



Research article

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# Risks and Prospects of Creativity Tokenization

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## Abstract

**Objective:** tokenization of creativity, alongside with cryptoeconomy and Web3 network infrastructure, is a notable trend in the development of modern society in the third decade of the 21st century. The objective of this article is to explore the risks and prospects emerging in the process of disposition of the creative labor results in the form of non-fungible tokens.

**Methods:** the research methodology is based on analysis of varied viewpoints on the problem, including diametrically opposing concepts. The opposing views of the observers manifest their attitude to tokenization of creative products as a speculative scheme, on the one hand, and a promising tool of creative industries development, on the other.

**Results:** the probable negative consequences of tokenization of intellectual activity results are identified; author's recommendations on managing these risks are given. Another result of this publication is analysis of economic-legal prospects stemming from tokenization of the objects of copyright and neighboring rights by the example of musical pieces.

**Scientific novelty:** it consists in presenting and substantiating a hypothesis that the relations formed in the musical industry under the modern sociocultural and technological realities will be reproduced in other creative industries. Also, scientific novelty consists in the analysis of prospects of tokenization of such results of intellectual activity as gaming artifacts, works of traditional and digital visual arts, patents and scientific achievements. The use of non-fungible tokens the ecosystem of network computer games will allow gamers

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to buy and sell rights to game pieces autonomously from game publishers. Tokenization of industrial property objects and individualization means will ensure protection of intellectual rights of their authors while waiting for the issuance of a state protection document. In the modern society, there will be many of those wishing to become an owner of a token for a scientific work, as the popularity of science and innovations is constantly growing in developed countries. Ownership of a token for a scientific work will be regarded a moral investment, increasing the prestige and status of its owner. Tokens for scientific works have a high potential as a means of measuring value in a post-economic society.

**Practical significance:** it consists in the description of innovative means of using creative products and business models based on tokenization of the results of intellectual activity, ready to be implemented in practice.

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## Contents

Introduction

1. Methodology of researching tokenization of creativity
2. NFT as a sociotechnical fraud
3. Result: NFT as a future of creative industries
4. Tokenization of creativity by the example of music industry
5. Critics of music industry tokenization
6. Tokenization of gaming and cybersecurity
7. Tokenization of classic and digital visual arts
8. Tokenization of patents
9. Tokenization of scientific works

Conclusions

References

## Introduction

One of the most notable trends of the third decade of the 21st century is shaping of cryptoeconomy and network infrastructure Web3 (Momtaz, 2022; Goel et al., 2022; Jelil, 2022).

Web3 is the next stage of the Internet development, aimed at implementing the functions, which earlier were not imposed on the global information-communication infrastructure (Murray et al., 2023). In particular, this is about reliable registration of property right, storing information on commercial transactions, legal status of things and nonmaterial objects in a decentralized distributed ledger with the degree

of reliability exceeding manifold the centralized and proprietary systems. Web3 reduces the possibility of external control and illegal use of users' private data, as they are stored in a decentralized network, not on centralized servers (Petcu et al., 2023). In practice, Web3 technologies are represented in the form of cryptocurrencies, non-fungible tokens (NFTs), decentralized applications and services, smart contracts, and metaverse prototypes.

Cryptoeconomy, just like Web3, is a multidimensional concept. On the one hand, cryptoeconomy is a branch of information science that solves the problems of coordination between participants in digital ecosystems through cryptography and economic incentives. On the other hand, cryptoeconomy is not a part of traditional economy but an integrity of post-economic institutions forming an ecosystem comprising the game theory, mathematical methods of modeling functions, mechanisms for designing and implementing useful services, virtual assets, game values and utilitarian digital rights (Yue et al., 2021). In addition, cryptoeconomy changes the purpose and meaning of fundamental economic institutions, such as money, assets, own and loan capital, corporate organization, production incentives, risk sharing and attitude to traditional financial tools (Chey, 2022). An example is relevant of blurring the boundaries between the concepts of debt and equity capital. Such financial technologies as convertible bonds, preferred shares, and total return swaps are something in between loan and equity means: they open new opportunities for attracting and using investments. Issuance of tokens for a present or future virtual asset or a startup idea provides funding which is neither loan nor equity capital but has certain features of both.

An important element of cryptoeconomy and Web3 infrastructure are non-fungible tokens (Wilson et al., 2022). A catchword "tokenization" refers to the process of transforming an asset into a digital token. This digital token is a small fragment of a program code recorded into a distributed ledger (blockchain) and serving as a title of perfection of the asset; it also contains technological attributes about its belonging to the system that supports transactions with it. A token may be transferred between users without intermediaries, i. e. it is an object of commercial turnover, the legal content of which are property rights to the tokenized asset registered by means of a smart contract.

