NFTs: An Overhyped Gimmick or a Promising Technology of the 21st Century

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Abstract: Non-fungible tokens are the rising technology of the 21st century that is generally overlooked and considered to be impractical. This paper aims to analyze the current state of NFT technology, as well as provide reasonable applications for modern problems and ideas for further development and adoption of this technology. Several live and in-development examples of such projects were provided in this article together with their description and reasoning for the advantages of decentralized approach. Readers of this article are encouraged to consider NFTs as a viable tool for traditional as well as yet unsolved problems.

1 INTRODUCTION

The rise of blockchain and cryptocurrency can be considered the greatest innovation of how people handle money since the introduction of centralized banking (Soloviev and Belinskiy, 2018). Being a decentralized, distributed ledger that securely holds the information on digital transactions it has already started to disrupt traditional business models and financial systems, providing an alternative to traditional banking. Since the first release of Bitcoin in 2009 the industry has gone long way and has attracted a huge number of new users, developers and investors. In the world of ever-growing monopolies, the decentralized finance is a breath of fresh air and a world of infinite possibilities.

The number of crypto holders increases year by year and new successful startups launch regularly. It is estimated that over 6.5 million people, 15.72% of Ukraine's total population, currently own cryptocurrency as of 2021 (table 1) (TripleA, 2023). This number has, undoubtedly, drastically increased in 2022 due to the ongoing events, which have complicated the traditional ways of managing finances, for instance, the ban of P2P transfers from hryvnia payment cards to foreign cards that was passed on 29 September 2022 and took effect from 5 October 2022 (National Bank of Ukraine, 2022).

Table 1: Crypto owners by country (sorted by the percentage of population).

Country	Number of crypto owners	Percentage of the population
Vietnam	20,210,834	20.27%
Ukraine	6,516,114	15.72%
United States	46,020,521	13.74%
South Africa	7,712,116	12.45%
Kenya	6,101,599	11.60%
Pakistan	26,457,317	11.50%
Nigeria	22,332,791	10.34%

Blockchain, however, can be used not only in order to send international payments with record low commissions and speed, but also to mint and trade non-fungible tokens (NFTs).

2 THE NATURE OF NFTs

A non-fungible token (NFT) is a record on blockchain which is associated with a particular digital or physical asset. Unlike regular fungible tokens (such as Bitcoin, Tether, Ether, Solana) it has no equal counterpart. That is, 1 Tether coin is always equal to any other 1 Tether coin (in case of tradtitioanl finance 1 USD is always the same as any other 1 USD),

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whereas any given NFT does not have an equal counterpart, hence the name "non-fungible". The ownership of an NFT is recorded in the blockchain, and can be transferred by the owner, allowing NFTs to be sold and traded. Usually NFTs contain references to images (art, generated characters, photos, animated GIFs, or any other image), videos, music, etc. (figure 1) (Ozone Networks, 2023).

Technically, it is possible for everyone to right click an NFT art on any website and save it to the hard drive, then use it as a regular image file – set it as a screensaver, print it out or even go as far as to set it as a profile picture on Twitter (as many online trolls do).

However, the main point of NFTs is not that only the owner gets to view the artwork, rather they are the one, who have the ownership of it. The ownership, in turn, can be easily verified thanks to the transparent nature of blockchain. All relevant data, such as transaction history, price and other attributes of an NFT are also publicly available.

A good analogy for NFTs could be conventional pieces of art. Such paintings as Mona Lisa by Leonardo da Vinci do not exist in one single copy, instead, it can be found everywhere: decorating various establishments, on merchandise, in movies, on desktop wallpapers and so on. However the original is the one that bears the real value, both artistic and material. NFTs are a lot alike in this matter. Although instead of experts who determine the original it is the blockchain and its users, who all agree on what the original is, who it belongs to and what is its price.

No matter the benefits of this rising technology its reputation still lags behind. NFTs are associated with many controversies and are often considered to be a gimmick and are expected by many to fade into oblivion rather soon. It cannot be denied that this reputation is well deserved, since the technology is clearly ahead of its time and is just starting to see truly practical applications.

