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## THE INFLUENTIAL FACTORS ON THE E-BANKING SERVICES ADOPTION BY GENERATION Z CUSTOMERS DURING THE COVID-19 PANDEMIC: THE CASE OF HO CHI MINH CITY, VIETNAM

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**Abstract:** Under the influence of the fourth wave of contagious coronavirus disease in Vietnam, various precautions were imposed, that is, social distancing, quarantine, curfew, and lockdown, which led to shifts in customer behaviour across all sectors in Vietnam, including the banking sector. The research investigates the factors that influence customers' E-banking services adoption during the COVID-19 pandemic in Ho Chi Minh City, with the segment chosen for the study being prospective consumers - Generation Z. The Theory of Planned Behaviour (TBP) and the Technology Acceptance Model (TAM) are the foundations of this research model. The research looks into six factors given by previous studies that influence Generation Z customers' adoption of E-banking services: Perceived Usefulness (PU), Perceived privacy and security (PPS), Trust (TR), Social Influence (SI), Hedonic Motivation (HM), and Perceived Ease of Use (PEU). With a structured set of 29 questions based on the above factors, the number of collected data was 250 and processed by SmartPLS version 3.0. The research results show that PU, TR, SI, HM, and PEU are proportional to AEB, whereas the PPS variable is shown to have no meaningful effect on the AEB of Gen Z in HCMC. The study provides critical insight into factors that encourage Generation Z's adoption of E-banking services during the Coronavirus crisis.

**Keywords:** Adoption, COVID-19, E-banking, Generation Z, Ho Chi Minh City – Vietnam.

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## Introduction

During the fight against the fourth wave of contagious coronavirus disease (from April 27, 2021), the Vietnamese government has imposed several restrictions, such as Directive 16 (document No. 2601/VPCP-KGVX), with a strict nationwide social distancing and a complete lockdown of the city in the southern provinces of Vietnam to control the situation quickly. Since citizens are not free to move around the city and must remain at home for months, significant demands are created in contactless transactions such as exchanging essential trips (foods, medicines, emergency care), paying bills, savings, and investments, especially in the most populous city in Vietnam - Ho Chi Minh City.

Regardless of the pandemic's impact, E-banking is still a potential market in Vietnam. With the benefits of E-banking to residents during inconvenient periods of lockdown, it must be recognized that the directives have indirectly facilitated the outstanding development of E-banking services. The NAPAS card system, in 2019, still processed over 40% of automatic teller machine (ATM) transactions. Nonetheless, when the COVID-19 pandemic hit in the first months of 2020, the transaction value of the internet payment channel increased by 50%, while the mobile payment channel increased by 160% compared to the same period in 2019. According to the E-commerce and Digital Economy Department report, with 53% of the population participating in online shopping, cashless transactions have increased by 75.2% in the first nine months of 2020 compared to the previous year. Driven by the COVID-19 pandemic, online shopping has grown exponentially. As a result, Vietnam ranked third in Southeast Asia in visits to online shopping apps in the second quarter of 2020.

Developing E-banking services is an inevitable development trend in the context of the current industrial revolution 4.0 (Trần, 2021), and the financial industry's ability to adapt to the internet and technological advancements, especially in banking, is crucial to its existence (Sudarsono et al., 2020). COVID-19 presents enormous opportunities and difficulties to commercial banks during fierce competition from rival banks and Fintech businesses offering similar services as e-wallets and e-mobiles banking. To create a premise and have an essential turning point in the long-term development of the bank during and post the COVID-19 pandemic, particularly in the current time when consumer behaviour is shifting towards technology, banks must have a critical perspective into the variables influential on E-banking services adoption during COVID-19 to propose appropriate and timely solutions to boost services quality to attract new customers.

As the most populous city and the leading economic engine in Vietnam - Ho Chi Minh City has a consumer market primarily contributed by Millennials and Gen Z. Therefore, these two generations are the key motivators for Fintech companies and commercial banks to digitize the services available on digital devices, notably mobile phones (Meola, 2017). Generation Z, accounting for 56.637% of the city's



workforce and 23.1% of Ho Chi Minh City's population (World Population Review), is no longer considered the future generation of the city. "This future" has arrived and is gradually entering the workforce (Dell technologies, 2021).

