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# Digitization adoption in developing countries: Investigating the factors affecting intention to use digital currency in Vietnam

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**Abstract:** In the contemporary landscape characterized by technological advancements and a progressive economic environment, the utilization of currency has undergone a paradigm shift. Despite the growing prevalence of digital currency, its adoption among the Vietnamese population faces several challenges, including limited financial literacy, concerns over security, and resistance to change from traditional cash-based transactions. This research aims to identify these challenges and propose solutions to encourage the widespread use of digital currency in Vietnam. This research adopts a quantitative approach, utilizing Likert scale questionnaires, with a dataset of 330 records. The interrelationships among variables are analyzed using partial least squares structural equation modeling (PLS-SEM). The analysis results substantiate the viability of the research model, confirming the hypotheses. The findings demonstrate a positive relationship and the significance impact of factors such as perceived usefulness (PU), perceived ease of use (PEOU), perceived trust (PT), social influence (SI), openness to innovation (OI), and financial knowledge (FK) to intention to use digital currency (IUDC). Thereby aiming to inform policymakers, industry stakeholders, and the wider community, fostering a deeper understanding of consumer behavior and providing solutions to enhance the adoption of digital currency in the evolving landscape of digital finance.

**Keywords:** digital currency; intention to use; technology acceptance model (tam); social influence

## 1. Introduction

Digitization has exerted widespread influence on various facets of economic activities, particularly in the realms of currency and payment systems (Çelik and Dülek, 2022). This transformative process is significantly altering payment methods, witnessing a rapid shift from less technologically advanced options to more sophisticated alternatives. Cash is experiencing diminishing demand in numerous countries and is being replaced by other innovative payment methods such as smartphone apps, contactless credit and debit cards, bank deposits, and digital currency (Viñuela et al., 2020).

In contrast to traditional tangible payment methods, digital currencies operate within digital systems (Yizhen and Jamal, 2022). Over recent years, the scope of digital currencies has expanded, facilitating value transfers in more diverse and extensive domains (Çelik and Dülek, 2022). As of the beginning of 2022, mobile phone usage has reached over two-thirds (67.1 percent) of the global population, boasting 5.31 billion unique users, while worldwide internet users have surpassed 4.95 billion, representing a 62.5 percent internet penetration rate globally (We Are Social,

2022). This prevailing trend underscores societies' need to transition towards non-cash payment methods (Maulana et al., 2019).

Currently, digital currency is developing strongly in many countries all over the world. In Vietnam, the banking industry has experienced rapid growth and heightened competition, primarily driven by technological advancements that significantly impact individuals. The rise of digitalization, compounded by challenges posed by the COVID-19 pandemic, has led to a decline in cash transactions and an increased reliance on digital currency for various online transactions (Tronnier and Kakkar, 2021). To enhance competitiveness and attract customers, Vietnamese banks are increasingly introducing new utility services. This aligns with the broader trend of financial technology (fintech) development in the country, where over 150 companies leverage modern technologies to offer a range of financial services, responding not only to competition but also to national efforts to drive socio-economic development (Nguyen, 2020).

Despite these advancements, the adoption of digital currencies in Vietnam remains limited. Several factors contribute to this hesitancy, including a lack of financial literacy, concerns over the security of digital transactions, and a strong cultural preference for cash-based transactions (Morgan, 2020). Vietnam, with its rapidly growing economy and increasing internet penetration, presents a unique case for studying the adoption of digital currencies. The country's young and tech-savvy population is an ideal target for digital financial solutions, yet various barriers persist (Fintech News Singapore, 2020). These barriers include the aforementioned lack of trust in digital systems, inadequate knowledge of digital currency benefits, and limited exposure to digital financial education.

Numerous studies have been conducted to assess the adoption of digital currency and its use in various nations around the world. In a study conducted by Saif Almuraqab (2020) aimed at understanding the factors influencing digital currency adoption in the United Arab Emirates (UAE), perceived usefulness (PU), perceived ease of use (PEOU), perceived trust (PT), social influence (SI) were identified as crucial determinants influencing IUDC. Similarly, in a study by Wu et al. (2022) focusing on factors influencing the inclination to use digital currency within China's fintech sector, PK and OI were found to have a positive impact on the trend to use digital currency. Furthermore, Ma et al. (2022) explored how PT influences consumers' readiness to adopt a central bank digital currency (CBDC) mobile payment system, emphasizing the importance of trust in shaping consumer intentions. In a study by Yang et al. (2021), the impact of PU, PEOU, and SI on the intention and adoption of electronic wallets was investigated, highlighting their positive influence on both intention and acceptance. Moreover, Tronnier et al. (2021) found that SI had a strong impact on the IUDC in their study on CBDCs.

While digital currency is experiencing substantial development in various developing countries, including Vietnam, studies on this issue in the Vietnamese context are still relatively scarce. In 2023, an estimated 90% of banking currency transactions in Vietnam will be processed through digital channels, with approximately 74.63% of adults holding bank accounts. As of the end of March 2023, there were 3.71 million mobile money accounts opened (Vietnam News, 2023). However, due to cultural differences, varying levels of development, and disparities

in technological infrastructure, Vietnam has adopted digital currency practices later than some other countries. Consequently, there is an urgent need for a comprehensive understanding and utilization of digital currency in this country. Given the reasons, the chosen research topic, "Factors affecting the intention to use digital currency in Vietnam" is deemed highly relevant and urgent. The target participants for this research encompass individuals across a diverse age range, with varied occupations, genders, and educational levels.

