

# Factors Affecting the Adoption of E-Marketing in Small and Medium-Sized Enterprises in Ba Ria – Vung Tau, Vietnam

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**Abstract**— The rapid growth of the Internet has created new opportunities for enterprises to improve marketing effectiveness through electronic marketing (E-marketing). However, the adoption of E-marketing among small and medium-sized enterprises (SMEs) remains uneven, particularly in developing economies. This study aims to identify the factors influencing the adoption of E-marketing by SMEs in Ba Ria - Vung Tau, Vietnam. The research is based on both theoretical foundations and empirical data collected from a survey of 75 SMEs, of which 74 valid responses were used for analysis. A five-point Likert scale was employed to measure the influencing factors, and Binary Logistic Regression analysis was conducted using SPSS software to determine the significant determinants of E-marketing adoption. The results reveal that six factors have statistically significant effects on SMEs' decisions to adopt E-marketing: product characteristics, leadership awareness of the importance of E-marketing, the legal environment, the complexity of using E-marketing tools, technology investment costs, and market competition trends. Among these, the complexity of E-marketing tools and leadership awareness have the strongest impacts on adoption decisions. The model demonstrates a prediction accuracy of 82.4%, indicating a relatively strong explanatory power. The findings suggest that SMEs should invest in technological infrastructure, develop specialized human resources, and enhance managerial awareness to effectively implement E-marketing strategies. In addition, policy support from local authorities in improving legal frameworks and information technology infrastructure is essential to facilitate broader adoption of E-marketing and promote the development of e-commerce in the region.

**Index Terms**— E-marketing, small and medium-sized enterprises, SMEs, technology adoption, logistic regression.

## I. INTRODUCTION

E-marketing has become an indispensable marketing channel for businesses operating on the Internet. According to statistics from the Ministry of Information and Communications, the amount of time Vietnamese users spend on the Internet has been increasing steadily. In 2013, approximately 62% of users spent more than three hours per day online; 22% used the Internet from 1.5 to 3 hours per day; 14% used it from 30 minutes to 1.5 hours per day; and only 2% used it for less than 30 minutes per day. The age group with the highest Internet usage was between 25 and 35 years old. Up to 94% of Internet users searched for information online, while 61% of social media users followed and connected with fan pages on social networking platforms [4]. The economic trend in the coming years will involve the deeper and broader application of e-commerce in business activities [4]. This requires enterprises to become familiar with and adapt to this trend by effectively utilizing E-marketing tools.

These figures indicate that Internet usage among consumers is continuously increasing, which is also leading to significant changes in consumption trends. In addition, consumers are becoming more receptive to advertising and online purchasing activities. Along with this trend, in Ba Ria - Vung Tau, E-marketing has experienced strong development, and companies are increasingly paying attention to and investing in this marketing approach. According to survey data collected from 75 SMEs in Ba Ria - Vung Tau, many businesses have initially applied E-marketing in their business operations (44 enterprises, accounting for nearly 60% of the surveyed firms, have adopted electronic marketing). The statistical data on the types of E-marketing tools used by these 44 enterprises are presented in Table 1.

Table 1. Percentage of SMEs using E-marketing tools

Tools	Search engine optimization	Search engine marketing	Email	Community marketing	Website	Others
%	52.3	54.5	77.3	81.8	54.5	22.2

The survey results conducted by the author among these 44 SMEs in Ba Ria - Vung Tau also reveal that most businesses only apply E-marketing at a basic level. Although enterprises are aware that E-marketing can improve business efficiency, they have not yet made adequate investments in technology or human resources. The survey shows that most employees have not received formal training in E-marketing. Only 32.3% of employees are working in fields related to their professional training. Another issue of concern is that the investment in and management of company websites remains relatively weak. Besides the shortage of specialized personnel, the awareness of company leaders also plays an important role. If business leaders do not fully recognize the importance of E-marketing, its implementation tends to be superficial.

According to statistics from the Ba Ria - Vung Tau Department of Planning and Investment, there are currently more than 12,000 SMEs in the city, accounting for 98% of the total number of operating enterprises, with a total registered capital of nearly VND 64,000 billion [1]. This sector represents a highly potential force and plays a crucial role in promoting the city's socio-economic development. In the context of international integration, the increasing number and expansion of enterprises in the city mean that businesses cannot ignore the use of electronic media and the Internet, as these tools provide significant benefits in enhancing competitiveness and bringing products closer to customers.

Although E-marketing has become increasingly popular, not all businesses have adopted this useful tool. Enterprises' decisions to apply E-marketing are influenced by various factors. The questions that arise are: Why do many enterprises still not adopt E-marketing despite its proven benefits? And for those that have adopted it, are they using E-marketing effectively? This study aims to

address these questions. The research results will be essential for accurately assessing the current situation of E-marketing adoption in business development activities and identifying the factors influencing the successful adoption of E-marketing.

