

Article

Exploring the Legal and Policy Implications of Non-Fungible Tokens

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Abstract: *Legal and policy issues surround NFTs. This study examines NFT legal and policy issues and their effects on the digital economy. This study showed that NFTs could revolutionize digital asset ownership, but they also raise questions about intellectual property, privacy, and taxes. As NFT ownership evolves, buyers and sellers must understand their legal rights and obligations and avoid infringing on others' intellectual property rights. NFTs with photos or other personal data raise privacy concerns. To avoid privacy violations, buyers and sellers should consider NFT privacy implications. NFTs may be used for money laundering or terrorism. Regulators and law enforcement closely monitor NFT transactions to prevent misuse. Policymakers, regulators, and industry participants trying to establish a clear and effective legal framework that protects all parties should consider this study. These legal and policy issues must be addressed as NFTs gain popularity to maximize their potential. NFTs are legally and politically complex. This study emphasizes the need for ongoing research and stakeholder collaboration to responsibly and legally use NFTs and realize the digital economy's transformative potential.*

Keywords: *Non-fungible tokens (NFTs); Intellectual property; Privacy; Legal framework; Digital economy; policy implications.*

Abstrak: Masalah hukum dan kebijakan mengelilingi NFT. Studi ini meneliti masalah hukum dan kebijakan NFT serta pengaruhnya terhadap ekonomi digital. Studi ini menunjukkan bahwa NFT dapat merevolusi kepemilikan aset digital, tetapi juga menimbulkan pertanyaan tentang kekayaan intelektual, privasi, dan pajak. Seiring berkembangnya kepemilikan NFT, pembeli dan penjual harus memahami hak dan kewajiban hukum mereka dan menghindari pelanggaran hak kekayaan intelektual orang lain. NFT dengan foto atau data pribadi lainnya menimbulkan masalah privasi. Untuk menghindari pelanggaran privasi, pembeli dan penjual harus mempertimbangkan implikasi privasi NFT. NFT dapat digunakan untuk pencucian uang atau terorisme. Regulator dan penegak hukum memantau transaksi NFT secara ketat untuk mencegah penyalahgunaan. Pembuat kebijakan, regulator, dan pelaku industri yang mencoba membuat kerangka hukum yang jelas dan efektif yang melindungi semua pihak harus mempertimbangkan studi ini. Masalah hukum dan kebijakan ini harus ditangani karena NFT mendapatkan popularitas untuk memaksimalkan potensinya. NFT secara hukum dan politik sangat kompleks. Studi ini menekankan perlunya penelitian berkelanjutan dan kolaborasi pemangku kepentingan untuk menggunakan NFT secara bertanggung jawab dan legal serta mewujudkan potensi transformatif ekonomi digital.

Kata Kunci: *Non-fungible tokens (NFT); Kekayaan intelektual; Privasi; Kerangka hukum; Ekonomi digital; implikasi kebijakan*

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INTRODUCTION

NFTs have emerged due to digital assets and transactions. In the art and finance communities, these innovative transactions are growing in popularity. However, their legal implications have become a concern, especially in Indonesia, where the regulatory framework for emerging digital assets is still developing .

NFTs have garnered attention as a new way to monetize digital art and collectibles. These blockchain-stored tokens prove ownership of a digital asset like a tweet, video, or piece of art. NFTs do not fit neatly into legal categories like property or intellectual property, so their legal status in Indonesia is unclear .

Intellectual property rights are a major legal concern for NFTs. NFTs prove ownership but do not grant copyright or trademark rights. When the asset's creator or owner is not properly credited or compensated, this can lead to legal disputes .

NFTs also have tax issues. Indonesia taxes cryptocurrency income, capital gains, and VAT (VAT). NFTs are a new asset class and their taxation is unclear. Cryptocurrency exchanges and other industry players must verify customer identities and report suspicious transactions to the authorities under AML and CTF regulations. Indonesia's NFT laws are still developing, and there are many uncertainties and challenges.

DISCUSSION

Types of Cryptocurrencies: A Guide to Understanding Different Asset Categories

Cryptocurrencies can be categorized as various assets and have grown in popularity. Non-fungible tokens (NFTs) are common for monetizing digital art and collectibles. NFTs are just one type of cryptocurrency asset, which can be classified by character, layer, function, project type, and more ¹.

