

A Literature Survey on Tokenization of Digital Art with NFT Marketplace

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Abstract: *In this era of boundless potential that the age of technology brought with it, artists are lured by the limitless terrain of digital world. Regardless, the existing backdrop presents issues for artists who work in the old-fashioned mediums and even one's who work in the digital mediums, as it seems that they possess distinct challenges such as reduced revenue, complicated views on streaming statistics, copyright issues, and an old framework that is failing to suit the new digital era demands. This paper seeks to elevate the model in the form of digital art domain by combining non fungible tokens and blockchain technology. This paper proposes to respond to the looming challenges of copyright infringement as well as guaranteeing income security of digital artists. With the help of blockchain technology, this model provides a revolutionary change in the digital art world by providing a decentralized and artisanal environment that changes the digital creativity landscape.*

Keywords: Blockchain, Copyright Protection, Non-Fungible Tokens (NFTs), Public ledger, Smart contracts, Decentralization

I. INTRODUCTION

Imagine a world where artists can easily navigate the digital terrain with a strong shield that protects their copyrights in creative works and ensures that royalties from their digital works of art continue to flow. In this paper, we have this vision to see a unique model that would allow artists to authenticate and manage the digital art rights within an easy-to-use decentralized public ledger powered by blockchain technology in its transparency and security. This tactic allows the artists to avoid the traditional intermediaries while putting full control back in the hands of the artist inside the NFT marketplace. First, the proposed model acknowledges that the implementation of the digital art ecosystem aims at the redefinition not only of the digital art system but also at the strengthening of the artists, the direct control of their creations, promoting the transparency, and dealing with the complex objective of the current state Digital art Market. This paper is, accordingly, an asset to the emerging debate about the tokenization of digital art, where artists have independence, knowledge about where their content was used, and receive a part of the cash flow from the NFTs. This model seeks to change the very fabric of the digital arts world by harnessing the dynamical nature of blockchain technology, where artists can sell their initiative digital art creations to stakeholders without involving third parties, unlike the majority of the digital arts world which mostly relies on centralized hierarchies. This revolutionary approach bypasses traditional intermediaries, as such artists receive the power returned to the NFT marketplace.

1.1 Brief history and evolution of art ownership:

The development of art ownership has lasted more millenniums as the practices used have greatly bloomed very considerably from ancient times until these current times. In the ancient, the ownership of art mainly revolved around the patronage system where wealthy individuals or institutions bought artworks or commissioned artist to make artworks creating a direct link between the artist and the patron. However, as societies moved to advanced stages, ownership had a connection to aristocracy and religious institutions and this was used to narrate about art ownership. As the centuries went by and with copyright laws as well as the law framework, the perception of art ownership changed dramatically. The emerging approach to the protection of the intellectual property of creative people is creating

exclusive rights to them. In the contemporary era, the artists claim to have rights by scripting copyright, which provide them a power over the reproduction, distribution, and public display of the works.

Due to the recent developments in modern society that are connected with digital means, such as the increase of the usage of Non-Fungible Tokens (NFTs) and blockchain technology, art ownership has changed since today, this form of property is an easy-to-use tool in modern society. It is the fact that NFTs ensure the authenticity and provenance of digital and traditional artworks, including exhibition history information, with their unique and unalterable records of own [7]. As the ownership of art moves towards the decentralization process, it leads to the new contemporary page in the history of art ownership, mixing traditional legal structures with the invention of technological innovations.

II. INTERSECTION OF ART AND BLOCKCHAIN

The intersection of art and blockchain creates juxtaposition of the two revolutionary integration with land, culture and natural world unify to deliver a complete transformation for even the spectators. Blockchain system, as a skeleton to ensure that there is authentication, integrity, and confidentiality on any artistic work, forms a secure platform of doing business for the arts world. Art has finally taken a new shape due to the emergence of Non-Fungible Tokens (NFTs), digital or physical artworks that are imbedded into the chain. However, functioning since that art is only the beginning of the capabilities of blockchain; every deal associated instruction with each art is certified, and so a documentary history up! [6] Art becoming NFT means that the artist digitally represents their altarpieces, allowing them to tokenize their creations as NFTs; a digital representation of artworks gives artists promises of a secure, and transparent, platform with which they can buy, sell, or trade artistic pieces. With further integration of blockchain technology in art and its following growing adoption, as the merger between art and blockchain leads to a decentralised and universal art sphere that is remoulding the way we see, price, and engage with art in the digital environment.