One of the variants of using tokenization is real estate where the total value of property is divided and redistributed in tokens. These tokens allow investors to enter the market and to purchase specific plots of real estate quickly and cheaply (Far et al., 2022). In other words, tokenization lowers the entry barriers, eliminates intermediaries' fees and costs, and increases the asset liquidity, providing more flexibility and safety for investors. Besides real estate, tokenization can be applied to almost any assets, such as securities, shares, precious metals, intellectual property, licensing rights, selling tickets and visual arts (Kraizberg, 2023).

In this research, we focus on tokenized results of creative activity, as they most vividly highlight the positive and negative aspects, as well as contradictions of this phenomenon. To obtain profit, right holders of copyright and neighbouring rights to tokenized objects acts in completely opposite ways in relation to traditional copyright mechanisms. In particular, the NFT market is constructed in such a way that the price of a token for a work of art is based on a consensus value of the work of art, i. e. based on the perception of the creative product value by its target audience. Thus, users obtain an opportunity of unobstructed access and, as a minimum, noncommercial use of the work of art without paying money for the obtained privileges.

By present, the arsenal of token purchasers comprises a wide range of innovative ways of their monetization, not related to restricting access to the work of art (Okediji, 2017); however, they are usually collateral, not direct as a goods or an access code exchanged for money. They are sold in adjacent markets – those of attention, impressions, advertising, merch<sup>1</sup>; they require special skills – using the techniques of search optimization and digital marketing; creating unique resources – organization and development of thematic internet communities, or special conditions, such as forming an intra-group demand, outside of which they do not work (Colicev, 2023).

## 1. Methodology of researching tokenization of creativity

The methodology of this work is built on considering opposing opinions on creativity tokenization. The first group of observers is convinced that an NFT market is something similar to a financial pyramid, a scheme for deceiving people by selling them a nonexistent value through abuse of trust.

The second approach, on the contrary, postulates a positive effect of tokenization of creative industries. Proponents of this system of views analyze and construct promising business models and patterns of extracting profit from tokenized works of art to reward their authors and provide earnings to token holders. Proponents of such view argue that tokenization eliminates intermediaries between creators, users and right acquirers, reduces transaction costs and fees in this market, and strengthens relations between authors and their audience.

A detailed forecast of consequences of creativity tokenization was made based on music industry. It was noted that, due to the specificity of this art and, especially, its popular genres, it most vividly highlights the unfolding evolutionary processes, which are further implemented in other creative spheres as well (Henry, 2007). Also, the prospects of tokenization are considered regarding scientific works, patents to industrial property, pieces of analog and digital fine arts, artifacts of computer games industry and online gaming.

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<sup>1</sup> “Merch” is a slang word for “merchandise” (“goods, attributes, trading”), which means official products with symbols of music bands, individual performers, sport teams, movies, etc.

## 2. NFT as a sociotechnical fraud

According to one of viewpoints, the market of non-fungible tokens for objects of digital art is a financial scheme of deceit using information-technical means, aimed at inflicting property harm in compliance with Article 165 of the Criminal Code of the Russian Federation<sup>2</sup> (further – CC RF) or fraud as defined by Article 159 CC RF<sup>3</sup>, which may soon cease to exist (Walker, 2022; Scharfman, 2023).

According to this viewpoint, a buyer acts unreasonably buying NFT in a speculative unstructured market and will ultimately highly likely lose their money. To substantiate this position, more or less convincing arguments are given, which are worth considering in detail.

The first reason stated by NFT critics is the lacking material constituent of the goods, i. e. a token purchaser does not obtain a physical carrier with the object of copyright or neighboring rights. This argument seems shallow and unconvincing in the sense that the results of intellectual activity are all nonmaterial or intangible, which has not been impeding the development of the market of intellectual property rights for over three hundred years. During all this period, the doctrine is flawlessly working, which implies that the right to possessing the thing, in which the result of intellectual activity is expressed, is detached from the copyright to the work of art.

The second argument is that the possibility to copy works of art depreciates both the copies and the original. Dwelling upon this argument, one should add that, with the permission of the rights holder, there is a potential opportunity to make an infinite number of derivative works. Legitimately created derivative works obtain their own protection; thus, they actually decrease the rarity of the original, which, according to some analysts, depreciates the original as well (Hilko, 2021). This argument seems more consistent from the viewpoint of both the intellectual property rights and economics of material product, characteristic for the industrial period of civilization development, in which the resource value is a function of its rarity.

