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The Impact of Adopting E-Commerce Payments on E-Commerce Performance

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Abstract

An electronic payment gateway is a type of service that provides technical infrastructure to connect banks and payment acceptance units. Through electronic payment gateways, electronic payment or E-commerce payment is an important online payment model in business that allows businesses to sell online, providing online services to use payment gateways to receive money for goods and services from customers. E-commerce payments help these businesses attract customers and create easy, safe and convenient payment transactions through Internet-connected wireless devices such as tablets and phones. The purpose of this study is to determine the impact of E-commerce payments (ECPs) adoption by retailers in Vietnam on electronic commerce (E-commerce) performance through the application of the integrated model of The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and The Information Systems Success (IS success). Data collected from 816 retailers were analyzed through structural equation modeling. The research results show that ECPs providers, managers, retailers and stakeholders need to pay attention to and enhance Effort Expectancy, Social Influence, Facilitation Conditions, Hedonic Motivation, Habits, and Human Resources to enhance behavioral intention to use ECPs. At the same time, retailers increase Facilitation Conditions, Behavior intention to promote ECPs usage behavior. From promoting usage behavior, bringing satisfaction when using ECPs to increase M-Commerce Performance. These research findings have some important implications for the application of the UTAUT2 and IS Success integrated models, as well as practical applications to identify factors influencing and contributing to increased M-Commerce performance of retailers in Vietnam.

Keywords: E-commerce Payment, M-commerce, IS Success, UTAUT2.

Introduction

E-commerce payment systems are digital platforms that facilitate the purchase and sale of goods and services between consumers and merchants. These systems allow customers to transact seamlessly from their devices, helping to bridge the gap between buyers and sellers and promote market development (Hassan et al., 2020). There are many different e-commerce payment systems, the best payment system will depend on the type of product, service sold, the retailer's budget or the development of the target market. There are types of e-commerce payment methods such as E-wallets, credit and debit cards, bank transfers, buy now, pay later, mobile payments, cash on delivery, cryptocurrencies. Choosing the right e-commerce payment system is carefully considered by retailers to make strategic decisions, promote seamless customer experiences and position the brand for success to achieve E-commerce performance (Pagel, 2024).

Deciding on an E-commerce payment system involves analyzing factors ranging from

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behavioral intentions, E-payment platform usage behavior, business objectives, and dynamic industry trends in the ever-changing E-commerce landscape. In this, E-commerce is any transaction that involves the transfer of ownership or usage rights of goods and services using access to a network with the help of electronic devices (Tiwari and Buse, 2007). This represents the ability to make purchases anywhere through a wireless internet-enabled device (Clarke, 2008). These activities include shopping through electronic devices along with the development of e-commerce payment systems (Hillman and Neustaedter, 2016). Therefore, E-commerce refers to commercial or business activities through a convenient device such as a mobile phone or tablet. It is a form of E-commerce that allows individuals or businesses to conduct any type of transaction to buy and sell goods and services through accessing online trading platforms. The development of ECPs creates many benefits for both retailers and customers. ECPs bring superior convenience, allow fast transactions, suit individual needs and can be used anytime, anywhere, bring satisfaction to customers, etc. It is customer satisfaction that contributes to revenue growth, increased efficiency, creating more business opportunities, large-scale business positioning and many customer support services for retailers.

In Vietnam, the e-commerce market is expected to reach US\$13.90 billion by 2024, with an expected annual revenue growth rate of 11.21%, with digital transformation not only catching up, but also emerging as a leader in Southeast Asia's internet economy, with the e-commerce market expected to reach US\$60 billion by 2030. The adoption of new technologies and innovative business models will ensure that Vietnam's e-commerce market remains relevant, driving growth and setting new standards in the digital economy. This is due to the tech-savvy population and rapidly growing internet usage. The revenue is expected to show a compound annual growth rate (2025-2029) of 9.69%, resulting in an expected market volume of US\$23.35 billion by 2029. In the e-commerce market, the number of users is expected to reach 36.0 million users by 2029. The user penetration rate is expected to reach 35.9% by 2029 (Statista, 2024). For retailers, ECPs open up broad marketing opportunities, position businesses on a larger scale, and help retailers connect with customer loyalty. In addition, the development of the e-commerce market along with the strong development of ECPs promises to open up many business opportunities, smart applications have been applied to retailers' business strategies to increase E-commerce efficiency. Therefore, studying the impact of ECPs on E-commerce performance will contribute to promoting the business activities of retailers in Vietnam to become more and more effective.

Literature and Hypotheses

The IS Success Model

A successful IS model was developed by DeLone and McLean (1992) to measure information system performance. This model includes six factors related to the success of information systems: Service Quality, Information Quality, System Quality, User Satisfaction, Individual Impact, Organizational Impact. Among them, Service Quality, System Quality, Information Quality affect user satisfaction and the use of information systems; User satisfaction and information system usage are factors that influence personal impact; and this impact he has on individual performance, as well as organizational impact.

A number of factors inherited from this model including Service Quality, System Quality, Information Quality, User Satisfaction will be integrated with the UTAUT2 model, as shown in Figure 1.

The UTAUT2 Model

Venkatesh et al. (2012) based on the UTAUT model and added three factors such as Price Value, Hedonic Motivation and Habits into the UTAUT to become the UTAUT2 model to predict users' technology adoption and usage behavior. The UTAUT2 model has overcome the imperfections of the theories The Technology Acceptance Model (TAM) of Davis (1989) and Theory of Reasoned Action (TRA) of Fishbein and Ajzen (1975) applied to the models. apply new technology.

Factors inherited from the UTAUT2 model including Performance Expectancy, Effort Expectancy, Social Influence, Facilitation Conditions, Hedonic Motivation, Price Value, Habits, Behavioral Intention, Use Behavior will be integrated into the IS success Model, as shown in Figure 1.

Hypothesis Development

From inheriting the elements of the UTAUT2 model, the IS success model, integrating these models and adding other elements such as E-Commerce Performance to establish a research model. Besides, based on the actual conditions of using ECPs in Vietnam to propose a research model on the impact of using ECPs on E-commerce performance in Vietnam as Figure 1.

Factors Affecting Behavioral Intention and Behavior of Using Ecps

Performance Expectancy (PE) is a factor used by Venkatesh et al. (2012) to assess the extent to which users believe there are benefits in using a technology system for certain activities. Sair and Danish (2018) revealed that performance expectancy has an influence on behavioral intention to adopt E-commerce platforms including EPCs. Sabri Alrawi et al. (2020) showed that behavioral intention of adopting E-commerce including ECPs is influenced by performance expectancy. The study by Latifah et al. (2021) described that performance expectancy represents the convenience of using e-payment services, leading to the influence of Performance Expectancy on the behavioral intention of using ECPs. Mailoa and Tjhin (2023), studies related to online payment services of service providers, also found that performance expectancy strongly influences behavioral intention to use ECPs. Therefore, hypothesis H1 can be posed as:

Hypothesis 1 (H1): Performance expectancy has a positive effect on behavioral intention to use ECPs of retailers in Vietnam.

