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Unraveling NFT Purchase Intention: The Role of Visual Attractiveness, Perceived Risk, and Enjoyment

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ABSTRACT

This research delves into the factors influencing the purchasing behavior of metaverse users in Thailand using PLS-SEM. While the results show that social influence, ease of use, and personal innovation have no effect on NFT purchase intention, NFT purchase intention is strongly influenced by price value, perceived risk, visual attractiveness, perceived enjoyment, and facilitating factors. The findings point to theoretical implications that suggest new factors related to new technology like NFT purchase intention, as well as practical implications for developers, marketers, and policymakers to employ appropriate strategies in creating such digital assets. Overall, this research seeks to promote safe and beneficial digital transformation for users and businesses worldwide.

Keywords: non-fungible token, the extended unified theory of acceptance and use of technology (UTAUT 2), personal innovativeness, visual attractiveness, perceived risk, purchase intention

INTRODUCTION

The metaverse is an immersive network of persistent, real-time shared virtual three-dimensional spaces focused on social interactions, creativity, and commerce in which users interact via digital avatars (Hadi et al., 2024). Previously, attempts to create the metaverse faced challenges and required continuous technological advances(Hamilton, 2022). However, recent developments such as virtual reality (VR) and augmented reality (AR) glasses have emerged as supportive devices that enable users to access the metaverse and experience immersive digital environments (Schlichting et al., 2022). Blockchain technology plays an essential role in commerce in this digital environment (Hakkarainen & Colicev, 2023). It is crucial in metaverse commerce, enabling secure, rapid, and decentralized metaverses by maintaining a decentralized ledger of all digital products and commodities. (Huynh-The et al., 2023). NFTs are a prominent token in blockchain technology (Lee et al., 2023). Unlike other digital assets, such as cryptocurrencies, NFTs are the tokens used to represent the ownership of goods and items such as digital art, music, media, game items, and real estate in the metaverse (Zainab et al., 2022). To be precise, the metaverse offers a virtual space for interaction while NFTs assign digital property rights within it (Guidi & Michienzi, 2023). NFTs offer marketers innovative ways to engage with customers through digital environments, and marketers are exploring the significant potential of NFTs for commercializing the metaverse (Lee et al., 2023). As a result, major brands like Starbucks, Adidas, Gucci, Porche and Red Bull Racing are leveraging the advantages of NFTs in their marketing strategies (Anndy, 2023). Adidas's NFT "Into the Metaverse" collection and Gucci's NFT called "Super Gucci" are recent examples.

The worldwide NFT market was worth US$23.78 billion in 2024 and is projected to grow to US$33.69 billion by 2028 (Statista, 2024). According to Statista (2024), the average revenue per user is at US$162.1, with the number of NFT users projected to increase to 16.35 million by 2028. The predictions indicate the potential of NFTs as key

drivers of the digital economy, with appealing growth opportunities for businesses. NFTs are set to become crucial facilitators of value exchange and economic activity in the metaverse, with various platforms rising as popular marketplaces for trading such digital assets (Lee et al., 2023). Nonetheless, consumers often approach new technology with skepticism and may hesitate to purchase NFTs. Furthermore, consumers engaging with NFTs have recently reported a massive decrease in the NFT market (NonFungible, 2024), suggesting that more research is needed on how to design and introduce NFTs to consumers (Chohan & Paschen, 2023; Colicev, 2023). This study therefore aims to investigate the factors influencing the intention to purchase NFTs in the metaverse environment.

Lee et al. (2024) recognized the necessity of investigating NFTs in the metaverse context due to the increasing number of NFT users within the metaverse. NFTs could be considered as the primary technology supporting the metaverse, enabling its usage and security (Sparkes, 2021). However, studies on NFTs are scarce, particularly in the metaverse context. Most studies on NFTs are focused on their business potential (Colicev, 2023; Guba & Lincoln, 1994), user perceptions (Xie et al., 2023), and their impacts on the metaverse economy (Guidi & Michienzi, 2023). Purchasing NFTs involves technical knowledge such as setting up a crypto wallet, online transactions and connecting their wallet to an NFT marketplace (Mileva, 2024). Hence, consumers' motives behind purchasing NFTs tend to correspond to their acceptance of this technology. To bridge this research gap, the current study extended the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2012) to investigate the purchase intention in regard to NFTs. Three additional constructs are added to the UTAUT 2 model: personal innovativeness, visual attractiveness and perceived risk. The findings of this study contribute not only to NFT literature, but also offer valuable insights to investors and platform developers seeking to enhance the NFT ecosystem within the metaverse.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

When investigating behavioral intention and use behavior in regard to new technologies, the literature primarily employs the original Technology Acceptance Model (TAM) by Davis (1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003). Since the original UTAUT primarily focused on technology adoption in enterprises, the study prefers Venkatesh et al. (2012)'s UTAUT2 model. In recent market studies, this model emphasizes the extension of the UTAUT model by additional components (price value, habit, and hedonic motivation), making it possible to explore the embrace of new technologies, especially in a consumer-oriented context (Venkatesh et al., 2012).

