



# Implications of Non-Fungible Tokens (NFT) for the economy in Indonesia

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## ABSTRACT

NFTs are unique forms of digital assets that utilize blockchain technology to provide authenticity and verified ownership. In recent years, NFTs have gained significant popularity in the global market, including in Indonesia. This research aims to analyze the implications of Non-Fungible Tokens for the Indonesian economy. The study employs a qualitative method with a library research approach to examine the implications of NFT usage in the Indonesian economy through an in-depth analysis of relevant literature. The research reveals that the utilization of NFTs has implications for enhancing the growth and income of the creative economy in Indonesia. NFTs serve as attractive investment instruments that can yield substantial benefits for creative economy participants. Furthermore, the adoption of NFTs can contribute to increasing government revenue through taxation, as NFT transactions can be monitored and subjected to taxation. In the context of creating new job opportunities, NFT usage fosters new possibilities for professionals and creative workers with digital and creative skills.

**Keywords:** Non-Fungible Token; creative economy; investment; government revenue

## 1. INTRODUCTION

The development of internet technology worldwide has transformed human life across all aspects: social, economic, political, and even religious realms have been influenced by its advancements. In terms of the economy, the Internet has impacted trading patterns, investments, banking transactions, and various other activities by digitizing them and giving rise to a new digital economy. Indonesia, with its significant

potential, has witnessed a substantial number of active internet users since 2019. According to a survey conducted by the Indonesian Internet Service Providers Association (APJII, 2020), the country currently boasts 196.71 million active Internet users, accounting for 73.7% of its total population.

This sizeable user base presents a unique opportunity to develop and nurture Indonesia's digital economic ecosystem. The growth of the digital economy will not only create numerous job opportunities within the digital sector but also substantially impact Indonesia's overall economic growth. The emergence of the "Society 5.0" era signifies a paradigm shift, wherein technology and its innovations have become integral to human activities. Traditional economic practices, such as conventional buying and selling, have transformed into internet-based activities. Similarly, investment strategies that once revolved around capital participation, stocks, bonds, and properties have evolved in the Society 5.0 era, incorporating technologies such as cryptocurrencies, Non-Fungible Tokens (NFTs), and the metaverse.

Non-Fungible Tokens (NFTs) have garnered significant attention within Indonesia, particularly due to a notable incident in early 2022. A university student named Ghozali, also known as Ghozali Every day, successfully traded a selfie photo as a digital asset in the form of an NFT, earning a profit of 1.7 billion Indonesian Rupiah. The global market witnessed a meteoric rise in the popularity of NFTs in 2021, exemplified by the increasing interest in NFTs like Bored Ape and CryptoPunks. According to Chainalysis (2022), the total value of NFT transactions surged from \$106 million in 2020 to \$44.2 billion. The concept of NFTs was initially introduced as "Colored Coin" in 2012, stemming from one of the world's most significant crypto innovations, Bitcoin. Colored Coins represent real assets, such as properties, cars, and bonds (Valeonti, et al., 2021).

NFTs are unique assets, most commonly taking the form of digital art and collectibles. They are represented as digital tokens that can be traded in markets utilizing the same technology as cryptocurrencies, namely blockchain. These assets are one-of-a-kind, meaning each NFT possesses distinct characteristics that differentiate it from others in the market. The blockchain technology ensures the authenticity, ownership, and traceability of NFTs, providing a secure and transparent platform for buying, selling, and trading these digital assets (Karandikar, 2021). A Non-Fungible Token (NFT) is an asset that cannot be exchanged for another asset. This means that an NFT is a digital asset that can only be traded within a marketplace and specific games. Unlike fungible assets such as cryptocurrencies, where one unit is interchangeable with another of the same value, NFTs are unique and indivisible. Each NFT has its distinct value, properties, and ownership, making it irreplaceable and non-interchangeable with other assets. Therefore, NFTs can only be bought, sold, and traded within designated platforms (marketplace) and games that support their unique characteristics.

The presence of NFTs is a boon for artists in Indonesia. Many technologies and digital finance experts have begun developing systems for NFT trading. Indonesia holds significant potential for the growth of the digital industry, particularly in the field of NFTs. Numerous conventional art practitioners possess talent and creativity that need a platform to expand their traditional art into the digital realm. Therefore, this article aims to specifically discuss the Implications of Non-Fungible Tokens (NFTs) for the Economy in Indonesia.