The third argument is of world-outlook character and, in our opinion, it should not be qualified as deceit or fraud. These are situations when a person joins or gets access to a certain social group, within which a specific system of values is functioning. Within such a community, a high artistic value and commercial value may belong to such works, while external observers may consider their virtues questionable and the price of rights to them obviously inflated. Nevertheless, people become imbued by the opinions of the group, make impulse purchases, and then regret about their actions, if the price of the token did not grow, as was forecasted by the “enlightened” community members,

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<sup>2</sup> Criminal Code of the Russian Federation No. 63-FZ of June 13, 1996 (1996). *Collection of legislation of the Russian Federation*, No. 25, Article 2954.

<sup>3</sup> *Ibid.*

but fell. However, if we turn to the legal definition of fraud, we will see that there is no *corpus delicti* of fraud in the actions of the community members who made a promising estimation or recommended a neophyte to make the deal. This action can be compared to an unsuccessful stock market game using erroneous recommendations, which implies the risk of losses; a token purchaser should be aware of that and manifest reasonable diligence.

Below we give the examples of malicious acts using non-fungible tokens which may be qualified as theft of property, unlawful acquisition of rights to it, violation of copyright, and inflicting property harm by deceit or abuse of trust.

The first method of deceit can be characterized as fraud with a “dummy”. Developers advertise and sell tokens for an object of digital art or a whole collection of such, but after getting money from investors or token purchasers reject their obligations and disappear without developing anything or launching to the market. Organizers of such scheme often use social networks to actively advertise their NFT project inside target groups, in order to gain trust and maximize the token price<sup>4</sup>. Having reached a high enough price of the token, which may be hundreds of thousands and even millions dollars, the founders disappear with the money obtained. A classic case of fraud with an NFT dummy is the Frosties NFT project, in which “exclusive” tokens for a game in a metaverse were sold. The project founders closed their website and accounts in social networks immediately after over US \$1.3 million were invested into the project<sup>5</sup>.

The second deceitful scheme using NFT is similar to a fraud with bankcards known as “phishing”. Hackers use phishing to access an NFT account. To this end, they send fake links by e-mail or via popular social networks and forums, such as Twitter<sup>6</sup> and Discord. Clicking on the link and inserting details to enter launches malicious software, such as keyloggers and other spyware, accessing the user’s account to steal money or compromise the account. Today, the number of fishing attacks using NFT is growing. For example, in February 2022 wrongdoers stole tokens worth almost \$1.7 million during a fishing attack at a popular NFT platform OpenSea. As a campaign to update contract information, fraudsters copied a database and sent links to fraudulent websites to token owners<sup>7</sup>.

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<sup>4</sup> For example, ten-fold – up to “ten X”; these are the so-called desirable “Xs” of the token price multiplier.

<sup>5</sup> Kaaru, Steve. (2022, March 22). Frosties NFT: 2 charged in US over \$1.3M rug pull. *CoinGeek*. <https://coingeek.com/frosties-nft-2-charged-in-us-over-1-3m-rug-pull>

<sup>6</sup> The social network blocked in the territory of the Russian Federation.

<sup>7</sup> Russell, B. (2022, February 20). \$1.7 million in NFTs stolen in apparent phishing attack on OpenSea users. *The Verge*. <https://www.theverge.com/2022/2/20/22943228/opensea-phishing-hack-smart-contract-bug-stolen-nft>

The third example is related to selling a token in the secondary market. A fraudster places the highest stake on the lot, making the token owner sell it to this “best buyer”. However, making use of the seller’s inexperience in the market of cryptoassets, the wrongdoer changes currency without notifying the counteragent. For example, the fraudster offers 10 ETHs for a token for an object of digital art, which is now equivalent to almost US\$ 15 thousand, but in the course of the deal, they manage to substitute the cryptocurrency for 10 TONs, which is now equal to about \$10. To protect oneself against such a trick, one should thoroughly control the process of the deal, including the type of currency, and not agree to the price-reducing alternatives.

The fourth scheme is “pump and dump”. A group of fraudsters disseminates deceitful information in order to increase the price of NFT, imitating a market character of this process. As soon as an investor is found, who invests into the project at an artificially pumped price, the fraudsters disappear with the money, leaving the buyers with useless assets. To create agitation around the project, both open and shadow manipulative advertising mechanisms in social networks are used, including support by celebrities. In addition, the wrongdoers imitate demand for the token using their own money, which actually move around their own accounts and wallets, attracting attention of active investors and not allowing them to ignore the asset. An example of such fraud is deceive the investors of Evil Ape project. An anonymous creator of the void collection disappeared with 798 ETHs worth over \$2.7 million, and nothing has been heard of them since then<sup>8</sup>.