2.1 Understanding Tokenization in the Art World:

Tokenization is the process of converting real-world assets into digital tokens/tokenized assets on a blockchain. This unique application of open-source technology makes it possible to tokenize a lot of forms of values and their secure transfer. While tokenization is carried out in various fields of life, in the sphere of art, including photos, music, videos etc, still being creative works, tokenization allows one to own fractional pieces of these assets and trade them. The different pieces of art can be tokenized by assigning each of these individual units' unique digital tokens that can be traded for minimal units or parts of the main art. This means that artists find new channels to earn from their creations because by partnering with investors and receive their cash for their tokens, investors can buy and sell tokens fractions, thus obtaining their stake in the underlying art. The revolutionary technology Blockchain is decentralized and is impossible to falsify its digital tokens of the art assets, [10] which ensures their authenticity and chain of custody legacy, making the tokenization of artistic assets reliable and transparent. In addition to giving the artists and creators a completely empowered state, that makes art very liquid and somewhat more accessible to art lovers and investors on the other side.

2.2 Understanding NFT Marketplace through the Lens of Digital Art:

An NFT marketplace is an online platform where tokenized unique digital assets are auctioned, bought, and sold, and in which, NFTs play the role of medium of representation of non-fungible digital assets on the blockchain. [8] The field of digital art was given the breakthrough mechanism known as the NFT marketplaces, which enable artists to tokenize their work, proving that any piece of digital art no matter how poor or ugly is an invaluable and scarce entity. By applying the smart contracts, these marketplaces provide transparency, traceability, and immutability of ownership records in the blockchains. As a result of that NFT marketplaces have democratized the art world by enabling artists to access a wider global audience, as well as fractioning ownership and creating new economic opportunities in the digital art market. The integrity of NFT marketplaces is based on the decentralized and transparent nature of the blockchain technology and for this reason, the trust from the side of art and traders is bound to be strengthened and the perception we had of both digital art and marketplaces will be altered. [9] Apart from the convenience which they provide for artists and collectors alike about direct artist-to-collector transactions, NFTs boast some uniqueness in most of the if not all the current NFT Marketplaces in that they contain an inherent feature that allows creators to receive royalties

because of the secondary sales, unlike standard art markets. This also means that it is a possibility for an artist to benefit in the financial aspect even after the disposal of his or her piece of art and even after the appreciation. On the other hand, collectors are presented with clear, verifiable means of authenticating the rarity and genuineness of the digital assets they buy. With the development of NFT marketplaces that currently actively transform and become popular in the digital art world, the role that all this plays in changing the power relations in the digital art world is also becoming noticeably stronger, which not only shifts the rules of creativity, sales and purchases of art objects and ownership but also questions the rules of value and ownership in a broader sense of the creative economy.

III. EXPLORING THE PREVIOUS STUDIES

This section digs deeper into the literatures that studies the fusion of the NFT marketplaces and digital art. To condense the insights, critiques, and developments as they emerge from different perspectives in the scholarly literature about the creative economy, regarding innovative natures of Non-Fungible Tokens (NFTs).

3.1 NFT Application for Music Industry using Blockchain Smart Contracts [1]

This paper includes the Non-Fungible Tokens (NFTs) development and the integration through blockchain smart contracts to solve music industry challenges found in revenue disparities and the alterations caused by intermediaries on artists. Second recall, the proposed decentralized application employs Ethereum smart contracts, IPFS, and Moralis for Web 3.0 features. an experimental case study with a pandemic artist, Blau, as an illustration of efficient NFT distribution along with revenue generation, is presented in the study. Nevertheless, the advantages stem from a decrease in the number of royalty counts, the elimination of third parties for equitable distribution of revenue, and the transparency of metadata and copyright control. Although there are difficulties in uniformity of profits and risks in scalability in blockchain, that persist. Summing up that paper stresses the advantages for artists in addressing such issues as copyright licensing and royalty payment unresolved, the challenges to solve the profit distribution inequities and the scalability problems are offered for future study.