## **2. METHODS**

This study employs qualitative descriptive research to describe, interpret, and explain the research subject. The nature of qualitative research is descriptive and explanatory, which means the researcher provides detailed descriptions. Specifically, this study utilizes a descriptive method in the form of library research. Library research involves gathering literature, books, notes, articles, journals, and other references supporting the research's construction. This literature review aims to find answers and theoretical foundations related to the research problem that will be investigated (Fathoni, 2011). A literature review aims to enhance and deepen the research inquiry. Therefore, this type of research is valuable in understanding the research subject comprehensively from diverse perspectives (Moleong, 2017).

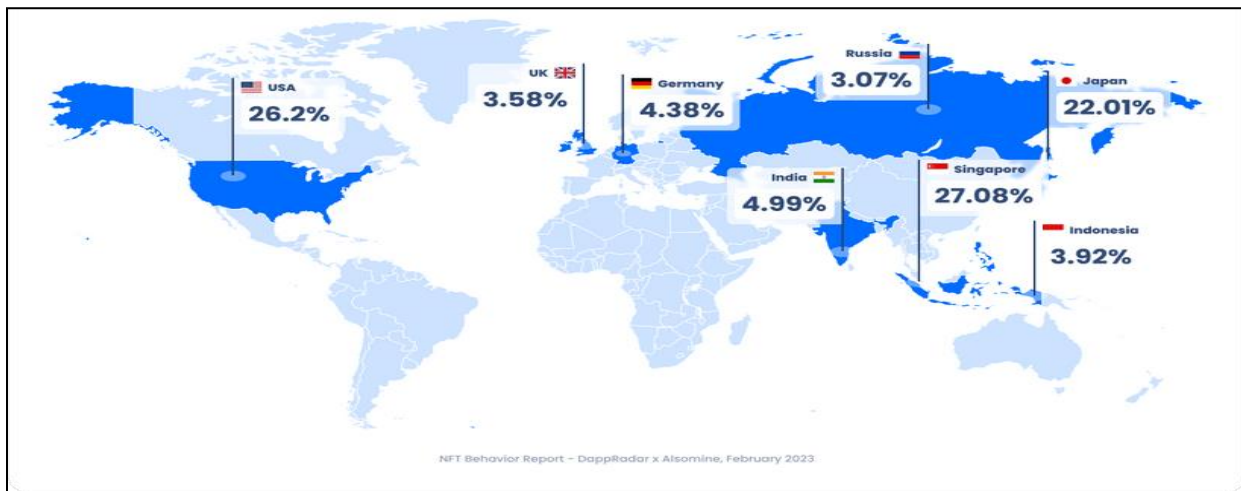
## **3. RESULTS AND DISCUSSION**

Non-Fungible Token (NFTs) is a unique authenticity certificate on the blockchain typically issued by the creator of the asset. The asset can be digital or physical in nature. The term "fungible" means that if a user exchanges or trades it with another Bitcoin, they will have something equivalent or the same. On the other hand, the term "non-fungible" means the opposite - the user will receive something completely different. NFTs are used in blockchains such as Ethereum, Solana, Polygon, Cardano, and other cryptocurrencies like Bitcoin. The Ethereum blockchain supports NFT trading using ETH as their currency (Aletha, 2021).

Blockchain is essentially a distributed database or a public ledger of all digital transactions or events that have been shared among participating parties. Each transaction in the public ledger is verified by the consensus of most participants in the system. Once recorded, the information is permanently stored and cannot be modified. The blockchain contains specific and verifiable records of every transaction ever conducted (Lukita, 2020). Blockchain is the underlying technology of the cryptocurrency Bitcoin, created by Satoshi Nakamoto in 2008. It is a form of distributed database that contains transactions stored in a block of data (Hu, et al., 2019).

Mark Cuban, in Lawrence's observation (2021), stated that NFTs are just one application of smart contracts. For example, if a book becomes an NFT and is bought and sold, the publisher can receive royalties from each sale. NFTs are an innovation of the blockchain security system, where anyone can access and engage in transactions within it. This is because blockchain is programmed to utilize various innovative and secure applications called smart contracts. They are referred to as smart contracts because they enable users to transact with each other without relying on a central trusted authority. According to Professor Jonathan Zittrain from Harvard, in Lawrence's study (2021), on buying and selling transactions, buyers or investors who own NFTs will obtain three things: the sense of tranquility in purchasing an NFT artwork, the feeling of pride in owning a digital work from an original creator, and NFT assets that can be traded in real terms.

The popularity of NFTs in Indonesia has increased alongside the growth of the creative industry, technological accessibility, heightened awareness, support from industry players and creative communities, and the potential for financial gains. One research study revealed the geographical distribution of NFT users in 2022. The Asia-Pacific region emerged as a major player, with Singapore contributing 27.08% of the total NFT users, followed by Japan with 22.01%. Other countries in the Southeast Asia region also made breakthroughs in NFT user distribution, with India and Indonesia also included in the picture below.