This research adopts the technology acceptance model (TAM), extending it to include factors such as perceived usefulness (PU), perceived ease of use (PEOU), perceived trust (PT), social influence (SI), openness to innovation (OI), and financial knowledge (FK), to examine their impact on the IUDC among Vietnamese users. The primary objective of this research is to identify the key factors that influence the intention to use digital currency among the Vietnamese population and to propose actionable solutions to enhance digital currency adoption. By understanding these factors, the study seeks to provide valuable insights and recommendations that can inform policymakers, industry stakeholders, and the wider community. By addressing the identified barriers and leveraging the influencing factors, the study aims to foster a more conducive environment for digital currency adoption, thereby contributing to the advancement of Vietnam's digital economy.

## 2. Literature review

### 2.1. Digital currency

Digital currency, a cutting-edge technological innovation, functions as a digital medium of exchange, a measure of value, and a store of value. It includes any form of payment represented in electronic format and equivalent to cash (Mullan, 2014). With ongoing technological progress, diverse digital currencies and storage platforms have emerged, gaining popularity fueled by the expansion of online business, enabling seamless transactions, transfers, and exchanges (Çelik and Dülek, 2022). This research article specifically concentrates on the e-money variant of digital currency, denoting currency within banking computer systems tailored to facilitate digital transactions. Supported by fiat money, e-money holds the potential for conversion into a tangible, physical form (Bloomenthal, 2023). In today's interconnected globalized world, digital currency plays a pivotal role in facilitating commercial transactions for a wide array of products and services (Dodgson et al., 2015). Despite its absence in physical form, digital currency shares fundamental characteristics with traditional money, enabling individuals to receive, transfer, or exchange it with other currencies for the purchase of goods and services.

### 2.2. Intention to use

Intention to use refers to a person's tendency and level of engagement in a specific behavior (Wu et al., 2022). Intention to use is influenced by various factors. Research conducted by Arias-Oliva et al. (2019) on the factors affecting the intention to use cryptocurrency in Spain revealed that PK and SI significantly impact the intention to use cryptocurrency. In addition, Park et al. (2018) found in their study on

M-payment services that PT acts as an intermediary factor influencing customers' intention to use. Correspondingly, Wu et al. (2022) identified that OI similarly affects the intention of users of digital currency. Furthermore, Kasilingam (2020) investigated consumers' intention to use chatbots on smartphones for shopping and affirmed that PU and PEOU exert significant influence on users' intentions. Simultaneously, these factors contribute to increased satisfaction and the fulfillment of users' needs.

### 2.3. TAM theory

Initially introduced by Davis (1989), the TAM is widely recognized as a prominent framework for evaluating and validating individuals' inclinations to adopt new technology. It posits that behavioral intention is influenced by a user's attitude toward the adoption of new technology, with PU and PEOU identified as primary influential factors in an individual's decision to adopt (Yuen et al., 2021). Despite TAM's popularity, the original model's variables are deemed insufficient to fully capture users' beliefs, attitudes, and intentions (Karim et al., 2020). Consequently, researchers have extended the TAM model into various technology fields, such as e-learning (Al-Maroof and Al-Emran, 2018) and mobile commerce (Barry and Jan, 2018).

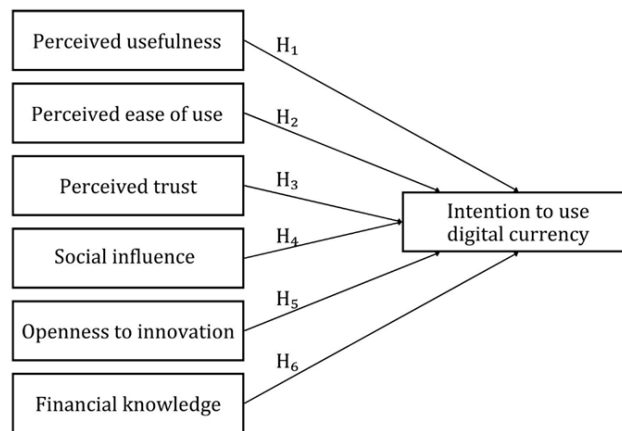### 2.4. Theoretical framework and hypotheses development



**Figure 1.** Research framework.

Given TAM's widespread recognition, numerous studies related to technology applications across various fields have utilized this model. Angosto et al. (2020), for instance, employed the TAM model to assess the intention to use physical activity apps and fitness, emphasizing the relationship between future intentions and perceived utility, particularly in the context of diet and fitness apps. Mailizar et al. (2021) explored the effects of factors on the intention to use e-learning among experienced math teachers in Indonesia. They employed an extended TAM with additional constructs such as attitudes and online learning experiences. The study highlighted the importance of examining teachers' e-learning experiences and provided implications for future educational research. Moreover, along with the development of banking technology services allowing cashless transactions through various means, cryptocurrency has become a widely favored and used currency by the public, as

mentioned in the study by Fahiraningrum and Richard (2020). The factors studied were derived from the variables in the Technology Acceptance Model (TAM) developed by Davis et al. (1996), in which the factors PU, PEOU, and PT were also mentioned. On the other hand, in the study on factors affecting the intention to use mobile payments in Cambodia (Do et al., 2020), an important factor positively influencing users' intention to use was SI. Drawing on the TAM-related literature, this research proposes an expanded TAM model to investigate the factors influencing the IUDC in Vietnam. The research model is illustrated in **Figure 1**.

