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A Literature Review of Technology NFT: Potential Investment, Safety Transaction and Regulations in Indonesia Case

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ABSTRACT

The NFT was first published in 2014, but studies exploring accounting and regulatory considerations regarding NFTs are still limited, especially in Indonesia. This study aims to uncover opportunities, challenges, regulations, and accounting considerations in NFT. The research method used is qualitative research with a literature review approach. The data used in this research is secondary data. Four databases were selected to search for papers published from 2018 to 2022 with the help of Publish or Perish, Mendeley, and Vos Viewer software. The data analysis technique was carried out by following the analytical procedure of Miles & Huberman (1994), namely data analysis starting from the data collection process, data reduction, data display, and conclusions. The results showed that the results of the mapping based on the author's keywords described the relationship between NFT and various aspects. NFT has good prospects in the future, but also has an impact that cannot be ignored. even so, negative skepticism towards NFTs can be strengthened through regulations to reduce the impact. Of course, this is supported by knowing the accounting treatment.

INTRODUCTION

The technology behind NFT is blockchain because NFT is stored and traded on a decentralized computer network (Maurer, 2022) and in the process, NFT requires a blockchain platform to be able to run smart contracts (Noor, 2021). Blockchain according to Zainab (2022) is a distributed ledger of digital transactions. Used to store metadata representing ownership or other rights to an asset. The transaction history of assets on the blockchain can be easily traced to determine their origin (Nikita et al, 2021). NFT uses blockchain technology which is also used in cryptocurrencies. Cryptocurrency according to Manurung (2021) is a digital asset designed as a medium of exchange and carried out in a database using cryptographic techniques. Meanwhile, according to IFAC (2022), cryptocurrency is a decentralized virtual asset protected by cryptography that can be used as a means of the electronic exchange, transfer, storage, and trading. There are two main groups in cryptocurrencies according to Wojchiech (2021) namely coins and tokens. Coins show information about the exact number of cryptocurrencies. While tokens are digital representations of goods, services, forms of value, or other utilities used to represent transactions (Popescu, 2021). Tokens are divided into two, namely Fungible Tokens (FT) and Non-Fungible Tokens (NFT). FT is a token that can be exchanged, like fiat currency, and is synonymous with everything and can be shared. Meanwhile, NFT is a non-exchangeable and

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unique token, such as a notarized instrument or a collection of artworks (Karandikar, Chakravorty, & Rong, 2021) including music, digital art, games, gifs, video clips, and others (Rehman, Zainab, Imran, & Bawany, 2022).

The sharp increase in NF searches on Google Trends being able to outperform cryptocurrency searches has proven that one of these crypto assets is in demand by the public. Total NFT sales volume collected from Non-Fungible Corporation (nonfungible.com) in 2020 was \$2.5 billion and total NFT sales volume in the first six months of 2021 exceeded \$10.7 billion. This shows significant changes in a short time (Ante, 2021). NFT is no less popular in Indonesia. Reporting from the Pintu.co website, the first claimed NFT in Indonesia is the one made by Deny Januar Ali. The work is a painting entitled A portrait of Denny JA: 40 years in the World of Ideas. Based on NFT marketplace data on Opensea, the work has sold for 27.5 Ethereum, or the equivalent of 1.1 billion rupiahs. Another very viral case is Ghozali every day who earned billions of rupiah from selling his selfie photos that were carried out for 5 years. Now, the trade volume on OpenSea has reached 347 Ethereum, or around 16 billion (OpenSea, 2022).