For instance, an American influencer Logan Paul bought an NFT from Azuki's NFT collection for $623 000, which is worth $10 today (figure 2) (Paul, 2022). It is the deals like this than make people wonder if NFTs have any practicality.

3 PRACTICAL USE CASES

Having experience of working in various NFT projects as a developer, in this article I would like to provide you various ideas and examples of how we can make NFTs useful and wipe off the questionable reputation of this technology.

3.1 Fund Raising and Charity

The most obvious way that also removes most questions concerning the artistic value of an NFT is, of course, fund raising.

There are several great projects that are also extremely actual that raise money for the support of Ukrainian people, various funds, volunteers and, for sure, the Armed Forces of Ukraine.

On of such projects is MetaHistory NFT museum (figure 3), which is widely regarded and backed by such organization as the Ministry of Digital Transformation of Ukraine.

Their "WARLINE" collection (Meta History: Museum of War, 2022) follows a chronology of events of the Ukrainian history of modern times. Each token is a real news piece from an official source and an illustration from artists, both Ukrainian and international. This helps not only to raise funds and raise awareness. But also to record the history in a way, that can neither be altered, nor destroyed.

One other project is a landing page for a partnership between Usyk Foundation and Blockasset. The website was launched a couple of weeks before the "Oleksandr Usyk vs Anthony Joshua II" boxing match, which was a great way to gain attention. (More than that, the glorious victory of Oleksandr Usyk vastly improved sales). On this landed page a collection of 2000 unique NFTs featuring Oleksandr Usyk were being sold, each priced at $200. This helped to raise $400 000 for medical and hygiene supplies, food and much more. Blockasset has also benefited, as more people got interested in the project in general and in Usyk NFT collection in particular.

The collaboration on raising funds has ended. Regular Blockasset NFTs, featuring Oleksandr Usyk and other athletes, can still be purchased on such platforms as Magic Eden (figure 4) (Blockasset, 2022).

3.2 Decentralized Digital Assets Marketplace

Another great use case for NFTs is creating and trading unique content, which has not only artistic, but also practical value and can be used in commercial or non-commercial purposes. The examples of such content are photos, music, video clips and so on.

At the moment there a lot of such online marketplaces to be found. Such popular services as Envato (Envato, 2023), Shutterstock (Shutterstock, 2023) and Epidemic Sound (Epidemic Sound, 2022) have existed for quite a long time and have gathered thousands of creators, clients and pieces of content.

