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Review

When the NFT Hype Settles, What Is Left beyond Profile Pictures? A Critical Review on the Impact of Blockchain Technologies in the Art Market

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Abstract: In 2021, online marketplaces such as Nifty and Opensea gained popularity, and digital art creations, including Beeple's pieces, made headlines worldwide. This attracted traditional fine art practitioners, artists, dealers, digital content creators, and crypto entrepreneurs who wanted to participate in this trend. Several significant investment and token-funded projects took place in Asia, fueling high hopes of revolutionizing the art market with nonfungible token (NFT) technology. However, the numbers suggest a different story, as NFT transactions have reached a historical low. Critics from both sides challenge the value of NFTs, and there is minimal empirical research on the topic of blockchain technologies in the art market. This paper explores the challenges and misunderstandings in the art market through the lens of the researcher's insight as an art tech entrepreneur. Its aim is to provide an explorative account of the use cases of NFT and blockchain technology vis-a-vis the traditional art market. The paper discusses the current work in progress at the Art ID Standard consortium, covering decentralized identity, blockchain, and use cases, and provides insights into the implications of these challenges for artists, collectors, and the broader art ecosystem.

Keywords: art; blockchain; nonfungible token; NFT; tokenization; digital identity; artracx; art id

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1. Introduction

The rise of online marketplaces and nonfungible token (NFT) technologies has had a significant impact on the art world in 2021. Online marketplaces like Nifty and Opensea have been trending since the beginning of the year, with digital art creations such as Beeple's famous auctioned pieces making headlines around the world. This has caught the attention of traditional fine art practitioners, artists, dealers, digital content creators, and crypto entrepreneurs, all of whom are eager to jump on the bandwagon. Several large investment and token-funded projects in Asia have contributed to the growing interest and optimism around NFT technologies in the art market, fueling high hopes for the future of the industry.

There are many definitions of the term NFT—a popular online periodical Coin Telegraph explains NFT as a means to provide verifiably unique representations of digital and physical goods that differ in value (Coin Telegraph 2023). Dalton (2023), however, defined NFT as a special block within a blockchain network that is unique, and data stored or minted inside this block hold a one-of-a-kind digital item known as a token. Allen et al. (2022) defined the ownership of an NFT as nothing more than the ability to control a string of characters on a blockchain and the authors further posit that it is mystifying for most people to understand how it is possible to attach so much monetary value to blockchain linked art. Besides Beeple's multi-million sales of a graphic file (Reyburn 2021), there were also many famed artists that joined this NFT mania. One of them is the contemporary artist Damien Hirst who successfully launched his 10,000 NFTs with each physical piece of unique colourful dotted artwork being burnt if the customer chooses to keep the digital derivative of his work instead (Morton 2022).

2. The Hype Cycle

The NFT market exploded in popularity in early 2021, with sales reaching record highs and artists and collectors flocking to NFT marketplaces to buy and sell their digital assets. However, the market has experienced a sharp decline, with sales and prices dropping significantly (DappRadar 2023). One of the factors that contributed to the rise and fall of the NFT market is the hype cycle. The Gartner technology hype cycle is a phenomenon where a new technology or trend experiences a surge of interest and excitement, leading to a rapid rise in adoption and prices (Perez and Kreinovich 2018). However, once the hype dies down, the market experiences a decline in interest and prices. In a nascent industry such as NFT and blockchain technologies, there will always be the presence of innovative and enterprising project ideas which will be conceived to profit from hyping such novel concepts, much like the tulip mania in the 17th century (French 2006). NFT mania is no different from the tulip mania. NFT was even once tipped as one of the hottest technologies that will revolutionize the entire art industry. Critics, however, are quick to argue that the traditional art community is very different from the NFT art community.

Allen et al. (2022, p. 4) posit:

> "Despite their oblique representation of ownership—or perhaps because of the resulting flexibility—NFTs have become the cornerstone of a vibrant new art market. This market differs starkly from traditional art markets in the makeup of its community of participants. It also differs in its commission and royalty structures, market dynamics, means of recording provenance, community interactions, and forces shaping the tastes of buyers."