3.2 Proposal on NFT Minter for Blockchain-based Art-Work Trading System [2]

The paper underpins a protocol of NFTs in the blockchain describing their multidirectional advantages, disadvantages, and methods. Points out the effect of NFTs on the improvement of the income for the content creators by presenting the framework enabling its users to mint the painting off the rack on OpenSea. Methodology includes modelling techniques as well as security analysis such as exploring opportunities in different sectors of NFT habitats and solving the common challenges in habitats. The paper describes decentralized applications playing a significant role in the NFT market that will grow for many years to come changes in the creative industries brought by the crypto technology. In all, the study is contributing towards the discussions on the NFT implications and the problems it poses to the developers in blockchain platforms.

3.3 NFT Marketplace using Blockchain [3]

The paper proposes an NFT trading platform that is built on blockchain technology and presents NFTs with some merits (immutability, safety, and reliability), but also with disadvantages (gas fees, etc.). The methodology includes designing an NFT marketplace that includes Metamask Wallet, IPFS storage, and the main features or components. It focuses on features that log the benefits such as the immutability of blockchain, tokenization, and discrimination, to beat problems such as high fee gas, law, and order issues in addition to how environmental issues have been faced. The three major marketplaces for NFT today are OpenSea, Rarible and Nifty Gateway who are established and by that said their services briefly explained in this paper. Overall, the paper presents commentary regarding NFT marketplace development, summarizing main aspects embedded within the blockchain-NFT framework.

3.4 NFT Marketplace for Geospatial Data Using Blockchain [4]

This paper focuses on the development of a safe trading atmosphere for non-fungible tokens of geospatial data tokenized on Ethereum blockchain. The proposal includes using the blockchain technology which includes such elements as the ERC 721 and ERC 165 rules for smart contracts and the SHA 256 hashing algorithm for higher security

measures to implement. Non-fungible tokens (NFTs) which has a share of innovative revolution an assessment of the paper is presented on the rise of NFTs, their availability in the markets, that is, on the rise of secure platforms. It also is accompanied by a comparative analysis of sale volumes of NFTs monthly, NFTs sold on the centralized marketplace, and average NFT sale price. Data presented below demonstrate the capabilities of the developed NFT marketplace for geospatial data implying users can safely upload, download, and view such files. The conclusion stresses the ongoing testing of NFT solutions and encourages additional studies to help regulate the emergence of hurdles that deters the market full of prospects to apply NFTs with virtual and digital commodities.

3.5 ArtChain: Blockchain-Enabled Platform for Art Marketplace [5]

This paper presents ArtChain, which is the first decentralized art trading platform for smart chain, Australia, aimed at curb challenges in the art market by promoting transparency, reliable provenance, authenticity verification and simplified royalty payments. By using the underlying nature of blockchain where it is immutable and transparent, ArtChain offers features of privacy protection, traceability, irreversibility, and transparency as pillars. The three JDs to be highlighted include the architecture, tokenization with ACGT and ACG2 tokens, and the Proof of Authority (POA) model for trust establishment. The methodology approaches using a POA-based Ethereum private blockchain that will introduce smart contracts and hardware adjustments for the purpose of performance testing. The benefits consist of the development of transparency as well as augmented by effective royalty refunds and scalability however need to be enhanced. In the future, integration with the IoT for the object of anti-counterfeiting is envisaged. ArtChain, therefore, provides an alternative but innovative solution that will help remodel the art market using the blockchain technology.

IV. OPPORTUNITIES AND CHALLENGES

Tokenization of digital art using NFT marketplaces signals a revolutionary stage of the art industry that brings about untold opportunities out to inflect a revolutionary approximation. In essence, this novel method of owning digital art would involve the user into a decentralized framework, hence promoting a broader spectrum of a user's – investors who could venture capital in the venture. The only knot to be tied by musicians is removing intermediaries; and this is a fruitful discovery because digital mountains offered new roads for them to get paid. The pandemic-induced decentralization of art, made possible by blockchain technology, is a must-needed new reality; it opens unprecedented opportunities for artists to access a global audience, which as of this moment is no longer determined by geography and works to establish the universe of borderless digital art.[13] Additionally, smart contract protocols integration into NFTs offers a revolutionary mechanism that ensures artists get proper compensation through royalties allocations during secondary sales, and this element of the feature brings about a more viable income model and alters artist-buyer dynamics.