Effort Expectancy (EE) is analyzed by Venkatesh et al. (2012) as the level of convenience and ease associated with using a technology system. Sair and Danish (2018) found that effort expectancy has a significant influence on behavioral intention to adopt E-commerce platforms including EPCs. Sabri Alrawi et al. (2020) indicated that behavioral intention of people adopting M-commerce platforms and EPCs is significantly influenced by effort expectancy. The research results by Dagnoush and Khalifa (2021) showed that expected effort when using E-commerce increases behavioral intention to use E-commerce and ECPs. Effort expectancy can help increase online transaction speed and significantly improve the quality of online transaction and payment when using e-commerce platforms, and this factor positively affects behavioral intention to use ECPs (Ha, 2023). According to Nguyen et al. (2024), effort expectancy has a positive impact on retailers' behavioral intention of adopting e-commerce platforms, including ECPs. Hence, hypothesis H2 is proposed as follows:

Hypothesis 2 (H2): Effort expectancy has a positive effect on behavioral intention to use ECPs of retailers in Vietnam.

Social Influence (SI) is a factor mentioned by Venkatesh et al. (2012) that the adoption of new technology platforms is influenced by the beliefs of important people in their lives such as family, friends, etc. Sabri Alrawi et al. (2020) showed that behavioral intention of adopting E-commerce and ECPs is significantly influenced by social influence. Hwang and Mulyana (2022) indicate that social influence can lead to the behavioral intention of using commercial trading platforms and ECPs. This motivates retailers to apply social influence, which, if stronger, will encourage behavioral intention to use ECPs for online commercial transactions. Nguyen et al. (2024) found that social influence has a positive impact on retailers' behavioral intention of adopting e-commerce platforms, including ECPs. Thus, hypothesis H3 is presented as follows:

Hypothesis 3 (H3): Social influence has a positive effect on behavioral intention to use ECPs of retailers in Vietnam.

Facilitation Conditions (FC) are the conditions that Venkatesh et al. (2012) refer to as the perception of resources, support available to perform the behavior of technology adopters, having the necessary support and ability, they will intend to use the technology. Sabri Alrawi et al. (2020) revealed that behavioral intention of adopting E-commerce and ECPs is significantly influenced by facilitating conditions. Utomo et al. (2021) measured mobile app effectiveness using the UTAUT model showing that facilitation conditions can increase behavior and behavior intention to use mobile apps including ECPs. Besides, Facilitating Conditions have a positive impact on retailers' behavior adopting ECPs (Nguyen et al., 2024). Therefore, two hypotheses are stated as follows:

Hypothesis 4a (H4a): Facilitating conditions have a positive effect on behavioral intention to use ECPs of retailers in Vietnam.

Hypothesis 4b (H4b): Facilitating conditions have a positive effect on retailers' behavior of using ECPs in Vietnam.

Hedonic Motivation (HM) is a factor that Venkatesh et al. (2012) found to be important in determining technology acceptance and refers to the pleasure or enjoyment derived from using technology. According to Dwivedi et al. (2014) that enjoyment is found to be an important factor in determining behavioral intention towards adopting E-commerce applications and ECPs. Hew et al. (2015) suggested that hedonic motivation influences the behavioral intention of using E-commodity trading applications and ECPs. Hedonic motivation is a factor that positively influences behavioral intention to use commodity trading platforms and ECPs (Ezennia and Marimuthu, 2022). Ha (2023) indicated that behavioral intention to use online retail platforms including ECPs is positively influenced by hedonic motivation. Hedonic Motivation is the one of the factors has a positive impact on retailers' behavioral intention of adopting e-commerce platforms including ECPs (Nguyen et al., 2024). Hence, hypothesis H5 is proposed as follows:

Hypothesis 5 (H5): Hedonic motivation has a positive effect on behavioral intention to use ECPs of retailers in Vietnam.

Price Value (PV) is a factor that Venkatesh et al. (2012) found to positively influence the behavioral intention of technology adopters. This factor is related to the perception of the trade-off between costs and benefits that technology adopters receive. A study by Wei et al (2009) demonstrated that price value influences E-commerce adoption through providers' behavioral intention to use ECPs. Kwofie and Adjei (2019) found that price value influences the behavioral intention to use ECPs of these E-commerce platform providers. Another study also assessed that price value is positively correlated with behavioral intention to adopt ECPs on mobile devices

(Rufino, 2021). According to Ha Van Duong (2022), because ECPs can help reduce transaction fees compared to other payment methods, especially in cross-border payments, payment service providers often have to pay high fees. Therefore, price value has a significant impact on the behavioral intentions of ECPs providers. Ha and Nguyen (2022) also suggested that price value factors influence behavioral intentions of payment service providers through fintech platforms, including ECPs. Linge et al. (2023), as the fintech ecosystem has increasingly connected ECPs providers and the behavioral intention to use ECPs is positively influenced by price value. Therefore, hypothesis H6 is proposed as follows:

Hypothesis 6 (H6): Price value has a positive effect on behavioral intention to use ECPs of retailers in Vietnam.

Habits (HA) refer to high-frequency activities of users through learning to perform technology adoption behavior automatically and habits influence technology adoption (Venkatesh et al., 2012). According to Kwofie and Adjei (2019), habits positively affect behavioral intentions to use ECPs, and Utomo et al. (2021) also showed that habits can increase the intention to use mobile applications, including ECPs. According to Hwang and Mulyana (2022), the habit of adopting transaction platforms can lead to behavioral intentions to adopt these platforms. From there, the use of ECPs has become a habit, and the behavioral intention to use these platforms for commercial transactions will certainly be formed. Research by Meiranto et al. (2024) demonstrated that the behavioral intention to adopt ECPs is shaped by a combination of habits. Hence, two hypotheses are indicated:

Hypothesis 7a (H7a): Habits have a positive effect on behavioral intention to use ECPs of retailers in Vietnam.

Hypothesis 7b (H7b): Habits have a positive effect on retailers' behavior of using ECPs in Vietnam.

Behavioral intention (BI) is a factor that refers to the willingness to use and continue to adopt a technology, which determines the intention of a technology adopter (Venkatesh et al., 2012). Behavioral intention to adopt ECPs represents the intention to adopt ECPs in e-commerce (Bhattacharjee, 2001). The impact of behavioral intention to adopt ECPs is statistically significant on the intention to use ECPs. Because these platforms bring benefits to the providers of goods and services (Hung et al., 2004). According to Zhang et al. (2012), technology adoption behavior is influenced by behavioral intention to adopt new technologies such as electronic payment platforms. Another study also demonstrated that behavioral intention to adopt commercial platforms, including ECPs, is significantly influenced by behavioral intention to adopt these platforms (Sabri Alrawi et al., 2020). Behavioral intention of using ECPs and e-commerce platforms is correlated with the behavior of using ECPs (Ha and Nguyen, 2022). On the other hand, behavioral intention is an important factor and has a positive impact on retailers' ECPs adoption behavior (Nguyen et al., 2024). Thus, hypothesis H8 is proposed as follows:

Hypothesis 8 (H8): Behavioral intention has a positive effect on retailers' behavior of using ECPs in Vietnam.

Factors affecting User Satisfaction

Use Behavior (UB) is a factor measured by the frequency of demonstrating the action of adopting a particular technology (Venkatesh et al., 2012). The study by DeLone and McLean (1992) used a combination of different IS success models. The results of this study showed a relationship

between user behavior and user satisfaction. The development of information systems with the participation of parties in the development of the system leads to more use of the system and contributes to higher satisfaction of the parties (McKeen et al., 1994). Ghobakhloo et al. (2013) suggested that participant satisfaction is achieved through technology acceptance and adoption of technology platforms in business. In addition, behavior has a strong impact on the satisfaction of technology adopters because they themselves contribute to their own satisfaction (Harnjo et al., 2021). Hence, hypothesis H9 is stated as follows:

Hypothesis 9 (H9): Behavior of using ECPs has a positive impact on retailers' satisfaction in Vietnam.

