

# A Brief Survey of the Uses of Non-Fungible Tokens

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## Abstract

Non-fungible tokens (NFTs) are interchangeable rights to digital assets such as art, in-game items, collectibles or music, etc. NFTs have the potential to be infinitely useful in many industries by increasing security and processing costs for transactions and providing a new platform for the gigeconomy to work through. Its markets have grown fast and significantly since early 2021. We investigate the uses of NFTs and research the facts and figures on the usage of NFTs supporting websites. Using daily data between 2019 to 2021. NFTs took the world by storm in 2021, bringing forth a digital art revolution while becoming one of the fastest-growing asset classes of the year. While the NFTs market has been growing at a rapid pace, many are still wary of entering it because of the theoretical insanity around its worth. NFTs have been out there for quite some time and this trend doesn't plan to go any further. NFTs services have many practical use cases and their potential will only grow over time. While celebrities dive into this marketplace to maintain their online presence and increase their Net worth.

### Keywords:

*Non-Fungible Tokens, Blockchain, Smart Contract, Web of 3.0, Open Sea Marketplace.*

## 1. Introduction

Blockchain is a system of storing information or data in a way that makes it difficult or impossible to change, hack or cheat the system. It is a decentralized, distributed and digital ledger having records called blocks that are used to record transactions across so many computers that any involved block cannot be altered without the alteration of all blocks. As a database, a block chain electronically stores the information in digital format. One key difference between a typical database and blockchain is how the data is arranged or structured. Blockchain collects information together in groups as blocks that hold sets of information.

NFTs are unit of digital data stored on the blockchain, but differs from crypto currency, which is

fungible and non-replaceable. The history of a non-fungible token (NFTs) is much longer than people realize as it seems like NFTs arrived out of nowhere but they do, back to 2012. When the first idea related to the NFTs was given, in a paper of Meni Rosenfeld's. The idea introduced in that paper was a colored coin issued on the bitcoin blockchain. These assets can be anything related to the digital world of computers. However, NFTs are also digital assets that may represent real-world objects like arts, video, music, and in-game items. These objects are bought and sold online, instantly with the help of crypto currency and generally encoded with the same software as many cryptos. The first-ever NFT was created by a digital artist Kevin McCoy in 2014 [1] and minted the first-known NFT Quantum on the Name coin blockchain. The term quantum is a digital image of apixelated octagon that may change colors hypnotically and vibrate in a pulsatile manner which resembles an octopus. There is a category of blockchain-based virtual assets known as non-fungible tokens (NFTs) which have garnered investor interest in a short period.[2]

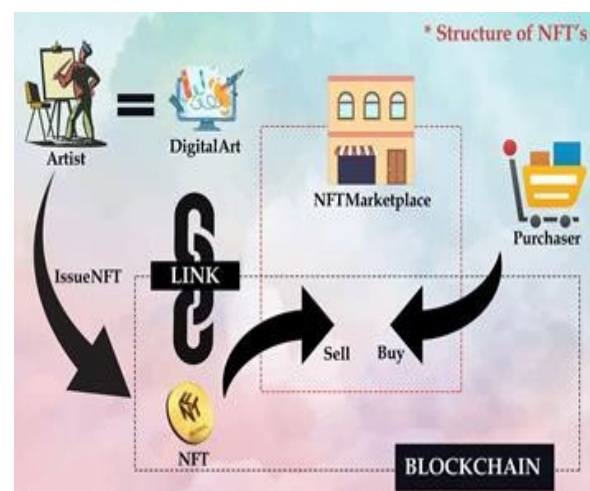


Fig.1. Structure of NFTs

As shown in Fig.1. Structure of NFT is very simple in which Artist makes or illustrates an Art and put it on the NFT supporting website called as NFTs Marketplace. There are many users that are basically seller and purchaser.

Ethereum [3] was the first block chain to Support NFTs with ERC-721 standard and this is currently the most widely used. It is a decentralized blockchain platform that begins a peer-to-peer network that executes the application code, called smart contracts. It allows the users to transact without a central authority. Transactions are sent from and received by user-created Ethereum accounts. A sender must sign transactions and spend Ether, Ethereum's native crypto currency, as a cost of processing transactions on the network.