### Research gap

The coronavirus disease is an unexpected topicality context, the most significant threat of the century that affects all sectors across the country (PwC). So bank management needs to prepare strategies for things coming next, also known as not 'normal' next. Up to now, all activities and services of the bank have a significant structural shift from traditional transactions to online services to survive and develop during the crisis. Regardless of the tense situation, only a handful of the latest studies have been conducted on adopting E-banking during the coronavirus pandemic in Vietnam.

Secondly, with distinct characteristics, Generation Z substantially impacts the consumption market and ushers in a new era of purchasing (Pradeep Mangain, 2021). The Gen Z population has always considered convenience a prerequisite for serving their daily requirements (Priporas et al., 2019) while also having a strong interest in applying technology to enhance life quality (Mohannad et al., 2020). Nevertheless, although the quantity of research exploring the impact of E-banking services on adoption has increased, most of them only focused on the E-banking adoption of Millennials, Generation X, or both (Salimon et al., 2017; Patel et al., 2017; Makoto et al., 2018). There are little attention and existing databases to quantify the Generation Z customer adoption of E-banking, particularly in HCMC, Vietnam.

Thirdly, even though Technology Acceptance Model (Davis, 1989; Venkatesh and Davis, 2003) is widely accepted, evaluating adoption is a complicated process driven not just by technical elements but also by the customers' personalities and attitudes (Venkatesh & Bala, 2008). However, TAM cannot provide a complete and unambiguous insight into customer adoption (Alalwan et al., 2016). Still, only a few papers integrate TAM and another behavioural model to provide an exhaustive perspective on customer adoption. So to investigate Generation Z consumers' adoption of using E-banking during the Corona periods in HCMC, among the popular models used in prior research, deliberately, the current study integrates the Technology Acceptance Model - TAM (Davis, 1989) with the Theory of Planned Behavior - TBP (Ajzen, 1985, 1991).

Lastly, the variable "hedonic motivation" has long been exerted in psychological research to understand human purpose and behaviour (Poong et al., 2016; Salimon et al., 2017; Husnil et al., 2019). Hedonic motivation is an intrinsic value that users perceive as fun, enjoyment, or pleasure experience while utilizing technology (Venkatesh et al., 2012) and being impacted by hedonic motivation. However, based on many recent studies in Vietnam, typically by Minh (2020) and Hoa et al. (2020), this hedonic motivation variable, even as a mediating or independent influencing factor in adopting E-banking services, is still not to be included.



The study aimed to fulfil the research gap by using the integration of the TAM (Davis, 1989) and TBP (Ajzen, 1985, 1991) with the hedonic motivation variable to provide a multi-dimensional analysis of the influential factors on the E-banking services adoption by Generation Z, during the COVID-19 crisis in HCMC.

### Data and Method

The current study aimed to identify the influential factors on the E-banking services adoption by Generation Z during the COVID-19 pandemic in Ho Chi Minh City, Vietnam.

The study has the following objectives:

- Systematize the theoretical foundation and construct a comprehensive model of the influential factors on the E-banking services adoption by Generation Z during the COVID-19 pandemic in HCMC, Vietnam.
- Explore and evaluate the influence factors as perceived usefulness, perceived privacy and security, trust, social influence, hedonic motivation, and perceived ease of use on adopting E-banking services by Gen Z in HCMC, Vietnam.

Research questions are proposed in line with the primary goal of the study:

- What factors affect Gen Z's adoption of E-banking services in Ho Chi Minh City, Vietnam?
- How do factors affect Gen Z's adoption of E-banking services in Ho Chi Minh City, Vietnam?

The authors use quantitative research to assess the proposed research model systematically. Survey questions evaluating each model's components were expanded from previous research and interactions with Generation Z people in Ho Chi Minh City. Individuals born from 1997 to 2003, particularly studying at universities in Ho Chi Minh City, Vietnam, were randomly assigned to the survey instrument. Questions readjusted from Pearson et al. (2012), Wu et al. (2012), and Yang et al. (2004) were used to capture the determinants of e-services quality aspect sub-constructs better. The study variables were measured using multi-item questionnaires, in which items were assessed on 5-point Likert-type scales scoping from "strongly disagree" (1) to "strongly agree"(5). The PLS-SEM model can be used to estimate structurally complex estimating models (Hair et al., 2019). Many studies on E-banking, adoption, and intention, have used this model (Charles k. Ayo et al., 2016; Basel J. A. Ali, Wan Ahmad Wan Omar, 2016). The current paper continues to use the PLS-SEM model.

