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Impact of User-Generated Content on Intentions to Invest in NFTs

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Abstract

NFT has many applications which the investors can utilize to invest their assets, for example, in-game assets, educational certificates, and many more. Furthermore, NFT also triggers investors and companies to invest in it because it is a concept related to Intellectual Property, including copyright, trademark, and patent (Bamakan et al., 2022). NFTs have turned online art such as images, paint documents, and more into assets that can be purchased and owned, and creates a value for them and value tends to be unpredictable. NFT (Non-fungible token) is important to study because it is still a new concept, but has provided several advantages for the buyers or investors. Purchasing an NFT would officially grant users ownership over the unique asset, digital art, or collectible. This research intends to identify the correlation between these constructs from the influence of user-generated content. The data samples are collected through random sampling, university students who may have prior or no involvement in NFTs. This study used a qualitative approach to collect the information regarding their behavior in investing in NFT. The questions were separated into four categories based on each of the constructs. The R^2 value of those constructs is in the range of moderate to weak, and the predictive relevance of the constructs is accurate and significant. This research is but a limited, brief, and small-scale analysis of how user-generated content can have an influence on these driving factors that ultimately lead to the decision of investing in NFTs.

Keywords
user-generated social media content; NFT popularity; tech adoption; intention to invest

I. Introduction

NFT (Non-fungible token) is important to study because it is still a new concept, but has provided several advantages for the buyers or investors. NFT has many applications which the investors can utilize to invest their assets, for example, in-game assets, educational certificates, and many more. Furthermore, NFT also triggers investors and companies to invest in it because it is a concept related to Intellectual Property, including copyright, trademark, and patent (Bamakan et al., 2022). A few of the largest companies have begun getting involved with NFTs as part of their branding strategy. These include Nike with their digital copies of their sneakers. Team GB's NFT campaign sells limited-edition collectibles like wall paintings by artists. The NBA sells digital collectibles of moments in a team's game. Yum Brands, the parent company to well renowned fast-food franchises has had Taco Bell sell a series of NFT GIFs. And even Coca-Cola, the multinational American beverage corporation has unique and wearable digital assets in the futuristic 3D virtual world, Metaverse (Garon, 2022).

Since its inception, NFT has earned the mistrust of the public and the market like most other types of cryptocurrencies, this is due to its volatile and highly speculative nature (Alzahrani & Daim, 2019) but over time NFT began to get attention from the market because of its function that can create digital data that cannot be copied, deleted and destroyed so that it has the potential to be a security for digital assets of art creators and generate high selling points for their work (Kireyev, 2022). Based on statistical data on the google trends word search engine, NFT word searches began to increase in February 2021 and continued to increase until January 2022 searches had reached 100 on google trends statistical data. From the results of research conducted by Gartner which produces a Gartner hype cycle which consists of 5 phases that show the technology life cycle. NFT has reached the peak of inflated expectations, which means that the hype cycle of technology has almost and will reach the peak of its hype (Panetta, 2021).

NFTs have turned online art such as images, paint documents and more into assets that can be purchased and owned, and creates a value for them. Their value tends to be unpredictable, it can rise by two hundred times its value or it can reduce its value to nothing in less than a week. It is important to understand how the value of the NFTs can change with indirect actions. There were hackers that hacked into The Bored Ape Yacht clubs stealing $2.8 million worth of NFTs. This action causes other The Bored Ape NFTs to drop in price. So even if there are other users who still have Bored Ape NFTs and didn't get stolen, the value would still drop (Lee, 2021). NFT has rapidly grown from 2017 and the market has remained stable to mid 2020. Furthermore, the market has significantly increased from July 2020 with the total daily exchange more than 10 million USD. The dominant NFT category was art, collectible, and games with a high transaction. In the early of 2021, NFT volume exceeded 2 billion USD (Nadini et al., 2021).