Cryptocurrencies can be coins, tokens, or secret tokens. Coins are blockchain-specific digital currencies. Tokens are produced in a blockchain system and can represent digital art, collectibles, and more. Private blockchains generate coins or tokens. Layer 1 coins, like Ethereum, Avalanche, and Vex, are inherent to a blockchain system. Layer 2 assets, like Shiba Inu, PancakeSwap, and Uniswap, are blockchain-created currencies ².

Some cryptocurrencies are ICOs, single-layer, and multilayer commodities. Initial coin offerings (ICOs) are blockchain-based startups like Filecoin or Manta. Multilayer assets like Ethereum can be used as gas fees or utility tokens, while single-layer assets like Bitcoin are used as currencies ³.

Project category categorizes cryptocurrencies. Ethereum, Avalanche, and Solana enable blockchain-based decentralized program development. Cake, Uniswap, and Shiba Inu are decentralized finance (DeFi) projects that enable novel financial instruments and services. Tool and currency initiatives are others ⁴.

Depending on their intrinsic worth, cryptocurrencies can be utility tokens, security tokens, governance tokens, non-fungible tokens, or hybrid assets. Chainlink and Ontology utility tokens give blockchain ecosystem users access to a particular service or product. Securities rules govern security tokens like real estate tokens. Governance tokens like Uniswap and Maker let users decide on blockchain ecosystem direction. Hybrid assets can be both utility tokens and NFTs, as mentioned previously.

¹ Lennart Ante, "The Non-Fungible Token (NFT) Market and Its Relationship with Bitcoin and Ethereum," *FinTech* 1, no. 3 (2022): 216–24.

² Fernando García-Monleón, Ignacio Danvila-del-Valle, and Francisco J. Lara, "Intrinsic Value in Crypto Currencies," *Technological Forecasting and Social Change* 162 (January 1, 2021): 120393, <https://doi.org/10.1016/j.techfore.2020.120393>.

³ Hazik Mohamed, "Decentralizing Finance via Cryptocurrencies and Tokenization of Assets and Peer-to-Peer Platforms," *International Journal of Islamic Economics* 3, no. 1 (July 1, 2021): 1-, <https://doi.org/10.32332/ijie.v3i1.3128>.

⁴ Ayman Abdalmajeed Alsmadi et al., "Cryptocurrencies: A Bibliometric Analysis," *International Journal of Data and Network Science* 6, no. 3 (2022): 619–28, <https://doi.org/10.5267/j.ijdns.2022.4.011>.

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Cryptocurrencies are classified by their character, layer, purpose, project type, and intrinsic value. NFTs are one form of cryptocurrency asset, but they are popular for monetizing digital art and collectibles. Investors and enthusiasts can navigate this rapidly evolving space by understanding the various kinds of cryptocurrencies and their characteristics.

Additionally, cryptocurrencies can be classified in numerous ways. Bitcoin is a currency and single-layer commodity. New initiatives and use cases can change cryptocurrency classification.

Understanding cryptocurrencies and their traits can help investors assess the risks and benefits of investing in a particular asset. ICOs may be riskier than Bitcoin. NFTs may offer high returns but also greater volatility and market uncertainty.

Classification also affects cryptocurrency legislation. Security tokens are regulated by securities rules, but other cryptocurrencies may not. This can complicate regulations and affect the viability and legitimacy of certain initiatives and assets.

Classifying cryptocurrencies can also affect their ecosystem usefulness and adoption. Smart contract platforms like Ethereum allow developers to create decentralized apps, while DeFi projects offer new financial services in a decentralized environment. As cryptocurrency adoption grows, it will be fascinating to see how classification and utility evolve.

The Importance of Protecting Your Crypto Wallet Phrase for NFT Ownership

Digital art and collectibles are increasingly monetized with NFTs. They are unique tokens on a blockchain, a decentralized, immutable ledger that records transactions. NFTs represent ownership of digital assets like art, tweets, and videos⁵.

