Influential Factors Affecting Payment Processing through Payment Gateways in the E-Marketplace Business Sector in Thailand

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Abstract

The e-marketplace business sector in Thailand has undergone remarkable growth in recent years, presenting a dynamic landscape that integrates digital technologies, commerce, and financial transactions. Financial transactions become the important process that people and businesses choose for making more efficiency and safer. Payment gateways are Central to this sector's functioning, which serve as the critical bridge connecting consumers and businesses in an increasingly digitised economy. Referring to Bank of Thailand information, they found that E-wallet is still the most popular payment corresponding to Digital Global Review Repoty's information. They found that the most popular transections in financial payment is Food Delivery and E-commerce. This study investigates the key determinants affecting payment processes in Thailand's e-marketplace sector. Employing a quantitative research approach, data was collected from 405 Thai respondents who had engaged in payment transactions through e-marketplace payment gateways. Data analysis incorporated various statistical measures, such as percentages, means, standard deviations, and binary logistic regression for hypothesis testing. The study's findings revealed that technology acceptance and trust significantly impact payment gateways in the Thai e-marketplace sector. This study also finds the most popular payment gateway is E-wallet which corresponds to Digital Global Review Repoty's information and Bank of Thailand information. These findings carry profound implications for both businesses and policymakers. Businesses operating within the e-marketplace sector can utilise this knowledge to enhance customer attraction and retention, optimise payment gateway functionalities, and improve trust and satisfaction levels. For policymakers, these insights can inform the development of regulatory frameworks conducive to the sector's growth and sustainability and financial inclusion initiatives.

Keywords: Payment Gateways, E-Market, Digitised economy, Sustainability

1. Introduction

In the present digital era, digital technologies have assumed a central role in creating novel products and services, value generation, and establishing competitive advantages across diverse markets (Napawut, Siripipatthanakul, Phayaphrom, Siripipattanakul, & Limna, 2022; Jangjarat & Jewjinda, 2023). The widespread adoption of the Internet and digital tools has led to a significant upsurge in Internetusers, thereby giving rise to a market teeming with potential for online business expansion. Presently, individuals to purchase products in substantial quantities through applications and websites (Napawut et al., 2022; Santoso, Sunyoto, & Usmanij, 2023). Moreover, the swift proliferation of social networks and the Internet's global reach have profoundly impacted the online business landscape. Electronic commerce (e-commerce) and social commerce (s-commerce) have witnessed exponential growth, with billions of individuals engaging in daily online shopping, many of whom prefer this convenience over traditional in-store purchases due to time constraints. This escalation in online shoppers has heightened the competitive dynamics among sellers, compelling them to explore innovative strategies for promoting their products within the digital marketplace (Asanprakit & Limna, 2023; Limna & Asanprakit, 2023).

According to Mangla, Lenka, and Singh (2020), Mollie (2022), and Saetang, Théaud, and Ly (2023) payment processing through trusted payment gateway providers plays a pivotal role in the thriving e-marketplace business sector in Thailand. These gateways cater to local preferences for payment methods, such as PromptPay and internet banking, ensuring a seamless and secure transaction experience for Thai customers. The importance of compliance with Thai financial regulations and data protection laws cannot be overstated, making data security and privacy a top priority. Support for the Thai Baht, mobile payments, and cross-border transactions is vital, while fraud prevention measures, responsive customer support, and competitive pricing are equally crucial. The judicious choice of a payment gateway, its seamless integration,

and continuous optimization are critical elements in the success of e-marketplace businesses in the vibrant Thai market (Brownbridge & Kirkpatrick, 2000; Buranasujja & Kraiwanit, 2022).

Understanding the factors that influence payment processing through these gateways is paramount. As the digital economy expands its reach, the payment experience becomes a focal point in shaping consumer behaviour and business performance within e-marketplaces. Consequently, uncovering the determinants affecting payment processing in this context is essential. While numerous studies have been on payment gateways, there is a specific gap in the literature regarding this particular context. In a prior investigation, Haykal (2020) examined the consequences of implementing a national payment gateway within the Indonesian payment system with a focus on its role in the implementation of economic democracy. Leong, Tan, Puah, & Chong (2021) explored the factors influencing the intention to use mobile payment services in Sarawak, Malaysia. This indicates the need for further investigation to better understand and address the unique factors in Thailand's e-marketplace business sector.

This study aims to delve into the influential factors that impact payment processing within the e-marketplace business sector in Thailand. By employing a quantitative research approach and collecting data from a substantial sample of respondents, this research seeks to shed light on the intricate interplay of factors such as gender, financial parameters, technology acceptance, personal service, and trust in shaping payment behaviours. The insights gained from this investigation are expected to provide valuable guidance for e-marketplace businesses, financial institutions, policymakers, other stakeholders, enabling them to enhance the efficiency and security of payment gateways while addressing the evolving needs and preferences of the digital consumer in the Thai context.