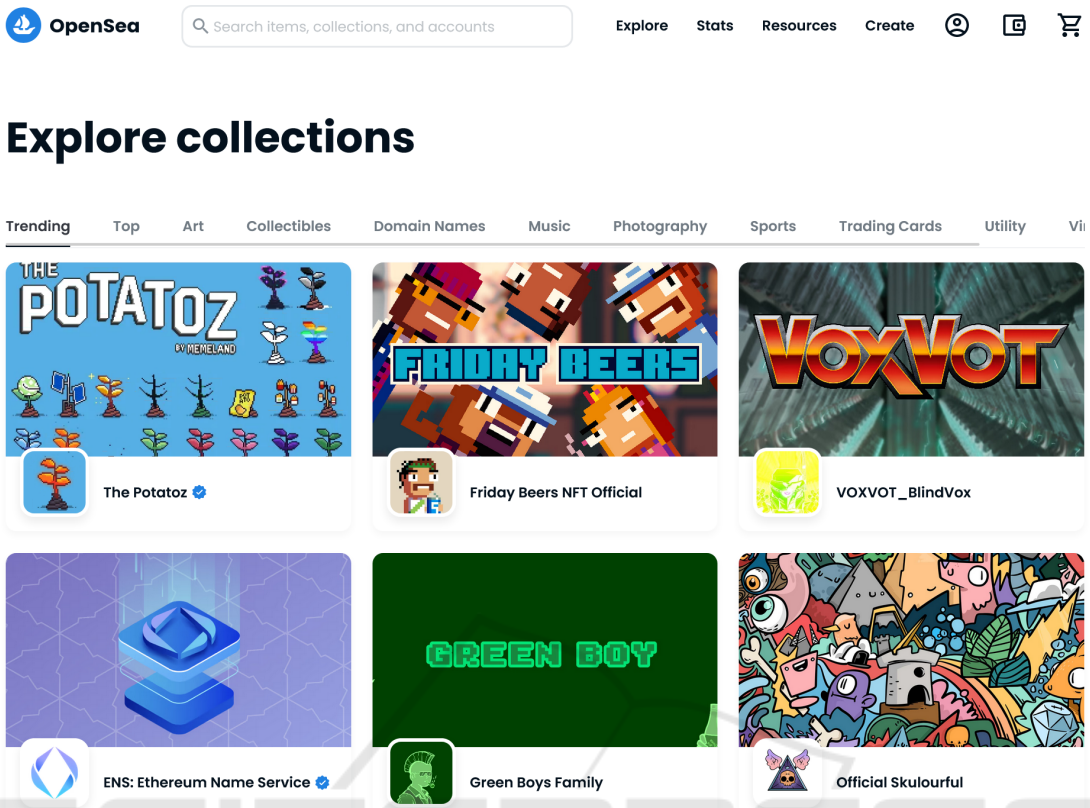


Figure 1: NFT examples from OpenSea, one of the largest non-fungible token marketplaces.

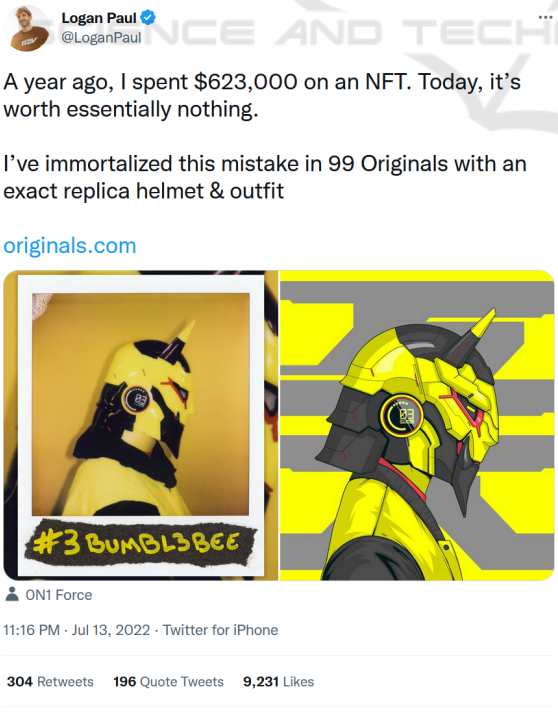


Figure 2: A tweet by Logan Paul on his NFT purchase.

Such marketplaces can also be implemented using Web3 technologies. All these assets will benefit from transparent copyright law protection thanks to the transparent nature of blockchain, and users and creators can perform payments using cryptocurrency.

One of such projects is an NDA[1] project I am currently working on. Since it is completely confidential the good way to describe it is to talk about its closest competitor – Releap.

Releap is a music distribution protocol where artists can publish their tracks as a set of NFTs to be discovered, enjoyed and traded on chain (figure 5) (Rel, 2022).

This project aims to empower emerging and major artists with new ways of gaining exposure, engaging with fans and monetizing their work. With Releap its possible to do such things as:

- Mint music NFTs that can interact with any NFT DApp[2] (e.g. NFT exchanges, lending or renting protocols) in the Solana ecosystem.
- Discover new music from our growing creator community and directly support creators that user

[1]NDA – non-disclosure agreement
[2]DApp – decentralized application

META HISTORY MUSEUM OF WAR

Home Collections Auction More Sign In

WARLINE

A chronology of events of the Ukrainian history of modern times, set in stone. The NFTs are facts accompanied by personal reflections. The formula of each NFT is clear and simple: each token is a real news piece from an official source and an illustration from artists, both Ukrainian and international.

Відверта хронологія подій новітньої історії України. Експонати — це факти, супроводжені емоційними спогадами. Формула експонату проста і прозора, кожен токен — реальне новинне повідомлення з офіційних джерел та ілюстрація до нього від художників — як українських, так і світових.

By Hour | By Day | By Drop

All Arts | On Sale

Newest first

Day 189

31 Aug 2022

Day 188

20:13

#0709

Yesterday, President @BillClinton and I spoke about the importance of strengthening democracy, making sure Ukraine has the assistance it needs, supporting people, and growing resilient economies. Thanks for the...