Service Quality (SQ) is the extent to which a user's expectations or needs for a service are met (Parasuraman et al., 1985). Service quality refers to the measurement of the quality of the information system provided to the system users with the assurance of reliability, ability to accurately meet technical competence and empathy (Petter et al., 2013). User satisfaction is the result of the service quality perceived by the users (Magi and Julander, 1996). Service quality and user satisfaction are interrelated, and service quality leads to user satisfaction (Negi, 2009). Magi and Julander (2009) argue that user satisfaction is the result of the service quality perceived by the users. In the context of E-commerce, Liu et al. (2010) indicate that user satisfaction is enhanced when the service quality of online commerce meets the needs of the actual users. Service quality affects user satisfaction, providing insights into related activities in the field of e-commerce (Salameh and Hassan, 2015). The key factor that affects user satisfaction and improves the vitality of the E-commerce ecosystem is the service quality of E-commerce and thereby enhances the satisfaction of current adopters (Ye and Liu, 2017). Through the IS success model, Jaafreh (2017) demonstrated that service quality has a significant positive impact on satisfaction in actual transactions. Siahaan and Legowo (2019) found that service quality is one of the factors that significantly affects user satisfaction. Ismail et al. (2020) also demonstrated that the satisfaction of E-commerce platform adopters is due to the quality of online transactions of E-commerce. Hence, hypothesis H10 is indicated as follows:

Hypothesis 10 (H10): E-commerce payment service quality has a positive impact on retailers' satisfaction in Vietnam.

System Quality (SY) is the flexibility, learnability, ease of use, intuitiveness, versatility, sophistication, reliability, and responsiveness of the system in terms of response time as desired characteristics of an information system (Petter et al., 2013). The system quality of ECPs positively affects the satisfaction of ECPs adopters because, in the context of e-commerce, the satisfaction of adopters of technology platforms is stimulated by system quality (Yeh and Li, 2009). The quality of e-commerce systems meets the needs of users and this has a positive impact on enhancing user satisfaction (Liu et al., 2010). System quality in e-commerce platform adoption refers to the perception of the performance of the e-commerce application in retrieving and providing information during the adoption process (Salameh and Hassan, 2015). When using the IS success model to study, Jaafreh (2017) showed that system quality has a significant positive impact on satisfaction during the implementation process. Besides, satisfaction is also significantly affected by system quality during the application process of this system (Siahaan and Legowo, 2019). Therefore, hypothesis H11 is expressed follows:

Hypothesis 11 (H11): E-commerce payment system quality has a positive impact on retailers' satisfaction in Vietnam.

Information Quality (IQ) is generated from the system, which refers to the measurement of the completeness, timeliness, and consistency of the information system (Ghalandari, 2012). Information system user satisfaction is significantly positively influenced by information quality (DeLone and McLean, 1992). Content quality, context quality, connection quality, and interaction quality constitute information quality, and quality significantly impacts online service user satisfaction (Chae et al., 2002). Online trading platform user satisfaction is stimulated by information quality, and, in the context of E-commerce, the information quality of ECPs positively impacts ECPs adopter satisfaction (Yeh and Li, 2009). Petter et al. (2013) also demonstrated that information quality positively affects the satisfaction of information system adopters. Through the application of the IS success model, Jaafreh (2017) found that the information system has a significant positive effect on the satisfaction of information system adopters. Siahaan and Legowo (2019) revealed that information quality is a factor that significantly affects the satisfaction of information system adopters. Kim et al. (2021) asserted that information quality positively affects the satisfaction of E-commerce platform adopters, including ECPs. Zariman et al. (2023) argued that information quality is one of the key factors that strongly affects user satisfaction with ECPs. Thus, hypothesis H12 is indicated as follows:

Hypothesis 12 (H12): E-commerce payment information quality has a positive impact on retailers' satisfaction in Vietnam.

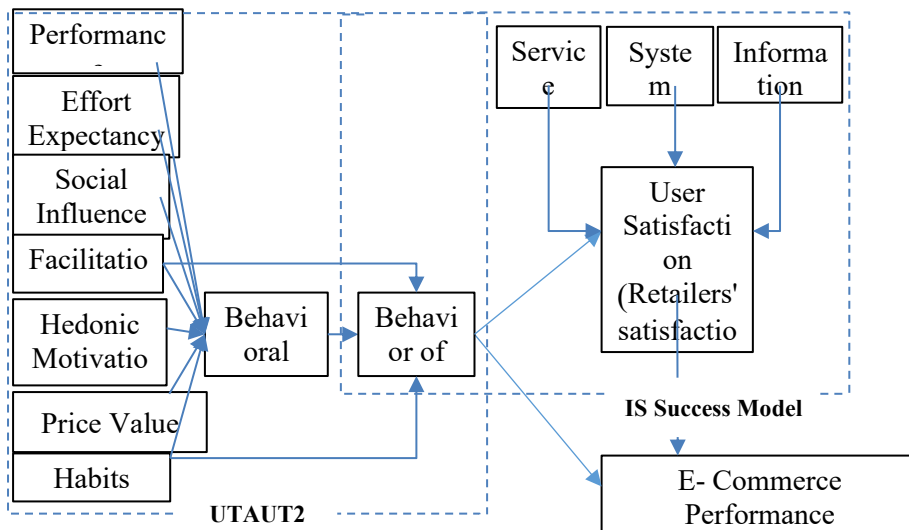


Figure 1. Research Model

Factors affecting M- Commerce Performance

Use Behavior (UB). In the context of ECPs, through the application of E-commerce by enterprises, E-commerce performance is increased due to shortening the time to market for new products and services, customizing products and services, improving market coverage, and more efficient payment systems, especially ECPs (Barnes, 2002). Lee et al. (2005) examined the positive influence of E-commerce adoption behavior and ECPs on E-commerce performance. ECPs applications handle multiple payment requests through appropriate adoption behavior, which will contribute to increased E-commerce performance (Nafea and Younas, 2014). Jaafreh

(2017) demonstrated that adoption behavior positively affects benefits and efficiency when using the IS success model for research. Leinbach (2022) found that retailers developing business strategies through the adoption of E-commerce facilitate and boost sales, maintain competitiveness, and improve E-commerce performance. Therefore, hypothesis H13 is determined as follows:

Hypothesis 13 (H13): Retailer' behavior of using ECPs has a positive impact on E-commerce performance in Vietnam.

User Satisfaction (US) (Retailers' satisfaction in adopting ECPs) refers to the degree to which a product meets expectations, achieves needs, or is comfortable to the user (Theofanos and Stanton, 2012). Higher business satisfaction contributes to higher business performance and satisfaction has a significant impact on business performance (Wiele et al., 2002). Positive impacts on the performance of retail transactions through e-commerce are associated with increased business satisfaction (Lee et al., 2005). Business satisfaction is an important element in business strategy and contributes to increased key performance indicators of the business (McDaniel, 2006). Jaafreh (2017) found that business satisfaction has a significant positive impact on the benefits and effectiveness of IS adoption success model for research. Kalankesh et al. (2020) argue that the measure of success in the effectiveness of an information system is business satisfaction. Therefore, business satisfaction is linked to the acceptability and level of expectation of a product or service meeting the needs of the market. In the context of ECPs adoption, the satisfaction of adopters' ECPs is a measure of the success of ECPs as well as their acceptance and expectation of ECPs and contributes to increased E-commerce performance. Thus, hypothesis H14 is presented as follows:

Hypothesis 14 (H14): Retailers' satisfaction in adopting ECPs has a positive impact on E-commerce performance in Vietnam.