NFT marketplaces and tokenization of digital art opens several challenges which need to be analysed properly. One major environmental issue associated with the use of some blockchain consensus mechanisms, particularly proof-of-work, arises questions on the sustainability of this approach in the long. The uncertainty living in the market is the characteristic to remain unstable, affecting the works of the artists and ultimately collectors.[14] The scarcity of standardized practices in the domain of NFTs displays challenges that involve problems of interoperability and market fragmentation.[6] In addition, security risks, which involve ongoing hacking and fraud threats, show the need for comprehensive regulatory schemes and technological defences to prevent the marketplace impurity of NFT. These problems, however great, might however have to be solved to enable the tokenization of digital art development is necessary to help in achieving full potential of the tokenization of digital artwork while transacting through the NFT marketplaces.

V. PROPOSED METHODOLOGY: NAVIGATING THE NEW FRONTIER OF NFT MARKETPLACE

To counter the identified limitations of current literature, our methodology brings a new platform which revolutionises the entire NFT lifecycle being holistic. Unlike the usual standard that was known and almost always divide minting, marketplace and revenue management components, our platform integrates these forms. Now, artists from various forms and fields can access a single unified user-friendly plat form propagating from ideas to changes with ease of

minting their artwork in the form of tokens. Such an inclusive approach not only simplifies the usually complicated field of the blockchain technology but also opens a wide range of opportunities to a wider circle of creators.

A major feature of our methodology is that it has tendency to encompass all forms of art. Any of the three parties, a visual artist, musician, or even a digital content creator can interact with the platform, mint their authentic pieces which in turn can be listed on the integrated marketplace. This technique prevents the silos in most of the previous systems as this promotes a dynamic and collaborating setting for these artists.

The core of our platform includes an intuitive innovative allowance and development system that ensures that end users maintain interested and stay motivated on their NFT journey. For artists, regardless of tech skills, the minting process is rather easy and here they have access to the advanced features of the marketplace to include but not limited. The robust interface facilitates entry into the inclusive potentials, the power of blockchain and NFTs is within easy reach. It is possible to ensure that they are used not only by a limited segment but by a broad audience. This practice allows for greater adoption and active engagement.

In addition, our argued methodology transcends the simple act of minting and sales. For the artists, the platform allows direct revenue stream management; whereby artists actively manage their resources that are retrieved. With the help of our platform, artists are provided with necessary tools such as the tracking of the sales and the establishment of the royalties to take possession of the economic life in the NFT land.

In conclusion, our methodology meets all limitations described in reviewed documents and introduces an ideal solution for the NFT marketplace. Minting, Marketplace, Revenue management and Ownership tracking combined on a single platform can be a more integrated, accessible, and artist-friendly platform that would adjust the scene of digital art tokenization.

VI. NFT MARKET MILESTONES: NOTABLE SALES AND RECORD-BREAKING TRANSACTIONS

The world of Non-Fungible Tokens (NFTs) has seen intriguing sales and record-breaking transactions, which make it define spotlights. This section addresses the peaks for the NFT market, the sale that defied the odds and changed the direction which will have been offered a contribution here. From record-breaking art pieces sold at even higher prices to the rising trend of digital collectibles serving as valuable assets, we explore major events establishing the overall emergence of NFTs in the art market and its wider implications on culture and economy. The following is the list of most expensive NFT sales of all time. [31]

6.1 The Merge – \$91,800,000

The artwork “The Merge” is the NFT sold at ridiculous 91.8Million by Nifty Gateway. However, the twist is that this NFT was not purchased by a single individual but rather 29,983 people so “the Merge” was sold out and split into 312,686 coins handed into buyers.