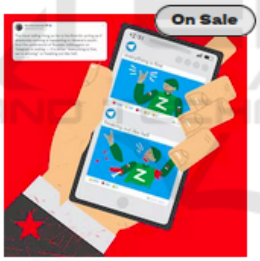
@JustinTrudeau

Buy NFT See details

Day 188

30 Aug 2022

Day 187 Day 189



20:46

#0708

The most telling thing so far is the Kremlin acting as if absolutely nothing is happening in Ukraine's south. And the underworld of Russian milbloggers on Telegram is boiling — it's either "everything is fine, we're winning" or freaking...

@IAPonomarenko

Buy NFT See details

Day 187

29 Aug 2022

Day 186 Day 188

21:39

#0707

⚡Zelensky: The legend of 'Russia the great country' must be forgotten. Zelensky said that "when Russia was strong, it was as the Soviet Union, including Ukraine, Kazakhstan, Belarus, and the Baltic states." That time is...

@KyivIndependent

Buy NFT See details

12:59

#0706

BREAKING: The counteroffensive on the ground begins. The #Ukrainian Army have broken through the first line of #Russia's defense in #Kherson. Most of the key bridges are rendered defunct, obstructing the supply of...

@KyivPost

Figure 3: MetaHistory NFT museum "WARLINE" collection page.

