

Research on NFT in the Context of Blockchain

Honglin Zhao*

Shanghai Crosspoint high school, China

*Corresponding Author. Email: 1531040140@xzyz.edu.cn

Abstract. A non-fungible token (NFT) is a unit of data on what is known as a blockchain digital ledger, where each token can represent a unique piece of digital data. Since they are not interchangeable, non-homogeneous tokens can represent digital files, such as paintings, sounds, movies, projects in games, or other forms of creative work. Blockchain allows users on the C or B side to place personal data or business data on the blockchain network, instead of homogenous token, thus becoming the next hot spot in the Internet industry. 2021 was perhaps the most critical year for the industry so far. In this paper, 2020 can be defined as a year of construction and preparation, which saw great progress and positive results on the most important indicators and macro indicators for the industry. There are more wallets and transactions interacting with DApps than ever before, and the demand for NFT and games has increased dramatically.

Keywords: NFT, Blockchain, network.

1. Introduction

NFT is the application of blockchain. The infrastructure that constitutes digital assets is based on blockchain technology, and NFT gives digital assets "identity card". NFT (Non-Fungible Token), which translates as non-homogeneous Token, means that virtual goods are given tokens that cannot be tampered with based on blockchain technology. Compared with bitcoin, Dogecoin and other homogeneous tokens, NFT has uniqueness and scarcity, and is indivisible and non-exchangeable. Therefore, NFT can correspond with virtual goods one by one to realize the capitalization of virtual goods. NFT has been widely used in the field of digital collectibles because it effectively solves the problem of difficult ownership definition of digital artworks. The origin of NFT can be traced back to the 1990s, and it began to boom from 2018 to 2021, and is now in a vigorous development period.

1) NFT predecessor: Hal Finney, a bitcoin pioneer, proposed the concept of a crypto transaction card in 1993. The underlying logic was similar to stamp collecting, but the expression was based on cryptography and mathematics. Color coins were born in 2012. They can represent a variety of assets and can be used for a variety of purposes, including property, coupons, and issuing company shares. Although color coin still has the defect of being too homogeneous with Bitcoin in design, it shows the plasticity and development potential of the chain of real assets, laying the foundation for the development of NFT.

2) Exploration phase: in 2014, Robert Dermody et al. founded Counterparty. This is a peer-to-peer financial platform that supports asset creation, with decentralized exchanges, XCP contract currencies and other projects. What really pushed for the emergence of NFT was RarePepes created on Counterparty to make the popular Sad Frog an NFT app.

3) In June 2017, the world's first NFT project—CryptoPunks was born in Ethereum. Developers put pixel avatars on the blockchain to study these personalized profile picture industry topics

It is verified through the features of the blockchain and allows them to be owned and transferred. Inspired by Crypto Punks, the Crypto Kitties (Crypto Cat) game was launched in October 2017, and each cat has a unique form and gene, completing the innovation of value-shaping methods. After CryptoKitties became popular, NFT also flourished.

NFT is the first application in the field of collection, and its circulation attributes are increasingly apparent

NFT is the first application in collectibles, using auctions and celebrity endorsements, but overall, NFT attention is driven by hot events. After 2020, high-priced NFT art began to appear, and digital

artist Beeple began drawing one picture a day in 2007, and finally assembled 5,000 images into NFT art *Everydays: The First 5000 Days*, which was successfully auctioned for \$69.34 million. In August 2021, NBA star Stephen Curry bought an BoredApe (boring ape) for his Twitter profile picture for \$180,000. In addition, Tak Murakami Long, Yao Ming and other celebrities from all walks of life have also released NFT products, boosting the NFT heat. According to Google Trends statistics, the NFT related search volume started from scratch in 2021Q1, and after the Q2 cooling period, the search heat reached a new high in Q3.

2. Main body

2.1. Application Data

Digital assets are a prerequisite for trading in digital markets.

The NFT is a virtual asset that promotes the metaverse, it is likely to constitute the future. The native assets in the metaverse are the main carrier, thus acting as a bridge between the real world and the meta-verse. And NFT implements the metaverse from traditional mutual. The transformation of networked information transfer function to metaverse value transfer function constitutes the infrastructure of metaverse. NFT application "will help hit the decentralized clearing platform and value transfer mechanism of the universe guarantee the ownership and circulation of value, and realize the stable operation of the universe economic system. Fixed, efficient, transparent, and certain."

Of course, NFT also acts as metaverse identity authentication, as has been discussed above. However, the former NFT technology and application still exist defects to varying degrees: First, the essence of NFT is still blockchain technology, which follows the height of blockchain transaction. Defects in energy consumption. Limited to its technical structure, for each NFT All transactions need to call a smart contract, when you need to trade more than one at the same time NFT You need to call smart contracts multiple times, resulting in low trading efficiency, long trading cycle, and high transaction costs.