The factors perceived usefulness, perceived ease of use, perceived trust, social influence, openness to innovation, and financial knowledge were chosen because they have been extensively documented to influence technology adoption, especially in digital financial services. They collectively provide a robust framework for understanding the intention to use digital currency in Vietnam, drawing on established theories and empirical evidence.

### 2.4.1. Perceived usefulness (PU)

PU refers to an individual's belief in the extent to which using a particular technology or system can enhance their performance (Yang et al., 2021). The decision to use technology is contingent on whether a person perceives it as helpful and beneficial; conversely, a negative judgment may deter usage (Bregashtian and Herdinata, 2021). Additionally, PU is intricately linked to decision-making beliefs (Hong et al., 2021). When customers believe that a service is useful, they have a positive attitude toward it and increase their willingness to use it. Saif Almuraqab's (2020) research identified PU as a pivotal determinant influencing the intention of UAE residents to use digital currency. Similar findings were demonstrated by Sasongko et al. (2022), revealing that PU positively impacts the continuance intention of electronic money applications in Indonesia. These findings underscore the influential role of PU in shaping digital currency usage, with implications for adoption trends in Vietnam. Consequently, Hypothesis 1 is formulated:

H1: PU positively affects IUDC.

### 2.4.2. Perceived ease of use (PEOU)

PEOU reflects an individual's belief in the simplicity of operating a given system (Çelik and Dülek, 2022). As asserted by Shetu et al. (2022), PEOU stands as an essential factor influencing user willingness to adopt. Shahzad et al. (2018) underline its pivotal role in the adoption of Bitcoin, a specific type of digital currency, emphasizing the link between PEOU and the perception that using a particular system requires minimal effort. This concept is grounded in the idea that PEOU can alleviate user effort, both in terms of time and energy, to navigate a technology or system due to its user-friendly nature (Kemarauwana and Darmawan, 2020). In practical terms, the allocation of one's finite effort to various activities becomes a pivotal consideration. According to the authors, when faced with choices, individuals are more inclined to embrace a digital currency application perceived as easy to use and provide quick access. Consequently, the decision to adopt digital currency technology is contingent on its PEOU, as users are more likely to favor systems that require less cognitive and operational exertion. Therefore, Hypothesis 2 is formulated:

H2: PEOU positively affects IUDC.

### 2.4.3. Perceived trust (PT)

PT is an emotional state based on gratifying activities that motivate an individual to trust another (Çelik and Dülek, 2022). PT plays a pivotal role in the acceptance and evolution of any technological system. As highlighted by Saif Almuraqab (2020), PT cultivates a positive attitude among users, contributing to enhanced user interaction with the technology over time. In a study by Kumari et al. (2023), PT is deemed crucial and serves as a necessary condition for using digital currencies in transactions. Research indicates that a decline in PT can have adverse effects on technology acceptance and user satisfaction. Shahzad et al. (2018) underscore the significance of trust in the context of bitcoin adoption in China. Their findings highlight the integral role of PT in shaping users' decisions to embrace digital currencies. As established by previous research, maintaining and enhancing PT is essential for fostering positive user experiences and sustaining the intention to use a particular system or technology. Therefore, Hypothesis 3 was formulated:

H3: PT positively affects IUDC.

### 2.4.4. Social influence (SI)

SI is defined as the impact of surrounding people on one's decisions (Kumari et al., 2023). In the field of digital currencies, social awareness involves family, friends, and influential figures in embracing digital currencies (Alfansi and Daulay, 2021). Users are inclined to trust the recommendations of family and friends when it comes to the adoption of digital currency. Moreover, witnessing numerous individuals in their social circle utilizing and benefiting from digital currency encourages users to develop an intention to use it. Alfansi and Daulay's (2021) study on the influencing factors of digital currency use among the Millennial generation aligns with these findings. Prayidyaningrum and Djamaludin (2016) also underscore the important role of friends and parents in influencing students' decisions to embrace digital currencies, with a significant percentage of students heeding their suggestions to use digital currency (64% and 60%, respectively). The collective results of these studies underscore the positive impact of SI on IUDC. Therefore, Hypothesis 4 was formulated:

H4: SI positively affects IUDC.

### 2.4.5. Openness to innovation (OI)

OI represents the extent to which individuals exhibit innovativeness, measuring their inclination and readiness to explore innovative technological products or services (Wu et al., 2022). Those with a proclivity for innovativeness are often more creative, curious, and open to novel thinking (Nugroho et al., 2018). Consequently, when confronted with innovation, especially the transition to using digital currency instead of traditional cash, individuals with a disposition toward innovativeness easily accept and are willing to experience digital currency use, even in the absence of a complete understanding of its potential drawbacks. Simarmata and Hia (2020) further confirm that individuals with stronger innovation abilities are more likely to accept new information technology products. Similarly, Alharbi and Sohaib (2021) discovered that perceptions of innovation positively influence the adoption of digital currency. Therefore, Hypothesis 5 was formulated:

H5: OI positively affects IUDC.