Source: <https://dappradar.com/blog/behavior-report-what-do-consumers-want-from-nfts>

**Figure 1.** Distribution of NFT Users in 2022

The implications of NFTs' digital assets for the Indonesian economy, as referred to in this study, are as follows:

## **The Adoption of NFTS Can Stimulate the Growth and Enhance the Revenue of the Creative Industry in Indonesia**

The creative industry in Indonesia is currently experiencing significant growth and is recognized as one of the sectors with great potential to enhance the country's economic growth. The scope of activities within the creative industry can be grouped into 14 subsectors. According to the Ministry of Trade of the Republic of Indonesia in the book "Pengembangan Industri Kreatif Menuju Visi Ekonomi Kreatif 2025" (Development of the Creative Industry towards the Vision of Creative Economy 2025), the 14 subsectors of Indonesia's creative industry are Advertising, Architecture, Art Market, Crafts, Design, Fashion, Video, Film and Photography, Interactive Games, Music, Publishing and Printing, Computer Services and Software, Television and Radio Broadcasting, Research and Development (R&D), and Culinary.

Based on data, Indonesia has a large and rapidly growing creative industry. According to the Creative Economy Agency (Bekraf) data in 2020, Indonesia's creative industry contributed 7.4% to the national GDP, equivalent to around IDR 1,100 trillion. This indicates significant growth compared to the previous year, which accounted for 7.12% of the national GDP, approximately IDR 1,029 trillion. The creative industry in Indonesia encompasses various sectors, including arts, music, film, crafts, architecture, design, and others (Kemenparekraf & BPS, 2022).

One of the factors driving the growth of the creative industry in Indonesia is technological advancements and the internet. In the current digital era, internet access has become more widespread throughout Indonesia. This opens new opportunities for creative industry players to market and distribute their creative products to a wider and more effective audience. With the internet, artists, designers, musicians, writers, and other creators can reach a global audience without being limited by geographical boundaries. They can leverage online platforms, social media, and digital marketplaces to promote their work to a larger audience, thereby unlocking significant growth potential. In line with this growing industry, a new trend of digital assets in the form of NFTs has emerged. Non-Fungible Tokens (NFTs) have dominated discussions in the creative economy industry in recent years. NFTs can be seen as a smart strategy to harness the potential of the creative economy.

In Indonesia, several NFT platforms are already operational and provide a space for artists and creators to sell their works in the form of NFTs. For example, TokoMall, Paras, Baliola, Enevti, Kolektibel, Artsky, NEFTiPEDiA, VCGamers, MetaNesia NFT, Rivernity, Sangkaraland.io, and SerMorpheus. These platforms enable artists and creators to market and sell their digital artworks to collectors through blockchain technology. The NFT market in Indonesia is expected to continue growing in the future. The NFT market

value in Indonesia is projected to reach over Rp 200 trillion by 2028. Indonesia is considered as one of the countries to watch in the global NFT industry. The NFT industry in Indonesia is estimated to grow by 50.8% annually, reaching US\$ 2,367.6 million in 2022. In the long term, it is projected to maintain stable growth with a compounded annual growth rate (CAGR) of 35.8% during 2022-2028. The spending value on NFTs in Indonesia is expected to increase from US\$ 2,367.6 million in 2022 to US\$ 13.394 billion or approximately Rp 200 trillion by 2028 (Ludwianto, 2023). The research also noted that artists traditionally relying on traditional media are beginning to shift towards digital media, such as NFTs, as a liberated creative platform. Artists are venturing into the digital realm because NFTs empower content creators to maintain complete control over their creations and foster meaningful interactions. The global VMR research also predicted that the NFT market will reach \$231 billion by 2030. Currently valued at \$11.3 billion, the market is expected to grow at 33%. This substantial growth is driven by the rising demand for digital art, collectibles, and gaming assets, showcasing the potential for the widespread adoption of NFTs in the gaming, music, and fashion industries (Chamria, 2023).