The fifth scheme consists in appropriation of the authorship (plagiarism) of the work of art, in relation to which a token is issued, by a person not possessing the rights to it. In 2022, the management of OpenSea platform informed that over 80 % NFTs on this platform had been issued with violation of legal rightholders’ rights<sup>9</sup>. Thus, the probability of purchasing a token for illegally appropriated copyright object is high today. If this fact is established, the price for such a token drops dramatically. For that reason, it is essential to check the rights to the work of art before making a deal.

Of utmost importance is the fact that the rules of platforms (for example, the currently most successful NFT resource – OpenSea) impose the obligation to check the rights to tokenized works onto the token purchaser. In the license agreement wording, the platform definitely and emphatically unambiguously rejects its liability for illegal actions of its users. The agreement states that the platform does not check the sellers’ rights to a work of art, which token it creates and sells. The norms of the license agreement explicitly posit that the platform does not perform the so called clearance of rights, hence, the risks following from the sellers’ illegal actions are fully and completely borne

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<sup>8</sup> Chalk, A. (2021, October 6). ‘Evolved Apes’ NFT creator Evil Ape disappears with \$2.7M7. *PC Gamer*. <https://www.pcgamer.com/evolved-apes-nft-creator-evil-ape-disappears-with-dollar27m>

<sup>9</sup> Volpicelli, Gian M. (2022, February 10). Why OpenSea’s NFT Marketplace Can’t Win. *WIRED*. <https://www.wired.co.uk/article/opensea-nfts-twitter>



by the buyer. The platform only serves as a marketplace, i. e. provides the location and tools for making a deal, but it is not a classic broker who guarantees to the parties the due diligence of the deal and mutual fulfilment of obligations. As a reasonable diligence, a token buyer must check the seller's authorities by asking for the правоустанавливающие документы – a license agreement for using the tokenized work of art. Alternatively, they must make certain of the authorship of the work of art creator, if they act without intermediaries, by examining their history and profile in social networks, thus reducing the risks of being involved into an illegal deal.

Into the sixth category, we may include several other, not so popular but dangerous, types of deceit in the NFT market. Well-known is the scam with a "gratuitous distribution" of tokens, when the victim is promised to get a token as a gift for efforts to promote the collection. After the work is done, the scam organizers send a link for the executor to receive the prize into their electronic wallet, which requires inserting access details. However, the fraudsters only need the account details to appropriate the digital assets.

One more scam, known since the beginning of the informatization era, is fake support service. A wrongdoer communicates with the client allegedly to solve the problem with the account. Under the pretext of assisting the client, they send a link to a fake NFT platform, the algorithm of which requires inserting the personal e-wallet key, which is then read and used to steal the money.

In this section, we analyzed the currently known ways of deceit using NFT. This information is given to illustrate the thesis about a fraudulent character of relations in this market. Let us formulate several practical recommendations to enhance safety when working in this sphere and be protected against fraudulent schemes.

It should be noted that the proposed recommendations are typical measures of information-technological caution and self-protection techniques in the network environment. Do not click on suspicious links, as a wrongdoer may get the account details in such way. Never give anyone the password and/or access code to your account and e-wallet. It is worth using a two-factor authentication of the account to increase its protection. Before making a deal, check the identity and history of the token seller. Use a virtual private network (VPN) for cyphering and anonymization of the NFT traffic. In addition to an operative wallet to carry out transactions, it is expedient to have a so-called cold wallet, which is not used for transactions but is only used for storing digital assets in an autonomous and most safe mode.

Further, we will examine a diametrically opposite view at blockchain/NFT as a socially, culturally and technologically positive innovation, which may give new energy and open new ways to the development of creative industries in a technological society.



### 3. Result: NFT as a future of creative industries

According to the concept of the fine prospects of creative industries in a blockchain ecosystem, the technology of implementing the rights to works of art through tokens is a disruptive innovation, which may change the relations and rules of game in this sphere. One of the key advantages of blockchain platforms is the efficient implementation of legal and economic (in their inseparable synthesis – institutional) <sup>10</sup> relations (Hale, 1952), emerging around cryptocurrencies and tokens. Proponents of the institutional approach in scientific thought define the result of forming new legal-economic links due to the progressive achievements as an institutional environment of a higher order (Commons, 1959; Ayres, 1962). At that, the need for legal-economic innovations and their technological support is determined by the public demand for implementation of the newly formed relations, the nature of which we analyze in this article.