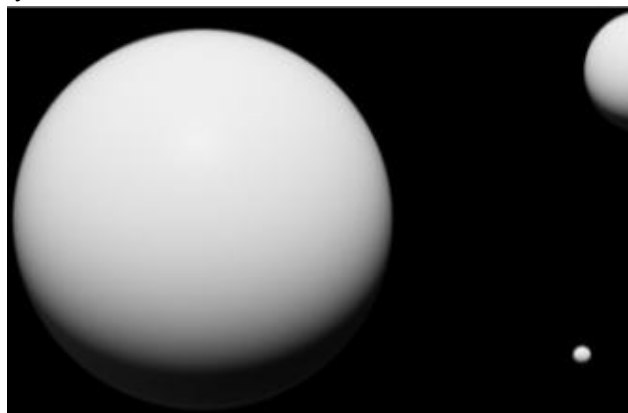


Fig 6.1

6.2 Everyday: The First Five Thousand Days –\$69.346,250

Beeple’s Non-Fungible Token (NFT) artwork was the highest-priced one sold until the close of this 2021. Another piece that is attributed as ‘everyday NFT’ is a painting that compiles every image he drew on each of the 5,000 days he drew images consecutively. This rare collectable gem was bid at Christie house for a respectable 68 million dollars. Vignesh Sundaresan was the buyer of this NFT, who had done exactly just before Justin Sun, after which he founded Tron

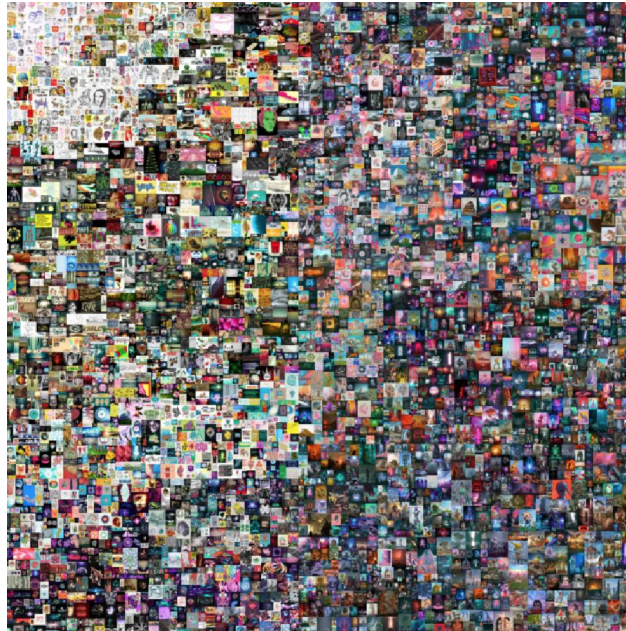


Fig 6.2

6.3 Clock – \$52,740,000

Pak created an NFT timer that displays how long WikiLeaks founder Julian Assange has been imprisoned. AssangeDAO, a decentralized organization whose members advocate for Julian Assange, purchased the NFT for \$52.7M. All profits of the sale reportedly went to a foundation that works on Assange’s legal defence.

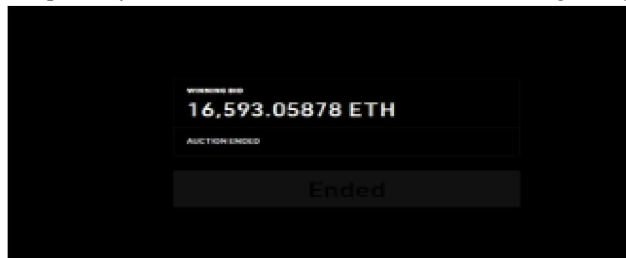


Fig 6.3

VII. CONCLUSION

In conclusion, this survey brings a new methodology for the tokenization of digital art through NFT platforms, presenting a holistic solution to problems that have been present before now. Through our proposed platform, we connect minting, marketplace functions, revenue handling, ownership tracing, and resale tracking thus allowing artists in creative spheres to work out their platform preference is free. The section on 'NFT Market Milestones: The transformative character of the NFTs that the article provided ‘Notable Sales and Record-Breaking Transactions.’ While NFT sales continue to increase, the fact that some sales have prompted to ground-breaking transactions is an indication of the economic and cultural importance that NFTs are gaining.

Within the future NFTs' art and development of our proposed methodology, the increasing accessibility and transparency of such a platform will allow for a friendlier market by putting more power in the artist's hands. The market milestones do not only show success but also help to highlight this comprehensive cultural art spirit of incorporating blockchain technology and creative works. Basically, this survey provides some theoretical conclusions that sheds light on the future path of digital art tokenization. The methodology presented above, together with a case of the analysis of market milestones, shows, on what technological basis the form of art can be fundamentally changed, namely NFTs.

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