## II. METHODOLOGY

Based on a study conducted by the University of Bradford (UK) published in E-Marketing: Concepts, Methodologies, Tools, and Applications, along with a preliminary survey of several SMEs in Ba Ria - Vung Tau and a review of relevant academic literature, the author identified several factors influencing the adoption of E-marketing in SMEs as follows:

External factors include market competition trends and the legal environment.

Internal factors include investment costs for supporting E-marketing technologies, leadership awareness of the importance of E-marketing adoption, the complexity of using E-marketing tools, firm age, firm size, and product characteristics [5].

The factors influencing the adoption of E-marketing were measured using a five-point Likert scale ranging from 1 (Strongly agree) to 5 (Strongly disagree). To identify the factors affecting the adoption of E-marketing among enterprises in Ba Ria - Vung Tau, the study employed Binary Logistic Regression analysis. This model is used to analyze a binary dependent variable; therefore, the surveyed SMEs were classified into two groups [2]: enterprises that apply E-marketing activities (44 firms) and enterprises that do not apply E-marketing activities (30 firms). The independent variables in the regression equation consist of the factors identified above.

Regression model equation:

$$\ln[\text{odds} = P/(1-P)] = \beta_0 + \beta_1X_1 + \beta_2X_2 + \dots + \beta_nX_n \quad [3]$$

In this model, Y represents whether a firm adopts E-marketing. Y is a binary dependent variable with two values: 0 and 1 (0: non-adoption of E-marketing; 1: adoption of E-marketing). The odds value (odds =  $p/1-p$ ) represents the ratio between p (the probability that the dependent variable takes the value 1) and  $1-p$  (the probability that the dependent variable takes the value 0).

After surveying 75 SMEs in Ba Ria - Vung Tau, 74 valid responses were obtained. The data were then entered into SPSS 16.0 software to run the regression model.

Proposed model:

$$\ln[P/(1-P)] = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8$$

Where:

X<sub>1</sub>: Firm age

X<sub>2</sub>: Product characteristics

X<sub>3</sub>: Leadership awareness

X<sub>4</sub>: Legal environment

X<sub>5</sub>: Firm size

X<sub>6</sub>: Complexity of using E-marketing tools

X<sub>7</sub>: Technology investment costs

X<sub>8</sub>: Market competition trends

The proposed model includes eight variables, with corresponding regression coefficients ranging from  $\beta_1$  to  $\beta_8$ .

## III. RESULTS AND DISCUSSION

The author applied the Enter method as the default variable input method. After running the SPSS analysis, it was found that the variables firm age and firm size had significance values (Sig.) of 0.738 and 0.600, respectively, which are greater than 0.05. This indicates that these variables are not statistically significant and therefore were removed from the model.

After removing the insignificant variables and re-running the regression with the remaining variables, the following results were obtained in Table 2.

Table 2. Summary of model fit tests and significance of coefficients

Model fit indicators	Criteria	Value	Sig.
Model fit	-2 Log likelihood	58.161	0.000
Omnibus Test	Chi-square	41.760	
Classification Table	Overall prediction accuracy	82.4%	

The results indicate that the overall model fit has an observed significance level of Sig. = 0.000; therefore, the null hypothesis (H<sub>0</sub>), which states that the regression coefficients of the independent variables are equal to zero, is rejected.

The value of -2 Log Likelihood (-2LL) is 58.161. Since this value is not excessively large, it indicates a relatively good fit of the overall model.

Finally, the overall prediction accuracy of the model is 82.4%.

The results presented in Table 3 also show that the factors hindering the adoption of E-marketing by enterprises all have p-values (Sig.) lower than the significance level  $\alpha = 0.05$ . Therefore, the null hypothesis (H<sub>0</sub>), which assumes that the regression coefficients of the independent variables are equal to zero, is rejected. This confirms that the estimated regression coefficients are statistically significant.

Table 3. Values of variables

Variables	B	S.E.	Wald	df	Sig.	Exp (B)
Product characteristics	-0.948	0.412	5.303	1	0.021	0.387
Leadership awareness	0.986	0.489	4.066	1	0.044	2.680
Legal environment	0.858	0.400	4.598	1	0.032	2.357
Technology complexity	-2.182	0.593	13.535	1	0.000	0.113
Investment cost	-1.071	0.384	7.790	1	0.005	0.343
Market trends	0.608	0.304	4.001	1	0.045	1.836
Constant	4.254	1.420	8.975	1	0.003	70.413

Based on the regression coefficients obtained, the following regression equation is derived:

$$\ln[P(Y=1)/P(Y=0)] = \ln[P/(1-P)] = 4.254 - 0.948X_2 + 0.986X_3 + 0.858X_4 - 2.182X_6 - 1.071X_7 + 0.608X_8$$

Based on the regression results, the decision of SMEs in Ba Ria - Vung Tau to adopt E-marketing is statistically significantly influenced by six factors: product characteristics, leadership awareness of the importance of E-marketing adoption, the legal environment, the complexity of using E-marketing tools, technology investment costs, and market competition trends.