The global NFT market is expected to grow from 3.0 billion USD in 2022 to 13.6 billion USD by 2027. At a compound annual growth Rate (CAGR) of 35.0% from 2022 to 2027. The purpose of NFT is to allow the buyer to own the original item. In this paper we will review the uses of NFT.

## 2. Uses of NFTs

NFT is unique which cannot be exchanged like-for-like making it suitable for identifying something or someone in a unique way. To be specific, by using NFTs on smart contracts (in Ethereum), a creator can easily prove the existence and ownership of digital assets in the form of videos, images, arts, event tickets etc.



**Fig.2.** Use Case of NFTs

As shown in Fig.2. The details of the Uses for NFTs are given below

### 2.1. Original Digital Artwork

Digital Artwork [4] can be intangible but you can own it.

It can be any type of digital file, for example an artwork, or even a tweet or meme named "Disaster Girl", an original photo sold for 500 thousand dollars in this year. You can illustrate the image and watermark edit and then publish it on any supporting NFTs websites.

### 2.2. Original Music

There are multiple websites that has royalty free music clips in mp3 format. One fast-growing digital system in the NFT industry is music NFTs.

Music may appear like a blockchain alternative to buying tracks on iTunes. However, when you buy a track on iTunes, you only buy the right to listen to that music. There's no asset ownership on iTunes - only a license to listen to what you have just paid for. In contrast, music NFTs let anyone listen to tracks but also confer ownership over that file through an NFT.

### 2.3. Digital Collectible

Collectibles [5] are items of value that can be sought for and acquired by collectors. Collectors can be anyone, from traders looking for short-term gains to crypto users that love collecting stuff. The categories include but are not limited to art, music, clips, sport, and games.

### 2.4. Event Tickets

NFT tickets are digital assets which hold access credentials and certain perks for events. These can make the subject of further transactions, allowing you to easily generate new revenue streams for yourself and for the community.

### 2.5. Limited Edition Fashion Items

Fashion brands do not stand a side and enter the world of NFT fashion using non-fungible as a great tool for attracting customers. There are many companies that have already presented their NFT collections on the Marketplace Such as Gucci, LV, Levis, And the most popular brands like Adidas, Nike and Under armor.

### 2.6. Domain NFTs

NFT domains [6] are domains that live on public blockchain and give users complete ownership of their stored data. The main benefit to owning one are simplifying crypto transactions by replacing wallet addresses with the domain names.

### 2.7. In-Game Content and Digital Assets

This is a digital asset [7] that represents real-world objects like art, music, In-game items and videos. They are bought and sold online, frequently with crypto and they are generally encoded with the same underlying software as many cryptos. Additionally, the creator can also earn royalties each time of a successful trade on any NFT market or by peer-to-peer exchanging.

Full history tradability, deep liquidity, and convenient interoperability enable NFT to become a promising intellectual property (IP)-protection solution. Although, NFTs represent little more than code, the codes to a buyer have assigned value when considering its comparative car city as a digital object. It well secures selling prices of these IP-related products that may have seemed unthinkable for non-fungible virtual assets.[6]

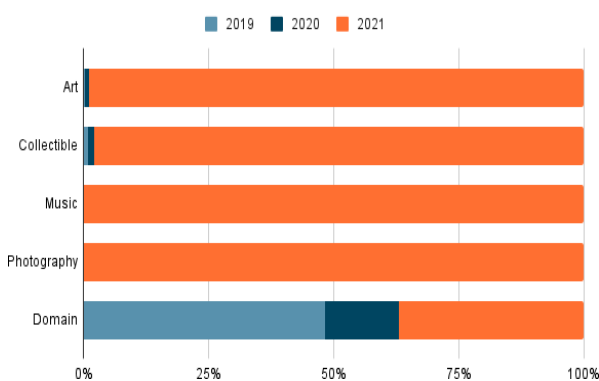
As we know NFT is an internet-based technology. There are many of the platforms and websites that hold the NFTs data. Some of the popular websites are listed below Table 1.

The most profitable market as of 2022 was Open Sea[8] which is discussed in the following pages.