Today, a cohort of expert has been formed worldwide, whose opinion we take into account in the present work, who are united by the vision of the future progress of creative industries due to the use of blockchain/NFT tools. The experts, analyzing the transformation of creative activity and using its results in the specific spheres of intellectual domain under scientific-technical progress, emphasize that they are not specialists in blockchain, smart contracts or NFT minting, nor they have access to insider information or personal interests in NFT business. These circumstances are important to estimate the impartiality of the opinions expressed, as they sometimes look as overthrowing the established views on creativity as a sociocultural institution and on the economic models of commercialization of intellectual rights.

### 4. Tokenization of creativity by the example of music industry

One of the brightest researchers is Ted Gioia (Gioia, 2019), who systematically analyzes and forecasts how blockchain and NFT will influence music industry. His results are especially valuable due to several circumstances. Under the established remix culture, it is music, due to the specific restrictions of expressive means positively perceived by most listeners (Santiago, 2017), that vividly presents and largely determines the development trends of creative mechanics and the market of intellectual products in the technological era. Observations, conclusions and summarizations made in regard to musical pieces appear to be relevant for other domains of science and arts as well.

To join the world-outlook context, outside of which it would be difficult to perceive the researcher's way of thinking, we would like to cite his words: "I did spend many hours of my lost, wasted youth forecasting the evolution of emerging technologies in Silicon Valley for paying clients, as well as constructing schemes for the pricing, distribution,

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<sup>10</sup> Institutional theory views law and economy as a legal-economic system of interdependences, not as autonomous subsystems.

and stakeholder incentivization of new products and services. (To be sure, that's a distinctly un-cool way of spending lost, wasted hours of youth—not with a bong, but an HP 15-C calculator in hand. But the truth is the truth, and those are the nerdy facts.)

And I do know a bit about music, not just as a critic and writer, but also with experience running a startup record label and advising various music tech startups over the years. I've also made pitches to VCs, raised money on Wall Street, guzzled expensive booze with investment bankers on private jets, etc. The whole kit, including the kaboodle.

In other words, I know enough to be dangerous"<sup>11</sup>.

Gioia proposes a forecast of development of the NFT trend in music industry, which looks more and more paradoxical as we move forward along the list of expected effects.

First, a blockchain ensures linking a music file or any other digital work of art back to the original (the etalon digital file) of that work of art. Thus, each digital copy can be checked for authenticity and legality of using each digital copy. The question is whether it is useful and what legal-economic consequences it may have. One should remember in this regard, that creativity products are disseminated and used not solely in the Internet. A blockchain cannot stop their distribution outside the network. Any track, visual or audiovisual content, played on one medium can be recorded and played on another medium. The current level of technologies allows recording, copying and distributing any content with various devices, for example, recording an audiotrack of a TV- or radio program, make a photo of a picture in a museum, or a video recording in a cinema with a smart phone. Thus, bold statements that modern technologies will stop piracy are erroneous. Piracy will stay forever, especially if official copies of works of art, authenticated in blockchain, are as expensive as today.

Second, law-obedient citizens may use blockchain to ease identification of the rights holders of a recording and acquisition of a license for using it, for example in a movie, an advertisement, or an educational video. This is a legitimate solution to a genuine problem, it will not transform the industry or excite a common customer who does not often license music. Nevertheless, this would be a step forward.

The third innovation is authentication original files of unique music pieces and the possibility of selling the rights to them at a high price. In a new institutional environment, a music file will get a special status, "much like an original Picasso", and may become very expensive. However, this fundamentally changes the musician's relationship with the audience, and not for the better<sup>12</sup>. Instead of working for their fans, musicians will try to please an elite group of wealthy collectors, who purchase the "original" song as

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<sup>11</sup> Gioia, T. (2022, January 2). Eleven Wild Guesses on How Blockchain and NFTs Will Actually Impact Musicians and Songs. *The Honest Broker*. <https://tedgioia.substack.com/p/eleven-wild-guesses-on-how-blockchain>

<sup>12</sup> *Ibid.*

a symbol of their status. Gioia wonders if it is right to build a “new music ecosystem on the whims of people like Martin Shkreli”<sup>13</sup>. Such things are already happening, but this “Shkrelitized approach represents only a tiny portion of the emerging NFT opportunity”, which reduces the potential of more promising and large-scale business models in music industry.