The total number of items in the study is 29. The survey samples were gathered by using a convenience sampling technique. The survey subjects are Generation Z in HCMC, with 250 verified survey samples to ensure that the data analysis included all reliable information. The gathered data were recorded in Microsoft Excel and analyzed with SmartPLS version 3.0 software.

Using SmartPLS 3.0 as the primary tool, the obtained data were scrutinized. The validity and reliability of the measurement items are tested in the first stage of PLS-SEM analysis. Convergent and discriminant validity were examined on the

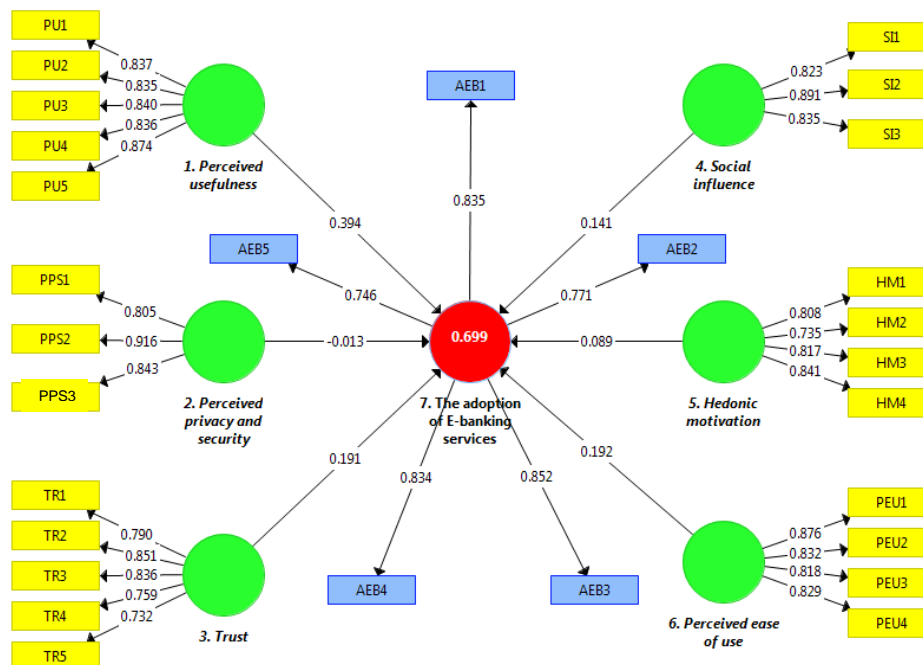


measurement (outer) model. The constructs' reliability measurements were also built utilizing internal consistency reliability and construct reliability. Average Variance Extracted (AVE) was compared to the interrelationship between latent constructs to determine discriminant validity. Multi-collinearity tests were also carried out to ensure that the model was adequately described and running. The structural (inner) model and hypotheses are checked in the second step. The study models' hypothesized relationships were anticipated using the coefficient of determination (R Square).

### Results

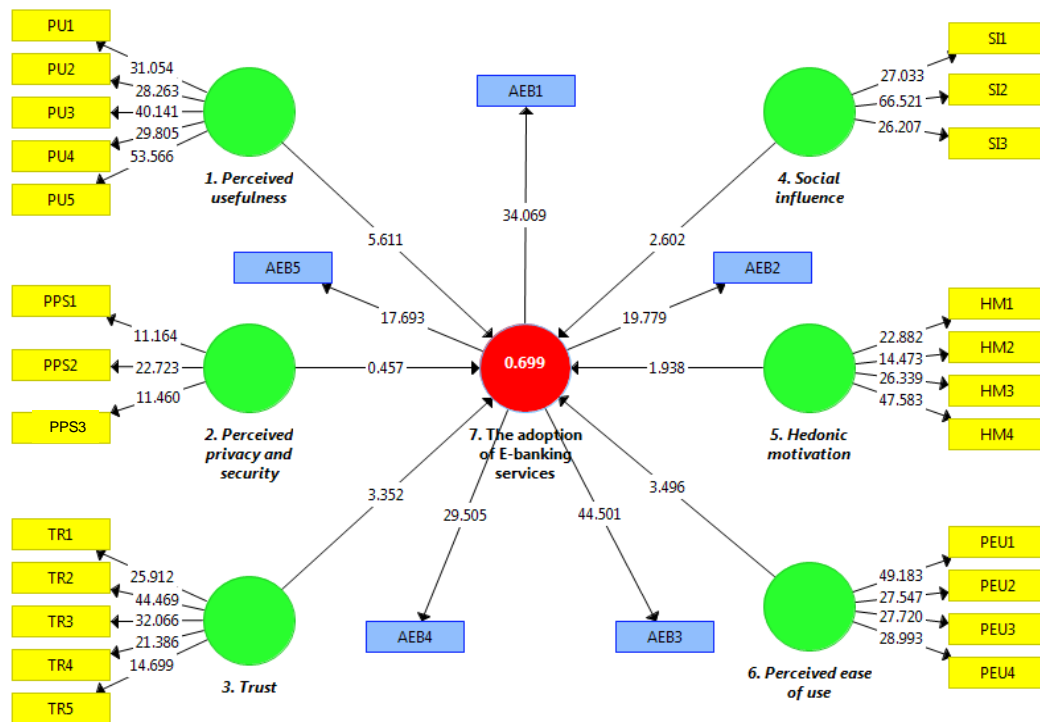
SmartPLS 3.0 software has been used to check the fitness of measurement models and then analyze and interpret the study instruments' reliability, convergent validity, and discriminant validity. After that, the structural models' suitability is investigated, and the whole model's fitness and the hypotheses are examined. At the end of this part, the authors try to demonstrate that the research model does not have a multi-collinearity problem and evaluate the coefficients of Pearson's determination (R Square) and the f Square indicator.