With the phenomenon of significant fluctuations in NFT prices, where the price of an item is far from its intrinsic value, according to the researcher, it becomes one of the challenges in NFT investment because it is difficult to evaluate the value of an asset that is the object of the NFT itself. This is in line with research (Kappoor, 2022) which states that the NFT market is not liquid, where the selling price is highly volatile and irregular. The surge in existing NFT activity seems to tempt the public to try to invest in one of these digital assets. By following existing trends, people contribute to uploading arbitrary photos and selling them on the NFT marketplace, such as photos of cilor, cupboards, and seblak. Recently, some even sold selfies with their ID cards on OpenSea. (Yahya, 2022). Of course, this is a serious problem because selling people's data in the form of NFT or otherwise is a violation of the law (Azanella, 2022). Data that should be confidential can be easily obtained by irresponsible parties. It is feared that the dull literacy of the Indonesian people will reduce the real benefits of NFT investment. Especially if you invest only based on trends or what is commonly referred to as FOMO (Fear Of Missing Out) where someone is willing to spend more to stay up-to-date without knowing the obvious reason behind it. Like buying a cat in a sack, FOMO is now at the heart of a global conspiracy to influence the decisions we make (Patrick, 2020:13). The focus of NFT research that has been carried out includes research by Dowlingy (2021) examining the prices of three NFT markets (Decentraland, CryptoPunks, and Axie Infinity) and their relationship to the cryptocurrency market. Popescu's research (2021) discusses NFT innovations that can control scarcity, counterfeiting, and copyright protection for artists. Regner & Schweizer (2019) concludes the benefits of NFT as a blockchain-based event ticket can overcome vulnerability to fraud. Chohan (2021) also discussed there is no scarcity of using blockchain technology. Noor's research (2021) also reviews the benefits of NFT which is not only for buying and selling digital archives but as a means of proving the authority or person in charge of an archive. Mukhopadhyay (2021) concludes the benefits of NFTs which provide a bridge to the digital economy. This research has been carried out in various countries, while research on NFT in Indonesia is still limited.

The difference between the research that will be studied with previous researchers is the opportunities and obstacles in NFT investment in Indonesia to find real benefits from NFT so that the implementation of buying and selling or collecting NFT is not only based on existing trends. In addition, the researchers also tried to filter some previous research recommendations to enrich the study material, such as the need for regulations related to NFT. Trautman's (2021) research, his research concludes that several provisions (digital tokens) between countries need to be made and copyright in works of art needs to be improved. Rehman et al (2021) also conclude that there is a lack of industry security standards for smart contracts. And also Nithyananda (2021) in his research also reviews the benefits of NFT but there are no regulations that oversee it. The absence of NFT accounting considerations is also a differentiator in this study so that the appropriate regulation can then be determined. It should be noted that in Indonesia there are no standardized rules (Hariyanti, 2022), and it is still a question whether NFT can be treated like other crypto asset products or not, given that NFT transactions use cryptocurrency payment instruments, while in Indonesia prohibits the use of crypto money. as a means of payment.

Based on the description that has been described, the following problems can be formulated: (1) What are the potentials and challenges in investing in NFT? And (2) how is the regulation of NFT in Indonesia?

METHODS

This study uses a type of qualitative research with a literature study approach. The literature study approach is research conducted based on a review of written works, both published and unpublished research. The reason for using a literature study approach is that research on NFT is still minimal so researchers want to get other kinds of literature around the world to be able to answer the problems that exist in the research. Then, the limitation of getting information directly is also the reason for this literature study approach. In this regard, the data selected in this study were adjusted using secondary data. Secondary data in this study were obtained through library sources in the form of articles, journals, bulletins, research papers, and web pages. The researchers in obtaining secondary data used the help of PoP (Publish or Perish) software. PoP is used to retrieve and analyze academic citations (Auliato, Yusup, & Setianti, 2019). PoP in this study was used to screen research journals from the Scopus, Google Scholar, and Semantic Scholar databases for the period 2018-2022 with the keyword NFT. In the Scopus database, 49 papers were found, on Google Scholar 97 papers, and on Semantic Scholar papers 223. The existing papers were stored in RIS (Research Information System) format which was then analyzed with the help of Mendeley software. Mendeley in this study is used to process the references obtained, correct the author keywords in the article, and as a means of accessing an article. Of the existing papers, only a few can be accessed for review. The next stage of processing results through Mendeley is saved in RIS format which is then opened through the Vos Viewer software. Vos Viewer is the final stage in the data processing process in this study. Vos Viewer is used to mapping bibliometric analysis.

