

The Adoption of Electronic Payments in Online Shopping: The Mediating Role of Customer Trust

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Abstract—This study investigates the factors influencing electronic payment in online shopping behavior among Ho Chi Minh City consumers. With the rapid advancement of technology, e-commerce has become a new trend, and understanding the intention to adopt electronic payment is crucial for online businesses. The research employs quantitative and qualitative methods, utilizing a survey of 437 Ho Chi Minh City consumers. The data collected is processed using SPSS 24 and SmartPLS4 software. Eight factors related to consumers' intention to use electronic payment are identified: social influence, security, perceived usefulness, convenience, ease of use, customer trust, perceived risk, and performance expectancy. The study's findings will contribute to the existing knowledge base for businesses, facilitating the promotion of electronic payment adoption. This support will aid businesses in developing more attractive online sales strategies, encouraging consumers to shop and pay online more frequently and, at the same time, contribute to supporting departments in formulating policies for digital payments, thereby promoting national digital transformation.

Keywords—Electronic payment, Intention to use, Online shopping

I. INTRODUCTION

In the current era, our society is experiencing profound transformations, both in its structure and quality of life. The rapid advancement of information technology has paved the way for various industries to flourish, and among them, e-commerce stands out as a sector that has made remarkable strides, bringing greater convenience and modernity to human existence. A direct consequence of this progress is the widespread adoption of electronic payments, which has become an integral part of modern life. The outbreak of the COVID-19 pandemic has impacted various sectors of the economy and changed customer shopping habits. Increasingly, businesses and individuals are adapting to the new situation by shifting from in-person transactions to online shopping and using cashless payment methods. In this context, most commercial banks are focusing on and implementing plans to develop cashless payment services in line with government directives. The convergence of the digital economy and the digital society, combined with the disruptive impact of the COVID-19 pandemic, has accelerated the global and Vietnamese shift towards cashless payments. The State Bank of Vietnam's 2021 report indicated a significant surge in the value of non-cash payments, rising by an impressive 18%, and a substantial 30% increase in payment volume [1]. Furthermore, the Digital 2022 report disclosed that the number of internet users in Vietnam has surpassed 72 million, accounting for an impressive 73.2% of the population. This figure marks a substantial 4.9% growth compared to the previous year. Digital payments are at the forefront of

technological advancements and consistently ensure security. In comparison to 2021, non-cash payments in 2022 surged by 31.39% in value and accounted for 85.6% of the total transactions [2]. Online payment activities in Ho Chi Minh City are facing significant challenges. Infrastructure and technology issues are prominent, with unstable internet connectivity and uneven technology proficiency hindering the adoption of advanced payment technologies. Concerns about security and privacy pose a major barrier. Worries about personal information security and data breaches make many users hesitant to fully embrace online payments. Consumer habits and behaviors also present a considerable obstacle, as the preference for cash use remains common due to long-standing habits and trust in traditional methods. With its advantages of convenience and safety, digital payment is driving the growth of commerce worldwide. Digital payments facilitate swift transactions for both sellers and consumers, minimizing risks, and guaranteeing mutual benefits. Moreover, it caters to diverse transactional needs, ranging from simple to complex, at low service fees. Digital payments are expected to remain the preferred payment method in the present and future. In Vietnam, electronic payments were introduced in 2008, with e-wallets being the pioneering model. However, to this day, online payment activities in Vietnam, especially in Ho Chi Minh City, face several obstacles due to various factors influencing consumers' decisions to adopt this payment method. Hence, researching the influencing factors on the intention to use electronic payments for online purchases among the city's residents is essential to determine their interests and the factors impacting their acceptance of this service. The contributions of the research will be incorporated into existing documents for businesses when successfully implementing digital payments. This helps merchants develop more sales strategies, encouraging consumers to shop and pay online more frequently.

II. THEORETICAL BASIC

A. Concept

Electronic payment refers to any monetary transaction initiated in connection with electronic communication methods. It is a form of using electronic signals directly linked to a deposit account or credit account [3], [4]. Electronic payment (e-payment) serves as the foundation of Internet Banking, encompassing the online platform that facilitates various activities such as online auctions, Internet stock trading, and online shopping [5]. The concept of intention to use delves into an individual's level of willingness and readiness to engage in a particular behavior [6].

B. Theoretical Model

In 1989, Davis proposed the Technology Acceptance Model (TAM) in collaboration with several researchers, providing a theoretical framework to explain technology usage. According to this theory, two crucial factors, perceived usefulness and ease of use, play a significant role in determining individuals' acceptance and adoption of technology [7]. However, with the advancement of research, a more comprehensive model called the Unified Theory of Acceptance and Use of Technology (UTAUT) was formulated by Venkatesh and colleagues in 2003 [8]. UTAUT integrated and expanded upon factors from previous models, offering a more holistic perspective on technology acceptance. These facilitating factors can encompass various resources like data, knowledge, documentation, financial support, or other forms of assistance. The UTAUT model has significantly enhanced our understanding of the technology adoption process by considering a broader range of influencing factors.