II. Review of Literature

2.1 NFT Popularity towards Intention to Invest with the Antecedent of User Generated Content

Theory of reasoned actions can be analyzed and predicted by the reaction given off the attitude of the target individual. The important attitude in this theory is the one that is being studied and learned specifically to the specific behavior that is being studied. It is not enough to consider the individual's attitudes generally. The theory also suggests that when the individual is about to or doing an action, it is possible that the action is influenced by the surroundings. Maybe the individual is pressured, requested, asked for and demanded for. In this theory, both attitudes and influences are indirect factors. Not just those two, but most factors that affect the action are mostly indirect factors (Ajzen, 1991). Social media is an example of a relatively recent development of information technology (Marbun *et al*, 2020). In the year 2021, the amount of people who entered the virtual trading world known as NFTs skyrocketed. This starts to affect social media when the Twitter accounts suggest users to use NFTs as their profile picture. Not long after that, Meta has rolled out avatars as well, not just for Twitter, but for Instagram, Facebook and Messenger as well. And Reddit was last. This allows the owners of those NFTs to show to others not just profile pictures, but as stickers and posts as well (Chimborazo-Azogue et al., 2022)

2.2 NFT Popularity towards Tech Adoption

Technological developments are increasingly rapid with the discovery of new concepts and models in their application. Since the development of blockchain technology in 2009 by Satoshi Nakamoto, Blockchain has become very popular all over the world until its peak in mid-December 2017 getting the highest search on google (Gorkhali & Chowdhury, 2021). After several years of development, a new type of blockchain technology called NFT appeared on the bitcoin blockchain in 2012-2013 by colored coin and then in 2014 the first NFT created by Kevin McCoy appeared in the form of colorful animated patterns that he printed on a blockchain. referred to as Indelible Provenance and Ownership of Digital Images of This Kind. In June 2017, Larva Labs launched the NFT collection which is considered by many as the beginning of the popularity of NFT (Lee, 2021).

2.3 Tech Adoption towards Intention to Invest

TPB (Theory of Planned Behavior) is one of the technology adoption model (Ajzen, 1991) and was an extension of the theory of reasoned action that related to internet buying behavior (Wang La et al., 2021) TPB had three factors, first, the attitude was the process of exploring an object, second, the subjective norms were about their decisions and their community's response to what they do, and third, perceived control behavior was a limitation of their actions (Husain et al., 2021). The author chose the Theory of Planned Behavior (TPB) as the base theory because it was related to the internet buying behavior which in this case matches with the investment behavior. Furthermore, there were some factors included in this theory that was able to help the investors in investing using technology in the right way, for example, the investors can analyze whether this investment product is positive or negative, and after that, the investors can decide whether to invest or not and also accompanied by patience and the right budget allocation. Online investing offered a combination of low costs, convenience, and control over the investments to the investors. Online investment is more efficient than conventional investment. For example, faster transactions with a variety of price options. Through online investment, the social level of investors also increases (Konana & Balasubramanian, 2005). Online investment can be done through technology, the advantages offered by online investment can motivate the investors to do more online investment than the conventional one because they can get low cost, efficient, faster processes, can choose many price options, and also make friends in only one medium.

2.4 NFT's Popularity towards Intention to Invest mediated by Tech Adoption

Within this Fintech era, NFTs have received an increased amount of awareness and user investments. Purchasing an NFT would officially grant users ownership over the unique asset, digital art or collectible. Blockchain platforms contain varying sets of NFT collections, with differing NFT valuations. With NFT collections like The CryptoPunks, well-renowned for being one of the earliest and extensive NFT collections to date, and recent budding NFT collections available to list in the marketplace. Multi Cumulative Prospect Theory—lifecycle funds provide a plausible explanation for the appeal of lifecycle investments and other investments (Weinert & Gründl, 2020). Therefore, NFT creators may use popularity when determining if their presently available or freshly produced items will appeal to consumers. The decisions involved in investing in NFTs are influenced by the increased adoption of blockchain technology and the introduction of cryptocurrencies. Also known for its extremely high volatility, it comes with unsteady, but extremely high rates of return. With its standard deviation of return is (66.17%), which is

estimated 15 times higher compared to stock returns. And the adoption of cryptocurrency can greatly affect its valuation, giving the users an active influence on the price of NFTs (Kong & Lin, 2021).