The NFT mania has been quoted by many observers, media, and scholars alike (Allen et al. 2022; Dalton 2023; Murray 2022a, 2022b; Reyburn 2021; Tabuchi 2021). In May 2023, DappRadar (2023) cited that the NFT market has achieved a lot less volume in trading when compared to May 2021. Huobi Research (2022) on the other hand has stated that the NFT market has cooled down and shrunk significantly while the market is adjusting to a more healthy and rational sentiment. The NFT market followed a similar pattern, with early adopters and enthusiasts driving up prices and sales. However, as the hype cycle subsided, the market experienced a decline in demand and prices. According to a report by NonFungible.com, the NFT market experienced a peak in sales in May 2021, with a total of USD 102 million worth of NFTs sold in a single day (NonFungible 2021). However, the report also noted that the market segment for NFT sale transactions related to art is a mere 9% only. These data reflect that the use of blockchain with respect to NFT related to art is not significant.

Another factor that contributed to the decline of the NFT market is market saturation. With the rise in popularity of NFTs, many artists and creators jumped on the bandwagon, flooding the market with more supply than demand. As a result, prices and sales dropped, and many artists struggled to sell their NFTs. According to a report by Art Basel, the NFT market saw an influx of new entrants in early 2021, with over 80% of NFT sales made by first-time sellers (Art Basel and UBS 2021). However, the report also noted that this trend did not translate into sustained demand as the market experienced a significant drop in sales and prices in the following months (Art Basel and UBS 2021). This decline can be attributed to the saturation of the market, as buyers were overwhelmed with too many options and too few standout assets.

The lack of regulation in the NFT market is also a factor that contributed to the decline of the market. Unlike the traditional art market, the NFT market is largely unregulated, with few rules and guidelines governing the buying and selling of digital assets. This lack of regulation led to fraudulent activity such as fake NFTs and scams, which eroded trust in the market and deterred buyers from investing in NFTs. The secondary market for NFTs is another factor that contributed to the decline of the NFT market. The secondary market refers to the resale of NFTs by collectors and investors. While the primary market for NFTs saw a surge in sales and prices in early 2021, the secondary market experienced a decline in demand and prices. Many collectors and investors who bought NFTs in the primary market were unable to resell them at a profit in the secondary market, leading to a lack of liquidity and a drop in prices. According to a report by DappRadar, the secondary market for NFTs saw a decline in sales and prices towards the end of the year in 2022 (DappRadar 2023). This decline can be attributed to a lack of liquidity in the market, as many buyers were unable to resell their NFTs at a profit, leading to a drop in demand and prices as there were also a series of scandal-ridden stable coin projects and cryptocurrency exchange in 2022 (Bloomberg 2022). Furthermore, the use of the crypto wallet (with crypto wallet addresses) to hold NFTs and any digital assets had been prohibiting growth as the user experience is still very clunky and prone to attack and phishing scams (Henry et al. 2018; Gupta et al. 2022).

In his seminal work, Murray (2022a) provided six common myths of NFT and these are listed in Table 1. The introduction of NFTs has brought about a range of challenges and misunderstandings within the art market. Critics argue that NFTs lack intrinsic value, as they are primarily based on perceived worth and speculative market trends (Reyburn 2021). Additionally, concerns have been raised about the environmental impact of NFT transactions due to the energy-intensive nature of blockchain technology (Tabuchi 2021).

Table 1. Myths of NFT (Murray 2022a).

No. of Myths	Myth Descriptions
Myth 1	NFTs are artworks.
Myth 2	NFTs create a false artificial scarcity in artworks.
Myth 3	The valuation of NFTs is unlike any rational process of valuation for any other artwork or asset.
Myth 4	Smart contracts are like regular contracts.
Myth 5	NFTs have created the ability for artists to receive resale royalty rights.
Myth 6	NFTs will allow all artists the chance to make serious money from their art.