Our NFTs are tied to our crypto wallet ID, so whoever has our wallet has our NFTs. Thus, we must safeguard our crypto wallet phrase. The phrase unlocks our wallet. It is created when we create our wallet and can be used to recover it if we forget our password. Our wallet and NFTs and other crypto assets may be lost if we forget our phrase. Because only the phrase can recover our wallet and assets. Without it, our wallet and NFTs are gone ⁶.

If someone steals our phrase, they can access our wallet, NFTs, and other assets. That's why we shouldn't tell anyone our phrase. Our phrase gives someone our wallet. Depending on our wallet, we may be able to recover our phrase. Some wallets have a phrase recovery seed. Avoid forgetting our phrases because the process can be complicated and require technical expertise.

NFTs are a novel way to represent digital asset ownership, but they have risks. Our phrase is the only way to access our crypto wallet, which owns NFTs. We could lose our wallet and assets if we forget our phrases. Thus, our phrase must be kept private. Thus, we can keep our NFTs and other crypto assets.

⁵ Saurabh Suratkar, Mahesh Shirole, and Sunil Bhirud, "Cryptocurrency Wallet: A Review," in *2020 4th International Conference on Computer, Communication and Signal Processing (ICCCSP)*, 2020, 1–7, <https://doi.org/10.1109/ICCCSP49186.2020.9315193>.

⁶ Teng Hu et al., "Securing the Private Key in Your Blockchain Wallet: A Continuous Authentication Approach Based on Behavioral Biometric," *Journal of Physics: Conference Series* 1631, no. 1 (September 24, 2020): 012104-, <https://doi.org/10.1088/1742-6596/1631/1/012104>.

The Significance of NFTs in the Development of the Metaverse

NFTs are becoming more essential as the Metaverse concept grows. Technology will be transformed by the "Metaverse," a virtual reality space where users can engage with digital objects. Digital art, artifacts, and virtual real estate are represented by blockchain-stored non-fungible tokens (NFTs). They are NFTs, because they enable users to build and own unique virtual assets, the Metaverse values non-fungible tokens (NFTs) ⁷.

A digital artist could create an NFT to sell, exchange, and buy a unique piece of art in the Metaverse. This creates a new virtual economy and allows for new company models and revenue streams ⁸.

NFTs are important for the metaverse because they make it possible to show who owns an asset, create scarcity, and make money off of content. They can also help you get exclusive access to a place in the metaverse and virtual property deeds, while digital art and assets are notoriously easy to steal and copy. Also, NFTs improve people's experiences in communities and at social events by making them better places to meet people.

The Metaverse needs NFTs to authenticate digital objects and prevent fraud. Blockchain-stored NFTs cannot be copied. The digital object can only be claimed by the NFT owner. This prevents scams and verifies Metaverse digital assets. As you can see in figure 1.



Figure 1. Metaverse mint plot land, and their ownership proof on Hot Wallet.

NFTs can give Metaverse residents a sense of ownership and privilege. Like rare physical items, rare Metaverse non-fantasy items (NFTs) can show wealth and prestige. This gives people a new chance to express themselves, which could change virtual social relations ⁹.

NFTs may also help build the Metaverse. NFTs can be used to symbolize virtual real estate ownership and create new Metaverse spaces. This may create new Metaverse communities or virtual worlds. However, using NFTs in the Metaverse requires overcoming some hurdles. Compatibility is a major hurdle. Creating NFTs that work in all Metaverse virtual environments

⁷ Georgia Weston, "NFTs and Their Role in the 'Metaverse,'" *101 Blockchains* (blog), December 24, 2021, <https://101blockchains.com/nfts-and-metaverse/>.

⁸ Chenhuizi Wang, Chunjing Yu, and Yang Li, "Toward Understanding Attention Economy in Metaverse: A Case Study of NFT Value," *IEEE Transactions on Computational Social Systems*, 2022, 1–12, <https://doi.org/10.1109/TCSS.2022.3221669>.

⁹ Z. John Zhang, "Cryptopricing: Whence Comes the Value for Cryptocurrencies and NFTs?," *International Journal of Research in Marketing*, September 5, 2022, <https://doi.org/10.1016/j.ijresmar.2022.08.002>.