Therefore, this study proposes the following hypothesis:

H[1]. User Generated Social Media Content has a positive effect on NFT Popularity.
H[2]. NFT Popularity will have a positive effect on the Intention to Invest.
H[3]. NFT Popularity has a positive effect on Tech Adoption.
H[4]. Tech Adoption will have a positive effect on the Intention to Invest.
H[5]. NFT Popularity will have a positive effect on Intention to Invest through Tech Adoption

The research model of this study is shown in Figure 1.

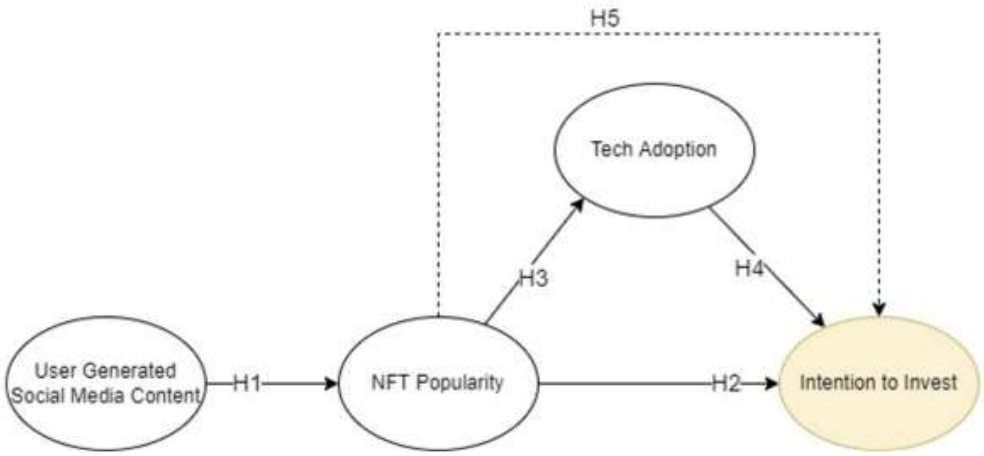

Figure 1. *Conceptual Framework*

III. Research Method

3.1 Population and Sample

The population of this study consists of individuals who were interested or have dabbled in the NFT world and individuals who have no involvement in NFTs. The questions in the questionnaire were made with references from previous studies that also measured similar constructs as this research. Still, the questions will be modified in the context of NFT. On the other hand, the questions in this research will be divided into different categories for each construct that was measured. The sample of this study that the author tried to collect through a questionnaire was around 53 respondents with ages ranging from 15 - 30 years old and mostly living in Jakarta and Singkawang. The sample criteria were set to get a variety of answers, then the author will analyze the data in order to test the hypothesis of this research.

This study used a qualitative approach to collect the information regarding their behavior in investing in NFT. The questions were separated into four categories based on each of the constructs mentioned previously with a total of 22 questions. The answer option for each question was in the form of a scale from one to five, which one refers to "strongly disagree" or "very not likely" and five refers to "strongly agree" or "very likely" to assess the constructs according to the respondents' experience.

3.2 Measurement Model

In order to analyze the data, this study used a partial least squares standard error of the mean (PLS-SEM) utilizing the SmartPLS 3.3 software. Outer loadings were used to determine the items' reliability which outer loading with 0.7 or more means a quite adequate, 0.5 was considered acceptable, and less than 0.5 means there was a problem, so must be fixed (Yansen et al., 2021; Henseler & Fassott, 2009; Vinzi et al., 2009). Fortunately, all of the outer loadings were above 0.5.

Moreover, composite reliability was to measure the internal consistency which 0.6 to 0.7 was acceptable and between 0.7 to 0.9 means satisfactory. In this research, all of the composite reliability was above 0.7 which means they have a satisfactory consistency.

On other hand, Average Variance Extracted (AVE) was to measure the convergent validity, the AVE value in 0.5 or higher means average, so we are able to accept that value (Hair et al., 2013). In this study, all of the AVE values were higher than 0.5, so they are acceptable. But, if the AVE value was lower than 0.5 with composite reliability higher than 0.6, the convergent validity is still satisfactory (Yansen et al., 2021; Fornell & Larcker, 1981).