Market Place	User	Transaction
Open Sea	473k	2.7M
LooksRare	473k	96k
Rarible	9k	225k
SuperRare	0.8k	1.5k
MarketPlace	0.2k	0.3k

Table1. Popular Websites supporting NFTs

NFTs sales by categories and year



### 3. NFT Supporting Websites

#### 3.1 Open Sea

We have Open Sea Market place at first number. In the Start of NFTs, Open Sea market place came into existence. Many of the products are acquired and dispatched. The system is very easy to understand. This platform has processed 2.7 million dollars' worth of NFTs and has over 473k users.

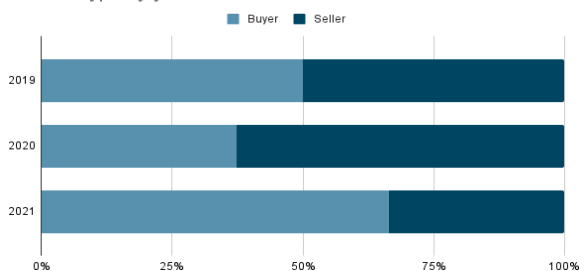
Aside from domains, all of the categories exhibited considerable year-to-year growth. Music and photography had modest showings for their first year on this platform. Future analysis on sales trends from 2022 onward should examine if these categories can keep the place with all markets. Collectibles grew ten thousand percent from 2019-22 as buyers started for the hype of NFTs.

Category	2019	2020	2021
Art	2524	10595	1132707
Collectibles	27395	32346	2844337
Music	-	25	15254
Photography	-	-	1149
Domain	8060	2461	6166

Table2. NFT Sales by Category and year

In Table2, While comparing the sale of 2021 in category of Arts remained 1132707, Where as in Collectible, music, photography and domain respectively is higher than the ratio of 2019 and 2020. The increase in sales shows the positive usage of the platform of Open Sea among the users. It represents an inclination of usage that is quite higher as compared to previous years.

Distinct type by year



Type	Buyers	Sellers
2019	7,845	7,845
2020	7,845	13,152
2021	601,183	303,629

Table3. Distinct Type by year

In Table 3, Usage of NFTs platform in terms of buyers

and sellers are comparatively higher than previous years as we can see in 2019, there were less buyers and sellers with the ratio of 7,84 and 6,771 respectively. Meanwhile in 2021, The number of buyers and sellers are much higher than the previous years. NFTstooktheworldbystormin2021, bringing forth a digital art revolution while becoming one of the fastest growing asset classes of the year.

#### 4. The Future of NFTs in the World of Web 3.0

Web 3.0 is the 3<sup>rd</sup> generation of the evolution of web technologies. The World wide web is the foundation layer for how the internet is used, providing websites and applications. The technology of non-fungible tokens has enabled artists to offer digital originals without depending on Third Person, all while being able to receive royalties on secondary sales of their work. But this use-case is just the beginning of the blooming world of web3.0.

Web 3.0 is but a natural extension of that exploration outwards, Even Though a particularly bold one, since it anticipates blockchain as constituting the procession paradigm of an internet architecture.[9]To attain such decentralized ownership for a new internet architecture, Web 3.0's support proposes a blockchain-oriented structuring of the internet, with the liability of participation and possession put down to the user at the center. It is fact on the construction of a "user-centric" architecture (Voshgmir, 2020), and has three important features: "Individual blockchains, federated or centralized platforms capable of publishing verifiable states, and a well-matched platform to hyper connect those state publishers" (Liu et al., 2021). It therefore draws upon rich area of technological break throughs (blockchains), to Consider whether an entirely new cyber space can be built on similarly decentralized, self-reinforcing foundations.[9]

#### 5. Conclusion

In this paper we provide a study on the uses of NFTs. Discussed their applicability and scalability challenges. We talk about the background of NFTs and further discuss how NFTs exist on a blockchain and the huge role of Ethereum in NFTs. Took in to consideration the most used products and their comparative differences in distinct years. The future work of NFT has also been discussed in this paper such the introduction of Web of 3.0. At the time of writing, we believe that NFT is still in its infancy implying there will be some time spent before it gets widely adopted. However, the aim of this

study was to provide a guiding reference in a common form to researchers so that more informed decisions can be made either for conducting similar research or designing an NFT-Based solution.

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