III. HYPOTHESES AND RESEARCH MODEL

A. Customer Trust

Trust plays a pivotal role in shaping individuals' intentions to carry out transactions, especially in the realm of electronic commerce. When people place their trust in the process, they are more inclined to participate in e-commerce transactions [9]. Moreover, trust is a subjective perception regarding fulfilling obligations and meeting the expectations of all parties involved [10]. Trust is essential in laying the groundwork for successful transactions; reputation plays a crucial role in establishing trust, while trust influences the perception of the transactional environment [11]. Furthermore, trust encompasses attributes such as integrity, security, and data protection during transactions [12]. Cryptocurrencies, which utilize enhanced encryption methods, increase their reliability and trustworthiness. Transparent and objective verification methods used in cryptocurrencies eliminate the need for intermediaries, reducing transaction fees and increasing reliability in the system, thus enhancing its acceptance [13]. Research in [14], [15] has shown that higher levels of trust in online vendors directly correlate with increased adoption rates of digital payment systems. The widespread adoption of PayPal, is largely attributed to its strong reputation for security and buyer protection.

H1: Customer trust positively affects the intention to use electronic payment methods.

B. Perceived Risk

Perceived risk in the context of this study refers to the sense of uncertainty individuals experience regarding potential negative outcomes when utilizing cryptocurrencies for electronic payments. It plays a significant role in influencing perceived utility and purchase intention in commerce [16], [17]. Cryptocurrencies are renowned for their decentralized payment network; however, the lack of clear operational assurance and the volatile nature of their value function hinder their widespread adoption [18]. The unstable prices make it challenging for cryptocurrencies to serve as a reliable unit of account, and concerns about regulation, speculative activities, and vulnerability to cyberattacks further impede their

establishment as a global currency [19]. The existence of such risks affects users' trust, as they fear negative consequences arising from unsuccessful transactions, insufficient e-commerce regulations, and inadequate anti-fraud measures employed by sellers [20]. If digital payment is associated with significant risks, the user's evaluation may deteriorate, and consequently, their level of trust in using digital payments for purchasing goods may decrease considerably. Previous research in various contexts has already demonstrated the adverse impact of risk on trust [21], [22]. In this study, trust serves as an intermediary between perceived risk and the intention to use digital payments, as established in prior research [23], [24], [25]. When users trust a provider or store, they believe the business will act responsibly and, thereby, reduce perceived risk for customers. Hence, trust plays a mediating role between perceived risk and customers' intention to use digital payments. Previous research [26], [27] in various contexts has already demonstrated that perceived risks negatively affect users' trust and their willingness to engage in electronic transactions. In practice, the failure of certain cryptocurrency exchanges due to hacking incidents has significantly diminished user trust and adoption rates.

H2: The use of digital payments is negatively influenced by perceived risks.

H3: Customer trust is negatively impacted by perceived risks.

H4: Perceived risks hurt the intention to use digital payments, mediated by customer trust.

C. Perceived Ease of Use

According to existing literature, the perceived ease of use holds significant importance in influencing customers' intention to adopt new technologies. For a product to be perceived as easy to use, it should have a user-friendly interface and follow a logical sequence of actions [28]. Davis (1989) defined ease of use as customers' perception that the system is uncomplicated, effortless, and quick to navigate [7]. Indicators of perceived ease of use include transparency and comprehensibility, step-by-step installation guides, and user-friendly features, as well as easy comparisons between cash payment systems and third-party e-payment methods [29], [30], [31]. Previous research has indicated that when customers perceive a device as requiring minimal mental and physical effort, its usage becomes more prominent [32]. In our study, we expand this concept to encompass the social aspect of e-payment usage, intending to enrich interactions and outcomes in electronic commerce [33]. Aghdaie et al. (2011) conducted a study that showed a positive relationship between ease of use and trust [34]. This finding is consistent with earlier research that also found a positive correlation between customer trust and perceived ease of use [35], [11], [36], [37]. Users tend to believe that newer technologies are capable of bringing benefits to the products they will purchase, so consumers expect these technologies to be easy to learn and use. Al-Sharafi et al. (2017) explored the role of trust in increasing awareness of ease of use during positive online transactions, although the effect is not significant [38]. Yudiarti and Puspaningrum (2022) confirmed that perceived ease of use, mediated by trust, influences the intention [39]. When companies apply technology or systems perceived as easy to use, it leads to increased trust and, consequently, a

higher intention to use them in the future. Similarly, Wen et al. (2011) explained that perceived ease of use has a significantly positive impact on trust [40]. This research supports the study results by [41], [42], which stated that showing the results of trust mediates the relationship between perceived ease of use and intention to use.