### 2.4.6. Financial knowledge (FK)

FK, characterized as an individual's comprehension of financial concepts, instruments, and the overall financial landscape, emerges as a pivotal factor influencing decisions related to the adoption of digital currency. Stolper and Walter (2017) posit that individuals with heightened FK are more likely to make informed choices regarding the use of monetary resources. This assertion is supported by the broader literature, consistently highlighting FK as a predictive factor for behavioral intentions across various financial contexts. Kumar and Karlina's (2020) study, conducted in Greater Jakarta, reinforces the positive impact of FK on individuals' intentions to use credit cards. Additionally, research by Hermawan et al. (2022) underscores the influence of financial literacy on the IUDC. In summary, the existing body of literature strongly supports a positive correlation between FK and the IUDC. Therefore, Hypothesis 6 was formulated:

H6: FK positively affects IUDC.

## 3. Method

### 3.1. Data collection

In this study, a quantitative research methodology was used to investigate factors affecting the IUDC in Vietnam. The data collection process involved a structured questionnaire, which was divided into three main parts. The first part provided an overview of the survey's objectives, introduced the concept of digital currency, and requested personal information from the participants such as gender, year of birth, education level, occupation, and monthly income. The second part focused on gathering data related to respondents' behavior regarding the use of digital currency, for example, usage frequency and the specific form of digital currency employed. The third part addressed participants' perceptions of each factor influencing their IUDC, including six independent variables and one dependent variable.

To gather data effectively, purposive sampling techniques were chosen, offering a strategic approach to participant selection based on specific criteria. The purposive sampling technique was selected for its convenience, cost-effectiveness, and time efficiency (Acharya et al., 2013). This method was deemed suitable for the research, as it ensured that the chosen respondents met the predetermined criteria, leading to a more targeted and representative sample. Google Forms were used as the data collection tool and survey links were distributed through various channels such as social media platforms and email. By December 2023, a total of 453 responses were collected, and after the screening, 330 responses were considered valid, satisfying the sample size requirement based on the 10-time rule method used in PLS-SEM analysis (Kock and Hadaya, 2018). According to this approach, the minimum number of observations required for this study was 300 (30 items × 10 times), indicating that the sample size was adequate for PLS-SEM analysis. **Table 1** provides details on the respondents' demographics.

**Table 1.** The demographics of the respondents.

| Demographic categories | | Frequency | Percent |
|---|---|---|---|
| Gender | Male | 135 | 40.41 |
| | Female | 193 | 58.48 |
| | Other | 2 | 0.61 |
| Year of birth | Before 1981 | 6 | 1.82 |
| | 1981 to 1996 | 28 | 8.48 |
| | 1997 to 2012 | 296 | 89.70 |
| Education level | Junior high school | 2 | 0.61 |
| | High school | 11 | 3.33 |
| | Intermediate | 1 | 0.30 |
| | College | 16 | 4.85 |
| | University | 283 | 85.76 |
| | Postgraduate | 17 | 5.15 |
| Occupation | Student | 267 | 80.91 |
| | Public servant | 9 | 2.73 |
| | Employee | 43 | 13.03 |
| | Business | 4 | 1.21 |
| | Housewife | 1 | 0.30 |
| | Worker/Farmer | 3 | 0.91 |
| | Freelancer | 3 | 0.91 |
| Average monthly income (VND) | Under 5 million | 265 | 80.30 |
| | Over 5 to 10 million | 30 | 9.09 |
| | Over 10 to 18 million | 25 | 7.58 |
| | Over 18 to 32 million | 7 | 2.12 |
| | Over 32 million | 3 | 0.91 |

### 3.2. Measures

All measurement instruments employed in this research were adapted from previous research. The construct of PU was assessed using a model established by Sasongko et al. (2022) and consisted of four items. The instruments for gauging PEOU and SI were adopted from the work of Saif Almuraqab (2020), with each construct comprising four and three items, respectively. The PT measurement instrument was derived from the research conducted by Çelik and Dülek (2022) and consisted of five items. Furthermore, the instrument for measuring OI and FK was adapted from Wu et al. (2022) and included five items for each construct. To capture participants' attitudes towards factors influencing the IUDC, a 5-point Likert scale was employed. The scale ranged from "strongly disagree" (1) to "strongly agree" (5) for each item. The data collection process garnered a total of 453 responses, of which 330 responses adhered to the specified criteria and were employed for subsequent analysis. Excluded responses comprised incomplete submissions, individuals who had never utilized

digital currency, or responses that uniformly provided the same value for all questions.

## 3.3. Statistical analysis

This research employed partial least squares structural equation modeling (PLS-SEM) to analyze the collected data and assess the research model along with its associated hypotheses. The deliberate choice of PLS-SEM is attributed to its remarkable capability to handle non-normally distributed data as well as situations with limited sample sizes (Hair et al., 2017). PLS-SEM is widely recognized for its user-friendly visual interface, enabling researchers to simultaneously examine intricate relationships between observed and latent variables (Hair and Sarstedt, 2019).