Research Methodology

Research Design

Different types of research designs such as exploratory design, descriptive design and cross-sectional design were used in this study. Exploratory design was used because no previous research had been conducted to clarify the concepts and develop hypotheses for this study. Descriptive design was used to collect statistics, means and frequencies to provide an overview of the study, which is useful in determining the variables used for this study. Cross-sectional design was conducted with each retailer collecting information only once at a time or for a short period of time and investigating the impact of using ECPs on E-commerce performance.

Qualitative research methods and quantitative research methods were applied. Qualitative research methods find out the findings of the topic and help interviewees understand the content of behavior to find out the factors affecting the behavioral intention to use ECPs and the factors affecting e-commerce performance. Quantitative methods measure the number, quantity and evaluate the level of factors affecting the behavioral intention to use ECPs and the factors affecting the effectiveness of E-commerce in Vietnam. Empirical analysis is systematically performed on quantitative data and their relationships through Cronbach's Alpha reliability coefficient analysis, EFA (Exploratory Factor Analysis), CFA (Confirmatory Factor Analysis) and SEM (Structural Equation Modeling).

Sample and Data

The subjects of this study were retailers in Vietnam and data was collected through a survey questionnaire to determine the impact of using ECPs on e-commerce performance. A five-point Likert scale ranging from 5 (strongly agree or satisfied) to 1 (strongly disagree or satisfied) was used to express the opinions of the surveyed retailers. With the “10-fold rule” method, which is a widely used method in PLS-SEM to estimate the minimum sample size (Hair et al., 2011) through convenience sampling technique, the sample size in this study was 570 ($10 \times 57 = 570$). Therefore, the questionnaire used to collect data from 816 retailer representatives who responded was considered to ensure a sufficient sample size for this study.

Research Results

Cronbach's Alpha Reliability Analysis

The Cronbach alpha value criteria should be more than 0.60 and variables with a total correlation of less than 0.3 will be eliminated (Hulin et al., 2001). The research results show that the total correlation coefficients are greater than 0.3 and the variables have alpha coefficients greater than 0.6. Thus, the results of reliability analysis have determined that all scales are qualified to perform EFA as shown in Table 1.

No.	Code	Observed variables	Corrected Item-Total Correlation
	PE	Cronbach's alpha = 0.876	
1	PE1	Retailers are adopting ECPs everywhere to sell online.	0.733
2	PE2	Retailers understand and easily use ECPs to sell online	0.676
3	PE3	Retailers who adopt ECPs have high expectations for online sales performance from.	0.579
4	PE4	Retailers who adopt ECPs to sell more online.	0.601
5	PE5	Retailers who adopt ECPs are more in line with market trends.	0.621
6	PE6	Retailers who adopt ECPs to sell online more conveniently.	0.794
7	PE7	Retailers who adopt ECPs to sell online more effectively.	0.612
	EE	Cronbach's alpha = 0.801	
8	EE1	Retailers adopt ECPs to help increase online sales.	0.532
9	EE2	Retailers adopt ECPs to sell more merchandise.	0.535
10	EE3	Retailers adopt ECPs to sell more securely online.	0.618
11	EE4	Retailers adopt ECPs and understand online retail information.	0.553
12	EE5	Retailers who adopt ECPs have enough information to sell online.	0.689
	SI	Cronbach's alpha = 0.901	
13	SI1	Retailers who adopt ECPs for online retailing are influenced by many influencers.	0.773
14	SI2	Retailers who adopt ECPs recommend retailers to use	0.684

		ECPs for online retailing.	
15	SI3	Retailers who are advised by other retailers to use ECPs for online retailing.	0.716
16	SI4	Retailers who are advised by the retail association to use ECPs for online retailing.	0.736
17	SI5	Retailers who adopt ECPs for online retailing are influenced by strategic partners.	0.741
18	SI6	Familiar suppliers support retailers to use ECPs for online retailing.	0.733
	FC	Cronbach's alpha = 0.900	
19	FC1	By adopting ECPs, retailers gain control over online retailing.	0.762
20	FC2	By adopting ECPs, retailers have the knowledge to apply ECPs to online retailing.	0.733
21	FC3	By adopting ECPs, retailers ensure the transaction conditions for online retailing.	0.722
22	FC4	By adopting ECPs, retailers ensure the necessary resources when applying ECPs to online retailing.	0.691
23	FC5	By adopting ECPs, retailers ensure the security of transactions on ECPs for online retailing.	0.694
24	FC6	By adopting ECPs, retailers are supported by ECP providers for online retailing.	0.780
	HM	Cronbach's alpha = 0.822	
25	HM1	By adopting ECPs, retailers feel comfortable for online retail.	0.553
26	HM2	By adopting ECPs, retailers have found luck for online retail.	0.534
27	HM3	By adopting ECPs, retailers show happiness for online retailing.	0.679
28	HM4	By adopting ECPs, retailers feel satisfied for online retailing.	0.582
29	HM5	By adopting ECPs, retailers are very interested for online retail.	0.738
	PV	Cronbach's alpha = 0.780	
30	PV1	By adopting ECPs, retailers save time for online retailing.	0.555
31	PV2	By adopting ECPs, retailers save a lot of costs for online retail.	0.639
32	PV3	By adopting ECPs, retailers pay reasonable costs for online retailing.	0.666
33	PV4	By adopting ECPs, retailers do not have to pay transaction checking fees for online retailing.	0.431
34	PV5	By adopting ECPs, retailers do not have to pay any additional costs for online retail.	0.510
	HA	Cronbach's alpha = 0.792	
35	HA1	By adopting ECPs, retailers have staff that are in the	0.643

		habit for online retail.	
36	HA2	By adopting ECPs, retailers have enough manpower for online retail.	0.463
37	HA3	Adopting ECPs for online retail is a trend among retailers.	0.616
38	HA4	Retailer staff receive support and guidance from the ECPs supplier.	0.539
39	HA5	Retailer staff can use ECPs for online retailing.	0.594
	BI	Cronbach's alpha = 0.766	
40	BI1	By adopting ECPs, retailers continue to implement them for online retail.	0.596
41	BI2	Retailers will apply ECPs to online retail	0.593
42	BI3	Retailers recommend applying ECPs to other retailers.	0.611
	UB	Cronbach's alpha = 0.695	
43	UB1	Retailers adopt ECPs with difficulty, ECP vendors will support retailers.	0.474
44	UB2	Retailers adopting ECPs may not need the support of an ECP vendors.	0.523
45	UB3	Retailers adopting ECPs for online retailing even if the retailers may never have used ECPs before.	0.536
	SQ	Cronbach's alpha = 0.660	
46	SQ1	Retailers who believe in adopting ECPs ensure the benefits and needs of the market in online retailing.	0.482
47	SQ2	Retailers can afford to meet the market when using ECPs for online retailing.	0.439
48	SQ3	Retailers who adopt ECPs have human resources with enough knowledge to manage and operate ECPs.	0.496
	SY	Cronbach's alpha = 0.639	
49	SY1	Retailers who adopt ECPs find them easy to use and fully functional for online retailing.	0.444
50	SY2	Retailers who adopt ECPs find them flexible, ensuring data quality for online retailing.	0.413
51	SY3	Retailers who adopt ECPs describe them as important, ensuring systems integration for online retailing.	0.493
	IQ	Cronbach's alpha = 0.728	
52	IQ1	Retailers who adopt ECPs find that they ensure consistent, timely information for online retailing.	0.556
53	IQ2	Retailers who adopt ECPs indicate that they ensure complete information for online retailing.	0.574
54	IQ3	Retailers who adopt ECPs describe them as ensuring high consistency and compatibility for online retailing.	0.521
	US	Cronbach's alpha = 0.708	
55	US1	Retailers adopting ECPs find them easy to use and fully functional for online retailing.	0.531
56	US2	Retailers adopting ECPs find them flexible, ensuring data quality for online retailing.	0.513

