial services in this specific emerging market, adoption is primarily an outcome of structural readiness, cost-benefit rationality, and behavioral automaticity. This is a shift away from initial perceptions of performance, effort, or social pressure.

In summary, this research refines the theoretical landscape by contextualizing technology acceptance variables. It highlights a shift in factor relevance as technologies mature in specific markets and underscores the enduring importance of structural and habit-forming drivers.

Practical Implications

This research offers several actionable strategies for banks and developers to boost mobile banking adoption in Cambodia by focusing on the core drivers identified in the study.

First, to improve Facilitating Conditions (FC), organizations should prioritize technical accessibility and support. This includes providing 24/7 in-app chat assistance, comprehensive multilingual tutorials, and ensuring the application remains compatible across a wide range of mobile devices. Because users rely on structural readiness to engage with digital services, these resources are essential for reducing barriers to entry (Kamal et al., 2024; Venkatesh et al., 2003).

Second, the study highlights the necessity of demonstrating Perceived Value (PV). Banks should move beyond general marketing and instead highlight tangible economic benefits, such as lower transaction fees and time-saving features like automated bill payments. This satisfies the user's rational assessment of cost versus benefit, making the application a more attractive financial tool (Priyadarshini et al., 2023).

Third, to cultivate Habit (HT), developers should design apps that integrate seamlessly into daily routines. Features that encourage frequent interaction—such as recurring payment settings, savings goals, and consistent-use rewards—can help shift mobile banking from a conscious choice to an automatic behavior. This approach aligns with the finding that behavioral automaticity is a stronger driver of long-term use than one-time intentions (Venkatesh et al., 2012).

Notably, traditional factors such as Social Influence (SI), Hedonic Motivation (HM), and Trust (TR) were found to be insignificant in this market. This suggests that urban Cambodian users already have a high baseline expectation for security and functionality. Therefore, institutions should focus their resources on strengthening FC, PV, and HT rather than on campaigns centered on social pressure or entertainment features. By focusing on structural readiness and economic rationality, banks can more effectively support the growth of Cambodia's digital economy.

Research Limitation

To maintain the integrity and transparency of this study, several inherent limitations must be acknowledged. Primarily, the dynamic nature of digital finance poses a challenge in establishing a precise sampling frame; since mobile banking application allow for ubiquitous, 24/7 accessibility, calculating the exact population of active users in Phnom Penh is difficult. Furthermore, the reliance on self-reported data from Cambodian consumers introduces the risk of subjective bias, as responses are based on personal perceptions which may vary from objective behavior.

Additionally, the use of an online survey instrument meant that direct researcher intervention was not possible. Without the ability to provide real-time clarification, there is a possibility that respondents may have misinterpreted certain items or provided repetitive answers. Such tendencies in data collection can influence the variance and statistical distribution of the results, specifically affecting the standard deviation. Acknowledging these constraints is vital for a balanced interpretation of the findings and for guiding future empirical improvements.

Recommendations

This study on mobile banking in Phnom Penh offers three main suggestions for future research. First, researchers should look beyond Cambodia and study other ASEAN countries to see if people in neighboring nations behave differently. Second, it is important to re-examine the factors that weren't as influential in this study—like Trust, Social Influence, and Ease of Use—to see if they matter more to people living in rural areas or those who are less comfortable with technology. Finally, moving

beyond just numbers by using "mixed methods"—which includes talking directly to users through interviews—could help reveal the deeper cultural reasons and personal stories that explain why people choose certain banking apps. By following these steps, future studies can provide a much clearer and more complete picture of how the digital banking world is changing.

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