The PLS-SEM analysis unfolded in two integral phases: the examination of the measurement model and the structural model (Sarstedt et al., 2014). During the measurement model analysis, several crucial aspects were scrutinized, including indicator loadings, convergent validity, discriminant validity, and internal consistency reliability of each construct. Additionally, a comprehensive assessment of the discriminant validity among constructs was conducted (Hair et al., 2019). In the second phase of structural model analysis, several important aspects are also exploited, including VIF, *R*-square, and finally *Q*-square.

This meticulous approach was adopted to ensure a comprehensive understanding of the relationships and dynamics inherent in the data. PLS-SEM not only accommodates non-normal data but also proves advantageous in scenarios characterized by limited sample sizes, aligning with the specific demands of this research. The decision to leverage PLS-SEM was further reinforced by its intuitive visual interface, allowing for a holistic analysis of complex models. This methodological rigor ensures the reliability and validity of the author's findings, establishing a robust foundation for conclusive insights in this research endeavor (Hair et al., 2019).

## 4. Results

### 4.1. Measurement model

According to Hair et al. (2021), the evaluation of the measurement model involves several crucial metrics, including reliability coefficient, convergent validity, and discriminant validity.

When assessing the indicator loadings, a value above the threshold of 0.7 suggests a strong relationship between the indicators and the latent construct (Sarstedt et al., 2014). The results presented in **Table 2** reveal that the loadings of all items for each factor were greater than 0.7, indicating a sufficiently strong relationship between the indicators and the latent construct. Internal consistency reliability, assessed through Cronbach's Alpha (CA) and composite reliability (CR), is displayed in **Table 2**. The results demonstrate CA and CR values for all variables exceeding 0.7, signifying a high level of reliability in the measurement scale (Hair et al., 2022) and confirming the robustness of this assessment.

Convergent validity was examined using partial least squares (PLS) with an upper iteration limit of 300 and a weight threshold of 1.0 (Wong, 2013). Convergent validity

is established when the average variance extracted (AVE) exceeds a threshold of 0.5 (Sarstedt et al., 2014). The analysis results show that the AVE values for all variables range from 0.525 to 0.631 (**Table 2**). These values exceed the established threshold, signifying effective convergence among the indicators within each latent construct and reinforcing the validity of these measurements.

**Table 2.** Indicator reliability, internal consistency reliability, the convergent validity of the constructs.

| Code | Loadings | Cronbach's Alpha | Composite reliability | Average variance extracted |
|---|---|---|---|---|
| **Perceived usefulness (PU)** | | 0.725 | 0.888 | 0.614 |
| PU1 | 0.756 | | | |
| PU2 | 0.703 | | | |
| PU3 | 0.728 | | | |
| PU4 | 0.772 | | | |
| **Perceived ease of use (PEOU)** | | 0.726 | 0.828 | 0.547 |
| PEOU1 | 0.751 | | | |
| PEOU2 | 0.711 | | | |
| PEOU3 | 0.704 | | | |
| PEOU4 | 0.790 | | | |
| **Perceived trust (PT)** | | 0.774 | 0.847 | 0.525 |
| PT1 | 0.727 | | | |
| PT2 | 0.717 | | | |
| PT3 | 0.702 | | | |
| PT4 | 0.735 | | | |
| PT5 | 0.741 | | | |
| **Social influence (SI)** | | 0.708 | 0.837 | 0.631 |
| SI1 | 0.798 | | | |
| SI2 | 0.782 | | | |
| SI3 | 0.803 | | | |
| **Openness to innovation (OI)** | | 0.797 | 0.860 | 0.552 |
| OI1 | 0.778 | | | |
| OI2 | 0.704 | | | |
| OI3 | 0.763 | | | |
| OI4 | 0.710 | | | |
| OI5 | 0.757 | | | |
| **Financial knowledge (FK)** | | 0.842 | 0.888 | 0.614 |
| FK1 | 0.811 | | | |
| FK2 | 0.751 | | | |
| FK3 | 0.783 | | | |
| **Intention to use digital currency (IUDC)** | | 0.777 | 0.857 | 0.599 |
| IUDC1 | 0.751 | | | |

**Table 2.** (*Continued*).

| Code | Loadings | Cronbach's Alpha | Composite reliability | Average variance extracted |
|------|----------|------------------|----------------------|---------------------------|
| IUDC2 | 0.790 | | | |
| IUDC3 | 0.753 | | | |
| IUDC4 | 0.801 | | | |

Discriminant validity is evaluated through two metrics: the heterotrait-monotrait ratio of correlations (HTMT) and the Fornell-Larcker criterion. The HTMT assesses the degree of difference between latent variables in the model, indicating the extent to which hidden variables do not overlap. In this study, the HTMT values were found to be less than 0.9 for all pairs (**Table 3**), signifying satisfactory discriminant validity. This suggests that the constructs are distinct from each other, measuring unique aspects (Gold et al., 2001).