The fourth prospect consists in using blockchain to strengthen the relationship between musicians and their audience. Tokenization of albums and songs is an effective means of implementing this momentous innovation. Imagine a new album is released with all cash flows from the music going to token-holders, while transactions are verified by a blockchain. In this scenario, the musician gets 50% of the tokens and the rest are sold to fans at a reasonable price, say, 1500 rubles, which is equivalent to 170 Yuan or \$25. In addition, the tokens buyers receive a copy of the record, perhaps in the form of a compact disc, a vinyl album or a digital download, as well as and other gifts and bonuses. Some rights may further be transferable; others will belong to the participants in the initial offering only. Owners might hold the tokens as an investment tool or sell them, hence, the future cash flows to other fans. If the recording is very successful, the tokenized rights to it might be a profitable investment. One may imagine the situation like: “Hey, dude, I made a profit by reselling my Daft Punk token, and even got to keep the crappy album”<sup>14</sup>. In this case, record stores may become similar to “the New York Stock Exchange, with video screens displaying bid and ask prices for thousands of recording tokens”<sup>15</sup>.

The fifth effect of the new model is transparency and honesty in paying royalties. Many musicians do not trust the royalty accounting and distribution system of recording companies. Gioia cites “a very famous jazz musician, with million-selling albums in his discography”, who “had never received any payment from any record label in his entire career except for the initial advance when he signed a contract”<sup>16</sup>. The future royalties remained just a promise, regardless of the number of records sold. Blockchain/NFT technology may change this situation. It may transfer all revenues from selling the rights to a recording to an account that a record label or a band manager cannot access. The money will

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<sup>13</sup> Martin Shkreli is a well-known businessman from the USA, convicted of fraud in pharmaceuticals. He purchased exclusive rights to an unpublished album of Wu-Tang Clan band for his personal collection. Later, the album was confiscated from Shkreli on account of debt repayment. At the moment of this writing, the album remains officially unpublished. See Sisario, B. (2021, October 20). Meet the New Owners of the Wu-Tang Clan’s One-of-a-Kind Album. *The New York Times*. <https://www.nytimes.com/2021/10/20/arts/music/wu-tang-clan-once-upon-a-time-in-shaolin.html>

<sup>14</sup> *Ibid.*

<sup>15</sup> *Ibid.*

<sup>16</sup> *Ibid.*

be distributed among authors, performers, other token owners and holders according to an Ethereum-regulated system of disbursements, for example. This algorithm does not ensure total honesty, but it will make stealing from artists more difficult.

The sixth forecast consists in that blockchain/NFT technology can make the results of creative activity an object of multilevel marketing<sup>17</sup>, including the negative sides on this business model (Michalski et al., 2012). Under this scenario, a token buyer gets rewarded for finding new buyers. This “turbocharged” NFT model will incentivize the user to become a token distributor.

The seventh pattern is eccentric variations on the previous theme. Tokens may be structured by the terms met, for example, total sales. The results achieved are converted into authorities and are delegated down the organizational structure. For example, I am entitled to sell one hundred tokens of a top artist, and if you buy one, you can sell ten sub-tokens, etc. Another variant is that “platform” tokens can be issued that using the recording on a specific platform only. The music business may acquire a franchising model in the form of a structured network that maximizes cash flow due to the royalties received by each participant. Gioia suggests musicians should consider such opportunities, as the fans gain financially when a new piece or album becomes a hit; that could be much more effective than selling merch at concerts.

The eighth aspect is that tokenization of creativity creates the potential for various unethical practices and conflicts of interest: “Imagine if the radio deejay is a token holder? Or the playlist curator on the streaming service? Or the DJ at the college frat party? It’s like payola on steroids”<sup>18</sup>. However, there is no offense or large-scale publicly dangerous deeds. Rewarding the fans after the musician’s success seems rather just. One can imagine fans maintaining loyalty to an artist over many years because of, inter alia, an investment aspect: “I’ve been holding these tokens for years, and some day they’re gonna pay off”<sup>19</sup>.

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<sup>17</sup> Multilevel marketing (MLM) is a concept of marketing goods and services via distribution agents, each building their own network and receiving interest from the sales of its members.

<sup>18</sup> Payola (from “pay” and “Victrola” – a brand of phonographs) – secret payoffs from record companies to radio stations and TV channels with a view of promoting music pieces belonging to them (broadcasting, imitation of the audience interest, promoting in ranking, charts, etc.). See Gioia, T. (2022, January 2). Eleven Wild Guesses on How Blockchain and NFTs Will Actually Impact Musicians and Songs. *The Honest Broker*. <https://tedgioia.substack.com/p/eleven-wild-guesses-on-how-blockchain>

<sup>19</sup> Gioia, T. (2022, January 2). Eleven Wild Guesses on How Blockchain and NFTs Will Actually Impact Musicians and Songs. *The Honest Broker*. <https://tedgioia.substack.com/p/eleven-wild-guesses-on-how-blockchain>

The ninth aspect is related to a well-known fact that the price for artist's works rockets after their death. This appeared to be true for music works too. A statistical study of 446 albums by 77 deceased musicians showed that a musician's recording revenues increase by an average of 54% after the artist's death<sup>20</sup>. This is not a trifle but a significant factor creating an incentive for fans and investors to purchase the tokens of aging artists. This source of funds may become a retirement plan for musicians. As they get older, their tokens rise in value and investors increase the portfolio. Just like a company issues more shares, an old musician might even issue more tokens to fund the cost of medical care and other late-in-life expenses.