Last but not least, Fornell-Lacker criterion calculation is used to measure the discriminant validity. Discriminant validity was analyzed item by item and every latent variable's square root must exceed the correlation with another measurement construct (Yansen et al., 2021). As shown in table 2, User Generated Social Media Content (0.859) is higher in the correlation with the other construct, NFT Popularity (0.816) also higher than the other construct, Tech Adoption (0.882) was higher than the other construct as well. Last but not least, Intention to invest (0.865) is also higher than the other construct. So, all of these values of Fornell-Larcker Criterion were acceptable.

Table 1. Validity and Reliability of Higher Order Construct

Construct	Items	Outer Loading	CR	AVE	Cronbach's Alpha
User-Generated Social Media Content	UG1	0.884			
	UG2	0.826			
	UG3	0.840			
	UG4	0.882	0.918	0.748	0.884
NFT Popularity	NP1	0.761			
	NP2	0.797			
	NP3	0.850			
	NP4	0.858			
	NP5	0.813	0.909	0.666	0.875
Tech Adoption	TA1	0.896			
	TA2	0.882	0.933	0.778	0.905

	TA3	0.901			
	TA4	0.847			
Intention to Invest	IT2	0.869			
	IT3	0.838			
	IT4	0.850			
	IT6	0.900	0.922	0.748	0.888

Table 2. The Fornell-Larcker Criterion

	User-Generated Social Media Content	NFT Popularity	Tech Adoption	Intention to Invest
User-Generated Social Media Content	0.859	0.525	0.738	0.743
NFT Popularity		0.816		0.523
Tech Adoption		0.485	0.882	0.760
Intention to Invest				0.865

IV. Results and Discussion

The coefficient of determination (R^2) shows the amount of variation in a dependent variable that can be explained by the independent variables. The variance of the latent variable can be explained effectively if the number of variables are bigger where the higher R^2 value will enlarge the predictive power of the structural model. The R^2 value for endogenous constructs can be characterized as strong (0.75), moderate (0.5), and weak (0.25). As shown in table 3, the R^2 value for NFT Popularity was 0.275 which means the explanatory power was low or close to weak. Besides that, the R^2 value for Tech Adoption was 0.235 which means the explanatory power was low or close to weak as well. For the Intention to Invest, the R^2 value was 0.609 which means the explanatory power above the average power. In this case, the predictive power of User Generated Social Media Content has a weak measure on the NFT Popularity and Tech Adoption as they are close to 0.25. Furthermore, the predictive power of User Generated Social Media Content has a moderate measure on the Intention to Invest as it is above 0.5.

The cross-validated redundancy (Q^2) was to assess its performance in this case. The matrix that is used was, $Q^2 > 0$ means the construct's predictive relevance was accurate and $Q^2 < 0$ means the model's predictive relevance was lower. Therefore, if it is higher than 0, the effect is considered as significant, but if lower than 0, the effect is considered as insignificant (Hair et al., 2017). From table 3, The Q^2 value for NFT Popularity, Tech Adoption, and Intention to Interest was 0.162, 0.170, and 0.419 respectively, all of the Q^2 value was higher than 0, so it means that all of the construct's predictive relevance was accurate and significant.

Table 3. Coefficient of Determination (R^2) and Predictive Relevance (Q^2) of the constructs

	R-Squared	Q-Squared
NFT Popularity	0.275	0.162
Tech Adoption	0.235	0.170
Intention to Invest	0.609	0.419

Table 4 shows the path coefficients and significance levels for all constructs. Using algorithm calculation in SmartPLS to find path coefficient and relevances. Exception for H^2 (NFT Popularity will have a positive effect on the Intention to Invest), all the remaining hypotheses (H^1, H^3, H^4) have numbers that show significant results. NFT Popularity to Intention to invest (path coefficient = 0.202) is the only one with not supported result and had no significant effect in the hypotheses. Meanwhile User Generated Social Media Content to NFT Popularity (path coefficient = 0.525), NFT Popularity to Tech Adoption (path coefficient = 0.485) and Tech Adoption to Intention to Invest (path coefficient = 0.662) were determined had significant effect and supported.

The results generated through the mediation test are shown in table 5. There is only 1 hypothesis in this case i.e. NFT Popularity to intention to invest through Tech Adoption (path coefficient = 0.321) which initially NFT Popularity to investment intention only has (path coefficient = 0.202) with insignificant results and not supported. But after going through mediation, tech adoption provides significant and supported results.