The legal environment variable shows a positive correlation with the decision to adopt E-marketing, with a marginal effect of 0.2145. This helps explain why many enterprises remain hesitant when considering the use of E-marketing. E-commerce activities, as well as E-marketing, are developing rapidly; however, the risks associated with online transactions and business operations are real. This situation requires not only technical solutions but also the establishment of a comprehensive legal framework.

The second factor, leadership awareness, also shows a positive correlation with E-marketing adoption, with a relatively strong marginal effect of 0.2465 on the probability that a firm adopts E-marketing. In practice, this finding clearly reflects the current situation, as business leaders who recognize the importance of E-marketing in their operations are more willing to allocate time and financial resources to invest in its implementation.

The complexity of using E-marketing tools has the strongest impact on the probability of adoption, with a marginal effect of 0.5455. As technology continues to evolve rapidly, keeping up with these changes presents a common challenge for enterprises using the Internet as a business tool. This explains why many firms are still hesitant to adopt advanced E-marketing tools that require specialized expertise, such as SEO and design. The findings of this study are consistent with this argument.

The product characteristics variable is also a statistically significant factor positively associated with E-marketing adoption, with a marginal effect of 0.237. Product characteristics are closely related to the target market or customer segments that enterprises aim to serve. This raises an important concern for many businesses: whether E-marketing activities can effectively reach their intended target customers. Survey data indicate that Internet users in Ba Ria - Vung Tau are relatively young, with approximately 80% under the age of 30 and 70% under the age of 24 [6]. In reality, this demographic may not represent the potential customer base for many enterprises.

Another important factor is technology investment cost, which has a marginal effect of 0.2677 on the probability of E-marketing adoption. Information technology serves as the foundation for E-marketing implementation. However, most SMEs in Ba Ria - Vung Tau operate on a small production scale, employ mainly low-skilled labor in limited numbers, follow family-based management models, possess limited financial resources, and have not paid sufficient attention to IT applications. Therefore, the decision to adopt E-marketing also implies investment in IT infrastructure and human resources. The cost of such investments can be substantial if enterprises aim to ensure effective and continuous system operation. This variable shows a negative correlation with E-marketing adoption.

The final factor positively influencing the decision to adopt E-marketing is market competition trends, with a marginal effect of 0.152. Economic challenges in recent years have accelerated the adoption of online marketing in Vietnam in general and Ba Ria - Vung Tau in particular. With costs estimated at only one-tenth of traditional marketing expenses while delivering significantly higher effectiveness, Internet marketing has quickly gained popularity and market share compared to traditional marketing methods. The rapid development of e-commerce, together with successful E-marketing adoption by competitors within the same industry, also motivates other enterprises to invest in and adopt these tools.

#### IV. CONCLUSION

E-marketing is highly appreciated for its effectiveness, cost efficiency, ability to reach potential customers, and its role in building corporate brand image for enterprises that adopt it. However, the research results indicate that for SMEs in Ba Ria - Vung Tau, the implementation of E-marketing is significantly influenced by six factors with varying levels of impact, including product characteristics, leadership awareness of the importance of E-marketing adoption, the legal environment, the complexity of using E-marketing tools, technology investment costs, and market competition trends.

For enterprises that have already adopted E-marketing, the tools are still being used at a basic level. This situation results from the fact that many enterprises have not yet established a strong foundation for effective implementation. The application of E-marketing is not merely the use of electronic media to conduct marketing activities. For both enterprises that have not yet adopted E-marketing and those that have already implemented it, technology remains a critical influencing factor. To effectively apply E-marketing tools, enterprises need to overcome challenges related to the complexity of rapidly evolving technologies by developing specialized teams capable of maximizing the effectiveness of marketing tools and adapting to new technologies. This will enable enterprises to gradually develop more advanced forms of E-marketing.

Another important implication, based on the current situation of website usage among surveyed enterprises, is that SMEs in Ba Ria - Vung Tau should invest more in website content and visual design to transform their websites into more effective marketing tools.

In the future, E-marketing will play an increasingly important role and is expected to become the primary communication channel between enterprises and their customers. Therefore, managers and business owners need to adopt a comprehensive perspective, clearly identify the role of online marketing in their business strategies, and build appropriate technological and human resource foundations. This will help enterprises develop effective marketing strategies, gradually adopt E-marketing practices, and eventually move toward broader participation in e-commerce.

Finally, the effective adoption of E-marketing tools requires not only the efforts of individual enterprises but also support from local government authorities in developing information technology infrastructure and strengthening the legal environment. Such support would enhance security and safety against online risks and help align the local economy with global e-commerce development trends.

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