The type of mapping chosen is subject/keyword mapping (co-occurrence maps). Chen (2003) in Khoirunissa and Winoto (2022) explains that this analysis is used to calculate the number of keywords that appear in research documents where the frequency of occurrence of these keywords is an indicator of the strength or weakness of the relationship between the documents being studied which is visualized in Figure 2. The data analysis was carried out by following the analytical procedure of Miles & Huberman (1994), namely data analysis starting from the data collection process, data reduction, data display, and conclusions. Data reduction is done by making subtractions from the data obtained during the study by sorting and determining the relevant data using research studies. The next stage is compiling data that has been grouped at the beginning, then analyzed by comparing its implementation with applicable financial accounting regulations or standards. The last process is concluding. The following is an illustration of conducting data analysis in this study.



Figure 1
Analytical Procedure (Miles & Huberman, 1984)

RESULTS AND DISCUSSION

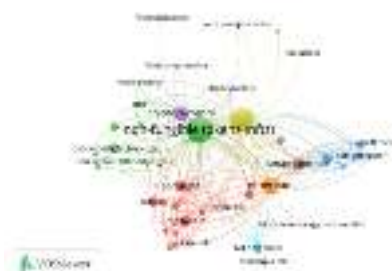


Figure 2
Vos Viewer of NFT Network Visualization

Figure 2 is the output of the processing based on the absorption of data from the scientific journal database through the Vos Viewer software. The results of the analysis described include the relationship between the topics studied in the form of small, medium to large circles. The bigger the circle in the picture, the more the topic is discussed. However, if the circle is small, it indicates that there is little discussion of the topic. Then from the results of the data, the researchers grouped them into four (3) main themes which included the Prospects and Barriers of NFT, NFT Accounting Considerations, and NFT Regulations which will be discussed in depth in the next sub-chapter.

NFT Investment Potential and Challenges

The first theme is the prospects and challenges of NFT. Based on Figure 4.1, the researchers grouped the most discussed topics relevant to the prospect of NFT, namely blockchain technology, ownership, smart contracts, data privacy, copyright, innovative solutions, digital art, decentralized finance, and financialization. Then the challenges grouped, wash trading, blockchain technology, blockchain energy consumption, data privacy, smart contracts, and consumer protection as the most discussed topics in the NFT Challenges sub-chapter. The following is the result of the researcher's analysis of the prospect of NFT.

NFT Potential

The researcher narrowed down the prospects for NFTs into three (3) which include 1. Blockchain Technology, Ownership and Smart Contracts, 2. NFTs in Digital Art, 3. NFTs in Alternative Investment. The explanation is as follows.

Blockchain Technology, Ownership, and Smart Contract

The technology behind NFT is blockchain, blockchain applications explicitly tout anonymity, utilizing a decentralized computing system that makes tracking users nearly impossible (Cornelius, 2021). The immutability of blockchain can increase trust and transparency in transactions and smart contracts can be used to automate the flow and processing of transactions (Karandikar N. e., 2021). Eternity according to the wiktionary.org page is a matter (which is, characterized) to remain forever, or it can also be referred to as eternity or sustainability. NFTs can be used to represent ownership of digital art or other unique items where ownership is recorded in a smart contract on the blockchain. In addition, NFT creators can add details such as identity, secure links to files, and more into smart contracts. They can also define certain rules regarding NFT trading. Smart contracts are the technology that makes NFT unique and valuable. Therefore, each NFT has a unique quality and different value from other similar tokens. (Ocean, 2022) . NFT is a cryptographic token enabled via blockchain that represents proof of ownership for digital objects. (Chalmers, Fisch, & et al, 2022). Proof of ownership of NFT with the help of blockchain technology makes it possible to view NFT content collector information as the owner. This means that NFT can be downloaded and viewed by anyone but only one person owns it.