**Table 3.** Heterotrait-monotrait between constructs (HTMT).

| FK | IUDC | OI | PEOU | PT | PU | SI |
|------|------|------|------|------|------|------|
| FK | | | | | | |
| IUDC | 0.805 | | | | | |
| OI | 0.765 | 0.851 | | | | |
| PEOU | 0.792 | 0.876 | 0.846 | | | |
| PT | 0.721 | 0.858 | 0.878 | 0.836 | | |
| PU | 0.756 | 0.852 | 0.815 | 0.884 | 0.898 | |
| SI | 0.790 | 0.896 | 0.800 | 0.831 | 0.821 | 0.799 |

The Fornell-Larcker criterion, another discriminant validity metric, asserts that the square root of the average variance extracted (AVE) in each latent variable must exceed the correlation values between latent variables (Fornell and Larcker, 1981). As detailed in **Table 4**, the results of this study meet the Fornell-Larcker criterion, demonstrating that the variables within each latent construct share more variance with their respective indicators than with indicators of other constructs. This underscores the distinctiveness of the latent constructs in this study's model, providing additional confidence in the validity of the measurement model.

**Table 4.** Fornell-Larcker criterion between constructs.

| FK | IUDC | OI | PEOU | PT | PU | SI |
|------|------|------|------|------|------|------|
| FK | 0.783 | | | | | |
| IUDC | 0.652 | 0.774 | | | | |
| OI | 0.627 | 0.670 | 0.743 | | | |
| PEOU | 0.622 | 0.667 | 0.648 | 0.740 | | |
| PT | 0.586 | 0.667 | 0.690 | 0.638 | 0.724 | |
| PU | 0.589 | 0.646 | 0.620 | 0.648 | 0.675 | 0.740 |
| SI | 0.609 | 0.666 | 0.601 | 0.604 | 0.609 | 0.573 | 0.794 |

## 4.2. Structural model

Data collected from the same survey might be susceptible to common method bias. Consequently, Harman's single-factor test was conducted. If more than 50% of the total variance is attributed to a single factor, it indicates the presence of common method bias. However, the principal component analysis results indicate that only 39.241% of the total variance is explained by a single factor. Hence, there is no significant concern regarding common method bias in this research.

The evaluation of a structural model requires assessments such as collinearity, explanatory power, and predictive accuracy (Sarstedt et al., 2014). The VIFs between the constructs, presented in **Table 5**, are all below 3 (Hair et al., 2019), indicating no substantial collinearity concerns in this research. Moreover, the *R*-square value, indicating the extent to which the dependent variable changes with variations in the independent variable, is crucial for assessing model fit and explanatory power. It ranges from 0 to 1, with higher values indicating better fit and greater explanatory power (Hair et al., 2019). In this study, **Table 5** illustrates that the *R*-square values of the constructs amount to 0.64, signifying a well-established explanatory power. Beyond *R*-square, Geisser (1974) introduced the concept of *Q*-square to evaluate predictive power, which measures out-of-sample predictability. The *Q*-square, ranging from 0 to 1, serves as an indicator of prediction quality, with higher values reflecting superior predictive performance. Following the guidance of Cohen (1988), a *Q*-square value exceeding 0.35 indicates robust predictive ability within the model. Notably, the research model attains a *Q*-square value of 0.62, surpassing the recommended threshold and affirming its high-level predictive efficacy. This suggests that independent factors effectively predict the IUDC. In summary, the validity of the measurement model is sufficient.

**Table 5.** $R^2$, $Q^2$, and VIFs between latent variables.

|  | $R^2$ | $Q^2$ | VIF | | | | | | |
|  |  |  | PU | PEOU | PT | SI | OI | FK | IUDC |
|---|---|---|---|---|---|---|---|---|---|
| PU |  |  |  |  |  |  |  |  | 2.298 |
| PEOU |  |  |  |  |  |  |  |  | 2.362 |
| PT |  |  |  |  |  |  |  |  | 2.555 |
| SI |  |  |  |  |  |  |  |  | 2.047 |
| OI |  |  |  |  |  |  |  |  | 2.470 |
| FK |  |  |  |  |  |  |  |  | 2.125 |
| IUDC | 0.640 | 0.620 |  |  |  |  |  |  |  |

The empirical data analysis strongly supports all hypotheses, providing substantial evidence for their validity. The results presented in **Table 6** revealed that PU significantly influenced IUDC ($\beta = 0.130$, $p = 0.019$). This suggests that users' perception of the usefulness of digital currency is a key determinant in shaping their intention to use it, emphasizing the significance of a positive perception of digital currency utility for adoption. PEOU was found to have a significant impact on IUDC ($\beta = 0.159$, $p = 0.008$), indicating the importance of users' belief in the ease of navigating and using digital currency influencing their adoption intention. This

underscores the crucial role of user-friendly interfaces and straightforward interactions in promoting digital currency adoption. The results also show that PT was determined to be significant in affecting IUDC ($\beta = 0.143$, $p = 0.021$). This highlights the role of trust in the adoption of digital currency. Users who perceive digital currency as trustworthy are more inclined to express an intention to use it, emphasizing the importance of building trust in digital financial systems. Notably, SI stands out as the most influential factor on IUDC, with the highest coefficient ($\beta = 0.215$, $p < 0.001$). This positive association between SI and IUDC highlights the considerable impact of social influence on digital currency adoption. The study suggests that recommendations and endorsements from social circles can significantly contribute to users' IUDC, emphasizing the social aspect of technology adoption. Finally, OI ($\beta = 0.155$, $p = 0.018$) and FK ($\beta = 0.164$, $p = 0.004$) show significant effects on IUDC. This implies that users with a higher OI or possess greater FK experience a higher tendency to adopt digital currency. This suggests that initiatives to promote financial education and foster innovation may contribute to wider digital currency adoption.