H5: The intention to use digital payments is positively influenced by the perceived ease of use.

H6: Customer trust is positively impacted by the perceived ease of use.

H7: The perceived ease of use has a positive effect on the intention to use digital payments, mediated by customer trust.

D. Perceived Usefulness

The concept of perceived usefulness refers to individuals' belief that using a particular e-payment system can enhance their efficiency in completing financial and daily transactions [43]. For low-income customers, perceived usefulness is crucial in shaping their expectations and willingness to adopt e-payment for various purposes [44]. The utilization of e-payment is argued to enhance productivity and efficiency in payment-related processes [45], improve customer service and product information [46], and leverage digital infrastructure for information dissemination [47]. Low-income customers who perceive e-payment as useful are more likely to adopt and utilize the system to their advantage. On the other hand, if the perceived usefulness of e-payment is low, its implementation may not lead to adoption, as perceived usefulness plays a crucial role in the decision-making process [48]. The studies conducted by Chinomona (2013) and Amin et al. (2014) have revealed that trust is positively influenced by perceived usefulness [36], [49]. When customers perceive a system or new product as valuable and beneficial, they will trust the product or new technology. Perceived usefulness affects intention through trust [50]. Consumers who have a higher level of trust are more inclined to engage in purchasing behavior. Thus, it can be observed from the research that trust plays an intermediary role between perceived usefulness and customer behavioral intention. Previous studies have also recognized this indirect relationship, indicating that perceived usefulness affects consumer behavioral intention through trust [51]. Additionally, other research has shown a direct impact of perceived usefulness on trust [52], [39].

H8: Perceived usefulness has a positive impact on the intention to use digital payments.

H9: Perceived usefulness has a positive impact on customer trust.

H10: Perceived usefulness has a positive impact on the intention to use digital payments through customer trust.

E. Security

Perceived security plays a critical role in users' acceptance and trust in mobile payment systems. It refers to users' perception of the level of protection and prevention against potential security threats related to the use of M-wallets [53]. The primary concern for users when it comes to financial transactions is the security of their sensitive information and data [54]. Users need to have confidence that their personal

information will remain secure and protected from unauthorized access, storage, or manipulation by any third parties [55]. Therefore, perceived security is a crucial factor in determining users' willingness to adopt and use mobile payment systems [56]. The relationship between security and trust is closely interconnected. Users are more likely to trust organizations and the digital payment system if they are assured about the security measures in place to protect their data and prevent any data breaches [57]. According to their research, the level of trust in digital payments is determined by security. Moreover, improving user trust encourages customers to use electronic payments when making online purchases. Flavián and Guinalú (2006) stated that developing trust changes customers' usage intentions. Perceived security is linked to behavior through trust [54]. However, how users perceive the privacy of their information affects trust. According to C. Kim et al. (2010), a lack of trust in the security of online transactions can lead individuals to prefer using cash for transactions [58]. Based on these findings, trust is an intermediary factor between perceived security and user behavior [59].

H11: Security has a positive impact on the intention to use digital payments.

H12: Security has a positive impact on customer trust.

H13: Security has a positive impact on the intention to use digital payments through customer trust.

F. Social Influence

Social influence is "the degree to which an individual perceives that significant others believe he or she should use the new system" [8]. In the context of online shopping, individuals who engage in word-of-mouth (WOM) exchanges with others and receive referrals, opinions, personal experiences, and product-related knowledge are more likely to feel a higher sense of recognition of online vendors. They tend to pay attention to the recommendations and influence of others when making their purchasing decisions [60]. Morosan and DeFranco (2016) have shown that social influence plays a significant role in shaping users' intention to use mobile payment (M-payment) services [61]. It also affects users' attitudes towards M-payment services and their perception of the multiple benefits of using such services [62]. At the same time, it also has an impact on customer trust when there is an intention to shop online [63], [64], [65]. Trust can act as a mediator between social influence and users' intention to use digital payments, as demonstrated by the research conducted by Chan and Lee (2021) [66].

H14: Social influence has a positive impact on the intention to use digital payments.

H15: Social influence has a positive impact on customer trust.

H16: Social influence has a positive impact on the intention to use digital payments through customer trust.

G. Performance Expectancy

Performance expectancy (PE) plays a pivotal role in determining users' willingness to accept and adopt new technology. PE refers to the belief that using a specific technology will result in improved job performance or bring about various benefits in daily life [8]. People are more likely to

embrace and utilize technology when they perceive it as providing substantial advantages and enhancements [67]. In the context of electronic payment systems, performance expectancy is associated with users' perceptions of the service's convenience, speed, and effectiveness [68]. If users believe that electronic payment offers them a convenient and efficient way to conduct banking transactions, they will be more inclined to use such channels [69].