In addition to the presented myths, others have pointed out that the introduction of NFTs presents challenges for artists in determining value and authenticity. Traditional art markets have long relied on established frameworks, such as physical ownership, provenance, and valuation expert—to determine the value of artworks. However, in the digital realm, these parameters are not easily applicable. Critics argue that NFTs lack inherent value as they are primarily based on perceived worth and speculative market trends and therefore do not guarantee the underlying artistic merit or value of the artwork itself (Reyburn 2021). This raises concerns about the long-term sustainability and reputation of NFTs as a legitimate form of artistic expression. NFTs, therefore, have emerged as a potential solution to address only part of the challenges in the art world by providing a digital token and storing immutable records on the blockchain database.

Another significant concern for artists is the environmental impact associated with NFTs. The energy-intensive nature of blockchain technology, particularly the proof-of-work consensus mechanism used by popular blockchain networks, has raised questions about the carbon footprint of NFT transactions (Tabuchi 2021). Artists, who often advocate for sustainability and eco-consciousness, may face criticism for participating in a market that consumes substantial amounts of energy. Recent adoption in the use of proof of stake consensus mechanism for blockchain networks appears to have provided some claims as being more environmentally friendly albeit this has not been proven when comes to electricity consumption (Wendl et al. 2023).

Lastly, NFTs have introduced new complexities regarding copyright and intellectual property rights for artists. While NFTs can provide artists with a more direct and decentralized means of selling their digital creations, they also raise questions about ownership, licensing, and the potential for unauthorized reproductions or infringements (Murray 2022b).

3. What Is the Future of the Use of Blockchain in the Art World?

Despite the recent rise and fall in the NFT market, many experts believe that the market still has potential for growth and development. The use of blockchain technologies has the potential to revolutionize the art world by providing a new way for artists to monetize their digital creations and for collectors to own and trade unique digital assets (Sidorova 2019; Mcavoy and Kidd 2022). However, for the market to reach its full potential, there needs to be more regulation, transparency, and innovation. Many technology companies are already working on solutions to address the challenges facing the art market targeting solving the main problems in the art market using blockchain technologies and smart contracts. For example, some platforms developed title management and authenticity solution using chipsets and blockchains like ARTRACX[1] while ARCUAL[2] has placed focus on payment and royalty settlement of secondary market transactions in fiat currency. These are just some small examples of art tech companies that are founding members of the Art ID Standard consortium[3] and exploring new digital business models in the traditional fine art world. According to Fernandes and Afonso (2020); there are also many other online art technology platforms that are exploring different new business models and e-commerce Janzon and Regefalk (2020); and some are focused on creating e-commerce, scarcity, and valuation in the art market (Mcavoy and Kidd 2022). Sidorova (2019) supported the argument presented by the Art Market Report 2019 that the online art market's future will be based primarily on the successful deployment of three key technologies namely cryptocurrency, blockchain, and artificial intelligence. The author agreed but also provided the argument that the brighter future in the use of blockchain in the art industry will rely heavily on the ability to provide a data standard in governing the metadata associated with each piece of artwork. These data standards are critically important to support the adoption of all three key technologies because each piece of artwork will need to have a unique and universally recognizable identity, to begin with.

Standardising the Digital Fabric in the Art World

In the traditional art market and the value of art and collectibles are often rooted in the ability of the gallery and auction house to be able to provide credentials, full history, and provenance of the artifact. It is now possible for artists themselves to self-certify their existence and art. In the digital world, there are many previous attempts to standardise the data format commonly used by art practitioners. One of these projects named Art Tracks by the Carnegie Museum of Art tried to provide a data model to store and capture the provenance data in artworks in a machine-readable format. (Art Tracks 2016); this project however did not take off and this standard also did not adopt the use of blockchain technologies. Another project called the codex protocol also tried to use blockchain technologies to keep track of valuable data in a proprietary system (Whitaker 2019). The Art ID Standard intends to offer the art ecosystem and its practitioners the ability to share these data by way of creating a global standard for identifying and cataloguing provenance data of artworks. The key driver will be to use prevalent blockchain technologies and decentralized identity which is governed by the W3C Consortium (Abbate et al. 2022). The standard includes a unique identifier for each artwork, which can be used to track its provenance, ownership history, and other relevant information. The objective is, therefore, to allow different online platforms to be able to build applications based on a standard and therefore providing greater transparency and elevating the trust fabric in the traditional art world. With a standard in place, traders, valuers, auction houses, insurers, and buyers can rely on the trusted data stored in different online application systems and this can help to reduce disputes and provide greater security for artists and collectors. Table 2 summarises the pros and cons of the Art ID Standard.