The development of the NFT market in Indonesia has also yielded remarkable artworks that have reached incredibly high prices. From visualizing emotional journeys to blending the real and fictional worlds, these works have captivated NFT collectors and established the position of Indonesian artists in the global market. Some notable examples include:

**Table 1.** Position of Indonesian Non-Fungible Token Collectors in the Global Market

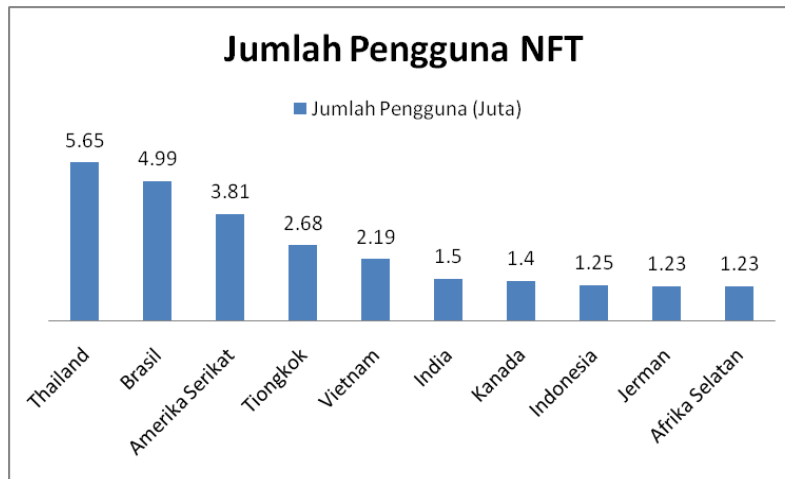
No	NFT	Creator	Price	Market Place
1	Journey and Her Loyal Fellowship	Diela Maharanie	3.6 ETH	OpenSea
2	Gojymoon #1354	Karafuru	42 ETH	OpenSea
3	A Portrait of Denny JA	Galam Zulkifli	27.5 ETH	OpenSea
4	Syahrini Metaverse Tour	Syahrini	0.00819 ETH per NFT (terjual 17.800 buah)	Marketplace NFT (tidak disebutkan namanya)
5	Ghozali Everyday	Ghozali	277 ETH	OpenSea

In its development, several individuals, communities, and corporations have used NFTs as tools for developing the creative economy in Indonesia. Some examples include:

- 1) Game Industry: Battle Racer, Doctor Who, CryptoKitties Indonesia, and Chainmonsters Indonesia.
- 2) Music Industry: Rich Brian, Dipha Barus, Weird Genius, and Raisa.
- 3) Fashion Industry: Iwan Tirta, Rinaldy Yunardi, and Quantum Temple (Bali).

## Non-Fungible Tokens (NFTs) as an Investment Instrument

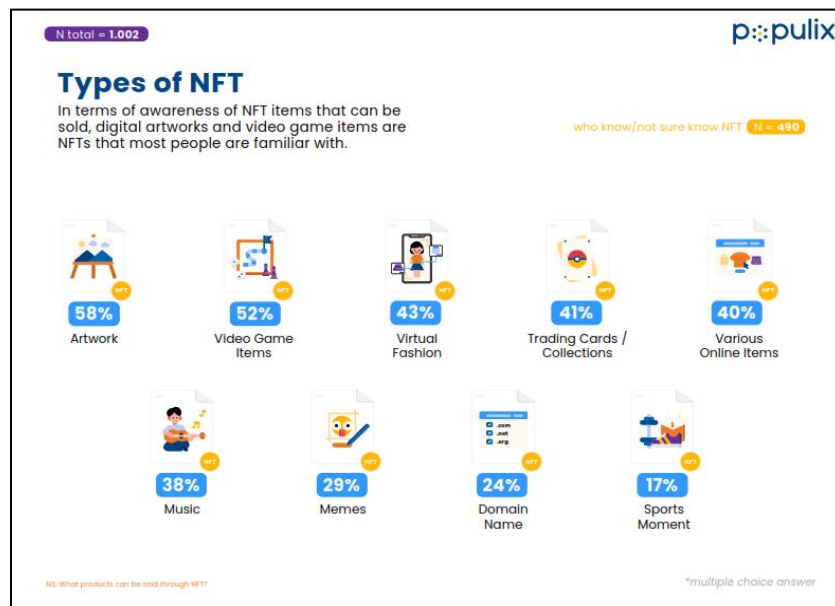
Investing in Non-Fungible Tokens (NFTs) has caught the attention of the Indonesian population. Many Indonesians are interested in participating in the NFT market and harnessing its potential as an investment instrument. They see NFTs as an opportunity to allocate funds to unique digital assets with high appreciation value. Interesting data revealed by Statista Digital Economy Compass 2022, cited from Kata data, unveils fascinating facts about the use of Non-Fungible Tokens (NFTs) in various countries. According to the report, Thailand secured the top position as the country with the world's highest number of NFT users in 2021, reaching a staggering 5.65 million users. Meanwhile, Indonesia impressively ranks eighth on the list, with a total of 1.25 million NFT users. Another interesting fact is that Germany and South Africa, both below Indonesia, have the same number of NFT users, which is 1.23 million individuals. This data provides an overview of the popularity and adoption of NFTs in various countries, and reflects the potential for growth and development of the NFT industry in Indonesia (Rizaty, 2022).