NFTs in Digital Art

NFTs can represent digital or physical assets, which opens up great opportunities for monetization in the creative sector. The advantage of having digital artwork on the blockchain allows for not only a trusted record of identification of the creator but also a record of ownership of the art form which cannot be edited and tampered with Quirion (2021). Artists believe that digital works printed on the blockchain are unique and authentic and therefore no one can question, challenge, obscure, or compromise ownership of certain assets (Valeonti, 2021). Digital art also offers several advantages once acquired, for example in terms of lower transportation and storage costs. NFT is a method to put themselves (creators) out there, as they can create/print NFTs from their minds, rather than following the client's preconditions (Sharma & Zhou, 2022), also without having to participate in offline exhibitions (Alexandrovna & Sergeevna, 2022). According to (Cheong, 2022) NFT can help digital creators and intellectual property owners to monetize their works or assets without intermediaries and earn royalties every time the NFT is resold. Royalties on NFT are payments that compensate NFT creators for the use of their NFT tokens (Thune, 2022). NFT royalties come from secondary sales, i.e. sales that occur in the market after the initial sale (Shah, 2022). Royalties from NFT give the original owner a percentage of the sale price each time an NFT creation is sold on the market. The average NFT royalty ranges from 5-10%. However, in most NFT marketplaces, creators can choose their royalty percentage (Thune, 2022).

NFTs are Alternative Investment

NFT is an investment in the form of ownership of a 'collection' of objects (MOST, 2022). Investors have many reasons to decide to buy NFT token assets. Some people are interested in owning the underlying asset, while others may look at the value of the asset in the NFT token (Garnet, 2022). Underlying assets in NFT are assets guaranteed by artistic rights, namely guarantees of originality or the form of the authenticity of the art itself (SHAFIEC, 2022). Underlying assets can be used to identify items in the agreement that provide contract value (PLUANG, 2020). Then, NFT investors can also take advantage of short-term capital gain opportunities. Short-term profit benefits according to (Tong, 2022) can generate liquid capital that investors can use to manage their other investment operations for the development of new markets. Liquid capital can be spent immediately rather than capital that has been invested in long-term assets. Taking profit on short-term investments can increase the amount of liquid capital in the NFT market. The value of NFT is completely based on what other people are willing to pay for it. Therefore, demand will drive prices rather than fundamental, technical, or economic indicators, which usually affect stock prices and at least generally form the basis of investor demand (Shah, 2022).

NFT Investment Challenge

Researchers through Figure 4.1 classify NFT challenges including 1. Blockchain Energy Consumption, 2. NFT challenges, 3. Investment of NFTs. The explanation is as follows

Blockchain Energy Consumption

All blockchain technology applications collectively cause emissions and the scale of emissions depends on the blockchain design used (Truby, Brown, Dahdal, & Ibrahim, 2022). Ethereum-backed NFT transactions require high energy consumption so NFT contributes to the emissions caused by blockchain technology. It is estimated that Ethereum's annual energy consumption is around 26TWh, equivalent to the annual energy consumption required by Ecuador, a country of 17 million people (Yulia, Duana, & Herlina, 2022). This is what triggers the occurrence of environmental damage because the effects of climate change will come more quickly. The growth of NFT transactions poses a major problem due to the energy-intensive transaction verification process, requiring multiple mining devices to verify the blockchain. The greater the number of transactions, the greater the demand on the network and the more these mining devices are demanded and operated (Truby, Brown, Dahdal, & Ibrahim, 2022). Regarding this matter, it is necessary to have regulations that can monitor and control NFT transactions so that they are not excessive, although NFT has great potential, it is necessary to limit production to NFT mining or other energy-efficient alternatives such as the use of renewable energy as an energy source which is more environmentally friendly.