Table 2. Pros and cons of the Art ID Standard (Prepared by author).

Pros	Cons
Enhanced Provenance and Authenticity—aims to establish decentralized and tamper-proof provenance records for artworks and mitigating the risks of forgeries and ensuring the long-term value of the artwork.	Adoption and Integration Challenges—complexity of implementation with existing systems. Market consists of diverse stakeholders, with their own established practices, databases, and system infrastructure.
Increased Art Market Efficiency—reducing the need for intermediaries and enhancing the speed and accuracy of transactions. This can result in a more streamlined and cost-effective art market ecosystem.	Limitations and Scalability—face challenges in handling large-scale art transactions and the associated data. May exclude artists and participants who lack access to the necessary technical resources.

4. Increasing the Access and Liquidity of Traditional Fine Art

The use of blockchain technology can also enable fractional ownership and tokenization of artworks. Fractional ownership refers to the division of ownership of an artwork into smaller shares ownership or entitlement, which can be sold to multiple buyers (Whitaker and Kräussl 2020). Tokenization refers to the creation of digital tokens that represent full or partial ownership of a specific asset or part of an asset (Lotti 2019). An asset could be a tangible asset such as a piece of artwork, a boat, or even a piece of land. By using blockchain-based smart contracts, fractional ownership, and tokenization can be facilitated (Barbereau et al. 2022); this allows for greater access to artworks for a wider range of buyers and collectors. This can also reduce the risk and eliminate the traditional one-to-one relationship between owner and artwork—making it easier for buyers and sellers to transact in the art market. According to a report by Deloitte, the use of blockchain technology for fractional ownership and tokenization has the potential to unlock new opportunities in the art market, enabling greater liquidity, transparency, and accessibility (Deloitte 2021). The report notes that this trend is already emerging in the NFT market, but it has the potential to expand to other areas of the art market, such as fine art and collectibles. In Europe, there are already private banks that have successfully tokenized higher-value art like Andy Warhol's Marilyn Monroe (VP Bank 2021; Sygnum Bank 2022). In many jurisdictions, the tokenization of assets could be viewed as securities investment and, therefore, subject to various regulatory compliances. This itself also makes it harder for the actual realization of the liquidity of high-value art contrary to its original intent.

5. Conclusions

The NFT market rose to unprecedented levels in early 2021, but it subsequently experienced a sharp decline, with sales volume and prices dropping significantly. The factors that contributed to the rise and fall of the NFT market include the hype cycle, market saturation, lack of regulation, and challenges in the secondary market. While the future of the NFT market remains uncertain, it is clear that the market sentiment of the use of NFT in the art community remains only relevant to celebrity artists and top-tier auction houses. It was clear that there are still gaps in understanding blockchain technologies amongst the art communities, initiatives such as the Art ID Standard and the use of blockchain for title management, tracking provenance, and authentication offer opportunities for restoring trust in the traditional art market (Art Critique 2020). Furthermore, the adoption of new blockchain protocols and smart contracts to support fractional ownership and tokenization offers new opportunities for both the buy-side and the sell-side in the art market to transact. While the art market continues to grapple with challenges and criticism surrounding the NFT term and the underlying technologies, there are still opportunities for better use cases. NFT on the other hand has already created a lot of misunderstandings and mistrust in the art market filled with plagiarism, phishing attacks, and scandalous projects. As the art market continues to evolve, the use of blockchain technologies will undoubtedly play a significant role in shaping its future—addressing pain points and real-world problems faced by the traditional art market. The Art ID Standard consortium, with its plan to standardize the metadata format in the art market, could potentially harness the transformative power of blockchain technologies to create a more inclusive, transparent, and sustainable ecosystem for artists, collectors, and enthusiasts alike.

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Notes

1. www.artracx.com (accessed on 15 August 2023).
2. www.arcual.art (accessed on 15 August 2023).
3. www.artidstandard.org (accessed on 15 August 2023).

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