**Figure 2.** The Top 10 Countries with the Largest Number of NFTs Users

Additionally, market research firm Populix (as cited above) released a survey report titled "Indonesian Modern Consumption" that explores consumer behavior in Indonesia. In the report, Populix also examines Indonesian consumers' perceptions of non-fungible tokens (NFTs). The study was conducted with 1002 samples, with 48% male respondents and 52% female respondents. The research reveals that out of the total sample, 33% of people in Indonesia are aware of NFTs, 55% are unaware of NFTs, and 16% are uncertain. Among the respondents who are already aware of NFTs in this survey (490 samples), art was the most recognized type of NFT with a percentage of 58%. Additionally, 52% of respondents were familiar with NFTs in the form of in-game items or accessories, and 43% were familiar with NFTs in the form of virtual fashion or

clothing. The majority, or 40% of respondents, believe that the NFT trend will last for more than 5 years. Based on the survey results below, it is evident that there is potential for growth and investment opportunities in NFTs. The increasing knowledge about NFTs and their popularity in various creative industries such as art, gaming, and fashion indicate a growing interest and demand. This creates opportunities for investors looking to capitalize on the emerging NFT market. The survey also reveals a positive perception of the long-term NFT trend, with most respondents predicting that the trend will persist for more than 5 years. This belief highlights the long-term potential of investing in NFTs. For investors with a long-term outlook and confidence in the growth potential of NFTs, investing in NFTs can be an attractive choice (Populix, 2022).



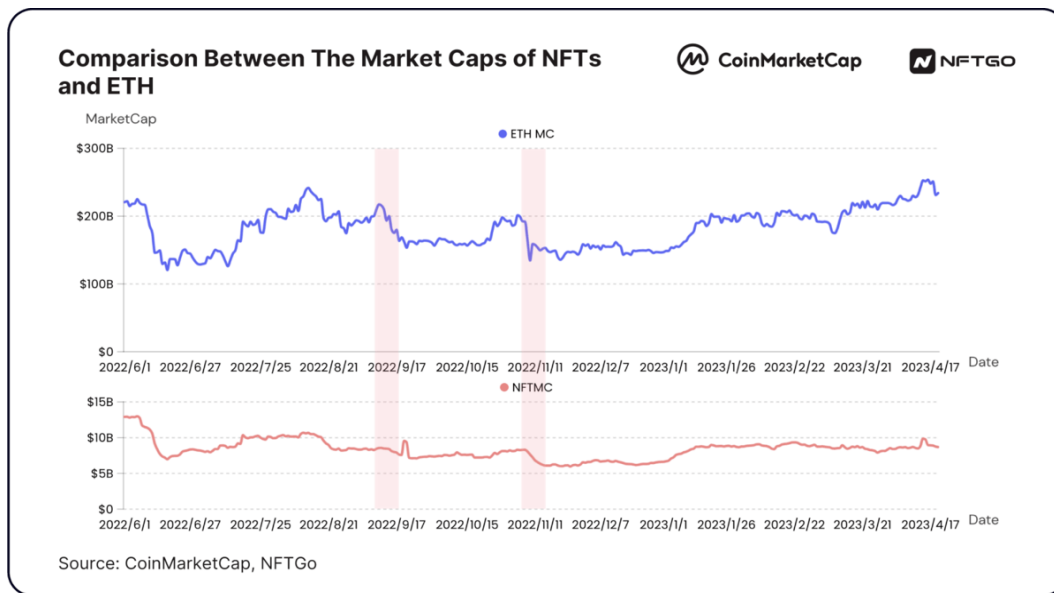
Source: Populix, *Indonesian Modern Consumption*. <https://info.populix.co/report/indonesian-modern-consumption/>

**Figure 3.** Popularity of NFTs Based on Their Types

In the global market, as of January 2023, according to the Industry Dapp report cited by the author from Cryptostars.is, the NFT market has once again shown significant growth, with trading volume increasing for two consecutive months. The data reveals that the highest trading volume occurred in January 2023 since July of the previous year, reaching \$946 million. This figure reflects a 38.5% increase compared to December. This trend stands out compared to the downward trend observed in October, but November and December saw stabilization and recovery in trading volume. The trading volume in dollars has also experienced significant growth since reaching its peak of \$1 billion in June. This market condition presents favorable opportunities for entrepreneurs to develop the NFT market or venture into the NFT business. The market is expected to continue growing at this rate throughout 2023, and even market experts and analysts agree with these positive changes in the web3 space (John, 2023).