Secondly, at present The NFT trading market is not completely separated from the centralized control, because the security of each layer and the application layer of the blockchain network protocol is relatively low. third, Whether the NFT is in the overall system of the token, different from the homogeneous token, for example, it cannot be obtained by mining, weakening the NFT to some extent as a token active of effect. Finally, according to the general principle of tokenification, the characteristics of infinite segmentation possessed by FT contributes to the realization value. Transfer transactions, especially for the certification of specific real estate or precious art and other high-value low-level property, this advantage is more obvious. From this on, NFT itself needs to be moderately divided to play greater value. In practice, there is a concept called computable proof (Vesting? Legal imagination beyond the metaverse: digital identity, NFT, and multiple regulation Token), semi-homogenization and other solutions to solve their liquidity problems.

In conclusion, NFT is currently extremely narrow, and its function is only limited. In the specific virtual property confirmation, and NFT confirmation in the real estate field, the role is very limited. Therefore, only to the current application of NFT, in a sense from the concept of proof, the future role in the metaverse remains to be seen. For China, the People's Bank of China has issued further. Further due to China's strict regulatory attitude towards virtual asset related business

2.2. NFT collection: Blockchain power can improve liquidity

Compared with ordinary collections, NFT plus collections can ensure more of the authenticity of collections, so they have better circulation attributes. The carriers of traditional collections include painted paper, silk, soil, marble, etc. which may encounter fraud in circulation, and have certain requirements for the preservation environment. The NFT collection is a piece of data that collectors can hold or display at any time through an electronic screen. More importantly, thanks to the characteristics of blockchain decentralization, NFT collectibles also have circulation attributes. According to Nonfungible statistics, about 3,200 10,000 CryptoPunks heads have been sold, with

prices ranging from 0.5 to 2,000 ETH (1 ETH=\$4,125 as of December 6,2021), indicating that NFT collectibles are gradually being accepted and recognized by investors. For art creators, NFT solves the problems of piracy and reproduction of artworks, which can effectively protect intellectual property rights. Whether the work is an oil painting, a GIF, or a short video or audio in the real world, it needs to be created with a copy on the blockchain ledger and recorded as an NFT contract. Therefore, each NFT work has its own "ID card". The owner can not only directly query the authenticity and transfer records through metadata, but also set the percentage ratio in the NFT contract to realize the automation of profit.

Direct exchange between collectors, fear of not buying fakes, largely increases the mobility of artworks and makes it easy to adjust prices.

For example, the NBA physical star card is moved from offline to the chain, raising liquidity and lowering the transaction threshold. NBA Top Shot is a collection NFT project developed by the Crypto Kitties and the team behind Flow and deployed on the Flow public chain. It is popular with star card fans due to its blind box and NFT attributes.

Visa released the NFT white paper in August 2021, in which Visa expressed the company's views on NFT. Visa believes that NFT can bring new business opportunities to enterprises, mainly reflected in the NFT can more integrate fans(users)into the ecosystem created by the enterprise, while helping enterprises with more effective customer relationship management processes, and creating potential revenue sources for enterprises.

2.3. Trading Scenario: 2021 can be called the first year of NFT trading

OpenSea: Rule the NFT trading market

The year 2021 is a year for NFT: since January 2021, NFT transaction volume has grown rapidly, while OpenSea has quickly dominated the market share of NFT exchange by taking advantage of its NFT users and NFT asset types. In August 2021, OpenSea's NFT transactions exceeded us\$1 billion, accounting for 98.3%of the global NFT transactions. In contrast, OpenSea 2020 traded for less than\$20 million

First, the explosion of NFT transaction volume comes from the rapid enrichment of the content on the supply side. The number of NFT projects has increased rapidly. In August 2021,2 NFT projects with more than one ether coin reached 2,776, up at least three times from the total number of less than 700 NFT projects at the beginning of the year. The number of users of Axie Infinity represented by game scene and CryptoPunks and Bored Ape Yacht Club represented by social scene has increased rapidly. On August 28,2021, Axie Infinity said on Twitter that its Android version had 1.01 million daily users (exceeding 1 million for the first time), including 380,000 for Axie Infinity Windows, 23,000 for Mac and 15,000 for iOS.

Second, OpenSea's dominance comes from the easy access of the NFT platform and lower costs than competitors. There are no restrictions on how Open Sea creators can enter, Creators can simply apply for an account on Open Sea and post their own created NFT products, Low entry there sold, And Open Sea competitors all need to apply for or direct invitation to participate in the release of NFT products or transactions; Open Sea charges 2.5%, Although significantly higher fees than conventional cryptocurrency transactions, But compared to other NFT trading platforms that may reach 10 percent or 15 percent of the transaction fees, OpenSea transaction fees remain at the lowest level in the industry, And OpenSea charges lower royalties on creators.In addition, to ensure creator uniqueness, OpenSea cannot assign royalties to multiple addresses, so the address receiving royalties can only be the address that the original creator applied for, and NFT creators cannot use some of their royalty fees directly through OpenSea⁴.Investment advice

2.4. Investment logic

1) The value of the NFT exchange platform is equivalent to that of Taobao for e-commerce. The opening of the NFT market for secondary transactions is a sign that the market space of the industry is really opened. We believe that the opening of secondary transactions in the NFT market needs to

be carried out under the national financial supervision. The cooperation relying on the platform of the CULTURAL Exchange is worth paying attention to, especially the exploration of local state-owned media listed companies and head Internet companies in the NFT market. On the one hand, local state-funded media companies share the local cultural exchange platform; on the other hand, Tencent Ali, the leading Internet giant, is carrying out in-depth exploration of the whole industry chain. At present, the Internet platform is still stuck in the first-level market layout of NFT issuing end.