2. Objectives

To study Influential Factors Affecting Payment Processing through Payment Gateways in the E-Marketplace Business Sector in Thailand

3. Materials and Methods

This study employed a quantitative research strategy and utilised closed-ended questionnaires for data collection. The questionnaire items were developed based on reliable and valid research data. Prior to data collection, a pre-test was conducted with 30 respondents to refine the questionnaire, following the recommendations of Sitthipon et al. (2022). The validity, dependability, and accuracy of the measurement instruments were assessed.

To ensure ethical standards, the questionnaire was validated by five professionals in the field of business and social science, confirming its suitability. Participants under 18 years of age were not included in the study. The research objectives were clearly communicated to the participants, were informed of their right to discontinue participation at any point, following the guidelines of Thetlek , Kraiwanit , jangjarat K, Limna P & Shaengchart Y (2023). Additionally, participants were required to complete all the questions to submit their responses, automatically excluding those who did not complete the entire questionnaire. The study focused on Thai individuals over 18 years of age residing in Thailand. The sample size was determined using Yamane's formula, with a significance level (p) set at 0.5, precision levels at ±5%, and a confidence level of 95% as recommended by Thetlek et al. (2023). The minimum required sample size was calculated to be 384 participants. As a result, the study included 405 participants selected through convenience sampling. The data collection period for the online survey spanned four months, from October, 2022, to January, 2023, ensuring the capture of timely and relevant information. This extended data collection period enabled the observation of trends and variations, enhancing the accuracy and reliability of the research findings. The researchers concluded the data collection phase once they obtained promising results.

In order to analyse the gathered data, statistical analysis software was used to perform both descriptive and inferential analyses. The payment gateway usage in e-marketplace businesses was the dependent variable.

The dummy variables included technology acceptance (0 equals no, and 1 equals yes), personal service (0 equals no, and 1 equals yes), and trust (0 equals no, and 1 equals yes). According to Shaengchart and Kraiwanit (2023), in statistics, and more specifically regression analysis, a binary regression calculates the relationship between one or more explanatory variables and a single binary output variable. Therefore, binary regression was employed to analyse the data.

4. Results and Discussion

From this research study, conducted by testing hypotheses through Binary Logistic Regression, the researchers defined variables as binary, with values of 1 and 0. Specifically, individuals deciding to make payments through E-Wallet were assigned a value of 1, while those opting for Banking Payment were assigned a value of 0. Therefore, the statistical analysis used in this context is Binary Logistic Regression, and the experimental results are as follows.

Case 1: **When using all independent variables.**

Table 1. Omnibus test of the model's performance using all the independent variables

		Chi-square	df	Sig.
Step 1	Step	14.093	6	0.29
	Block	14.093	6	0.29
	Model	14.093	6	0.29

Table 1 indicates that the chi-square was 14.093, with a df equal to 6. The dependent variable can be explained by all the independent variables at the significance level of 0.05

Table 2. The model summary using all the independent variables

Step	-2 log likelihood	Cox and Snell R square	Nagelkerke R square
1	514.248[a]	0.34	0.47

a. Estimation terminated at iteration number 5 because the parameter estimates changed by less than .001.

According to Table 2, the model can explain approximately 4.7% of the variation in the result with a significance value of 0.05

Table 3. Variables in the model using all the independent variables

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Acceptance	.601	.222	7.326	1	.007	1.824
	Security	.262	.238	1.208	1	.272	1.299
	Service	-.272	.184	2.189	1	.139	.762
	Trust	-.462	.216	4.570	1	.033	.630
	Risk	.181	.239	.576	1	.448	1.199
	Credibility	-.225	.251	.802	1	.370	.799
	Constant	-1.081	.614	3.100	1	.078	.339

a. Variable(s) entered in step 1: acceptance, security, service, trust, risk, credibility

The predictive regression equation of Model 1 from Table 3 can be described by the following equation:

Model 1

$$P = \frac{1}{1+e^{-z}}$$ - - - - - - - - - - -

where P is the payment gateway in Thailand, and Z = 1.824 (technology acceptance) – 0.630 (trust).

From Table 3, it is found that there are two statistically significant independent variables at the 0.05 level. These are technology acceptance factor, and motivational factor (trust).

This means that a one-unit change in the technology acceptance factor leads to a 1.824 times increase in the decision to make payments through the Payment Gateway.

On the other hand, a one-unit change in the motivational factor (trust) results in a 0.630 times decrease in the decision to make payments through the Payment Gateway.

Table 4. Classification table for back testing (including all the independent variables)

Observed			Predicted		
			Payment gateway		Percentage correct
			E-wallet	Banking payment	
Step 1	Payment gateway	E-wallet	252	8	96.9%
		Banking payment	126	19	13.1%
Overall percentage					66.9%

Note: The cut-off value is .500.

According to Table 4, the classification indicates that the model with all the independent variables was able to predict the payment gateway usage in e-marketplace businesses with an accuracy rate of 66.9% of cases when there was a cut-off value of 0.500 or 50%.

Case 2: When using only the statistically significant independent variables.