The model has seven main constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value and habit. Venkatesh et al. (2012)justified the definition of each construct to suit the purpose of influencing behavior toward new technology acceptance. Performance expectancy describes an individual's belief that using technology will provide benefits in performing specific tasks. Effort expectancy assesses the ease with how individuals use technology. Social influence highlights the influence of others in an individual's network (e.g., family, friends and colleagues) who believe they should utilize a specific technology. Hedonic motivation refers to the enjoyment of technology usage. Price value refers to an individual's cognitive trade-off between the monetary expense of using a technology and the perceived benefits of the technology, and habit refers to the level to which individuals tend do act automatically as a result of learning and repetition (Venkatesh et al., 2012).

UTAUT 2 is a well-established framework for predicting user behavior while making a critical decision in regard to technology. It has been utilized in further study to help design and anticipate specific decisions in a variety of contexts, including education, finance, retail and online gaming (Arain et al., 2019; Gansser & Reich, 2021; Kaur et al., 2020; Penney et al., 2021; Ramírez-Correa et al., 2019; Shaw & Sergueeva, 2019). However, many studies have indicated that the UTAUT 2 model principles are insufficient to predict new technological adoption such as artificial intelligence (Gansser & Reich, 2021), e-commerce (Kaur et al., 2020) and digital financial services (Gupta et al., 2019). Given the unique characteristics of NFTs, it is essential to develop a comprehensive understanding of the purchase intention in regard to NFTs within the metaverse. Thus, this study proposes a conceptual framework by extending the UTAUT 2 to understand the influential factors in NFT purchasing. The study has opted not to include the performance expectancy construct since NFTs primarily function as digital collectibles, often purchased for entertainment rather than for facilitating specific tasks. Additionally, the habit construct was also excluded from this study since purchasing NFTs within the metaverse may require research on the NFTs before making a decision and automatic actions may not arise. In addition to the original constructs from the UTAUT2 model, the study added three new constructs including personal innovativeness, visual attractiveness and perceived risk to examine the factors that influence metaverse users' intention to purchase NFTs. Figure 1 presents the conceptual model of the current study.

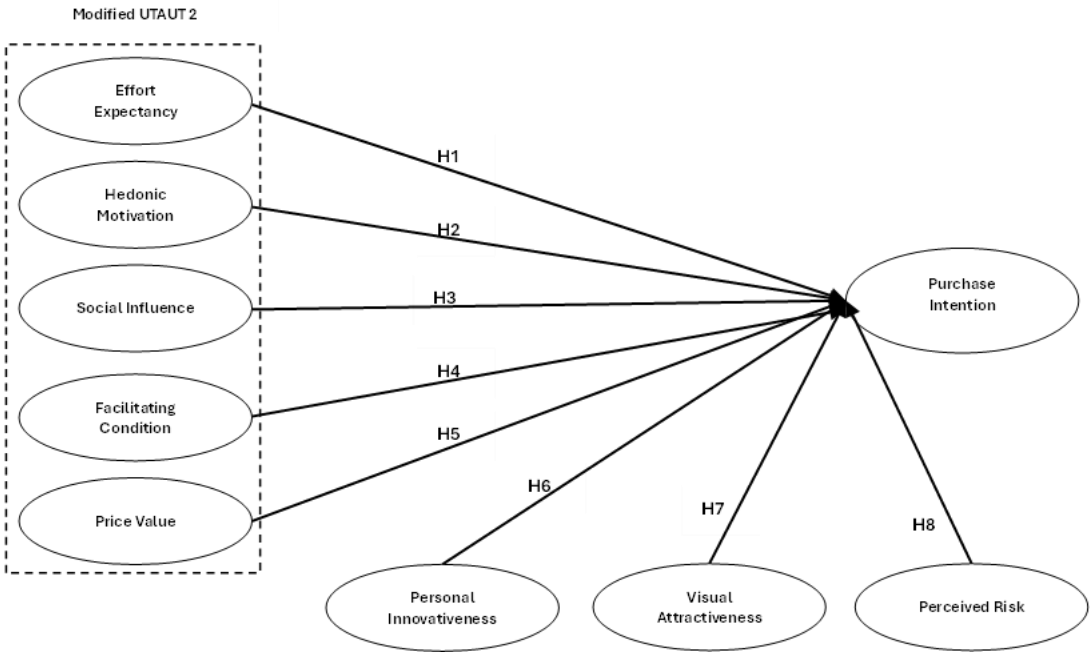

Figure 1. Proposed Model

UTAUT2-Core Construct

Effort Expectancy (EE)