Table 4. Hypothesis testing result

Hypotheses	Std. Path Coefficient	t-values	p-values	Result
H^1: User-Generated Social Media Content has a positive effect on NFT Popularity.	0.525	6.609	0.000	**Supported**
H^2: NFT Popularity will have a positive effect on the Intention to Invest.	0.202	1.529	0.127	Not Supported
H^3: NFT Popularity has a positive effect on Tech Adoption.	0.485	6.057	0.000	**Supported**
H^4: Tech Adoption will have a positive effect on the Intention to Invest.	0.662	7.480	0.000	**Supported**

Table 5. Specific Indirect Effect

Hypotheses	Std. Path Coefficient	t-values	p-values	Result
H^5: NFT Popularity will have a positive effect on Intention to Invest through Tech Adoption	0.321	4.660	0.000	**Supported**

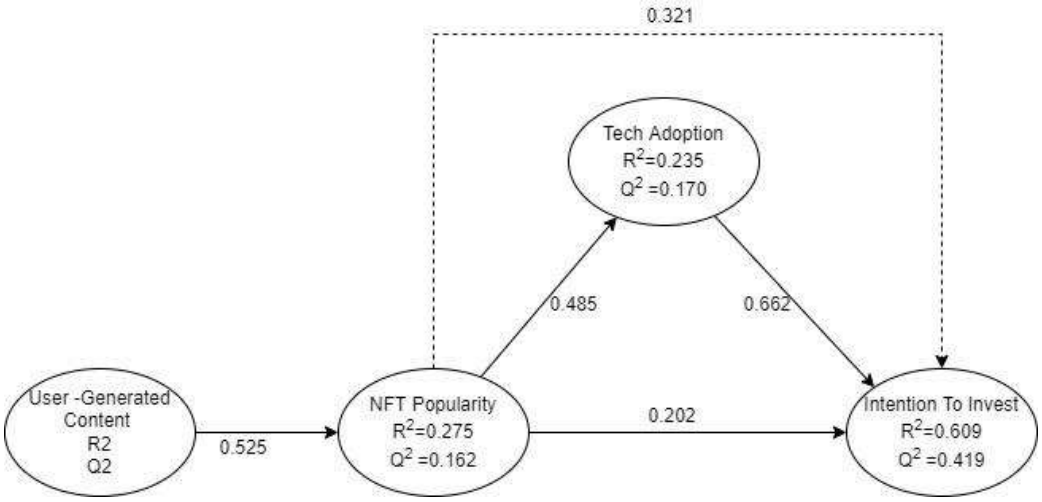

Figure 2. *Analysis Result*

V. Conclusion

a. Research Contribution

This research intends to identify the correlation between these constructs from the influence of user-generated content. The data samples are collected through random sampling, university students who may have prior or no involvement in NFTs. The analysis results show the path coefficients of these constructs, measuring their involvement with one another. And it can be used to prove the hypotheses mentioned in Table 4. Hypothesis 1 being user-generated content having a positive impact towards NFT popularity is supported. Hypothesis 2 being NFT popularity having a positive impact towards intention to invest is not supported. Hypothesis 3 being NFT Popularity having a positive impact on tech adoption is supported. And Hypothesis 4 being tech adoption having a positive impact on intention to invest is supported. It is proven that Hypothesis 1, 3, and 4, are valid and supported hypotheses, with Hypothesis 2 being invalid. Table 5 measures specific indirect effects with Hypothesis 5, being NFT popularity having positive impact towards intention to invest through tech adoption is supported. It shows that this hypothesis is valid, with NFT popularity having indirect impact towards intention to invest, but positive impact towards it through tech adoption.

b. Research Limitation and Future Research

This research is but a limited, brief and small scale analysis of how user-generated content can have influence on these driving factors that ultimately leads to the decision of investing in NFTs. With further tech adoption and adaptation, NFTs and cryptocurrency will continually develop, becoming more applicable in various scenarios. Further updated research on individuals will have to be measured and analyzed as time goes on and technology developments proceed.

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