H17: Positive effects of performance expectancy lead to a higher intention to use electronic payment.

H. Convenience

Convenience is a critical factor that influences users' decision to use a technology. It refers to the feeling of comfort and ease when using a particular system [7]. Convenience is the combination of time and place utility, and it exerts a significant impact on a user's choice to adopt a particular system. Consequently, convenience plays a crucial role in shaping the perceived value of the system [70]. Generally, people tend to place their trust in technology when it is designed to efficiently complete tasks and simplify processes. When a user of new technology experiences happiness, they will become interested and generate more satisfaction with the technology [7]. This implies that as users' comfort level increases, their usage behavior will improve. Therefore, the convenience of using it will positively influence the intention to use electronic payments.

H18: Convenience positively influences the intention to use electronic payments.

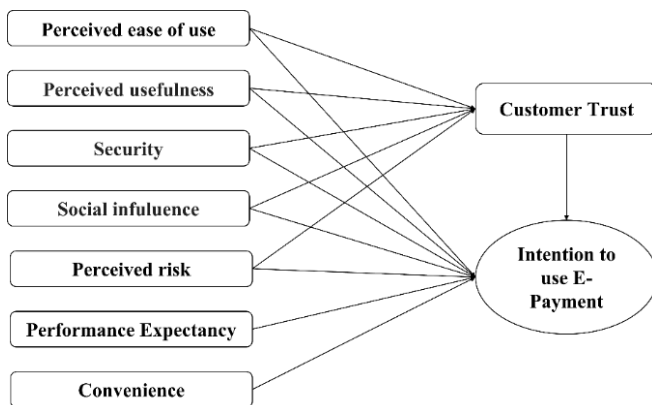


Fig. 1. Proposed research model

IV. RESEARCH METHODS

The research is conducted in two phases: qualitative research and quantitative research. Choosing quantitative research methods for data collection brings many important benefits. This approach allows for precise measurement and utilizes statistical data to analyze relationships between variables. This helps in deriving conclusions that are highly accurate and applicable broadly in both theoretical and practical research. Furthermore, the objectivity of quantitative data ensures the reliability of research findings, facilitating the assessment of impacts and the

significance of key variables within the study sample. The qualitative research phase aims to determine the measurement scale and lay the foundation for constructing the questionnaire in the quantitative research phase. The author inherited from previous studies and developed a preliminary measurement scale for seven independent variables (Social influence, Risk, Usefulness, Security, Performance expectancy, Ease of use, Convenience), one mediating variable (Trust), and the dependent variable (Intention to use e-payment). In the quantitative research phase, the survey method is employed, utilizing a questionnaire to collect data. The online survey form is distributed via email and various social media platforms. The questionnaire utilizes a 5-point Likert scale, allowing participants to express their level of agreement, ranging from "strongly disagree" to "strongly agree". The choice of sampling method in quantitative research is crucial as it affects both the cost and quality of the study. There are two main groups of sampling methods: probability sampling, and non-probability sampling. Random sampling methods typically reflect the representation of the population and have high generalizability. In contrast, non-probability sampling methods allow for purposive selection but may not represent the entire population. The decision on which method to choose depends on various factors such as time constraints, budget, and study scope. Optimal research often involves testing samples that are representative of the population. However, when the population is too large, researchers often find convenience in using non-probability sampling methods. The research applies a convenient sampling method with an estimated sample size of 437 participants. The survey targets consumers in Ho Chi Minh City, aged between 18 and 40, who utilize electronic payment for online shopping. After data collection, the collected data was cleaned and analyzed using SPSS 22 and Smart PLS 4 software. The analysis methods will include descriptive statistics, measurement model testing, and structural model testing. Fig. 1 shows the proposed research model.

V. RESULT

A. Descriptive Statistics

To collect data, a questionnaire was sent to business owners in Ho Chi Minh City from various industries, different age groups, and genders. Due to various reasons, only 437 valid surveys were received. According to Table I, 44.9% of respondents were male, and 55.1% were female. In terms of age, the highest percentage was in the 18-22 age group, accounting for 46.2%. The surveyed individuals were mainly students (31.6%), office workers (25.2%), and business professionals (18.8%), and the remaining included freelancers, factory workers, teachers, and other professionals. Data Interpretation: It could benefit from further interpretation of these statistics. For example, the passage could discuss any notable trends or patterns observed in the data, such as differences in responses based on demographic characteristics. Sample Representation: The Authors mention that the survey targeted business owners in various industries, age groups, and genders. Discussing the extent to which the sample represents the target population would provide context for interpreting the results.