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may be difficult. The Metaverse has many different online settings. Because of this, Metaverse NFTs may lose value ¹⁰.

Another hurdle is development. As the Metaverse grows, so will the desire for NFTs. Blockchain technology's limited processing capacity may be affected by this. Therefore, non-fungible tokens (NFTs) are essential to the Metaverse and will likely help expand it. NFTs can authenticate digital items, construct and own unique digital assets, and create new virtual business models and revenue streams. However, system interoperability and scalability must be addressed. As the Metaverse evolves, it will be fascinating to see how NFTs and other emerging technologies will shape this digital world.

The Popularity of NFTs: Lessons from Gozali's Photo Sale

Non-fungible tokens (NFTs) are widely used to monetize digital artifacts and artworks. Non-fiat currencies (NFTs) are easy to understand, but their worth lies in buying and selling them. Why are people buying NFTs? Indonesian photographer Gozali sold a viral NFT shot for billions of rupiah ¹¹.

One reason people buy NFTs is to own rare and unique digital commodities. NFTs are stored on the blockchain, a distributed, immutable database. This ledger documents transactions. Each non-fungible token (NFT) represents ownership of a digital item like an artwork, collectible, or virtual real estate. NFTs are unique and cannot be replicated, giving owners a sense of ownership and uniqueness ¹².

NFTs are attractive as investments, among other factors. Non-fungible tokens (NFTs) can be bought and traded in various markets and increase in value like art or collectibles. This allows people to diversify their portfolios and creates a digital asset market. NFTs can also help producers and musicians make money. Digital artists can offer NFTs directly to collectors without galleries or auction companies. This may create a more democratic and decentralized art market where artists have more control over sales and dissemination ¹³.

Non-fungible tokens could give fans new ways to support their favored creators (NFTs). A musician could create an NFT that represents a one-of-a-kind performance ticket or backstage pass and sell it to fans to support them and receive access to special content.

NFTs can also authenticate digital goods, reducing fraud. Blockchain-stored NFTs cannot be copied. The digital object can only be claimed by the NFT owner. This helps avoid fraud and verify digital product authenticity.

However, trading non-publicly traded assets is complicated. Pricing is one of the biggest challenges. Due to their youth, NFTs may be hard to value. NFTs may be hard to buy and trade at fair prices. Money is another challenge. Non-fungible tokens (NFTs) can be purchased and sold

¹⁰ De-Rong Kong and Tse-Chun Lin, "Alternative Investments in the Fintech Era: The Risk and Return of Non-Fungible Token (NFT)," *Available at SSRN 3914085*, 2021.

¹¹ Gidete, Amirulloh, and Ramli, "Pelindungan Hukum atas Pelanggaran Hak Cipta pada Karya Seni yang dijadikan Karya Non Fungible Token (NFT) pada Era Ekonomi Digital."

¹² Zhang, "Cryptopricing."

¹³ Gareth Jenkinson, "NFTs Are Not Just for Art: As Technology Matures, More Uses Will Emerge?," *Cointelegraph*, 2021, <https://cointelegraph.com/news/nfts-are-not-just-for-art-as-technology-matures-more-uses-will-emerge>.

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on many markets, but finding a buyer or seller for a particular NFT can be difficult. Because of this, closing out a non-traded fund (NFT) investment or finding a buyer for one may be difficult.

Non-fungible tokens (NFTs) allow users to own unique digital assets and are becoming popular as digital art and mementos investments. NFTs can help creators monetize their labor and fans support their favorite creators. Pricing and funding issues must be overcome. It will be interesting to see how NFTs will shape the digital asset ecosystem as the market develops.

Non-Fungible Tokens: The Use and Potential of Identifying and Monetizing Digital Assets

Cryptocurrencies called non-fungible tokens (NFTs) uniquely designate digital assets. NFTs can mark digital properties like music, art, films, and real estate using oracle technology. NFTs are common in many industries due to their unique identification.

The MovieBloc platform's MBL coins use NFTs. These tokens reflect digital movie assets and help filmmakers and producers monetize their labor. As you can see on figure 2. Meanwhile, Audius, a music streaming application that uses AUDIO tokens, also uses NFTs. These tokens allow artists to directly sell tracks and albums to fans.