The aspect number ten is that the course towards tokenization of at least a part of results of creative activity is taken rather firmly now, that is why the "major record labels ought to be setting up these token-based systems and marketplaces" for phonographic tokens. They may generate new business models and cash flows to increase their revenues and those of musicians and other rightholders. However, they "will do little or nothing to seize these opportunities, instead watching from the sidelines as tech startups implement every last one of them, and thus make the traditional record label increasingly irrelevant"<sup>21</sup> in this market. Given their extraordinary reliance on lawyers, one may predict that "old school music companies will file many lawsuits in a neo-luddite attempt to halt the advance of technology"<sup>22</sup>. This attempt will be as successful attempts to prevent Internet distribution of music twenty years ago.

Summarizing this review of the prospects of tokenization of musical business, it is worth reminding that its conclusions also refer to other domains of art and science, if their products and results are subject to digitalizing. The first conclusion is the following. Today's fascination of well-to-do customers with purchasing tokens of artistic works as trophies, displaying acts of status-driven consumption, buying artifacts of symbolic value, as well as opportunistic purchases of "digital fan-art" for speculations does not change much in creative industries. Thus situation vividly demonstrates a set of unfulfilled and lost opportunities. As Giaio puts it, "if all we get from the blockchain is a status-driven niche market for a few thousand collectors with deep pockets, we will have wasted most of the potential of these innovations"<sup>23</sup>.

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<sup>20</sup> *Ibid.*

<sup>21</sup> *Ibid.*

<sup>22</sup> *Ibid.*

<sup>23</sup> *Ibid.*

The above-described potential of using blockchain/NFT technologies may be truly transformative for creative industries. The result of its full-fledged application may be a new institutional model of the creative products market to “involve millions of music fans, who discover (to their delight) that the blockchain has enhanced their connections to artists, and even allows them to share in a song’s success”<sup>24</sup>, to invest and get revenues from the works of art, ensured high efficiency of transactions under the new legal and economic realities.

## 5. Critics of music industry tokenization

Critical approach to the above statements makes us doubt several aspects.

First, one may hardly unequivocally share the author’s optimism about strengthening relations between a musician and an audience due to tokenization of the works of art. The problem is that occurrence of such effect has been forecast in relation to any innovation related to the Internet. This was expected of the Internet per se as a fundamental technology. This forecast rather reflects the author’s desire than lists substantial reasons for its fulfillment. Where such a complex technology as blockchain/NFT appears, intermediaries always emerge, who simplify its use, and often these are completely new players in the market. For example, in music industry, major record labels were substituted by Spotify, Apple, and Google. One may assume that a wave of startups emerges, which is aimed at simplifying the work with NFTs for sellers and buyers for a commission.

The thesis that musical business may take up the franchising model as a network structure to maximize cash flow due to the royalties received by each participant is also doubtful. It looks like the number of people wishing to sink deep and do such things is vanishingly small. One may recall an attempt to organize a business model of micropayments for using content: 15 cents for listening to a song and 8 cents for access to a newspaper article. The model appeared to be unprofitable; no operator got interested in its implementation. As a result, a simpler and less selective model won in the market – the one of subscription to any content at a reasonable fixed price equivalent to about \$10 a month<sup>25</sup>.

The third objection is that only a minor share of artists has a really significant number of fans, thus, most of them cannot count on substantial royalty when selling tokens. Besides, the idea that fans support an artist for their own profits seems contradicting to the very essence of creativity.