NFT Transaction Security

The purchase of NFT does not automatically guarantee the acquisition of intellectual property rights in NFT. Thus, although ownership of the NFT may have been successfully transferred, the NFT collector does not acquire the right to modify or reproduce the NFT. However, it is possible to transfer the NFT through a sale which can also entitle the original creator to royalty payments through the operation of a smart contract (Awoyemi, 2022). Like other digital media, NFTs are inherently vulnerable because the underlying technology platforms can be hacked (Deloitte, Corporates Using NFTs; How NFTs Might Fit your Business and Watch for, 2022). The loss of a device for storing NFT or forgetting a password in accessing is a threat. In addition, there are limits to the display technology that can be enjoyed (Jo & Ko, 2021). NFT technology ensures that no one can copy or transfer NFT without the permission of the owner. That is, scarcity is guaranteed. But we can't control who is the first to do work with NFT. Controversy over plagiarism is possible. (Jo & Ko, 2021). This is in line with Awoyemi's research, that an "offender" can easily print an NFT from a work of art even though it does not own the copyright. When a work has not been copyrighted, it will still be printable as an NFT, because the digital marketplace for NFT does not have a mechanism to establish the authenticity of the underlying art in NFT (Awoyemi, 2022). NFT certification is not a mechanism that prevents works from being copied and distributed online, but only certifies certain copies of images and maintains the duplicate nature of the work. (Valera, Salome Cuesta; et al, 2021). So it is important in the future to be able to show that the NFT can contain other information such as name, work, author's name, copyright status, and others (Guadamuz, 2021).

Investment of NFT

The price of NFT is greatly influenced by the level of popularity and the emotional bond between the object and its fans. Such investments are very difficult to predict because there are no trends to follow and analyze (MOST, 2022). NFT can be resold at a lower price than paid. Or may not be able to resell it if no one wants it (Shah, 2022). That is the lack of liquidity in the NFT. The owner must find potential buyers who have an interest in his NFT and depend on how much the buyer likes the object to be purchased. Just like selling classic cars, not everyone likes classic cars and is willing to spend fantastic money on cars that don't necessarily have spare parts on the market (MOST, 2022). Moreover, as with collectibles, NFT prices tend to be high and can only be purchased by certain groups. Its sole, non-shareable ownership system also makes this NFT only available when the payment has been paid (MOST, 2022).

What makes an asset value is that they are the only one (Fairfield, 2021). Scarcity gives an item value but it is not the only thing that makes an item valuable. There is a risk that NFTs may fade from the wider public interest in the long term (Shah, 2022). Vidya, Kulkarni, P, & Sureban (2022) added that the value of NFT is solely determined by its aesthetic and sentimental value. It is impossible to know how much it is worth as a long-term investment. One of the main risks associated with investing in NFTs is the lack of a regulatory framework that governs the market. Since NFTs are not regulated by any government agency, investors face the risk of losing all their capital, it is also difficult for investors to sell their holdings. One of the main drawbacks of investing in NFTs is that they are still a relatively new asset class, and the assets available for purchase are very limited. This means that unlike traditional investing, where you can buy shares in a company that will pay dividends in the future, NFT returns are largely based on the performance of the underlying asset. This makes it very risky for newcomers to invest large sums of money in NFT (Shah, 2022)

NFT Accounting Considerations

To address accounting considerations in NFTs it is necessary to understand the transactions involving NFTs, and fully understand the underlying terms, rights, and obligations associated with NFTs and what NFTs represent as assets (Deloitte, 2022). Accounting considerations in NFTs can vary according to the parties who have an interest which can also be seen from several factors, including the following. From the collector/holder point of view, NFT can be accounted for as an intangible asset (PwC, 2021). Intangible assets according to PSAK 19, are identified as non-monetary assets without physical form, in this case, intangible assets of the non-current category that are utilized or used by companies such as goodwill, patent rights, brand rights, royalties, software, and so on. . Citing on the accountingtools.com website, NFT gives ownership rights to the holder of a work of art, so it is most likely to be recognized as an intangible asset. Then, like trademarks, NFT is assumed to have an indefinite life because it is expected to retain its value for a very long period, so there is no need to record monthly amortization costs. Meanwhile, from the creator's/publisher's point of view, aspects need to be considered, including identifying the assets to be sold and whether the entity is required to keep the NFT or provide other goods or continuous services. In many cases, revenue recognition may be considered (PwC, 2021). The amount of the sale is recorded as revenue because there are no pending liabilities associated with the sale and the selling price will probably be almost equal to the related profit since there will not be many costs associated with the sale (www.accountingtools.com).