#### Measurement model





**Structural model**



**Figure 2. PLS Structural model** (Author's own calculation)

Hypotheses testing is done in the structural model of PLS analysis. The path coefficient, t-statistics, average estimate, and error are all judged in this case (with a significance level of 5%). The structural model for hypotheses testing are presented in Table 1. The outputs of the PLS structural model are also shown in Figure 2.

**Table 1. Structural model output** (Author's own calculation)

	Hypotheses	Path Coefficient	t-statistics	P-values	Level of Significance
PU → AEB	H1	0.394	5.611	<b>0.000</b>	<b>1<sup>st</sup></b>
PPS → AEB	H2	-0.013	0.457	<b>0.645</b>	<b>6<sup>th</sup></b>
TR → AEB	H3	0.191	3.352	<b>0.001</b>	<b>3<sup>rd</sup></b>
SI → AEB	H4	0.141	2.602	<b>0.008</b>	<b>4<sup>th</sup></b>
HM → AEB	H5	0.089	1.938	<b>0.048</b>	<b>5<sup>th</sup></b>
PEU → AEB	H6	0.192	3.496	<b>0.000</b>	<b>2<sup>nd</sup></b>



***The first hypothesis (Perceived Usefulness)***

*There is a relationship between the usefulness of E-banking services and Gen Z customer adoption.*

The outputs of Table 1 indicate that the coefficient of the usefulness of E-banking services is meaningful on Gen Z customer adoption (0.394); the corresponding t-statistic is 5.611 (P-values < 0.05). Therefore the perceived usefulness has a positive and significant influence on the E-banking services adoption of Gen Z people, and the first hypothesis is confirmed.

***The second hypothesis (Perceived Privacy and Security)***

*There is no relationship between perceived privacy and security and Gen Z customer adoption of E-banking.*

The outputs of Table 1 indicate that the coefficient of perceived privacy and security is not meaningful on Gen Z customer adoption of E-banking (-0.013); the corresponding t-statistic is 0.457 (P-values > 0.05). Therefore, perceived privacy and security have no meaningful effect (no correlation) on the adoption of E-banking services by Gen Z people, and the second hypothesis is rejected.

***The third hypothesis (Trust)***

*There is a relationship between trust and Gen Z customer adoption of E-banking.*

Table 1 shows that the coefficient of trust in E-banking services has a significant impact on Gen Z consumer adoption (0.191), with a t-statistic of 3.352 (P-values < 0.05). As a result, trust positively and substantially impacts Gen Z's adoption of E-banking services, confirming the third hypothesis.

***The fourth hypothesis (Social Influence)***

*There is a relationship between social influence and Gen Z customer adoption of E-banking.*

Table 1 shows that the coefficient of social influence is essential for Gen Z customer adoption of E-banking (0.141); the corresponding t-statistic is 2.602 (P-values < 0.05). In a nutshell, social influence has a positive and noticeable impact on Gen Z's adoption of E-banking services, and the fourth hypothesis is proven.