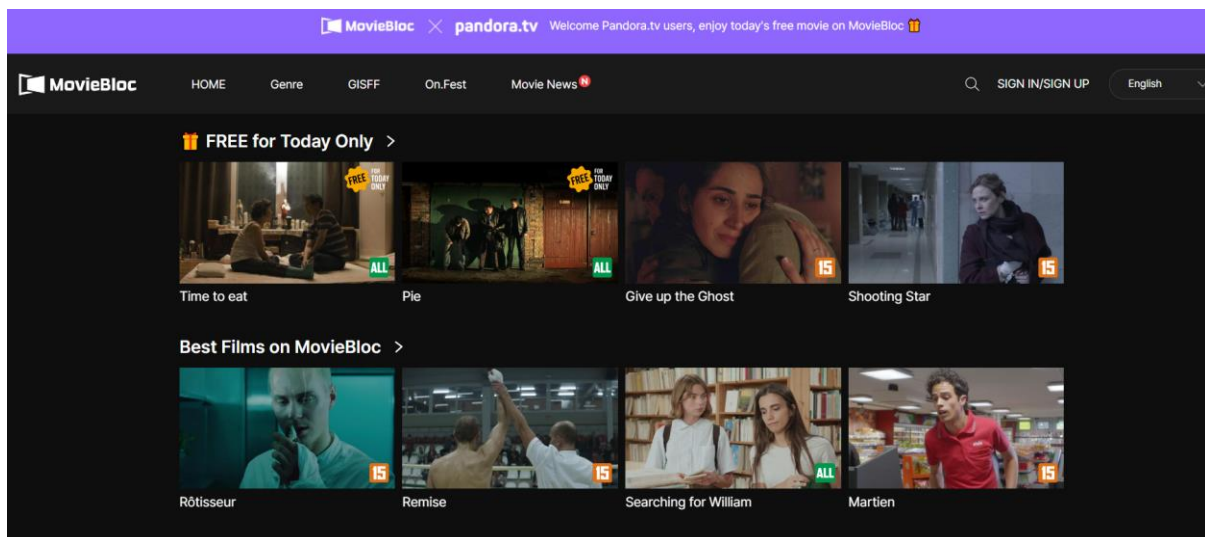


Figure 2. MovieBloc, using NFT to easier movie maker to monetize their works ¹⁴.

OpenSea and Rarible also exchange NFTs. Creators and collectors buy and sell NFTs on these marketplaces, giving artists a broader audience and collectors rare digital assets. OpenSea, one of the biggest NFT marketplaces, sells artwork, music, and virtual real estate. Creators and collectors use the site to securely transact.

The second-largest NFT platform is Rarible. The platform attracts creators and collectors with its distinctive artwork, virtual real estate, and collectibles. Kolektibel, Indonesia's first NFT marketplace, lets creators and collectors trade unique digital goods. The website helps artists make money and gives collectors rare digital assets.

RealT coins are another NFT application in real estate. These tokens allow investors to purchase and trade fractional real estate ownership. NFTs allow creators and collectors to buy, sell, and exchange unique digital assets securely and decentralized. Their unique identification

¹⁴ MovieBloc MovieBloc, "MovieBloc- Independent and Short Film Streaming Platform.," MovieBloc-Independent and short film streaming platform., 2022, <https://www.moviebloc.com/detail?no=undefined&isPlay=true&video=1&language=en>.

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capabilities have made them famous in music, art, and real estate, and creators and investors value them.

The NFT market is still developing, so purchasing and selling these assets is risky. Before investing in NFTs, investigate the risks. In conclusion, NFTs are common for identifying and monetizing unique digital assets securely and decentralized. From music to real estate, they help creators and collectors trade faster. It will be fascinating to see how NFTs shape the digital economy as the market evolves. NFTs could also change digital asset control. NFTs allow producers and investors to verify asset ownership on a blockchain ¹⁵.

As NFT use grows, obstacles remain. Due to the difficulty of verifying digital asset possession, copyright infringement may occur. The energy required to create and trade NFTs has raised concerns about their environmental effect. As the NFT market grows, these challenges must be addressed to ensure that NFTs are sustainable and advantageous for all parties. NFTs have already shown their potential to change how we think about digital asset ownership and monetization, and their prevalence is likely to increase in the coming years ¹⁶.