According to the research conducted by NFTGo in their 2023 NFT Market Analysis: An Insider Look, although the monthly number of NFT holders dropped to its lowest point in the past 12 months, reaching 11,187 users, the overall number of holders increased by 12%. From 3,980,000 users in February 2023, it rose to 4,457,830 users in April 2023. Despite the decline in the monthly number of NFT holders, the increase in the overall number of holders indicates a strong interest in NFT trading. This suggests that the NFT market has sustained attractiveness and can attract more future participants. With continued growth, investors can see opportunities for long-term profits in this industry. The research also states that the NFT market is more stable than traditional crypto asset markets, which tend to be highly volatile. In many cases, the NFT market does not immediately react to market volatility. For example, when ETH cryptocurrency prices drop, many NFTs show relatively small declines in their prices or values. The chart below, for instance, illustrates that while the market capitalization of ETH decreases, the market capitalization of NFTs does not immediately follow and remains more stable (NFTGo, 2023).



Source: [https:// coinmarketcap .com/ alexandria/ id/article/2023-nft-market-analysis-an-insider-look](https://coinmarketcap.com/alexandria/id/article/2023-nft-market-analysis-an-insider-look)

**Figure 4.** Comparison NFT and Ethereum

Based on the data above, it can be stated that the stability of the NFT market is one of its advantages that sets it apart from the traditional crypto asset market. Despite the decrease in the price of ETH, the NFT market is not significantly affected by such volatility. This indicates that the NFT market has a more stable characteristic and can provide certainty for investors. This stability can provide a sense of security and trust for investors who wish to mitigate the risks associated with high price fluctuations. With its relative market stability, the NFT market can be an attractive investment alternative for

those seeking a more balanced and resilient portfolio in the face of rapid market changes.

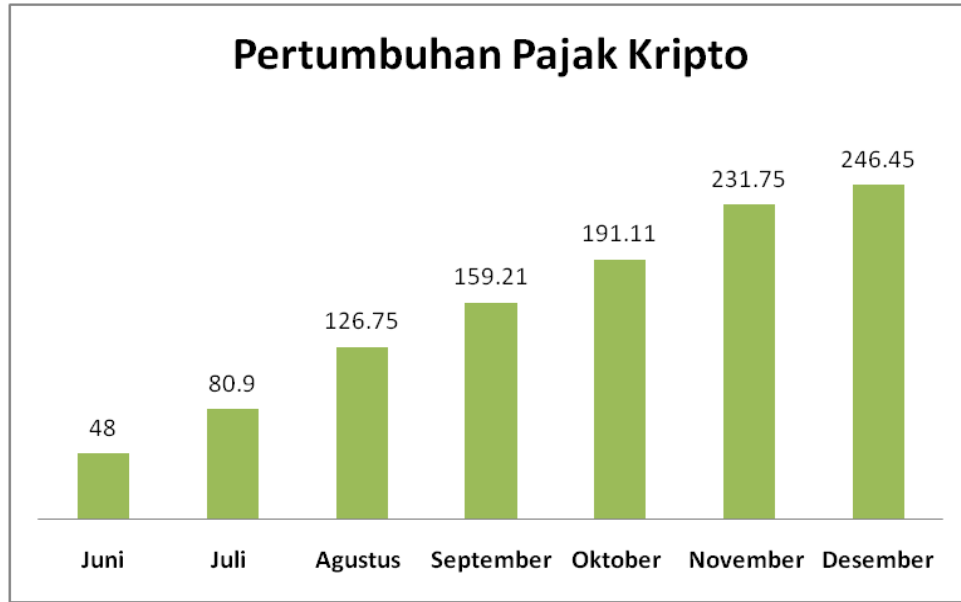
### **Non-Fungible Tokens (NFTs) Can Contribute To Increasing The Government's Revenue Through Taxation**

The Indonesian government has officially designated crypto assets as Value Added Tax (VAT) objects, and profits from digital asset trading transactions are subject to Income Tax (ITR). The implementation of these taxes is based on the fact that crypto is a commodity subject to VAT and an economic addition to taxpayers. The taxation measures took effect on May 1, 2022, targeting individuals and companies who are sellers, buyers, miners, physical traders, Electronic Trading System Operators (PMSE), as well as providers of verification and/or management services that facilitate mining and crypto asset transactions. This policy is outlined in the Minister of Finance Regulation (PMK) Number 68/PMK.03/2022 concerning Value Added Tax and Income Tax on Crypto Asset Trading Transactions, which serves as the implementing regulation of Law Number 7 of 2021 on Taxation Provisions Harmonization.