Effort expectancy represents the idea that technology will be simple to use and requires little effort to use (Venkatesh et al., 2012). Numerous studies reveal that consumer experiences with a given technology have an impact on how convenient they find the technology to be (Azman Ong et al., 2023; Penney et al., 2021). For example, Azman Ong et al. (2023) found a positive impact of effort expectancy on behavioral intention to use digital payment systems among rural residents. Similarly, Penney et al. (2021) conducted a study on the intention to use mobile money services and showed that effort expectancy had positive and direct effects on the behavioral intentions to use the mobile money services among consumers. Hence, it is clear that customers seeking to exert less effort will undoubtedly prefer to use technology. The current study views effort expectancy as a factor that influences NFT purchasing intention. When individuals feel that purchasing NFTs in the metaverse is convenient and does not require much effort, they will have a greater intention to purchase NFTs in the metaverse. Thus, the hypothesis is as follows:

H1: Effort expectancy has a positive effect on the intention to purchase NFTs in the metaverse.

Hedonic Motivation (HM)

Hedonic motivation is defined as the intrinsic enjoyment or pleasure derived from using a technology (Venkatesh et al., 2012). Specifically, hedonic motivation captures the fun and entertainment aspects of technology usage, which can significantly impact a user's decision to adopt a new technology (Lee, 2009). Some information technology studies integrated hedonic motivation to explain its influence on consumer intention to adopt mobile learning and found that it significantly increased consumers' usage intentions (Gansser & Reich, 2021; Ramírez-Correa et al., 2019). Similarly, Gansser and Reich (2021) found that hedonic motivation positively affected adoption intention for products containing AI in an everyday life environment. The current study views hedonic motivation as the factor that boosts NFT usage intention. Some metaverse systems integrate gamification with NFTs, which may bring joy and happiness for the users. In addition, individuals typically interact with groups and activities in the metaverse environment, which may be enjoyable and joyful. Thus, the hypothesis is as follows:

H2: Hedonic motivation has a positive influence on the intention to purchase NFTs in the metaverse.

Social Influence (SI)

Social influence refers to the influence of others in an individual's network (e.g., family, friends and colleagues) who believe they should utilize a specific technology (Venkatesh et al., 2012). Currently, social influence has been investigated in a variety of circumstances and can be divided into two aspects: the interpersonal impact derived from users' social networks, and the influence exerted via media (both printed and digital) (Rogers, 2010). The culture of product reviews and comments via social media sites creates a ripple of social influence that shapes the

perspectives of future customers when considering the same products and services (Jha & Shah, 2020). A study by Scholz (2021) found that the social influence of influencers has a positive effect on customer purchasing decisions, especially when their personality or lifestyle resonates with the targeted consumers. The significant role played by subjective norms in influencing the behavioural intention to adopt mobile payments has also been shown empirically by Oliveira et al. (2016). In another study, Ramírez-Correa et al. (2019) confirmed the positive effect of social influence on adoption intention in regard to mobile games. This reflects the influence of environmental factors such as the opinions of a user's social network as well as those of key opinion leaders in the NFT market on purchasing intention. Based on earlier research, the present study believes that if metaverse users' friends and family buy NFTs or major opinion leaders advocate this technology on social media, metaverse users will be more likely to buy NFTs. Hence, the following hypothesis is proposed:

H3: Social influence positively affects the intention to purchase NFTs in the metaverse.

Facilitating Condition (FC)

In the technology adoption context, "facilitating conditions" refer to the extent to which a user believes that there is technological and organizational infrastructure in place to facilitate the use of a system (Venkatesh et al., 2003). Facilitating conditions have been reported to positively influence the behavioural intention to adopt digital services (Kholilah et al., 2022; Miraz et al., 2022). Based on the study of Miraz et al. (Miraz et al., 2022), facilitating conditions significantly influence individuals cryptocurrency adoption. Kholilah et al. (2022) proved that there is a positive relationship between facilitating conditions and cloud computing adoption intention. Purchasing NFTs in the metaverse requires some resources and technical support, such as using personal computers or tablets, accessing the platform, installing various applications, as well as security in purchasing the NFTs. The behavioural intention to purchase NFTs in the metaverse may rise if operational infrastructure is functioning and supports its use. Hence, the following hypothesis is proposed:

H4: Facilitating conditions positively impact the intention to purchase NFTs in the metaverse.