**Table 6.** Results of the structural models.

| Path | Beta ($\beta$) | Standard deviation | $p$-values | Result |
|---|---|---|---|---|
| PU → IUDC | 0.130 | 0.055 | 0.019 | H1 supported |
| PEOU → IUDC | 0.159 | 0.060 | 0.008 | H2 supported |
| PT → IUDC | 0.143 | 0.062 | 0.021 | H3 supported |
| SI → IUDC | 0.215 | 0.058 | 0.000 | H4 supported |
| OI → IUDC | 0.155 | 0.066 | 0.018 | H5 supported |
| FK → IUDC | 0.164 | 0.056 | 0.004 | H6 supported |

In summary, all indicator loadings exceeded 0.7, and CA and CR values were above 0.7, ensuring high reliability. Convergent validity was supported with AVE values between 0.525 and 0.631. Discriminant validity was established via HTMT values below 0.9 and the Fornell-Larcker criterion. The structural model showed no significant common method bias, with a single factor explaining only 39.241% of the variance. The model demonstrated strong explanatory ($R$-square of 0.64) and predictive power ($Q$-square of 0.62). Key findings include significant positive effects of perceived usefulness, perceived ease of use, perceived trust, social influence, openness to innovation, and financial knowledge on the intention to use digital currency, highlighting the importance of these factors in promoting digital currency adoption in Vietnam.

**Figure 2** visually represents the structural equation model (PLS-SEM) results, offering a clear overview of the interrelationships among these key factors in shaping users' IUDC.
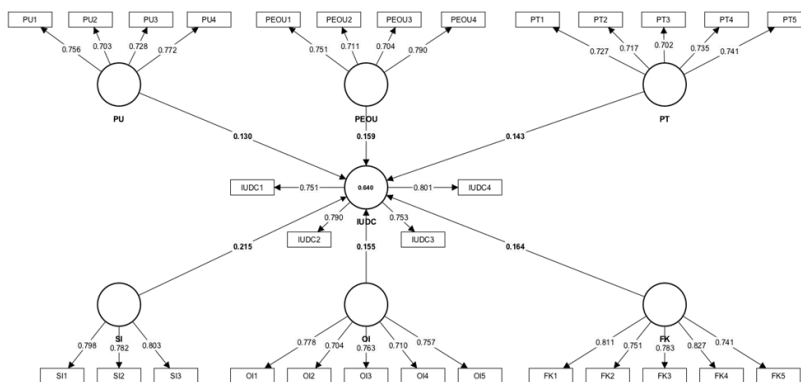
**Figure 2.** PLS-SEM results of the research model.

## 5. Discussion

This research aims to clarify the impact of various factors on the IUDC of Vietnam citizens. The proposed model comprises six key constructs widely recognized in technology adoption, including PU and PEOU of TAM theory, PT, SI, OI, and FK. IUDC is predicted based on these six major variables, each demonstrating varying degrees of significance, all of which were found to be statistically significant.

First, the results show a positive relationship between PU and IUDC. This suggests that an increased perception of the usefulness of digital currency enhances individuals' propensity to engage with it. When individuals recognize the practical benefits of digital currency, such as convenience in payment and secure and fast transactions, their likelihood of using digital currency in daily life is heightened. This aligns with findings from Saif Almuraqab (2020) and Erwanti and Prasetyani (2023), reinforcing the positive association between PU and IUDC.

Second, the research reveals a positive association between PEOU and IUDC. When PEOU is strong, individuals exhibit a greater inclination to utilize digital currency, highlighting the critical role of user-friendliness and ease of access. This suggests that if the digital currency is designed for user convenience, featuring a user-friendly transaction platform, and streamlined processes, it can significantly enhance users' intentions to adopt and use it. This finding aligns with the assertion of Erwanti and Prasetyani (2023), suggesting that the level of digital currency usage is influenced by ease of use. This correlation is also in line with recent research by Alyahya and Reyad (2024), demonstrating the impact of PEOU on IUDC.

Third, the results emphasize a positive association between PT and IUDC, indicating that beliefs significantly influence digital currency usage. In the context of digital currency usage, the privacy and security of transactions are very important. Consequently, if users perceive digital currency as secure, view service providers and transaction platforms as reliable, and experience a safe transaction environment, these factors can enhance users' trust and, in turn, foster their IUDC. This finding resonates with the assertions of Saif Almuraqab (2020) and Alyahya and Reyad (2024), highlighting the importance of trust in shaping IUDC.

Fourth, the research demonstrates that SI plays a substantial role in shaping the decision to use digital currency, aligning with the comprehensive findings of Alyahya and Reyad (2024). Their research illuminates the positive impact of SI on IUDC, emphasizing the communal aspect in driving adoption. Widespread adoption of digital

currency within society, coupled with encouragement from peers, significantly influences individuals' IUDC.

Fifth, the findings highlight the impact of OI on IUDC. As OI increases, individuals exhibit a higher propensity for IUDC. This aligns with recent studies by Wu et al. (2022), emphasizing the pivotal role of organizational factors in shaping the IUDC. Individuals with an open mind to innovation are more likely to accept and adapt to new forms of payment and transactions, making them more prone to using digital currency.