Data from the Ministry of Finance shows that the state revenue from taxes related to crypto assets reached IDR 246.45 billion by the end of 2022. This collection consists of income tax (ITR) on crypto asset transactions, amounting to IDR 117.44 billion, collected from electronic trading system transactions and self-reporting. Value Added Tax (VAT) amounted to IDR 129.01 billion (Kemenkeu, 2023).

The breakdown of tax revenue from crypto assets in each month of 2022, since the implementation of Minister of Finance Regulation No. 68 of 2022, is as follows:

1. In June 2022, or 1 month after the implementation of Regulation No. 68 of 2022, the revenue amounted to IDR 48 billion.
2. In July 2022, the government received IDR 32 billion, bringing the total tax collection to IDR 80.9 billion.
3. In August 2022, the tax collection increased nearly threefold compared to the previous 2 months, reaching IDR 126.75 billion.
4. In September 2022, it reached IDR 159.21 billion.
5. In October 2022, it reached IDR 191.11 billion.
6. In late November to early December 2022, it reached IDR 231.75 billion.
7. At the end of December 2022, the total tax collection reached IDR 246.45 billion.



**Figure 5.** The Growth of Crypto Taxes in Indonesia in 2022

Minister of Finance Regulation No. 68/PMK.03/2022 has been introduced to enforce taxation on crypto assets. The government's decision to implement this tax is based on the significant value and growing potential of crypto assets as commodities for trade. Consequently, crypto assets are now considered taxable entities. In accordance with this regulation, sellers of crypto assets are required to apply value-added tax (VAT) when conducting transactions within the customs territory, regardless of whether the buyers are located within or outside the customs territory. Moreover, Sri Mulyani has extended the application of VAT to include crypto transactions involving the purchase of non-fungible tokens (NFTs) as well as other goods or services (Elena, 2023).

Therefore, the Indonesian government's policy to implement taxation on crypto assets is considered by the author to be fair and aligned with the advancements in technology and the digital economy. Crypto assets have become a significant part of trade and investment, warranting their taxation similar to commodities or other financial instruments. The revenue generated from this taxation also contributes to increasing income and financing public policies. Striking a balance between fostering the growth of the crypto asset industry and ensuring a fair contribution to state revenue is essential. A sustainable approach is necessary for regulating and levying crypto asset taxes, considering industry dynamics and technological developments. Furthermore, it is crucial to conduct thorough socialization and education for industry participants and the public regarding the policies and implications of crypto asset taxation to ensure a comprehensive understanding and compliance with the applicable regulations.

## Non-Fungible Token (NFTs) Has the Potential to Generate New Job Opportunities

In Indonesia, unemployment is a serious issue that needs to be addressed. High unemployment rates can have negative impacts on the economy and social stability. To tackle this problem, creating sufficient job opportunities to meet the existing labor force's needs is important. The emergence of NFTs in Indonesia can create new job opportunities in the creative economy sector. NFTs enable artists, designers, photographers, writers, and other creators to produce and sell their work digitally. With the adoption of NFTs, they can create unique artworks, digital collections, music, videos, and more, which are then turned into NFTs and sold to collectors. The production, marketing, and distribution of NFTs require the involvement of various professionals, such as blockchain developers, NFT curators, digital marketing experts, and others. With the increasing demand, job opportunities in this field are also expected to grow. Furthermore, adopting NFTs also opens up opportunities for related services, such as local NFT platforms, digital galleries, and NFT security providers.

In this context, enhancing knowledge and skills related to NFTs can be a step towards improving human resources' quality. Training and education focused on understanding NFTs, blockchain technology, and other relevant aspects can help individuals acquire skills that are in demand in the market. With improved human resources capable of harnessing the potential of NFTs, the creative industry can thrive and create new job opportunities. Artists, designers, application developers, and other professionals can produce, distribute, and market NFTs, thereby increasing employment opportunities and reducing unemployment.