Price Value (PV)

The price value concept is adopted as a solution to address the cost issue of technology use as a result of expanding the UTAUT model to the consumer context, drawing from marketing literature where monetary cost has been conceptualized as an influential factor in regard to the perceived value of products or services (Venkatesh et al., 2012). Price value refers to a cognitive trade-off between the monetary expense of using an application and the benefits customers perceive it to have (Venkatesh et al., 2012). In information studies, price value has been observed to influence consumer intentions to adopt various types of technology such as digital banking, online games in mobile devices and artificial intelligence (Alalwan et al., 2017; Ramírez-Correa et al., 2019). Along these lines, price value is determined as a consumer's cognitive trade-off between the perceived benefits of the NFTs and the monetary value of purchasing them. Thus, the following hypothesis is proposed:

H5: Price value positively influences the intention to purchase NFTs within the metaverse.

External Constructs

Personal Innovativeness (PI)

In information system studies, personal innovativeness plays a crucial role in shaping individuals' motivation to embrace new technologies or processes, independent of external opinions from friends or family (Lu et al., 2005). Innovative individuals are more eager and much more open to use new technologies (Kandoth & Shekhar, 2022). Additionally, such individuals readily accept opportunities to purchase unfamiliar goods because they are eager to experiment with cutting-edge innovation (Twum et al., 2021). As a result, consumers that are more innovative are more receptive to new technology (Chauhan et al., 2021; Twum et al., 2021; Wu & Lai, 2021). Wu and Lai (2021) demonstrated that personal innovativeness affected the intention to adopt augmented reality tour apps in Macau. On the other hand, Chauhan et al. (2021) empirically tested whether personal innovativeness influenced consumers' online green product purchase intention. In this study, we aim to investigate the intention of individuals towards the purchase of NFTs, which is relatively new technology. Specifically, many people may be skeptical about purchasing NFTs if they are not familiar with this technology. If individuals have high personal innovativeness, then they may be more willing to purchase NFTs. Thus, the hypothesis is as follows:

H6: Personal innovativeness has a positive impact on the intention to purchase NFTs.

Visual Attractiveness (VA)

Visual attractiveness is regarded as one of the most important characteristics of technology. Cyr et al. (2006) argued that attractive visuals of technology considerably capture user attention and encourage intention behaviors. Moreover, the visual attractiveness factor continues to hold sway over the digital experience, reinforcing brand loyalty among clients who purchase fashion products via digital channels (Ratnasari et al., 2020). Many studies on

technology adoption have examined the influence of visual attractiveness on intention behavior (Ji et al., 2023; Zhang et al., 2015). Ji et al. (2023) revealed that the visual attractiveness of live streaming positively affects consumers' purchase intentions in an e-commerce context. On the other hand, Zhang et al. (2015) showed that the visual attractiveness of social media sites significantly affects the future intentions of users. In accordance with literature, visual attractiveness refers to the aesthetic appeal of the product design (such as form, colour, and size) and user interfaces (such as panels and apps) of NFTs in the current study. The study believes that if the NFTs have an attractive visual, consumers are more likely to purchase such digital collectibles. Consequently, the research hypothesis is as follows:

H7: Visual attractiveness positively affects the intention to purchase NFTs.

Perceived Risk (PR)

Perceived risk is described as a feeling of uncertainty about the drawbacks of using technology (Featherman & Pavlou, 2003). Perceived risk factors are commonly viewed as being significant inhibitors of customer intentions and the adoption of technology (Alalwan et al., 2018; Iriani & Andjarwati, 2020; Meyta Dewi et al., 2021). Some studies found that there is a high level of risk when purchasing goods online (Iriani & Andjarwati, 2020; Yang et al., 2012). The risk attribute could be related to the high levels of ambiguity, loss of privacy, intangibility, and vagueness in online environments (Alalwan et al., 2018; Iriani & Andjarwati, 2020; Shaw & Sergueeva, 2019). Accordingly, the perception that NFT consumers will likely be exposed to risk is a possible barrier to product acceptance and utilization. Thus, the following hypothesis is proposed:

H8: Perceived risk negatively impacts the intention to purchase NFTs.