2) NFT has not yet been truly defined in China. The value of collection is greater than its financial attributes. It is recommended to pay attention to the layout of copyright related companies in the NFT underlying technology field.

3) If the NFT (digital collection) market is liberalised, it is expected to revitalise dormant cultural assets, copyright resources and so on, thereby boosting the performance of the whole sector. It is suggested to grasp investment opportunities from two dimensions:

1) In the NFT/cultural exchange and other related fields have layout of the relevant targets of Visual China, three people, Zhejiang Internet and other targets; 2) At present, the overall valuation of the media content sector is at a historically low level. NFT is expected to activate the realisation value of the top IP resources, improve the commercialization ability, and recommend the content leaders in subdivision fields such as Mango Super Media,³⁷ Mutual Entertainment, Enlight Media, Huce Film and Television, and Yaoji Technology, which are at the bottom of the valuation.

3. Conclusion

We are still a long way from a persistent, living digital world that provides people with a sense of presence, a space of consciousness for social presentation and sharing, and the ability to participate in a vast virtual economy with profound social implications. The void into which the metasomes are entering is not empty.

From the perspective of carrier, we have experienced mainframe Internet and PC Internet. In the past two years, with the popularity of mobile intelligent terminals, mobile Internet has unconsciously entered people's lives. With 5G, AR, VR, MR technology and the development and popularization of terminal equipment, such as how interface, sensual immersive interactive form of new Internet is coming, and we are now difficult to specifically define yuan the ultimate form of the universe, RMB under the realism of the universe we can see in the science fiction film "oasis", this is the people ability to the nearest yuan universe.

It is estimated that the size of the virtual goods market is about \$50 billion, is expected to increase by 2025 to \$190 billion, and there are quite a occurred in a relatively vague in the secondary market, so the number may be higher, with great potential for blue ocean value among all the industry salivating, this also makes the yuan universe tuyere menacing, unstoppable, in spite of this, In a way the meta-universe is unlikely to be really known at the moment, even for those who have experienced VR and AR, Piers Kicks' paper Into the Void: When encryption technology have yuan in the universe", he summed up the yuan the universe has a "strong social, fresh synchronization, large scale, persist, don't pick, highly interoperable operating hardware, economic rich, the bridging different world, rich in content of several major attribute, and points out five key parts of yuan universe content, standard protocol, infrastructure, media and culture. Ultimately, blockchain will become an integral part of the metasemes and will bring new business models and opportunities to the gaming and entertainment industries.

When the chain block and the existing digital economy, how to enhance our virtual environment in an unprecedented scale, encryption technology as infrastructure provides a potential solution and provide incentive structure at the same time, coordinate not tamper with the economic and reasonable behavior, large-scale plate solid economic system, provide strong support for yuan universe. At the heart of this argument is the idea that native digital cryptocurrencies will play an integral role in seamless value transfer across the entire native digital world. Digital assets and cryptography seem to be at the top of the list in building the metaverse.

References

- [1] Chen Miao. 2022. Technology Adoption and Responsible Innovation of Libraries, Archives and Museums (LAM) in the Metaverse Era: Using NFT Centered Thinking. *Library Construction*, (1): 121-126.
- [2] Li Mo. 2022. Research on the Service Mode and Technical Framework of Smart Libraries from the Perspective of the Metaverse. *Information Theory and Practice*, 45(3):89-93, 88.
- [3] Chen Dingquan. 2022. Imagining the appearance in the metaverse between the virtual and the real [J]. *Library Forum*, 42 (1): 62-68.
- [4] Zhao Xing. Governance of the Metaverse: Prospects for Agile Governance in the Future Digital World. *Chinese Library Journal*, 2022, 48(1): 52-61.
- [5] Neal Stephenson. 2009. *Snow Crash*. New York: Bantam Spectra.
- [6] Zhao Guodong. 2021. *Metaverse*. Beijing: Chinese Translation Publishing House.
- [7] Wu Jiang. 2022. User Information Behavior from the Metaverse Perspective: Framework and Prospect. *Journal of Information Resource Management*, 12(1): 4-20.
- [8] Smith F A. 2019. Virtual reality in libraries is common sense. *Library Hi Tech News*, 36(6): 10-13.
- [9] Hahn J. 2012. Mobile augmented reality applications for library services. *New library world*, 113(9): 429-438.
- [10] Zhou Wei. 2015. System Research Based on Augmented Reality Technology. *Journal of System Simulation*, 27 (4): 810-815.
- [11] Sadiku. 2018. Cloud computing: opportunities and challenges. *IE EE potentials*, 33(1): 34-36.