NFT Regulation in Indonesia

The main disadvantage of NFT technology from the point of view of its business prospects is the lack of a legal framework to regulate transactions in the digital asset market (Alexandrovna & Sergeevna, 2022). Regulators should consider the nature of NFTs and their function in practice and not what marketing terminology or terms are used (FATF, 2021). The legality of Ghozali's NFT sales transaction according to research (Siliwangi, 2022) linked to Government Regulation Number 71 of 2019 concerning the Implementation of Electronic Systems and Transactions, is concluded that there is no legal regulation that specifically regulates, so as long as it does not harm other parties, there is no cancellation of the parties and as long as the parties agree and understand all the risks are legally valid. Furthermore, based on article 25 of Law Number 11 of 2008 concerning Information and Electronic Transactions, it is stated that electronic information and/or electronic documents compiled into intellectual works, internet sites, and intellectual works contained in them are protected as intellectual property rights (IPR). IPR in NFT is closely related to research (Sulistianingsih, 2022) which explains the role of IPR in NFT is very necessary because it becomes a legal mechanism to protect a work (NFT digital assets). In Indonesia, crypto assets can be categorized as commodities traded on the Futures Exchange.

The list of traded crypto assets has been adjusted due to suggestions from market participants and evaluations from the Commodity Futures Trading Regulatory Agency, as well as the increasing

growth of transactions from crypto assets. Based on Commodity Futures Trading Regulatory Agency No. 11 of 2022 as many as 383 types of crypto assets can be traded on the physical crypto asset market. This shows significant progress because previously in Commodity Futures Trading Regulatory Agency No. 7 of 2020, there are only 383 types of crypto assets traded. Then is the consideration of crypto assets the same as NFT? Based on the data of Commodity Futures Trading Regulatory Agency No. 11 of 2022, NFT is not included in the 383 types of crypto assets that can be traded. However, please note that there are 5 types of crypto assets, including utility tokens, asset-backed tokens, security tokens, Decentralized Finance, and NFT. According to the researcher, although NFT is not in the data of Commodity Futures Trading Regulatory Agency No. 11 of 2022, it does not mean that NFTs are not classified as crypto assets. However, please note that crypto assets take many different forms and new crypto assets (sometimes referred to as digital tokens or digital assets) are constantly being created. These assets can function as a medium of exchange, granting rights to use products or services, granting rights to the underlying asset, granting voting rights, or granting rights to profits and losses. According to the notes of Teguh Kurniawan Harmanda, M. Ec. Dev Chairman of the Indonesian Crypto Asset Traders Association, there are five types of crypto assets including Utility, Asset-Backed Token, Security Token, Decentralized Finance, and Non-Fungible Token. Based on this, NFT is one type of crypto asset, but this does not necessarily mean that the treatment of crypto assets is generalized because the treatment of crypto assets will differ depending on the type.

CONCLUSIONS AND SUGGESTION

The potential that exists in NFT can be a trigger in investing and the obstacles to NFT should not even prevent them from avoiding NFT, it is important to look for other alternatives which are then accompanied by standardized policies so that they are stable in their use. The limitation of this research is that it only uses one approach. Quantitative and qualitative studies are expected to be carried out in the field as well as variations of research data in the form of primary data through interviews that are useful for making different variations.

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