METHODOLOGY

Measurement

All measurement items in this study were adapted from previous research. Effort Expectancy was measured with a 4-item scale by Penney et al. (Penney et al., 2021). Hedonic Motivation was modified from Gansser and Reich (2021) with three items. Social influence was measured with Ramírez-Correa et al. (2019)'s updated 3-item measure. The 4-item facilitating condition was modified from Miraz and colleagues' studies (Miraz et al., 2022). Price value was adapted from online gaming studies (Ramírez-Correa et al., 2019) and internet banking studies (Alalwan et al., 2017) with four items. Personal innovativeness was measured by incorporating various works (Penney et al., 2021; Wu & Lai, 2021) and consisted of four items. The reliability, construct validity, and predictive validity constructs proved to be satisfactory in the brief version of Wu and Lai (2021). The visual attractiveness scale, focusing on the attractiveness of technology (Ji et al., 2023), supports validity in terms of convergent and discriminant validity. The 4-item perceived risk of NFT was adapted from Yang et al. (2012). The 4-item intention-to-purchase NFTs was modified from Eberle et al. (2021). Their study showed that the scale had suitable psychometric qualities. A 5-point Likert scale was employed to evaluate each construct (1 = strongly disagree to 5 = strongly agree). Since the original measurements were developed in English, this study adopted the back-translation approach to translate the survey from English to Thai before back-translating it to English with the help of two professors of information systems to verify the consistency of meaning (Bhalla & Lin, 1987). Table 1 provides a summary of the items for each measuring scale.

Table 1 Measurement model resulting from confirmatory factor analysis

Constructs and variables	**Standardized factor loading**	**CR**	**AVE**	**α**
Effort Expectancy (EE)		0.908	0.711	0.864
I think it is easy to trade NFTs in the platform.	0.828			
Learning how to trade NFT is easy for me.	0.858			
The NFT trading program is clear and easy to understand.	0.841			
Overall, I think it is easy to trade NFTs on the platform.	0.845			
Hedonic Motivation (HM)		0.899	0.747	0.831
It is nice to trade NFTs on the platform.	0.880			
I am happy when I trade NFTs on the platform.	0.863			
Trading NFTs on the platform has allowed me to reduce my stress.	0.850			
Social Influence (SI)		0.923	0.799	0.874
People important to me (close friends, colleagues, family) suggest that I should trade NFTs on the platform.	0.905			
People who influence my behaviour (close friends, colleagues, family) suggest that I should trade NFTs on the platform.	0.894			

Constructs and variables	Standardized factor loading	CR	AVE	α
Persons I respect suggest that I should trade NFTs on the platform.	0.883			
Facilitating Condition (FC)		0.879	0.640	0.813
I think that on the platform there is good support for NFT trading technology.	0.724			
I think I have enough information to be able to trade NFTs on the platform.	0.803			
I think the platform has technologies that support NFT trading, and those technologies are compatible with other technologies that I have.	0.828			
Overall, I think the platform has a lot of tech support for NFT trading.	0.839			
Price Value (PV)		0.897	0.685	0.847
I think NFT prices on the platform are reasonable.	0.803			
I think NFT prices on the platform encourage my trading.	0.828			
I think the quality of NFTs on the platform corresponds to trading prices.	0.855			
Overall, I think I can accept NFT trading prices on the platform.	0.825			
Personal Innovativeness (PI)		0.874	0.635	0.807
I am always adapting myself or working with new innovations.	0.828			
When I hear about new innovations, I want to try them out.	0.86			
I am always at the forefront of bringing innovations to the community where I live or work.	0.756			
I always like trying new technologies or innovations.	0.739			
Visual Attractiveness (VA)		0.912	0.720	0.871
The NFT design looks beautiful.	0.848			
NFTs have interesting shapes and colors.	0.862			
The appearance of NFTs is impressive.	0.856			
Overall, I think NFTs are attractive.	0.828			
Perceived Risk (PR)		0.947	0.817	0.938
Trading NFTs on the platform may expose me to financial risks.	0.843			
I have concerns about the safety of trading NFTs on the platform.	0.903			
Hackers might be able to access my bank account if I trade NFTs on the platform.	0.895			
In general, NFT trading on the platform can be unstable and may cause financial problems	0.970			
Intention to Purchase (IP)		0.882	0.651	0.822
I thought there was an opportunity for me to trade NFTs on the platform.	0.803			
I thought I would trade NFTs on the platform.	0.799			
NFTs will probably be one of the technologies that I would like to purchase soon.	0.810			
As a whole, I think I would recommend others to trade NFTs on the platform.	0.816			