57	US3	Retailers adopting ECPs describe them as important, ensuring systems integration for online retailing.	0.532
	EP	Cronbach's alpha = 0.678	
58	EP1	Satisfied retailers who apply ECPs have contributed to promoting marketing activities, promoting brands and improving retail efficiency.	0.447
59	EP2	Satisfied retailers who apply ECPs have helped digitize and increase efficiency in the management and operation of retailers' distribution supply chains.	0.496
60	EP3	Satisfied retailers who apply ECPs have helped retailers easily apply modern retail models as well as reduce costs and improve retail business efficiency.	0.531

Table 1. Independent, Moderating and Dependent Variables in the Research

Source: Inherited from previous studies and additions by the authors

Exploratory Factor Analysis

The EFA for the independent variables to determine the underlying relationship between the measured variables showed a Kaiser-Meyer-Olkin (KMO) of 0.813. This result satisfies the condition greater than 0.5 and less than 1 and .Sig coefficient. = 0.000 in the Bartlett test, this result meets the condition of being less than 0.05. This shows that the observed variables in the factor are correlated with each other and are suitable for use in analysis as can be seen in Table 2.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	Cumulative %
1	6.500	11.404	11.404	6.500	11.404	11.404	4.122	7.232
2	4.559	7.998	19.402	4.559	7.998	19.402	4.113	14.449
3	3.405	5.974	25.376	3.405	5.974	25.376	4.105	21.650
4	3.069	5.384	30.759	3.069	5.384	30.759	3.020	26.948
5	2.664	4.674	35.433	2.664	4.674	35.433	2.881	32.003
6	2.492	4.371	39.804	2.492	4.371	39.804	2.794	36.904
7	2.320	4.070	43.875	2.320	4.070	43.875	2.731	41.696
8	2.135	3.745	47.620	2.135	3.745	47.620	2.067	45.322
9	2.060	3.613	51.233	2.060	3.613	51.233	1.969	48.777
10	1.947	3.416	54.649	1.947	3.416	54.649	1.943	52.186
11	1.585	2.781	57.430	1.585	2.781	57.430	1.918	55.551
12	1.420	2.491	59.922	1.420	2.491	59.922	1.858	58.811
13	1.172	2.056	61.978	1.172	2.056	61.978	1.805	61.978
14	.924	1.621	63.599					

Extraction Method: Principal Component Analysis.

Table 2. Exploratory Factor Analysis for Independent Variables

The results of the rotation show that the factor loadings are the correlations between the factors, the factor loadings of all factors are greater than 0.5 as can be shown in Table3. The hypothesis of this new factor has a positive impact on behavioral intention and behavior of using ECPs in Vietnam as can be seen in Table 3.

Rotated Component Matrix ^a													
	Component												
	1	2	3	4	5	6	7	8	9	10	11	12	13
FC6	.859												
FC1	.847												
FC2	.806												
FC3	.786												
FC5	.764												
FC4	.756												
PE6		.849											
PE1		.813											
PE2		.750											
PE5		.727											
PE7		.718											
PE3		.697											
PE4		.690											
SI1			.810										
SI4			.800										
SI6			.800										
SI5			.785										
SI3			.770										
SI2			.760										
HM5				.858									
HM3				.823									
HM4				.721									
HM1				.704									
HM2				.682									
EE5					.818								
EE3					.786								
EE4					.726								
EE2					.664								
EE1					.655								
HA3						.786							
HA1						.782							
HA5						.748							
HA4						.688							
HA2						.637							
PV3							.814						
PV2							.789						

Rotated Component Matrix ^a													
	Component												
	1	2	3	4	5	6	7	8	9	10	11	12	13
PV1							.732						
PV5							.682						
PV4							.606						
BI1								.797					
BI3								.790					
BI2								.784					
US3									.787				
US1									.773				
US2									.741				
IQ1										.792			
IQ3										.748			
IQ2										.737			
UB3											.810		
UB2											.797		
UB1											.715		
SQ3												.784	
SQ1												.765	
SQ2												.741	
SY1													.768
SY3													.768
SY2													.699
Extraction Method: Principal Component Analysis.													
Rotation Method: Varimax with Kaiser Normalization.													
a. Rotation converged in 6 iterations.													

Table 3. Rotated Component Matrix for Independent Variables

Source: Calculated from SPSS 25.0

The factor loadings were all greater than 0.5 and one factor was found after rotation. The EFA for the dependent variables to determine the underlying relationship between the measured variables showed a KMO of 0.656. This result satisfies the condition greater than 0.5 and less than 1 and. Sig coefficient. = 0.000 in the Bartlett test, this result meets the condition of being less than 0.05. This shows that the observed variables in the factor are correlated with each other and are suitable for use in analysis. At the same time, the results of the rotation show that the factor loadings are the correlations between the factors, the factor loadings of all factors are greater than 0.5 and no new factors arise as can be seen in Table 4.

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.826	60.865	60.865	1.826	60.865	60.865
2	.650	21.651	82.516			
3	.525	17.484	100.000			
Extraction Method: Principal Axis Factoring.						

Source: Calculated from SPSS 25.0

Confirmatory Factor Analysis

Performing CFA shows that the KMO coefficient is 0.809 (greater than 0.5), Sig is $0.000 < 0.05$, the observed variables are correlated with each other in the population and the results are consistent with the real data. This study associates e1 and e2, e1 and e5, e2 and e6, e3 and e4, e7 and e11, e8 and e9, e8 and e11, e8 and e12, e9 and e10, e10 and e12, e11 and e12, e13 and e16, e14 and e18, e15 and e16, e15 and e18, e16 and e18, e20 and e24, e21 and e22, e22 and e23, e22 and e24, e23 and e24, e25 and e26, e32 and e34, e33 and e34, e38 and e39 and the result is $\text{Chi-square/df} = 1.704 < 3$ with $p\text{-value} = 0.000$ and CMIN/df value equal to or less than 5 is acceptable (Hair et al., 2010). The most commonly used fit indices (GFI, AGFI, NFI, NNFI, CFI, and IFI) should be 0.85 or higher in CFA and SEM (Kline, 2011). According to Byrne and Campbell (1999), the Good Fit Index (GFI) value should be 0.80 or higher and a GFI of 0.902 is acceptable in this study. Hair et al. (2010) indicated that the Comparative Fit Index (CFI) should be 0.80 or higher and a CFI of 0.937 is acceptable in this study. Shadfar and Malekmohammadi (2013) found that the Tucker–Lewis Index (TLI) should be 0.85 or higher and a TLI of 0.930 is acceptable in this study. Hu and Bentler (1999) found that RMSEA should be 0.06 or less to be good, so RMSEA of 0.029 is acceptable in this study. Hu and Bentler (1999) also found that P value of Close Fit (PCLOSE) of 0.05 or greater is good, PCLOSE value of 0.01 or greater is acceptable, so PCLOSE of 1.000 is acceptable in this study. The total variance values are greater than 0.5 and the standardized and unstandardized coefficients are greater than 0.5. These results show that the model fits the market data in this study well, as can be seen in Figure 2.