Table 5. Omnibus test of the model's performance using significant independent variables

		Chi-square	df	Sig.
Step 1	Step	9.583	2	0.008
	Block	9.583	2	0.008
	Model	9.583	2	0.008

Table 5 indicates that the chi-square was 9.583, with a df equal to 2. The dependent variable can be explained by all the independent variables at the significance level of 0.05

Table 6. The model summary using significant independent variables

Step	-2 log likelihood	Cox and Snell R square	Nagelkerke R square
1	518.759[a]	0.23	0.032

a. Estimation terminated at iteration number 5 because the parameter estimates changed by less than .001.

According to Table 6, the model can explain approximately 3.2% of the variation in the result with a significance value of 0.05

Table 7. Variables in the model using significant independent variables

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Acceptance	.555	.193	8.258	1	.004	1.742
	Trust	-.437	.160	7.477	1	.006	.646
	Constant	-1.169	.579	4.076	1	.044	.311

a. Variable(s) entered in step 1: acceptance, trust

The predictive regression equation of Model 2 from Table 7 can be described by the following equation:

Model 2

$$P = \frac{1}{1+e^{-z}}$$ ----------

where P is the payment gateway in Thailand, and Z = 1.742 (technology acceptance) – 0.646 (trust)

From Table 7, it is evident that there are two statistically significant independent variables at the 0.05 level. These are the technology acceptance factor and the motivational factor (trust).

This implies that an increase of 1 unit in the technology acceptance factor results in 1.742 times increase in the decision to make payments through the Payment Gateway.

Furthermore, an increase of 1 unit in the motivational factor (trust) leads to a 35.4% decrease in the decision to make payments through the Payment Gateway, calculated as 1 - (0.646 * 100) or 0.354 times decrease.

Table 8. Classification table for back testing (including significant independent variables)

Observed			Predicted		Percentage correct
			Payment gateway		
			E-wallet	Banking payment	
Step 1	Payment gateway	E-wallet	248	12	95.4
		Banking payment	135	10	6.9
Overall percentage					63.7

Note: The cut-off value is .500.

According to Table 8, the classification indicates that the model with all the independent variables was able to predict the payment gateway usage in e-marketplace businesses with an accuracy rate of 63.7% of cases when there was a cut-off value of 0.500 or 50%.

5. Conclusion

From the study on factors influencing payment through Payment Gateway in the e-marketplace business in Thailand, it was found that the technology acceptance factor and the motivational factor (trust) significantly impact the decision to make payments through the payment gateway in the e-marketplace business in Thailand at a statistical significance level of 0.05. This can be explained as follows: Users decide to fully utilize technology for payments through the Payment Gateway when the acceptance of the technology occurs as a process. It begins when individuals come into contact with the technology and are clearly drawn to accept it. The decision to accept or reject is then made, followed by the implementation of the decision and confirmation of the action. This process may take time or happen quickly depending on crucial factors, namely the individual's characteristics and the nature of the technology. This aligns with the research by Pongskorn (2021), who studied the factors influencing the acceptance of Mobile Banking technology by the elderly in the Mueang district of Prachinburi province. The study found that demographic

factors such as gender, monthly income, trust, and technology acceptance influence the acceptance of mobile banking technology by the elderly in the Mueang district of Prachinburi province. This is in line with the concept proposed by Chu & Chu (2011), stating that technology acceptance and use involve understanding the technology, deciding to accept it, and then applying the technology in daily life. This includes perceiving the benefits, ease of use, intention to use, awareness of risks, attitude towards usage, and actual usage.

6. Acknowledgements

6.1 Recommendations for the Application of Research Findings:

1. Technology Acceptance Factor: Relevant organizations should develop applications that are visually appealing, attracting the attention of service users. The operating systems should be user-friendly and have fast, accurate, and efficient processing capabilities.

2. Security and Trust Factor: Concerned organizations should establish reliable data storage systems for application users, ensuring secure payment systems. Clear policies, regulations, and guidelines on the collection of customer's personal information should be defined.

3. Motivational Factor (Trust): Organizations involved should enhance the Payment Gateway system as a secure platform for transactions, responsive to user expectations, and efficient. This will stimulate usage and build a high level of trust among service users.

4. Motivational Factor (Risk Perception): Relevant organizations should establish policies regarding security and risk perception, informing users that their personal information will not be misused or used unlawfully. Clear responsibility and problem-solving procedures in case of errors should be communicated to users.

5. Motivational Factor (Entrepreneurial Trust): Organizations involved can maximize the efficiency of operating systems, swiftly address user issues, provide various communication channels with users, and instill a high level of trust in product purchases among service users.

6.2 Recommendations for the next research

1. In future studies, it may be worthwhile to investigate other factors influencing payments through Payment Gateways in the E-Marketplace business in Thailand. Given the diverse behaviors of individuals today, decision-making has become more complex. Therefore, for further development, additional factors should be explored to gain a more comprehensive understanding and derive maximum benefits from the research.

2. For subsequent research, expanding the scope of the population or studying different business groups could enhance the diversity of the data obtained. This approach allows for comparisons of relationships and differences among various business groups.

3. This research is quantitative in nature. Therefore, for future research endeavors, it is recommended to complement the quantitative aspect with qualitative research. This will provide in-depth insights and a diversity of data, contributing to a more comprehensive understanding of the subject.

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