Sampling and Data Collection

The empirical research adopts a non-probabilistic sampling approach. The target population of the present study consisted of Thais, aged over 20, who had purchased NFTs on platforms, such as OpenSea, Rarible, Nifty Gateway, Enjin Marketplace, between January 2022 and December 202. These platforms are extremely popular among Thai users (Thairath, 2021). The survey's screening question ensured that our respondents had prior experience in purchasing NFTs. This requirement was established to ensure that respondents were familiar with this technology and could potentially purchase it. The data collection process strictly adheres to ethical standards for conducting research involving human participants. In total, 461 usable questionnaires were obtained. The majority of responses are female (50.1%). The responses are from young people aged 18 to 30, as well as middle-aged people aged 31 to 40. 76.4% were answered by people with bachelor's degrees. Table 2 presents the characteristics of the respondents.

Table 2 Demographic characteristics of respondents (N = 461)

Item	Category	Frequency	Percentage
Gender	Male	230	49.9%

	Female	231	50.1%
Age (years)	18-30	176	38.2%
	31-40	176	38.2%
	41-50	91	19.7%
	>51	18	3.9%
Educational level	High school or less	35	7.6%
	Bachelor's degree	331	71.7%
	Master's degree	86	18.7%
	PhD degree	9	2%

Data Analysis

Since this study is exploratory in nature, the Partial Least Squares (PLS)-SEM technique is employed to analyze the measurement and structural model. PLS is advantageous for this study because it has a broad scope and flexibility in terms of theory and practice (Hair et al., 2019; Rigdon, 2016). Additionally, the PLS approach enables the researcher to address multicollinearity issues in variables (Pirouz, 2006). More specifically, SmartPLS 4.0 software was employed.

RESULTS

Assessment of the Measurement Model

Following the guidelines recommended by Hair et al. (2014), the measurement model was evaluated by measuring both convergent and discriminant validity. Table 1 demonstrates that all measuring items had factor loadings over 0.70, all constructs had AVEs above 0.5 (ranging from 0.63 to 0.81), and all constructs had composite reliability values above 0.7 (ranging from 0.87 to 0.94). The items' reliability coefficients in Cronbach's alpha ranged from 0.80 to 0.93. Coefficients above 0.70 are regarded as acceptable (Nunnally, 1978). These findings proved the strong convergent validity of our measuring model. The square roots of AVE values for each construct were larger compared to their correlations with other constructs, as shown in Table 3, further confirming the discriminant validity (Hair et al., 2019). The Heterotrait and Monotrait (HTMT) ratio was used to further confirm the discriminant validity (Henseler et al., 2015). As shown in Table 4, all HTMT values were below the threshold of 0.80, indicating adequate discriminant validity. A variance inflation factor (VIF) test was also run to evaluate any potential multicollinearity problems. Given that the VIF values for all constructs ranged from 1.48 to 4.11 and were significantly lower than the 5.0 threshold value (James et al., 2013), multicollinearity was not a problem in the present study.

Table 3 Analysis of discriminant validity

Construct	Fornell-Lacker criterion								
	EE	**HM**	**FC**	**IP**	**PR**	**PI**	**PV**	**SI**	**VA**
EE	**0.843**								
HM	0.636	**0.864**							
FC	0.573	0.446	**0.800**						
IP	0.645	0.608	0.653	**0.807**					
PR	0.069	0.1	0.323	0.058	**0.904**				
PI	0.476	0.474	0.605	0.476	0.371	**0.797**			
PV	0.601	0.493	0.656	0.664	0.135	0.412	**0.828**		
SI	0.418	0.308	0.624	0.477	0.401	0.445	0.552	**0.894**	
VA	0.695	0.53	0.561	0.608	0.147	0.39	0.59	0.404	**0.849**

Note: The bold diagonal is the square root of AVE

Because the samples were gathered from a single source and were self-reported (Podsakoff et al., 2003), the Harman's single-factor test was performed to rule out any potential common method bias (CMB) problems. The findings showed that the single component only explained 35.96% of the variation, which is below the 50% threshold, suggesting that CMB was not a problem in the present study.