Therefore, NFTs are a unique cryptocurrency that securely and decentralizedly recognize and monetize digital assets. From music to real estate, they have become ubiquitous and could change how we think about digital asset ownership. As NFTs become more popular, it will be crucial to address the issues and guarantee their sustainable and beneficial use.

Who Owns the NFT? Understanding Ownership Rights in NFT Transactions

NFTs can store and represent more than just two-dimensional images. NFTs can represent digital artworks, collectibles, metadata, ownership history, and provenance. An NFT representing a digital artwork can store the artist's name, the creation date, and even the tools and techniques used. This metadata can help collectors and art enthusiasts verify the artwork's authenticity and provenance.

An NFT can store ownership history and metadata to verify ownership and track asset provenance. In art, provenance determines value and authenticity. NFTs can also represent virtual real estate and virtual worlds. In these cases, an NFT can store the virtual property's location, size, shape, and even its virtual objects and assets. As you can see in Figure 3.

¹⁵ Jenkinson, "NFTs Are Not Just for Art."

¹⁶ Ben Chester Cheong, "Application of Blockchain-Enabled Technology: Regulating Non-Fungible Tokens (NFTs) in Singapore," *Singapore Law Gazette*, January, 2022.

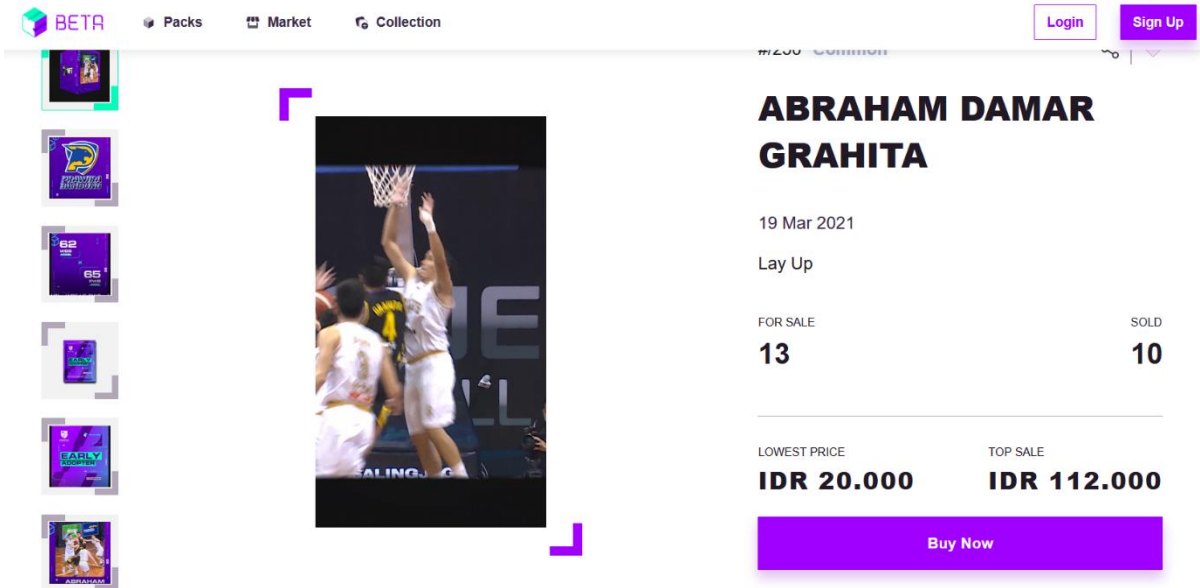


Figure 3. NFT Marketplace Kolektible, sale exclusive video with NFT as ownership proof ¹⁷.

NFTs can also represent physical or intellectual property ownership. An NFT can represent patent or trademark ownership, allowing decentralized monetization. NFTs can store and represent a wide range of data, making them versatile and valuable for creators and collectors. NFTs can revolutionize digital asset ownership and monetization by establishing ownership and verifying authenticity and provenance ¹⁸.