TABLE I. DESCRIPTIVE STATISTICS OF THE SURVEY SAMPLE

Characteristic		Frequency	Ratio (%)
Gender	Female	241	55.1
	Male	196	44.9
Age	18 to 22 years old	202	46.2
	23 to 30 years old	162	37.1
	30 to 40 years old	73	16.7
Income	From 1 million to 3 million VND	88	20.1
	From 3 million to 5 million VND	117	26.8
	Over 5 million to 10 million VND	127	29.1
	Over 10 million VND	105	24
Occupation	Students	138	31.6
	Office workers	110	25.2
	Teachers	24	5.5
	Business professionals	82	18.8
	Freelancers	43	9.8
	Factory workers	29	6.6
	Other professions	11	2.5
Total		437	100

TABLE II. RELIABILITY AND CONVERGENCE ASSESSMENT

Factor	Composite reliability (CR)	Cronbach's alpha (CA)	Average variance extracted (AVE)	Outer loading
SI	0.904	0.842	0.759	0.860 – 0.889
SC	0.930	0.906	0.726	0.828 – 0.869
PEOU	0.917	0.879	0.733	0.851 – 0.862
PU	0.905	0.861	0.705	0.826 – 0.850
PE	0.914	0.875	0.728	0.844 – 0.865
CT	0.912	0.872	0.723	0.838 – 0.856
PR	0.938	0.911	0.790	0.884 – 0.895
CV	0.925	0.892	0.755	0.855 – 0.876
IU	0.927	0.883	0.810	0.893 – 0.907

TABLE III. HTMT AND FORNELL-LARCKER DISCRIMINANT VALIDITY TESTING

HTMT									
	SI	SC	PEOU	PU	PE	CT	PR	CV	IU
SI									
SC	0.579								
PEOU	0.716	0.547							
PU	0.507	0.469	0.633						
PE	0.547	0.467	0.538	0.543					
CT	0.677	0.521	0.661	0.612	0.481				
PR	0.420	0.514	0.356	0.376	0.431	0.437			
CV	0.368	0.439	0.343	0.313	0.341	0.282	0.276		
IU	0.713	0.634	0.705	0.645	0.635	0.689	0.517	0.542	
Fornell - Larcker									
	SI	SC	PEOU	PU	PE	CT	PR	CV	IU
SI	0.871								
SC	0.508	0.852							
PEOU	0.618	0.490	0.856						
PU	0.433	0.415	0.552	0.840					
PE	0.470	0.418	0.472	0.471	0.853				
CT	0.581	0.465	0.580	0.532	0.422	0.850			
PR	-0.368	-0.469	-0.320	-0.333	-0.385	-0.391	0.889		
CV	0.321	0.397	0.305	0.275	0.304	0.252	-0.249	0.869	
IU	0.617	0.568	0.623	0.563	0.560	0.606	-0.463	0.483	0.900

B. Testing the Measurement Model

All factors, including PU, SC, PE, CV, PEOU, IU, SI, PR, and CT, consistently exhibit Cronbach's Alpha coefficients exceeding 0.8, indicating strong internal consistency reliability. The composite reliability coefficient, assessing internal consistency within the study, further supports this, with values typically above 0.7 considered good [65]. In our study (see Table II), composite reliability coefficients range from 0.904 to 0.938, indicating robust reliability across all constructs. Moreover, all items demonstrate outer loadings above the threshold of 0.707, indicating their substantial contribution to their respective constructs [66]. This ensures that the items reliably measure their intended constructs. Convergence validity, assessed through Average Variance Extracted (AVE), confirms that our constructs converge well within the PLS-SEM analysis. AVE values exceeding 0.5 are indicative of good convergence validity. In our study, all constructs exhibit AVE values above 0.705, underscoring strong convergence validity. Discriminant validity, crucial for distinguishing between constructs, is evaluated using the HTMT ratio and the Fornell-Larcker criterion. An HTMT ratio below 0.9 signifies adequate discriminant validity [67]. Our findings (see Table III) show HTMT ratios ranging from 0.282 to 0.716, indicating satisfactory discriminant validity among all constructs. Additionally, the Fornell-Larcker criterion, which compares the square roots of the AVEs (diagonal elements) with the correlations between constructs (off-diagonal elements), is consistently met. This criterion confirms that each construct's variance is greater than its correlations with other constructs, supporting discriminant validity.

These assessments collectively validate the measurement model's reliability, convergence validity, and discriminant validity, ensuring robustness in our findings.