Table 4 The HTMT ratio

Construct	Heterotrait-Monotrait ration (HTMT)								
	EE	**HM**	**FC**	**IP**	**PR**	**PI**	**PV**	**SI**	**VA**
EE									
HM	0.75								
FC	0.675	0.537							

IP	0.762	0.734	0.785						
PR	0.073	0.098	0.364	0.05					
PI	0.57	0.58	0.745	0.582	0.411				
PV	0.699	0.585	0.781	0.79	0.127	0.49			
SI	0.481	0.361	0.744	0.559	0.429	0.52	0.64		
VA	0.801	0.623	0.662	0.718	0.162	0.465	0.682	0.463	

Assessment of Structural Model

With an adequate measurement model, the proposed model was examined using SmartPLS 4.0. Table 5 presents the results of the structural model. The model explained 63.6% of variances in intention to purchase, which was significantly affected by hedonic motivation ($\beta = 0.23$, $p < 0.01$), facilitating conditions($\beta = 0.260$, $p < 0.01$), price value ($\beta = 0.206$, $p < 0.01$), visual attractiveness($\beta = 0.12$, $p < 0.05$), perceived risk ($\beta = -0.154$, $p < 0.05$), and provides support for H2,H4,H5,H7 and H8. Nevertheless, the effect of effort expectancy ($\beta = 0.088$, ns), social influence ($\beta = 0.079$, ns), and personal innovativeness ($\beta = 0.054$, ns) was not significant; therefore H1, H3 and H6 were rejected.

Table 5 Standardized parameter estimates for the structural model

Hypotheses	**Paths**	**Standardized coefficient (β)**	***t*-value**	**Hypotheses**
H1	Effort Expectancy → Intention	.088	1.422	Not supported
H2	Hedonic Motivation → Intention	.234	3.853**	Supported
H3	Social influence → Intention	.079	1.499	Not supported
H4	Facilitating conditions → IP	.260	4.773**	Supported
H5	Price value → IP	.206	3.599**	Supported
H6	Personal innovativeness → IP	.054	1.079	Not supported
H7	Visual attractiveness → IP	.125	1.994*	Supported
H8	Perceived risk → IP	-.154	3.280*	Supported

*Remark: *<0.05,**<0.01*

DISCUSSION AND IMPLICATIONS

Discussion

The main aim of this study was to investigate the motivational factors influencing NFT purchasing behavior. Therefore, the study proposed a conceptual framework by extending the UTAUT 2 model with additional factors (personal innovativeness, visual attractiveness, and perceived risk) to explain and predict consumers' behavioral intentions regarding purchasing NFTs within the metaverse. Eight hypotheses were proposed. With the help of PLS-SEM, UTAUT 2 is extended based on the research background regarding NFTs within the metaverse that are purchased by consumers living in Thailand. The findings correspond to the proposed theoretical framework and validate the extended UTAUT 2 model as a foundation for related theories. As a result, the study's findings can serve as a reference for NFT developers.

The results reveal that among all constructs of UTAUT 2, facilitating conditions affected behavioral intention the most strongly even though previous research claimed that effort expectancy was the key factor influencing consumer intention. The result for facilitating conditions is in line with earlier research by Miraz et al. (2022), which revealed that facilitating conditions had a major impact on people's adoption of cryptocurrencies. One possible explanation for this could be that NFTs are still under development, and consumers may be concerned about supportive resources and infrastructure when they purchase NFTs in the metaverse. Consequently, when consumers believe that purchasing NFTs in the metaverse is supported by high-quality resources and infrastructure, their behavioral intention to purchase increases. Furthermore, hedonic motivation has a positive impact on the purchase of NFTs within the metaverse; these findings are similar to those of previous studies (Gansser & Reich, 2021; Ramírez-Correa et al., 2019). The respondents to the study may feel joy in discovering, obtaining and collecting unique NFTs. In addition, many NFT projects are tied to vibrant online communities. The pleasure derived from engaging with like-minded individuals in these communities can motivate consumers to purchase NFTs. Next, consistent with previous findings (Almaiah et al., 2022; Ramírez-Correa et al., 2019), the results of this study support the inclusion of price value as a predictor of purchase intention. NFT prices vary. It is plausible that participants' considerations revolve around NFTs and entail a trade-off with their allocated financial resources (Venkatesh et al., 2012). The effect of economic conditions at that time might sway the participants' consideration as a store of value and as a way to make a capital gain. In times of high inflation, the value of their money may be protected by buying such assets.