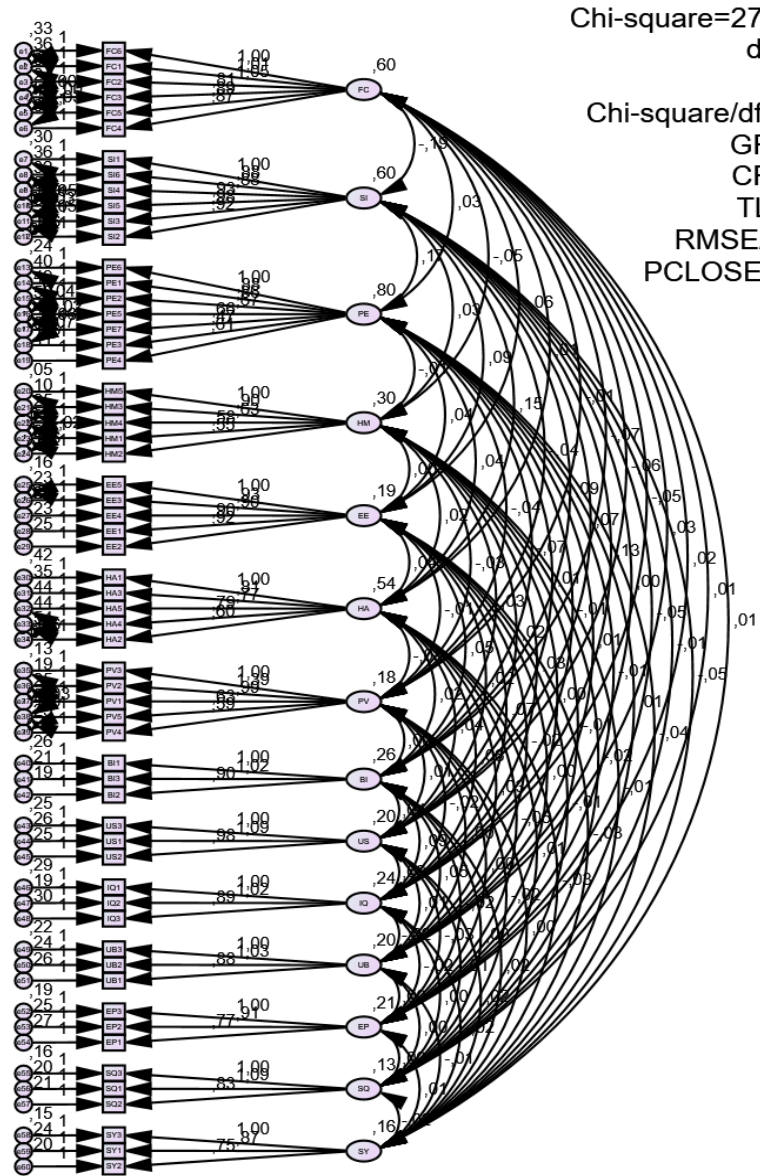


Figure 2. Confirmatory Factor Analysis

Source: Calculated from SPSS 25.0

Structural Equation Modeling

The results of SEM integrated factor analysis and multiple regression analysis show that $p = 0.000$; $\text{Chi-square}/df = 1,735$; $\text{TLI} = 0.927$; $\text{CFI} = 0.933$; $\text{GFI} = 0.898$; $\text{RMSEA} = 0.030$; $\text{PCLOSE} = 1,000$. This research model achieves compatibility with the market data as can be shown in Figure 3.

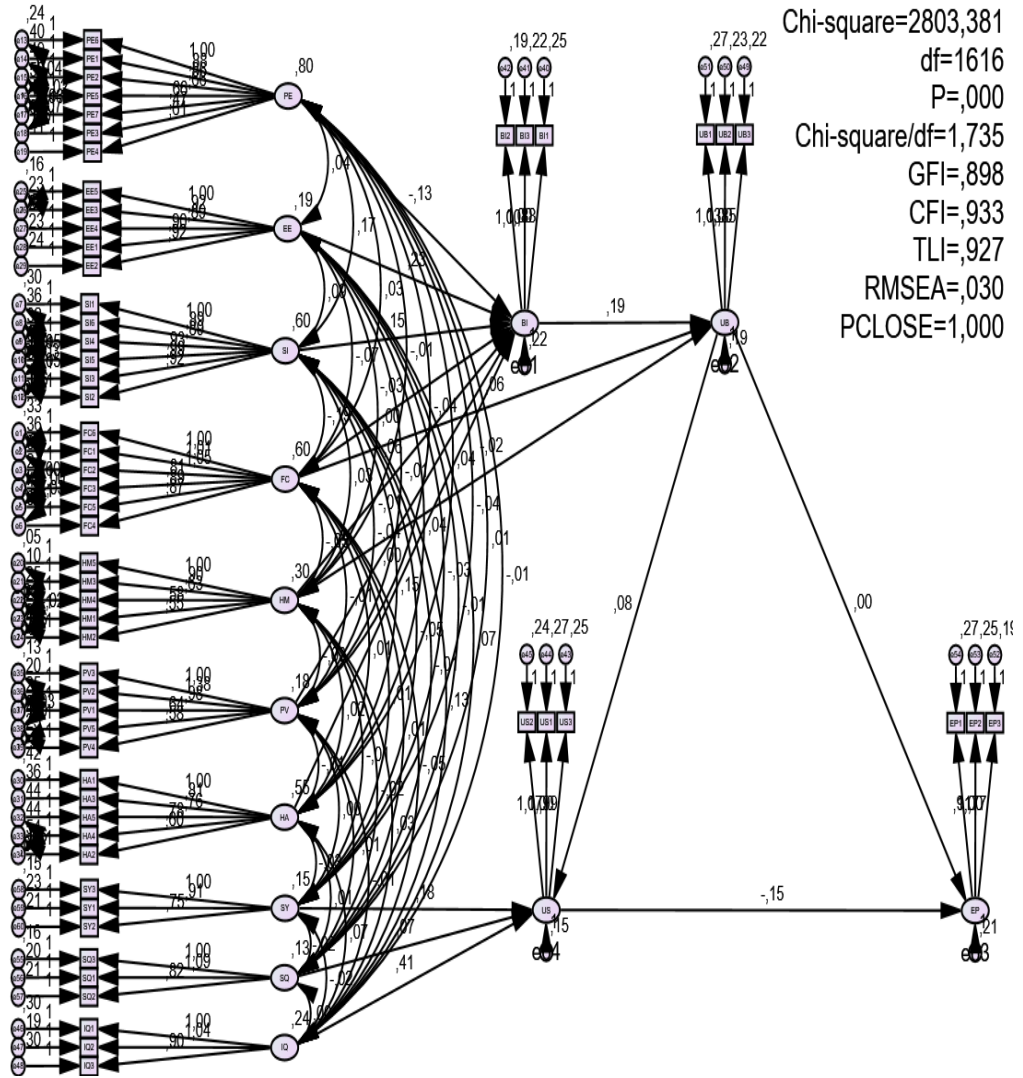


Figure 3. Structural Equation Modeling

Source: Calculated from SPSS 25.0

After regression weights show that EE and SI have a positive impact on BI with P values of 0.000; 0.000 respectively. While PE has a negative impact on BI with P values of 0.000. FC and BI have a positive impact on UB with P values of 0.015; and 0.000 respectively. SY and IQ have a positive impact on US with P values of 0.002; and 0.000 respectively. At the same time, US has a positive impact on EP with P values of 0.004 as can be seen in Table 5.