C. Testing the Structural Model

The main limitation of quantitative research through survey (see Appendix) data is the representativeness of the sample compared to the population. Due to time constraints and other research resources, the study could not assess the entire population and only relied on a sample of 437 participants. Therefore, there are certain limitations in terms of the generalizability of the research findings. To address this, the

authors used bootstrapping techniques to resample with replacement based on the collected sample data, aiming to establish a larger study sample. Assessing multicollinearity is one of the steps needed to evaluate the relationships between variables in the research model. The absence of multicollinearity is indicated when the Variance Inflation Factors (VIF) are less than 5 [71]. In this study, the VIF values range from 1.249 to 2.112, indicating no multicollinearity issue in the model. The R-squared (R^2) value ranges from 0% to 100% and a higher R^2 value implies a better accuracy of the research model's predictions. According to Table IV, R^2_{adjYD} is 63.5%, which means it accounts for 63.5% of the variance in IU explained by SI, SC, PEOU, PU, PE, CT, PR, and CV; thus, these are good predictors for IU. Cohen (1988) considers f^2 values of 0.02, 0.15, and 0.35 as small, medium, and large, respectively [72]. The f^2 values in Table IV show that the independent variables have medium to large effect sizes on the dependent variable in the research model, except for H12, which has no significant effect. Q^2 value greater than 0.02 emphasizes the predictive ability of the previously mentioned model. To test the statistical significance at a 5% equivalent level, the authors used a t-value greater than 1.96. The bootstrapping results indicate that SI, SC, PEOU, PU, PE, CT, PR, and CV have significant and statistically meaningful effects on YD at approximately 5% level ($p < 0.05$). Moreover, PEOU, PU, SI, and PR have statistically significant impacts on CT, specifically at a 5% level ($p < 0.05$). However, SC does not have a statistically significant impact on CT at a 5% level ($p > 0.05$). Based on these results, the authors accept hypotheses H11, H9, H1, H5, H2, H6, H8, H3, H17, H14, H15, H18 and reject hypothesis H12.

According to Table V, using CT as a mediating variable, SI, PU, and PEOU have significant effects on IU with beta coefficients of 0.044, 0.037, and 0.035, respectively, and all P-values are less than 0.05. Therefore, the research findings through the mediating variable support the idea that customer trust mediates the effects of social influence, perceived usefulness, and perceived ease of use on the intention to use electronic payments.

TABLE IV. TESTING THE STRUCTURAL MODEL

Relationships	Original sample	VIF	T statistics	P values	f^2	Result
SI -> CT	0.270	1.815	4.557	0.000	0.078	Accept
SI -> IU	0.153	2.017	2.758	0.006	0.032	Accept
SC -> CT	0.075	1.648	1.272	0.203	0.007	Reject
SC -> IU	0.099	1.755	2.152	0.031	0.021	Accept
PEOU -> CT	0.215	1.991	3.204	0.001	0.045	Accept
PEOU -> IU	0.153	2.112	2.572	0.010	0.031	Accept
PU -> CT	0.228	1.532	3.758	0.000	0.065	Accept
PU -> IU	0.127	1.712	2.341	0.019	0.026	Accept
PE -> IU	0.146	1.567	2.853	0.004	0.038	Accept
CT -> IU	0.163	1.932	3.140	0.002	0.038	Accept
PR -> CT	-0.112	1.343	2.025	0.043	0.022	Accept
PR -> IU	-0.099	1.405	2.355	0.019	0.031	Accept
CV -> IU	0.203	1.242	5.290	0.000	0.092	Accept
$R^2_{adjIU} = 0.635$; $R^2_{adjCT} = 0.467$; $Q^2_{IU} = 0.604$; $Q^2_{CT} = 0.456$						

TABLE V. MEDIATING ROLE OF CUSTOMER TRUST

	Original sample	P values	T statistics	Result
PEOU -> CT -> IU	0.035	0.033	2.135	Accept
PR -> CT -> IU	-0.018	0.103	1.631	Reject
SC -> CT -> IU	0.012	0.246	1.159	Reject
PU -> CT -> IU	0.037	0.017	2.388	Accept
SI -> CT -> IU	0.044	0.009	2.602	Accept

D. T – Test Anova

Demographics are variables that reflect individuals' characteristics and theories suggest that they partly influence individuals' thoughts and intentions. Regarding gender, with Sig = 0.149, the Levene test indicates that the variances of the female and male groups are equal. The T-test results with Sig = 0.315 show that there is no significant difference in the intention to use electronic payments between females and males. For occupation, age, and income, the Levene tests produce results in the order of 0.03, 0.043, and 0.001 < 0.05, indicating that the variances of these groups are significantly different. To account for unequal variances, the Welch test is conducted. The Welch test results for income, age, and occupation show Sig levels of 0.083, 0.497, and 0.341 > 0.05, respectively, indicating that there are no significant differences in the intention to use digital payment methods among these groups. These findings suggest that demographic factors such as gender, age, income, and occupation do not significantly influence the intention to use electronic payments. This lack of significant difference implies that the intention to adopt electronic payment systems is consistent across different demographic groups, highlighting the universal appeal and potential acceptance of electronic payments regardless of these demographic variables. Table VI tests the differences in demographic variables.