An important finding of this study is that the original UTAUT 2 model can be improved by integrating two new factors, namely visual attractiveness and perceived risk. The study demonstrates that visual attractiveness is a key predictor affecting consumers' behavioral intentions when purchasing NFTs in the metaverse. Similar results were found in previous research (Ji et al., 2023; Shen et al., 2019; Zhang et al., 2015), that visual attractiveness plays an important role in new technology acceptance. This could be because NFTs frequently incorporate visually appealing and unique digital artwork. NFTs' distinctive and unique designs have the potential to captivate consumers (Fortagne & Lis, 2024). Furthermore, the study identified that perceived risk has a negative impact on purchase intention. The observation agrees with previous studies (Iriani & Andjarwati, 2020; Meyta Dewi et al., 2021; Penney et al., 2021) . The adoption of new technology can often be hindered by perceived risks, especially when the technology is embedded in a digital environment and is linked to user security and privacy (Alalwan et al., 2018). It is obvious that NFTs are often viewed as speculative investments. Their high volatility and lack of historical performance data raise concerns about their future value, hindering buyers who worry about financial loss. Moreover, NFTs rely on blockchain technology which is relatively new and still evolving. The respondents may be concerned about the reliability and long-term viability of a particular blockchain platform.

Interestingly, no significant relationship has been found between effort expectancy, social influence, and personal innovativeness. The insignificant effect of effort expectancy on NFT purchase intention contrasts with the findings of Azman Ong et al. (2023) and Penney et al. (2021). However, some studies demonstrate the opposite (García de Blanes Sebastián et al., 2022; Ramírez-Correa et al., 2019). García de Blanes Sebastián et al. (2022) reported that effort expectancy had no considerable effect on behavioral intention regarding using mobile online games. This may be due to the intrinsic motivation of the respondents in this study. They might value pleasure or investment potential over simplicity of use, making it a less important factor in their decision to purchase NFTs. On the other hand, social influence was found not to be a predictor of intention to purchase NFTs in the metaverse. Thus this study's findings do not support the study of Scholz (2021) and Oliveira et al. (2016). One possible explanation for this is that the NFT market is relatively small, appealing to specific communities such as digital artists, gamers, and tech-savvy people. Individual preferences and experiences may outweigh broader social forces when purchasing NFTs. In terms of personal innovativeness, the insignificant effect of this variable on NFT purchase intention is inconsistent with the findings on new technology context adoption by Wu and Lai (2021) and Chauhan et al. (2021). The potential reasons for these results are that potential financial returns may attract a diverse range of buyers, including those who may not normally engage with new technologies early.

Theoretical Contributions

Regarding theoretical contributions, the current study answers the questions on the factors influencing NFT purchase intention. Although there are previous studies on technology acceptance, there is a lack of empirical evidence on NFT purchase intention. This study extends the original UTAUT 2 model by including three additional factors (personal innovativeness, visual attractiveness, and perceived risk). Consequently, this study demonstrates a significant contribution to the extension of the theoretical framework of UTAUT 2. Additionally, purchasing NFTs in the metaverse can be significantly encouraged by facilitating conditions, hedonic motivations, price value, perceived risk and visual attractiveness. Despite its potential impact, effort expectancy, social influence and personal innovativeness have received relatively little attention in previous studies on new technology acceptance. Therefore, the theoretical framework of this study may be implemented as a basis for further studies on NFT purchase intention or technology adoption in general.

Practical Implications

The implications of this study have significant relevance for the developers, marketers, and policymakers of NFT markets. The findings suggest that NFT developers should prioritize facilitating conditions, hedonic motivation and visual attractiveness. Given that NFTs represent a novel technology, it is crucial to underscore their unique characteristics when introducing them to potential customers. Individuals prioritize the distinctiveness inherent in the technology or digital asset when making a purchase. Marketers should emphasize the price value and facilitating conditions associated with acquiring NFTs in the metaverse, positioning them as digital assets with both economic and functional value. Consumers anticipate substantial support from NFT owners upon purchase, and when addressing potential risks such as security and privacy concerns in the metaverse. Marketers and developers must establish trust among prospective customers to alleviate these apprehensions. In addition, policymakers should propose rules and regulations for NFT purchasing that address perceived risk while also encouraging wider acceptance of NFTs.

LIMITATION AND FUTURE RESEARCH

Though the current study considerably added to the literature on NFT purchasing intention, the inherent limitations pave the way for future research. To begin, this study sample involves current metaverse users in Thailand. As a result, it may not reflect all users who could be interested in acquiring this technology. In the future, substantial study in many countries can be conducted to investigate the behavior of people from various backgrounds and extending the study to include other cultural contexts might provide deeper insights into the emotional and social variables impacting NFT purchasing intention.

In addition, the model was developed based on the UTAUT2 model. Alternative prediction models could include metaverse-related factors or creator-related factors, especially given that consumers must navigate this digital environment in order to purchase NFTs. For example, the creator's reputation or brand may provide more thorough information. Thus, subsequent research efforts could focus on the security and functional characteristics of the metaverse and NFT creator characteristics to gain greater insight into NFT purchasing intention.

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