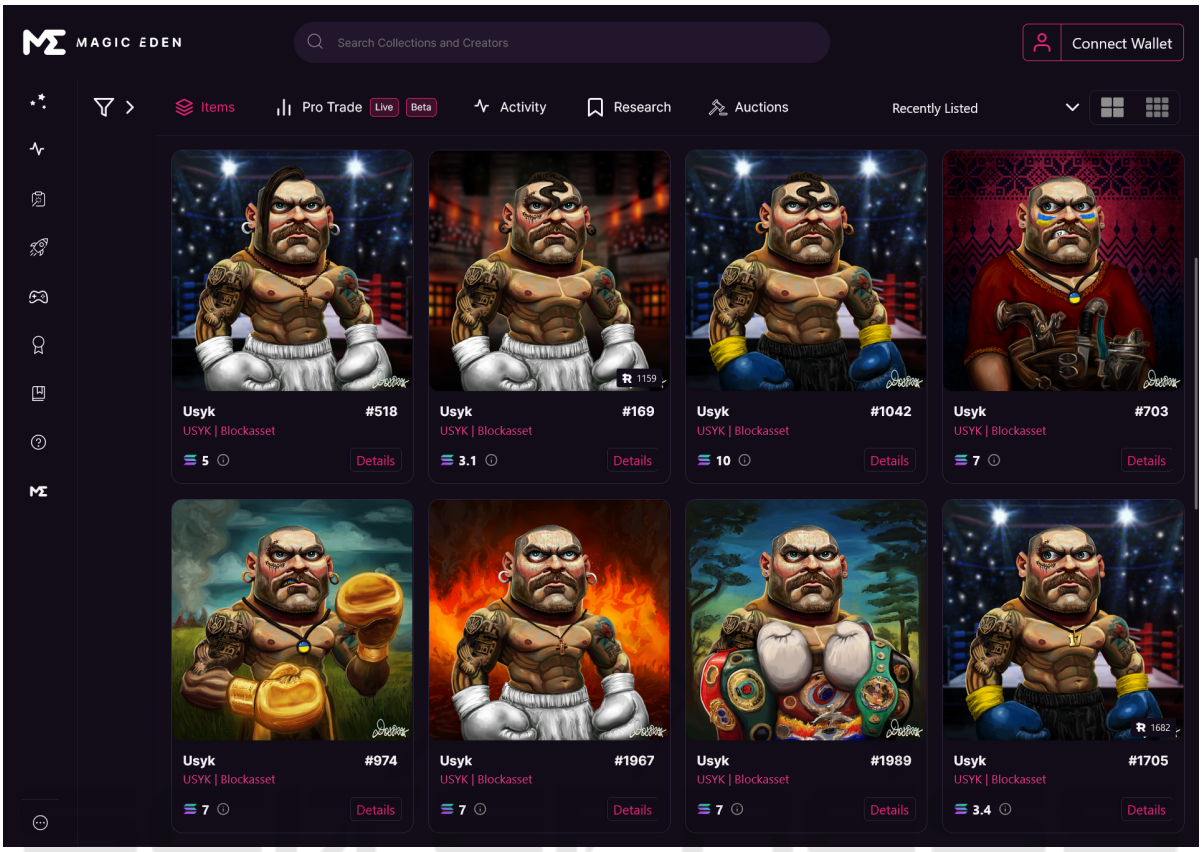


Figure 4: Usyk NFT collection page on Magic Eden.

loves.

- Buy and sell Solana music NFTs on Releap Exchange.
- Interact with music-loving community through public posts and comments.
- Engage with collectors who have bought user's NFTs through gated posts using Releap Circles.

The same model of using NFTs for original content can also be applied to photos, videos, art and any other digital assets.

3.3 Documents and Certificates

The problem of issuing and verifying documents digitally is widely regarded, as of today. A great leap in this field can be contributed to the Ministry of Digital Transformation of Ukraine with their project Diia (Diia, 2022), which was launched in 2020 and since then has been helping Ukrainian citizens to use digital documents in their smartphones instead of physical ones for identification and sharing purposes. Also, the Diia portal allows access to over 50 governmental services, all within the click of mouse.

The disadvantage of such service is its centralized nature, were users heavily depend on the IT team of Diia to keep everything stable, working as expected and have 24/7 uptime. To mitigate these drawbacks we could also make a good use of blockchain and NFTs to emit, distribute and validate various types of documents and certificates in a decentralized manner.

Thanks to the nature of blockchain it would be easy to establish a specific account that would be associated with a particular governmental or non-governmental institution. This institution could emit documents or certificates by means of minting NFTs.

The ideal documents or certificates for this use case are the ones that do not contain sensitive information, such as: diplomas, certificates, awards, tickets, invitations, and others.

Other documents, such as driver's licence could be modified for Web3 to only contain non-sensitive information, such as the date of issue and vehicle types that the barer is capable of conducting.

Documents, that contain sensitive information could be still managed in a centralized manner.

There is number of advantages of the decentralized approach in document management, among