TABLE VI. TESTING THE DIFFERENCES IN DEMOGRAPHIC VARIABLES

	Levene's Test	T-test	Levene Statistic	Welch
	Sig.	Sig.	Sig.	Sig.
Gender	0.149	0.315		
Age			0.043	0.497
Income			0.001	0.083
Occupations			0.03	0.341

VI. DISCUSSION, MANAGERIAL IMPLICATIONS, LIMITATIONS, FUTURE RESEARCH DIRECTIONS

A. Discussion

The study examined factors influencing consumers' intention to use electronic payment for online purchases in Ho Chi Minh City, utilizing 36 observed variables with 1 dependent and eight independent variables. Through bootstrapping and hypothesis testing, the impact of factors on electronic payment behavior was evaluated across dimensions including "Customer Trust", "Convenience", "Perceived Ease of Use", "Social Influence", "Perceived Usefulness", "Security", "Performance Expectancy" and "Perceived Risk". Key findings are summarized as follows:

Among the factors assessed, “Convenience” demonstrated the highest impact ($\beta = 0.203$) on electronic payment adoption. This underscores its critical role as the primary consideration for consumers when choosing online payment methods, consistent with prior research [73], [74], [75]. Following closely, “Customer Trust” ranked second ($\beta = 0.163$), highlighting the high level of trust consumers in Ho Chi Minh City place in online payment systems, which aligns with existing literature [76], [77], [78]. “Social Influence” ranked third ($\beta = 0.153$), particularly significant during the COVID-19 pandemic, influencing consumer trust and adoption of electronic payment methods, as noted in previous studies [79], [80], [81]. “Perceived Ease of Use” also ranked prominently ($\beta = 0.153$), emphasizing the importance of intuitive and straightforward transaction processes in enhancing adoption rates, as supported by prior research [82], [64]. “Performance Expectancy” ($\beta = 0.146$) and “Perceived Usefulness” ($\beta = 0.127$) further contribute to consumer acceptance by facilitating efficient and beneficial transaction experiences, consistent with findings from other studies [79], [83], [84], [85], [86]. “Security” ($\beta = 0.099$) reassures consumers of the safety and protection of their personal and financial information, albeit ranking lower compared to other factors. Interestingly, “Perceived Risk” ($\beta = -0.099$) negatively impacts the intention to use electronic payment, suggesting that mitigating perceived risks could enhance adoption rates. This finding prompts further exploration into consumers' apprehensions and strategies to address them, acknowledging potential unknown risks that could deter usage. Moreover, the study revealed that “Social Influence”, “Perceived Ease of Use”, “Perceived Usefulness” and “Perceived Risk” significantly influence “Customer Trust” ($\beta = 0.27, 0.228, 0.215, \text{ and } -0.112$, respectively), highlighting the mediating role of trust in enhancing online payment adoption.

To enhance electronic payment adoption, businesses and policymakers could leverage these insights by prioritizing factors such as convenience, trust-building measures, user-friendly interfaces, and security enhancements. Strategies should focus on reducing perceived risks and enhancing perceived benefits, thereby fostering greater consumer confidence and usage. In conclusion, while this study aligns with existing literature, deeper integration of prior research and theoretical frameworks could further enrich interpretations. Additionally, providing actionable recommendations based on these findings can bridge the gap between research insights and practical applications, promoting wider adoption of electronic payment systems in Ho Chi Minh City.

B. Managerial Implications

To ensure smooth and convenient electronic payment, service businesses should focus on enhancing user experiences by integrating various payment methods, prioritizing security and authentication, providing professional services, and supporting customers. Continuous updates and improvements based on user feedback are essential. To build trust with customers in electronic payment, businesses need to prioritize security, display reliability, and respond promptly to complaints. Constantly improving product and service quality will also foster customer satisfaction and trust. To maximize the social benefits of electronic payment, businesses should provide financial incentives to low-income individuals, encourage them

to transition away from cash and promote sustainable finance. Ensuring the security of user information is crucial in building trust and loyalty among customers. User-friendliness in electronic payment requires services to integrate multiple payment options, minimize advertising, facilitate streamlined transactions, and provide clear and simple user instructions. This will make electronic payment convenient and easy for users.