## REFERENCES

- Aletha, Nadya, O. (2021). *Memahami Non Fungible Token (NFT) di Industri CryptoArt*. Yogyakarta, Indonesia: Centre for Digital Society, (Online Book). <https://blog.cryptostars.is/rise-of-nft-market-in-2023-in-depth-analysis-8b051d9a7f6e>.
- APJII. (2021). Laporan Survei Internet APJII 2019-2020 (Q2), *Situs resmi APJII*, <https://apjii.or.id/gudang-data/hasil-survei>
- Chainalysis (2022). Crime and NFTs: Chainalysis Detects Significant Wash Trading and Some NFT Money Laundering In this Emerging Asset Class, *Situs Resmi Chainalysis*. <https://blog.chainalysis.com/reports/2022-crypto-crime-report-preview-nft-wash-trading-money-laundering/>
- Chamria, Ravi. (2023), *3 Industries Driving NFT Mass Adoption: Gaming, Music, Fashion*. Artikel Zeeve. <https://www.zeeve.io/blog/3-industries-driving-nft-mass-adoption-gaming-music-fashion/>

- Elena, Maria. (2023). Sri Mulyani Raup Rp246,45 Miliar dari Pajak *Crypto* pada 2022. artikel Bisnis.com. <https://ekonomi.bisnis.com/read/20230104/259/1614825/sri-mulyani-raup-rp24645-miliar-dari-pajak-kripto-pada-2022>
- Fathoni, Abdurrahmat. (2011), *Metodologi Penelitian & Teknik Penyusunan Skripsi*, Jakarta, Indonesia: Rineka Cipta.
- Hu, S. D. K., Palit, H. N., and Handojo, A. (2019). "Implementasi Blockchain: Studi Kasus e-Voting." *Jurnal Infra*, Vol. 7, No. 1. <https://blog.cryptostars.is/rise-of-nft-market-in-2023-in-depth-analysis-8b051d9a7f6e>.
- John, Robert. (2023). Rise of the NFT Market in 2023: An In-Depth Analysis on How the NFT Market Rebounded. *Artikel Cryptostars*. <https://blog.cryptostars.is/rise-of-nft-market-in-2023-in-depth-analysis-8b051d9a7f6e>.
- Karandikar, N., Chakravorty, A., and Rong, C. (2021). "Blockchain Based Transaction System with Fungible and Non-Fungible Tokens for a Community-Based Energy Infrastructure." *Sensors*, Vol. 21, No.11. <https://doi.org/10.3390/s21113822>.
- Kementrian Keuangan Republik Indonesia (2023), *APBN Kita (Kinerja dan Fakta Kaleidoskop 2022*. Jakarta: Indonesia Kemenkeu RI). <https://media.kemenkeu.go.id/getmedia/1a28b5ae-91df-44f0-8e40-5e21056a974e/V-1-Final-Publikasi-APBN-KiTa-Edisi-Januari-2023.pdf?ext=.pdf>
- Ludwianto, Bianda (2023), Riset: Nilai Pasar NFT Indonesia Bisa Capai Rp 200 T pada Tahun 2028. *situs resmi Toko Crypto*. <https://blog.cryptostars.is/rise-of-nft-market-in-2023-in-depth-analysis-8b051d9a7f6e>.
- Lukita, Chandra. (2020). "Penerapan Sistem Pendataan Hak Cipta Content Menggunakan Blockchain." *ADI Bisnis Digital Interdisiplin Jurnal* (Desember 2020) 1 (2 Desember): 40–45. <https://doi.org/10.34306/abdi.v1i2.120>
- Moleong, Lexi J. (2017). *Metodologi penelitian kualitatif*. Ed. Revisi, Cet. 36. Bandung, Indonesia: Remaja Rosdakarya Offset.
- NFTGo (2023). 2023 NFT Market Analysis: An Insider Look. *Artikel Alexandria*. <https://coinmarketcap.com/alexandria/article/2023-nft-market-analysis:-an-insider-look>
- Populix. (2022). *Indonesian Modern Consumption*. <https://info.populix.co/report/indonesian-modern-consumption/>
- Rizaty, M.A. (2022). 10 Negara Pengguna NFT Terbesar, Indonesia Masuk Daftar. *Artikel Kata Data*. <https://blog.cryptostars.is/rise-of-nft-market-in-2023-in-depth-analysis-8b051d9a7f6e>.
- Trautman, Lawrence J. (2022). Virtual Art and Non-fungible Tokens (April 11, 2021). *Hofstra Law Review*, 50, 361–464. <http://dx.doi.org/10.2139/ssrn.3814087>
- Valeonti, F., Bikakis, A., Terras, M., Speed, C., Hudson-Smith, A., and Chalkias, K. (2021). "Crypto Collectibles, Museum Funding and OpenGLAM: Challenges, Opportunities and the Potential of Non-Fungible Tokens (NFTs)." *Applied Sciences (Switzerland)*, Vol. 11 No. 21. <https://doi.org/10.3390/app11219931>