Finally, the research underscores a positive relationship between FK and IUDC. This implies that individuals with in-depth knowledge of finance and experience in the finance field are more confident in their decision to use new forms of payment or transactions. Understanding how digital currency works, its benefits, risks, and effective risk management contributes to higher confidence and a greater tendency to use digital currency. This concurs with recent studies, such as Wu et al. (2022), emphasizing the substantial impact of FK on digital currency usage behavior.

## 5.1. Theoretical contributions

The model developed in this research demonstrates superiority compared to previous studies, offering a comprehensive understanding of the factors influencing the IUDC. Specifically, when compared to prior models by Saif Almuraqab's (2020) and Wu et al. (2022), this study's model not only advances but expands the TAM framework, highlighting the significant impact of SI, FK, and PEOU. The findings underscore the pivotal role of users' understanding of the processes and advantages associated with digital currency usage, significantly influencing their inclination to engage with and adopt digital currencies. The interplay of social, knowledge-based, and usability factors is emphasized in shaping user intentions.

## 5.2. Practical implications

This study significantly contributes to the existing body of knowledge on digital currency adoption by addressing key gaps and introducing novel dimensions specific to the Vietnamese context. Unlike prior research focused on developed regions, this study targets Vietnam, a developing country with distinct challenges, including lower financial literacy and a strong preference for cash-based transactions. By incorporating perceived trust (PT) alongside traditional factors such as perceived usefulness (PU) and perceived ease of use (PEOU), and integrating social influence (SI) and openness to innovation (OI), financial knowledge (FK), this research provides a comprehensive framework that captures the holistic nature of consumer behavior. Employing partial least squares structural equation modeling (PLS-SEM) enhances the reliability and validity of the findings, offering nuanced insights into the complex interrelationships among variables. The research provides valuable insights for government and industry in Vietnam's financial sector. To address social influence, fostering an inclusive environment where individuals mutually adopt digital currency is essential. This can be achieved through community-based campaigns, showcasing collective digital currency usage, and facilitating discussions to promote positive perceptions. Enhancing financial literacy necessitates targeted educational programs that clearly

explain digital currency concepts, benefits, and risks, thereby building user confidence. Providing accessible facilities for practicing digital currency is crucial. Simplifying user interfaces and transaction processes is vital for perceived ease of use, necessitating user-friendly platforms and step-by-step guides. Building trust involves transparent communication about security measures and reliability. Embracing innovation requires fostering a culture that values and adopts new payment methods. In summary, concrete actions are needed, combining educational initiatives, community engagement, and user-friendly design to ensure successful integration and acceptance of digital currency in Vietnam's financial landscape.

Specifically, policymakers and industry stakeholders can provide actionable strategies such as:

- Enhancing financial literacy: Implement nationwide financial education programs, particularly targeting rural and underserved communities. This can include integrating digital finance topics into school curriculums and offering free online courses and workshops on digital currency and financial management.

- Building trust in digital platforms: Establish robust regulatory frameworks to ensure the security and transparency of digital transactions. Launch public awareness campaigns to educate citizens on the safety measures in place and the benefits of using digital currencies. Additionally, collaborate with fintech companies to develop user-friendly and secure platforms.

- Leveraging social dynamics: Promote digital currency adoption through social influence by incentivizing early adopters and influencers to share their positive experiences. Encourage community leaders to advocate for digital financial solutions, and create social media campaigns that highlight success stories and practical benefits of digital currency usage.

These strategies aim to foster a more favorable environment for digital currency adoption in Vietnam and similar developing economies by addressing the specific barriers and leveraging the unique opportunities present in these contexts.

## 6. Conclusions, limitations, and directions for future research

In conclusion, this research has illuminated the factors influencing the intention to use digital currency among Vietnamese users, revealing positive impacts on adoption. The PLS-SEM analysis reveals a significant positive relationship between perceived usefulness, perceived ease of use, perceived trust, openness to innovation, social influence, financial knowledge, and the intention to use digital currency. Notably, social influence emerges as the predominant factor, exerting the most substantial impact on the intention to use digital currency. These findings indicate that users show a greater inclination toward digital currencies when perceiving them as practical, advantageous, user-friendly, and trustworthy in terms of privacy and security. The intention to use digital currencies also increased along with societal adoption and peer encouragement, individuals' innovativeness, and financial knowledge. The study aims to provide valuable insights for government, industry stakeholders, and the wider community, enhancing their understanding of consumer behavior in the digital currency landscape. This understanding can empower informed decision-making regarding digital currency usage. Moreover, embracing digital currencies contributes

to expediting the ongoing digital transformation in the economy, facilitating a smoother and faster process both now and in the future.

However, certain limitations must be acknowledged. The targeted data collection methods may introduce bias and limit the generalizability of findings. Moreover, the research overlooks influential factors like gender, age, and education, potentially impacting the understanding of digital currency adoption. Additionally, the exclusive focus on Vietnamese users may constrain the broader applicability of the results.

To address these limitations, future research should embrace more inclusive sampling strategies, incorporating diverse demographics across various countries and economies to improve the generalizability of results. It's crucial to delve into the nuanced effects of demographic factors on digital currency adoption for a comprehensive understanding. Longitudinal data collection methods should be employed to establish causal relationships and explore the dynamic nature of users' intentions over time. This approach will contribute to a more robust and globally applicable knowledge base on digital currency adoption.

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