To achieve effective use of electronic payment, businesses must commit to meeting user expectations, continuously improve systems, and integrate new features. This will enhance user satisfaction, and trust, and contribute to the success of electronic payment. The usefulness of electronic payment necessitates diversification of products and services, cost reduction, and faster transaction processing. Emphasis on security and quick response to user feedback is vital for improving user experience in payment. To ensure security in electronic payment, businesses should implement data encryption, two-factor authentication, and fraud detection systems, and restrict access to data. Proper training and timely response to security incidents are essential for protecting users' personal information. Finally, to minimize risks in electronic payment, businesses should establish terms of use in line with legal regulations and ensure safe transactions. By applying these managerial implications, businesses can create a seamless and secure electronic payment experience for their customers, thereby fostering trust and loyalty in the usage of electronic payment methods.

C. Limitations

The study has certain limitations that need to be considered. One such limitation is the relatively small sample size used for data collection, which may have implications for the robustness of the results. To improve the generalizability of the findings, a larger sample size could be utilized in future research. Additionally, since the study was conducted exclusively in Ho Chi Minh City, caution should be exercised when attempting to extend the results to other regions or countries. Moreover, although the study explored various factors affecting consumers' intention to use electronic payment, it is essential to recognize that there may be other relevant variables that were not accounted for in the analysis. Future research could expand the scope of the investigation to encompass additional factors that might influence consumers' adoption of electronic payment methods. Conduct studies with larger and more diverse samples to improve the robustness and generalizability of the findings. Explore comparative studies across different regions to understand cultural, economic, and technological influences on electronic payment adoption.

D. Future Research Directions

Conduct a comparative study across different cities or countries to explore how cultural, economic, and technological factors influence consumers' intention to use electronic payment. Investigate the factors influencing the adoption of mobile payment platforms, as smartphones and mobile apps play an increasingly significant role in electronic payment. Analyze how age and gender influence consumers' intention to use electronic payment, as different demographics might have varying preferences and concerns. Study consumer preferences for specific types of electronic payment methods (e.g., e-wallets,

mobile banking, contactless payments) and how these preferences vary across different consumer segments. By addressing these limitations and conducting further research on these suggested areas, a more comprehensive understanding of consumers' intention to use electronic payment and strategies for businesses can be developed.

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APPENDIX

Survey Questions

Perceived ease of use (PEOU)	Soucer
1. For me, using electronic payment is very easy. 2. I believe that becoming proficient in using electronic payment will not be difficult. 3. Digital payments have made online shopping much simpler than before. 4. Transferring money through electronic payment gateways is also fast and convenient.	[52], [83], [84], [85]
Perceived usefulness (PU)	
1. I will pay faster when using electronic payment. 2. Using digital payments brings more benefits compared to traditional payment methods (cash or direct contact). 3. Digital payments are convenient for paying when shopping online. 4. Using digital payments helps me increase the efficiency of my purchases. 5. Using digital payments allows me to make payments for my usual online purchases.	[7], [83], [57]
Security (SC)	
1. I feel calm and secure when providing credit card or debit card information through the digital payment system. 2. I feel that digital payments are secure when transmitting sensitive information. 3. When using digital payments, I feel at ease when providing my personal information. 4. I believe that my transactions through digital payments will be protected. 5. I believe that when using digital payments, there will always be preparedness to handle risks and ensure data security.	[86]
Perceived Risk (PR)	
1. If I use digital payments, others may access information about my online transactions. 2. There is a high possibility of losing money if I make purchases using the digital payment system. 3. There are significant risks when buying with the digital payment system. 4. I consider buying with digital payments a risk.	[87]
Social influence (SI)	
1. In my life, there are important people, such as family, close friends, and colleagues, who have advised me to use digital payments for online shopping. 2. The important people in my life support me in using digital payments. 3. The community around me is using digital payments.	[88]
Performance Expectancy (PE)	[89]
1. I find digital payments to be a useful way of shopping. 2. Using digital payments makes transaction processing simpler. 3. Using digital payments improves the efficiency of my payments. 4. I save transaction costs when using digital payments.	

Convenience (CV)	
1. Digital payments are convenient because I often carry my smartphone with me. 2. Digital payments are convenient because I can use them anywhere. 3. Digital payments are convenient because I can use them in any situation. 4. Digital payments are convenient because they are not complicated.	[64]
Customer Trust (CT)	
1. I believe that digital payment platforms are capable and effective in processing contactless transactions. 2. I believe that digital payment platforms always prioritize the interests of consumers. 3. I believe that the legal frameworks for providing digital payments are sufficient to protect consumers. 4. I believe that digital payment platforms are honest and truthful with users.	[86], [90]
Intention to use e-Payment (IU)	
1. I intend to use digital payments for online shopping. 2. Shortly, I will use digital payments. 3. In the coming time, I am willing to continue using digital payments.	[91], [89]