		Unstandardized Coefficients				Standardized Coefficients
		Estimate	S.E.	C.R.	P	Estimate

			Unstandardized Coefficients				Standardized Coefficients
BI	<---	PE	-,133	,025	-5,337	***	-,232
BI	<---	EE	,231	,055	4,226	***	,198
BI	<---	SI	,146	,033	4,419	***	,219
BI	<---	FC	-,031	,029	-1,049	,294	-,046
BI	<---	HM	,055	,038	1,442	,149	,059
BI	<---	PV	-,011	,053	-,200	,841	-,009
BI	<---	HA	,003	,031	,088	,930	,004
UB	<---	FC	,063	,026	2,440	,015	,109
UB	<---	HM	-,020	,036	-,554	,580	-,024
UB	<---	BI	,189	,043	4,366	***	,217
US	<---	UB	,081	,046	1,745	,081	,082
US	<---	SY	,183	,058	3,135	,002	,160
US	<---	SQ	,070	,061	1,150	,250	,057
US	<---	IQ	,410	,049	8,317	***	,451
EP	<---	US	,152	,052	2,912	,004	,146
EP	<---	UB	,001	,051	,018	,985	,001

Table 5. Regression Weights and Standardized Regression Weights

Source: Calculated from SPSS 25.0

Performing a Bootstrap method to estimate summary statistics, giving reliable results with C.R < 1.96 implying a p-value > 5% and repeated sampling of N=1000 gave results as can be shown in Table 6.

Parameter			SE	SE-SE	Mean	Bias	SE-Bias	C.R = Bias / SE-Bias
BI	<---	PE	,026	,001	-,134	-,001	,001	-0,1
BI	<---	EE	,054	,002	,229	-,001	,002	-0,5
BI	<---	SI	,032	,001	,146	,000	,001	0
BI	<---	FC	,030	,001	-,033	-,003	,002	-1,5
BI	<---	HM	,038	,001	,054	-,001	,002	-0,5
BI	<---	PV	,051	,002	-,014	-,003	,002	-1,5
BI	<---	HA	,033	,001	,001	-,001	,001	-1,0
UB	<---	FC	,027	,001	,063	,000	,001	0
UB	<---	HM	,037	,001	-,019	,001	,002	0,5
UB	<---	BI	,045	,001	,190	,001	,002	0,5
US	<---	UB	,048	,002	,081	,000	,002	0
US	<---	SY	,065	,002	,186	,003	,003	1,0
US	<---	SQ	,065	,002	,068	-,002	,003	-0,6

US	<---	IQ	,057	,002	,410	-,001	,003	-0,3
EP	<---	US	,053	,002	-,152	-,001	,002	-0,5
EP	<---	UB	,051	,002	,001	,000	,002	0

Table 5. Bootstrap method on SEM

Source: Calculated from SPSS 25.0

Discussions Results

Factors Affecting Behavioral Intention and Behavior of Using Ecps

Performance expectancy has a negative effect on retailers' behavioral intention of using ECPs in Vietnam. This result is inconsistent with the research results of Venkatesh et al. (2012), Sair and Danish (2017). 2018), Sabri Alrawi et al. (2020), Latifah et al. (2021), Mailoa and Tjhin (2023). This shows that the use of ECPs by retailers in Vietnam is facing challenges in terms of security, competition, long-term development orientation and technical infrastructure. Important issues in e-commerce include security and privacy issues and technical infrastructure. Inadequate information security, personal information leakage and cyberattacks can cause serious damage to retailers, customers and stakeholders. The diversity of operating systems (iOS, Android, Windows) is a technical factor that is also a top concern when developing e-commerce. The diversity of electronic device lines and differences in structure and user interface require in-depth technical knowledge. In addition, there are a number of difficulties that affect the operation of ECPs websites and platforms, such as technology investment costs, customer attraction costs (marketing, promotion); website and mobile app operating costs, etc.

Effort expectancy has a positive effect on behavioral intention to use ECPs of retailers in Vietnam. This result is similar and agrees with the results of studies by Venkatesh et al. (2012), Sair and Danish (2018), Sabri Alrawi et al. (2020), Dagnoush and Khalifa (2021), (Ha, 2023). According to Nguyen et al. (2024), This result further demonstrates that effort expectancy is an indispensable factor in the behavioral intention to adopt ECPs. The easier it is to adopt ECPs, the more it promotes the behavioral intention of retailers to adopt ECPs. On the other hand, in Vietnam, up to now, there have been many retailers with experience of providing ECPs applications to meet the needs of using electronic devices, as well as meeting the business development needs of retailers.

Social influence has a positive effect on behavioral intention to use ECPs of retailers in Vietnam. This result is consistent with the research results of Venkatesh et al. (2012), Sabri Alrawi et al. (2020), Hwang and Mulyana (2022), and Nguyen et al. (2024). This shows that with the benefits of ECPs that many retailers receive, they have impressed other retailers to adopt ECPs. On the other hand, retailers who cooperate with ECPs providers have measures to maximize resources and infrastructure to promote the adoption of ECPs with other retailers to promote the development of e-commerce in Vietnam.

Facilitating conditions have a positive effect on retailers' behavior of using ECPs in Vietnam. This result agrees with the results of studies by Venkatesh et al. (2012), Utomo et al. (2021). This result shows that ECPs open up development opportunities for retailers in the context of new technologies and features of electronic devices that are increasingly developing to enhance the online shopping experience, thereby creating more and more new opportunities for retailers. In addition, the high rate of smartphone and internet usage in Vietnam helps retailers obtain

customer data effectively and cost-effectively. These results are one of the important factors driving the behavior of using ECPs.

Behavioral intention has a positive effect on retailers' behavior of using ECPs in Vietnam. This result is consistent with the results of studies by Venkatesh et al. (2012), Bhattacharjee (2001), Hung et al. (2004), Zhang et al. (2012), Sabri Alrawi et al. (2020), Ha and Nguyen (2022). The results reflect that retailers can master the use of ECPs, and proactively use new technology platforms and resources to develop ECPs. Following this trend, retailers demonstrate professionalism, can develop online sales through ECPs, and increasingly create new opportunities for retailers to develop their online retail business.