However, representing complex digital assets like virtual real estate with NFTs can pose unique challenges and legal issues. As with any new technology, these challenges must be addressed to make NFTs sustainable and beneficial for all parties.

Selling selfie NFTs: legal consequences?

Country-specific laws govern selfie NFT sales. Note copyright and privacy. First, make sure you own the photo copyright before selling selfie photo NFTs. If someone else took the photo, they own the copyright and must give you permission to use it. The copyright owner may sue if you sell the photo without permission. Second, respect others' privacy if the selfie was taken in public or includes others. If the person in the photo feels violated, selling selfie NFTs may violate privacy laws in some countries ¹⁹.

If you sell selfie photo NFTs for a high price, you must also consider taxes. NFTs are taxed in some countries. Finally, selling selfie photo NFTs may raise copyright, privacy, and tax issues. Avoid legal issues by following all laws and regulations.

If we sell someone else's NFT, what happens legally?

Selling someone else's NFT without permission may violate copyright and intellectual property rights. Infringing copyright can result in serious lawsuits and financial losses, depending on the country. Many countries have strict copyright and intellectual property laws. The original

¹⁷ Kolektibel Kolektibel, "IBL NFT Marketplace," 2021, <https://kolektibel.com/>.

¹⁸ Hong Bao and David Roubaud, "Recent Development in Fintech: Non-Fungible Token," *FinTech* (MDPI, 2021).

¹⁹ Michael Angelo and Nyoman Satyayudha Dananjaya, "Perlindungan Non-Fungible Token Art: Inovasi Karya Cipta Perspektif Hak Cipta," *Jurnal Magister Hukum Udayana* 11, no. 3 (2022): 629–42.

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work's owner or representatives can sue for copyright infringement. Financial, reputational, and criminal lawsuits are possible. Unauthorized use of others' works can also harm your NFT reputation and future marketability. It can also hurt NFT business and disadvantage other players²⁰.

Before turning other people's works into NFTs and selling them, make sure you have the rights and get the necessary permissions or licenses. This will prevent legal issues and improve your NFT reputation²¹.

NFT transactions—what are we selling/buying?

We buy and sell non-fungible tokens (NFTs) and their metadata. At first, we trade the NFT's asset. Digital art, music, collectibles, and other digital assets. Thus, that NFTs are digital asset ownership certificates²².

Actually we trade NFT metadata. This includes the NFT's asset's creator, creation date, and other relevant information. The metadata on the blockchain makes each NFT unique. We own the underlying asset and NFT metadata when we buy or sell an NFT. The NFT buyer can claim ownership of the underlying asset and verify its authenticity and provenance using blockchain metadata²³.

Although NFT law is still developing, NFT ownership rights can be similar to those of physical property. However, as NFT transactions increase, the legal framework will likely solidify. In conclusion, we buy and sell NFTs along with their metadata. The NFT and metadata verify the asset's authenticity and provenance. NFT ownership rights are becoming more valued in the digital economy as the legal framework for NFTs develops.

CONCLUSION

Finally, NFTs have raised legal and policy questions. NFTs could change digital asset ownership, but intellectual property, privacy, and taxes are concerns. Law governs NFT ownership. NFTs provide a digital asset ownership certificate, but their legal framework is still developing. NFT buyers and sellers must know their rights and avoid IP infringement. Money laundering and terrorism may use NFTs. To prevent misuse, regulators and law enforcement closely monitor NFT transactions.

NFTs with photos or other personal data raise privacy concerns. NFT buyers and sellers must understand and follow privacy laws. NFTs have complex legal and policy effects. As NFT use grows, regulators, lawmakers, and industry participants must collaborate to create a clear and effective legal framework that protects all parties.

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²¹ Norasari, "Lack of Protection for Non-Fungible Token (NFT) Creators in Indonesia."

²² Andrew Guadamuz, "What Do You Actually Own When You Buy an NFT?," World Economic Forum, 2022, <https://www.weforum.org/agenda/2022/02/non-fungible-tokens-nfts-and-copyright/>.

²³ Juliet M. Moringiello and Christopher K. Odet, "The Property Law of Tokens," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, November 1, 2021), <https://doi.org/10.2139/ssrn.3928901>.

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