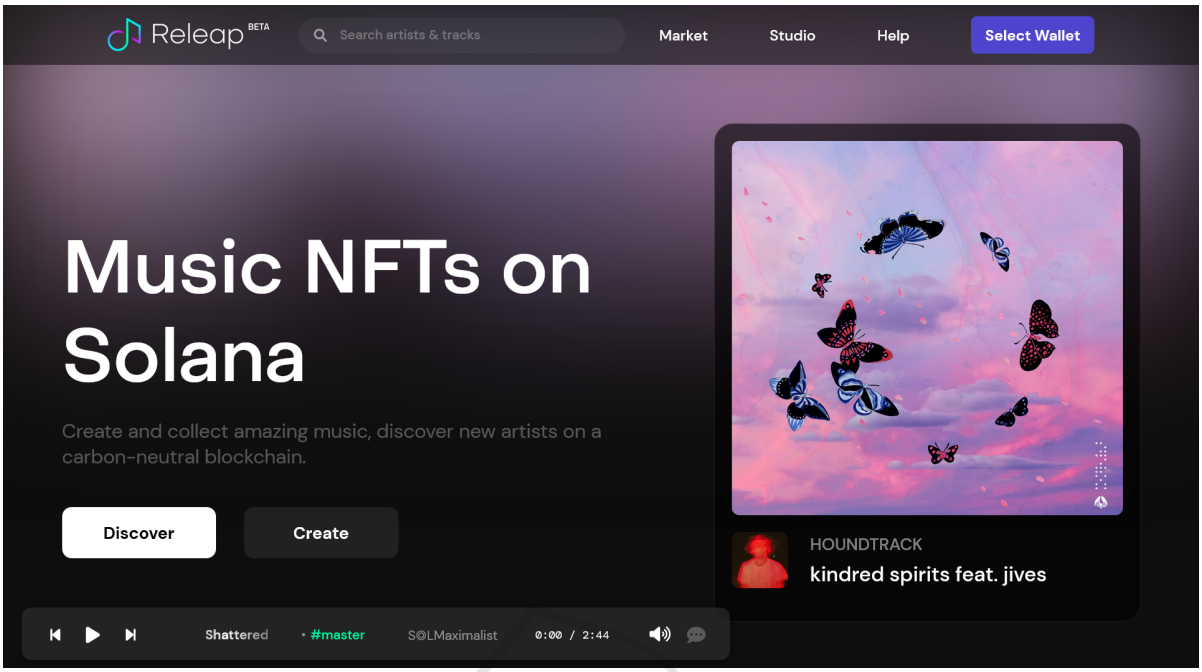


Figure 5: Releap – a platform for music NFTs on Solana.

them:

- Web3-based authentication
- transparency
- ease of validation
- impossibility to counterfeit
- absence of reliance on one specific web service

Such application of blockchain is yet to see light. Ukraine is the first country in the world to implement electronic passports, so it is, for sure, early to discuss a Web3 implementation for something that is yet to come to the majority of the world.

On the other hand non-governmental documents and certificates are rather common. Innovative online platforms use NFTs in order to issue diplomas for their online courses (especially when the course is about Web3 technologies). And ecosystems, such as Blockasset (Athlete-verified NFT and token ecosystem, 2023) use NFTs to provide exclusive access to content (videos, interviews, behind-the scenes clips) and allow users to have a chat with their favourite athlete in Discord.

4 CONCLUSION

As of today NFTs are associated with many controversies and are often considered to be a short-lasting gimmick and a subject for speculation. However it appears to be not an issue of the technology itself, but its use case. There is a wide range of options when it comes to NFTs that bring the advantages of decentralized applications into previously existing fields, some of which were described in this article:

- fund raising and charity
- decentralized digital assets marketplace
- documents and certificates

There are many other use cases of NFTs which were not mentioned in this article. Basically almost everything we know today can be implemented in a decentralized manner, what is required is a correct and thoughtful implementation.

All in all, non-fungible tokens make a perspective and promising technology which proves an important and universal point – it is not a technology that should be feared or praised, rather its application.

REFERENCES

(2022). Releap - Social NFT Platform on Solana. https://beta.releap.io/.

Athlete-verified NFT and token ecosystem (2023). Blockasset. https://www.blockasset.co.

Blockasset (2022). Magic Eden - NFT Marketplace: USYK — Blockasset. https://magiceden.io/marketplace/usyk.

Diia (2022). Government services online. https://diia.gov.ua/.

Envato (2023). Envato - Top digital assets and services. https://www.envato.com/.

Epidemic Sound (2022). Royalty Free Music for video creators. https://www.epidemicsound.com. [Online; accessed 28-October-2022].

Meta History: Museum of War (2022). Warline: A chronology of events of the Ukrainian history. https://metahistory.gallery/collection/warline.

National Bank of Ukraine (2022). The National Bank of Ukraine is taking measures to ease demand in the FX market's cash segment and protect international reserves, and clarifying some provisions. https://tinyurl.com/4r3bh9uy.

Ozone Networks (2023). OpenSea, the largest NFT marketplace. https://opensea.io/.

Paul, L. (2022). A tweet on NFT purchase. https://twitter.com/loganpaul/status/1547314126698995713.

Shutterstock (2023). Stock Images, Photos, Vectors, Video, and Music. https://www.shutterstock.com.

Soloviev, V. N. and Belinskiy, A. (2018). Complex Systems Theory and Crashes of Cryptocurrency Market. In Ermolayev, V., Suárez-Figueroa, M. C., Yakovyna, V., Mayr, H. C., Nikitchenko, M. S., and Spivakovsky, A., editors, *Information and Communication Technologies in Education, Research, and Industrial Applications - 14th International Conference, ICTERI 2018, Kyiv, Ukraine, May 14-17, 2018, Revised Selected Papers*, volume 1007 of *Communications in Computer and Information Science*, pages 276–297. Springer. https://doi.org/10.1007/978-3-030-13929-2_14.

TripleA (2023). Global Cryptocurrency Ownership Data 2023. https://triple-a.io/crypto-ownership-data/.

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