Factors Affecting Retailers' satisfaction in Adopting ECPs and E- Commerce Performance

E-commerce payment service quality has a positive impact on retailers' satisfaction in Vietnam. E-commerce payment service quality has a positive impact on retailers' satisfaction when applying ECPs in Vietnam. This result shows a trend consistent with previous studies by Petter et al. (2013), Yeh and Li (2009), Liu et al. (2010), Salameh and Hassan (2015), Jaafreh (2017), Siahaan and Legowo (2019). This clarifies the role of flexibility, learnability, ease of use, intuitiveness, versatility, sophistication, reliability, and system responsiveness in response time as desirable characteristics of an information system to ensure system quality. Retailers' satisfaction comes from information quality, e-commerce payment platform, ease of use, intuitiveness, versatility, sophistication, and reliability that meet the needs of security and efficiency in sales transactions of retailers in Vietnam.

E-commerce payment system quality has a positive impact on retailers' satisfaction in Vietnam. This result agrees with the studies of Ghalandari (2012), DeLone and McLean (1992), Chae et al. (2002), Yeh and Li (2009), Petter et al. (2013), Jaafreh (2017), Siahaan and Legowo (2019), Kim et al. (2021), Zariman et al. (2023). This reflects that the technology platform serving ECPs ensures the completeness, timeliness and consistency of the information system, along with the quality of content, quality of context, quality of connection and quality of interaction in ECPs transactions, which significantly contribute to increasing retailers' satisfaction in applying ECPs in Vietnam.

Retailer satisfaction in applying ECPs has a positive impact on E-commerce performance in Vietnam. This result is consistent with the research results of Theofanos and Stanton (2012), Wiele et al. (2002), Lee et al. (2005), McDaniel (2006), Jaafreh (2017), Kalankesh et al. (2020). According to the IS success model, service quality and system quality are factors affecting retailer satisfaction. Retailers focus on using the internet to build websites to introduce ECPs application platforms. In particular, they pay attention to the user interface and management interface, diverse ECPs feature systems, high integration capabilities, scalability and ECPs development to increase online retail performance. Therefore, many retailers invest in aspects such as management interface, diverse ECPs feature systems, ensuring security in online payment, transaction experience associated with ECPs online payment applications, along with the high integration capability of ECPs will create high satisfaction and a positive impact on E-commerce performance in Vietnam.

Conclusions and Recommendations

This study integrates the UTAUT2 model and the IS success model to determine the impact of ECPs adoption by retailers in Vietnam on E-commerce performance. The results show that suppliers, managers, retailers and stakeholders need to pay attention and enhance Effort

Expectancy, Social Influence, as well as consider Performance Expectancy to increase high behavioral intention in applying ECPs. At the same time, retailers increase Facilitating Conditions and Behavioral Intention to promote the behavior of increasingly applying ECPs. Thereby, promoting Usage Behavior and bringing satisfaction to retailers by adopting ECPs to increase E-Commerce Performance. For MPCs providers and retailers to apply in practice to determine the impact of E-commerce payment adoption on E-commerce performance in Vietnam, some recommendations are proposed as follows.

Firstly, to overcome the challenges of competition, security and technical infrastructure, retailers need to continuously innovate, apply effective security measures and continuously raise cybersecurity awareness for all employees and users. Security and privacy issues are important issues in ECPs. Retailers need to ensure that they comply with all legal regulations related to data protection and customer privacy. Systems need to be continuously updated and enhanced with security measures and data backups to prevent cyberattacks, data breaches and information theft. Therefore, retailers need to invest in security measures and comply with data protection regulations when deploying ECPs applications.

Second, increase effort expectations by designing an easy-to-understand and clear interface for functions, ensuring safety and ease of use, even for users who are not yet proficient in ECPs applications. Retailers should understand the features of ECPs, develop the necessary functions, and ensure that the ECPs application platform is easy to install and use on electronic devices. At the same time, retailers should provide complete user guidance information such as instructions for building registration procedures, purchasing processes, payments, transactions, etc.

Thirdly, retailers need to promote the use of ECPs to increase the impact of social influence on the intention to use ECPs. Through promotional organizations, retail associations create an impression on other retailers by applying ECPs. On the other hand, retailers cooperate with ECPs suppliers to take measures to maximize resources and infrastructure, create benefits and incentives for services to promote the application of ECPs with other retailers to promote the development of E-commerce in Vietnam.

Fourthly, ECPs open up development opportunities for retailers in the context of increasingly developing new technologies and features of electronic devices to enhance the online shopping and payment experience, thereby creating more and more new opportunities for retailers to apply ECPs. The rapid development of technology and infrastructure has facilitated the development of ECPs. However, to make the most of these opportunities, retailers need to increase the application of new technologies, apply ECPs compatible with electronic devices, structures, user interfaces as well as have flexibility and in-depth technical knowledge. At the same time, retailers need to ensure seamless connectivity with mobile network providers and internet networks to ensure internet access through electronic devices, serving well the application of ECPs.

Fifthly, behavioral intention has a positive impact on the behavior of using ECPs of retailers in Vietnam. Therefore, on the one hand, ECPs suppliers, along with advanced technological advances, have contributed to changing the behavior of applying ECPs, as well as consumption through electronic devices such as smartphones and tablets. On the other hand, retailers need to strengthen research, the application of science and technology, innovation, master core technology, and ensure the use of synchronous infrastructure, especially digital infrastructure; information security, safety, data protection, to help ECPs applications on mobile devices and websites optimized for electronic devices. Retailers can control and manage payment

transactions safely and effectively through ECPs.

Sixthly, retailers operating in Vietnam need to significantly improve the quality of E-commerce payment services to meet the needs of fast and secure payments. In addition, integrating payment tracking features into E-commerce transactions also helps to rapidly develop online retail businesses. Retailers need to enhance and ensure the flexibility, ease of use, intuitiveness, diversity, sophistication, reliability and responsiveness of the ECPs application platform to ensure the quality of e-commerce payment services. Retailers' satisfaction comes from the quality of E-commerce payment services, the operational quality of E-commerce payment platforms, ease of use, intuitiveness, diversity, sophistication and reliability to meet the needs of security and efficiency in sales and payment transactions of retailers in Vietnam. The development of ECPs not only benefits retailers but also contributes to the development of the digital economy and electronic payments in Vietnam.

Seventh, the development of science, technology, innovation and digital transformation is a decisive factor in the development of ECPs; it is a prerequisite and the best opportunity for retailers to apply ECPs. Therefore, retailers need to strengthen research, application of science, technology, breakthrough innovation, master strategic technology, and ensure the quality of E-commerce payment systems to positively impact the satisfaction of retailers in Vietnam. Retailers need to invest in new technology platforms serving ECPs to ensure the completeness, timeliness and consistency of the information system, along with the quality of content, quality of context, quality of connection and quality of interaction in ECPs transactions, contributing significantly to increasing the satisfaction of retailers when applying ECPs in Vietnam.

Eighthly, the features of the ECPs application, the performance of smart terminals and the service quality of ECPs, the improved electronic payment channel system, saving transaction costs, increased sales and payment efficiency, etc. are the main factors affecting the behavioral intention of retailers to apply ECPs to increase E-commerce performance in Vietnam. Therefore, retailers develop retail management systems that both provide ECPs with network connections, integrate many smart management programs, manage transactions and support suitable online payment capabilities, contributing to improving E-commerce performance. At the same time, retailers focus on using the internet to build websites and introducing ECPs application platforms. In particular, it is necessary to pay attention to investing in diverse ECPs features. High integration capabilities, scalability and development of ECPs, along with high integration capabilities of ECPs will create high satisfaction and a positive impact on e-commerce performance in Vietnam.

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