***The fifth hypothesis (Hedonic Motivation)***

*There is a relationship between hedonic motivation and Gen Z customer adoption of E-banking.*

The data in Table 1 support that the hedonic motivation coefficient (0.089) has a considerable influence on the adoption of E-banking services by Gen Z customers (t-statistic = 1.938; P-values < 0.05). As a result, Generation Z's adoption of E-banking services is positively affected by hedonic motivation, proving the fifth hypothesis is true.

***The sixth hypothesis (Perceived Ease of Use)***

*There is a relationship between perceived ease of use and Gen Z customer adoption of E-banking.*

Table 1 reveals that perceived ease of use (0.192) is crucial for Gen Z customer adoption of E-banking, with a t-statistic of 3.496 (P-values < 0.05). In summary,





perceived ease of use affects Gen Z's adoption of E-banking services positively and significantly, supporting the sixth hypothesis is precise.

## **Discussion, Contributions and Implications**

### ***Academic contribution***

This research will partially contribute to developing the research model and add the knowledge from previous studies related to factors affecting the adoption of E-banking services in Ho Chi Minh City, especially Generation Z, with a multi-dimensional and deeper view of the context of COVID-19. Currently, most of the literature focuses on analyzing the correlation between factors affecting E-banking service quality and the future behaviour of customers. This research continues to examine factors such as perceived usefulness (PU), perceived ease of use (PEU), trust (TR), and perceived security and privacy (PPS) previously but at a deeper level and places them in the context of the epidemic to create for the reader the awareness about the difference influence between a good situation and bad one. In addition, this research will contribute a new construct, HM, to develop a comprehensive model for exploring the factors influencing E-banking adoption. This factor has not been considered in previous studies in Vietnam, such as Hoa et al. (2020) and Minh (2020). However, research results have shown that this factor positively impacts Gen Z's intention to use E-banking. They prioritize tools that make them enjoy, comfortable, and autonomous when using them, especially during the current pandemic. Another factor that has an equally important influence on Generation Z is SI, which has just been explored in a few previous studies. Gen Z lives in a hyper-connected environment, so social influences such as friends, family, and colleagues will positively impact Gen Z's behaviour. The research results will contribute to the teaching and learning of lecturers and students at universities in the economic sector, such as business administration, finance, banking, and marketing. This study will create a premise for further studies in the same field and a stepping stone for extensive research in the future when the country's situation changes.

### ***Practical implication***

Through the analysis of the research model, the conclusions show that this research is of essential importance for E-banking services. The study shows the degree of influence of each factor on the intention to use E-banking. Banks can rely on it to develop a marketing strategy directly affecting users' needs. The element with the most substantial impact in this study is perceived usefulness, accounting for 39.4% of the total effect of other factors. The statement "You think that E-banking services are useful" is most appreciated in this section. The problem is how banks can improve the quality of their E-banking services to suit customer needs during COVID-19. The best answer to this question is that banks can integrate "Contactless Payment", allowing widespread payment of bills, electricity and water bills, public transport such as taxis, buses, or shopping with fast processing speed. Customers only need to put the card in the position of the POS machine to





complete the payment. In addition, customers can not sign the purchase invoice and enter the PIN code when making small purchases (from 1,000,000 VND or less). This applicability is good for the epidemic because customers can minimize direct contact and communication, thereby reducing the spread of disease in the community. In addition, commercial banks can ensure that contactless payment is still maximally secure and easy for customers to control and protect their accounts against losing money by connecting transaction information and notification function such as sited the location and time of each payment.

Moreover, banks can contact stores, supermarkets, and malls throughout Vietnam - where membership cards are issued and integrated into electronic banking, allowing customers to pay, so they do not have to carry too many cards when shopping. At the same time, E-banking can accumulate points and discounts for the next shopping according to the nature of the membership card<sup>[1]</sup>. The results show that perceived security and privacy do not affect Gen Z's intention to use E-banking. However, when Gen Z is more mature, they will consider this issue more carefully. Commercial banks can predict and offer solutions by using fingerprint authentication, face recognition, scanning QR codes in their ID card, or verifying via personal email/phone number/ID number for each arising transaction. Banks can also provide warnings and instructions so that customers can be alert to the tricks of technology criminals and protect their accounts. Banks should consider and solve problems that may arise that affect the intention of Generation Z because, in HCMC, this generation accounts for 56.637% of the workforce and 23.1% of the population (World Population Magazine) is also a potential customer of E-banking. Generation Z is the next Vietnam consumer generation with a massive demand for online purchases, so Gen Z will significantly shape the country's future market and open up a new era of buying (Pradeep Mangain, 2021). For this reason, commercial banks should pay specific attention to serving their potential customers well. In addition, the research's results can support other service industries with app development and e-commerce channels with strong market effects, such as Shopee, Lazada, and Tiki, which can understand and identify customer needs from this research.

## Conclusion

This study aimed to evaluate the proposed hypotheses and determine the relationship between the adoption of E-banking by Generation Z and the factors affecting their decision. E-banking is a service deployed and developed by commercial banks. It is a tool to replace traditional transactions at bank branches. It is rapidly improved to meet customers' increasing demand, especially during epidemics. E-banking provides an online payment platform for remote transactions, stimulating trade for the Vietnamese economy when the government imposes restrictions on movement and person-to-person contact during complicated diseases, and an indispensable condition for commercial banks to integrate globally. Using SmartPLS version 3.0, the results show that five out of six hypotheses (Perceived Ease of Use, Perceived Usefulness, Trust, Social Effects,



and Hedonic Motivation) have significantly and positively influenced the adoption of E-banking of Generation Z. That means Gen Z is ready to use E-banking if E-banking is very useful, easy to use and reliable.

Furthermore, Gen Z's enjoyment and their relatives, colleagues, or people they admire may influence the intention of E-banking. The study's findings indicate that aspects linked to usefulness substantially influence customers' satisfaction with E-banking services. Due to living in the 4.0 technology era, Gen Z requires practicality must come first when using technology products. The paradox is the hypothesis (H2) about online banking privacy and security, which does not prove a correlation between Gen Z's perspective and E-banking adoption. Two following reasons can explain this contradiction. Firstly, As tech-savvy individuals, Gen Z can evaluate and filter information about technology better than previous generations. Therefore, before using such a product or service, they will usually carefully consider the bank's reputation, comments, and feedback from prior users. Two, Gen Z clients are always alert to immediately contact their bank and inquire about the situation if they suspect their E-banking account to be risky. The reasons above show that Generation Z has not paid much attention to E-banking's privacy and security issues.

In summary, it shows that the attitude of Generation Z towards E-banking will be better when combining five factors: ease of use, usefulness, social impact, enjoyment promotion, and image of the bank. These are essential components affecting the willingness to accept E-banking services of Generation Z customers in the long term, especially during the COVID-19 era. People prefer E-banking to keep social distance due to the lockdown caused by a new coronavirus. If E-banking apps or websites can provide them with more utilities, lower fees, and well-promotional gifts, E-banking can attract more and more customers.

These outputs match the expected correlations in the conceptual research framework. Still, they also resemble findings from previous research on E-banking or online banking in other nations and territories, such as the United Kingdom, Jordan, Indonesia, India, and Malaysia. Because of that reason, this modified PLS model applies to the COVID-19 scenario in Ho Chi Minh City or other regions with the same conditions and features. The results supplement research, teaching, and learning materials for lecturers and university students of related majors such as finance, banking, marketing, and business administration. On the other hand, this study contributes to the growing range of evidence for giving banking institutions a broader understanding of the role of ease of use, perceived usefulness, and trust in client E-banking adoption decisions.

In this research, the authors elucidated many factors affecting the use of E-banking by Generation Z customers and using an alternative tool for direct transactions at branches of their bank. However, some limitations still exist in the study. The study only examines this topic in a relatively narrow scope - surveying HCMC university students. The authors have used the SmartPLS software to overcome that limitation. Although the number of samples collected during the survey is enough to run the PLS-SEM model on SmartPLS 3.0 software, the accuracy of the results may not be high. Because this study only focused on collecting samples from people born between 1997 and 2003, there was also a limit to the number of



surveyed people. For these reasons, future research may consider these relationships more comprehensively when social and financial conditions permit. In terms of orientation, subsequent analysis can expand the scope of study to the other provinces or even the whole country to see if the obtained results are duplicated or have something new. From there, the number of survey samples will increase, and the research will have higher accuracy, be suitable for many people, and improve applicability. Future research also can use the Judgment (Purposive) sampling method or Quota sampling method. Although not all proposed hypotheses are accepted, research shows that five proven hypotheses can explain up to 70%, so other influencing factors also need to be considered in subsequent studies, such as factors related to demographics (gender, age, occupation, country, ethnicity, religion, so on) in the subsequent study. Furthermore, research can simultaneously implement Electronic Word of Mouth (eWOM) on satisfaction and intention to use.

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