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<sup>24</sup> *Ibid.*

<sup>25</sup> Case, A. (2021). Who killed the micropayment? A history. *Medium*. <https://caseorganic.medium.com/who-killed-the-micropayment-a-history-ec9e6eb39d05>



## 6. Tokenization of gaming and cybersecurity

Jan Hartmann described the market of creative products created within electronic games today and gamified metaverse tomorrow. The number of players reached 3.24 billion in 2022, and many of them face the problem of rights to original and derivative works of art which they create inside games and of legal disposition of these rights. The researcher marks the high potential of blockchain/NFT technology for solving this problem in the gaming market. In his opinion, game artifacts, such as personal belongings, weapons, skins and awards can and must be packed into NFTs and sell in the open market. A typical situation is that when a player wishes to buy accessories for their character, the only legitimate opportunity is to buy them from the game publisher. With the advent of legal-economical blockchain/NFT platform into the game ecosystem, gamers will be able to buy and sell the rights to gaming artifacts independently from a publisher. Such demonopolization is a dramatic shift in the industry structure towards the growth point of the market of tokens for gaming artifacts<sup>26</sup>.

Hartmann and other researchers pose the question about the usefulness of NFT beyond the market of digital art. In this context, products for digital identification and ensuring cybersecurity are mentioned. According to analysts, blockchain/NFT technology is effective for developing and supporting the decisions which provide users' confidentiality, authentication of information, identification of personality and a pseudonym, digital signature of transactions, ciphering messages and reliable data storage. The integrity of these solutions forms a common cybersecurity platform. Researchers conclude that the blockchain/NFT technology may become the basis of cybersecurity of a new generation.

## 7. Tokenization of classic and digital visual arts

Monty Preston agrees that blockchain/NFT technologies may help create new communication channels between artists and buyers of their works, broaden the opportunities for access to the world of art and democratize it, and form a new look at the values of art space. Dwelling upon the thesis of democratization, the analyst wrote that NFT provides artists with the opportunity to create and distribute works of art via online channels without traditional intermediaries, who for centuries dictated the rules of access to art and imposed their ideas about what art is and what cannot be considered as such. The effect of using the technology under study is that it is capable of involving into the art space the people who could not be represented in it full-fledged. These are artists from remote regions, women and underage artists. The legal-economic basis of blockchain/NFT provides them with the necessary tools to promote and earn from the results of creative activity, equaling the opportunities of these social groups.

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<sup>26</sup> Hartmann, J. (2022, April, 19). Is there a future for the NFT beyond digital art? *Forkast*. <https://forkast.news/is-there-future-for-nft-beyond-digital-art>



The analyst also thinks that this technology will change the relations in the sphere of supporting artists and art in general. As transactions in blockchain are indirect and are not mediated by a third party, collectors and fans will be able to support artists directly. As NFT allows shared and fractional ownership, rightholders and collectors will be able to share the revenues from using artists' works. In a specialized poll of current artists, such features of the NFT model of creativity monetization as getting royalty without intermediaries and in lieu of future sales were listed among the most demanded. If blockchain/NFT innovations in the sphere of fine arts are implemented, the future of artists may be filled with more freedom and autonomy from corporate sponsorship, megacollectors and pretentious curators<sup>27</sup>.

## 8. Tokenization of patents

A research group of scientists headed by Professor Qiang Qu from Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, and Professor Seyed Mojtaba Hosseini Bamakan from Yazd University (Iran) proposed a multilevel architecture of patent management system based on NFT (Bamakan et al., 2022).

To substantiate their project, the researchers list the following arguments. Patenting an invention, a useful model, an industrial sample, or registering a trademark is a lengthy, labor consuming and expensive process. The procedure of getting a protection document takes many months and even years. The researchers believe that the unique features of non-fungible tokens may accelerate this process, as well as increase the level of protection of rights to tokenized industrial property objects and individualization means.

According to the researchers, the project does not aim at substituting or ousting the state registration of industrial property objects and individualization means, but may provide protection of intellectual rights when waiting for the issuance of the state protection document. Besides, tokenization of patents and trademarks is aimed at simplifying the licensing of patent rights for inventors, commercial companies and universities through legal-economic mechanisms of blockchain/NFT technology. As every transaction is fixed in blockchain, it will be easier to trace the changes in property rights to patents. By improving the licensing of rights to the use of protected solutions, tokenization of patents will facilitate the increase of the rightholders' revenues. The researchers also believe that such legal-economic NFT tool as an automatically executed smart contract, which fixes the terms and price of using the patented solution, may support the efficiency of the market of intellectual rights. This result may be achieved, inter alia, due to automation of collecting license fees for using the solutions of rightholders. Patent tokens may be both used

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<sup>27</sup> Preston, M. (2020, March 16). Curators Inside The Industry. *Art Plugged*. <https://artplugged.co.uk/monty-preston-curators-inside-the-industry>

individually and combined into a commercial portfolio of solutions for a certain domain, with subsequent distribution of royalties among the patent authors and rightholders.

Developers propose the following algorithm of creating and working with patent tokens. Inventors register their technical solution on a blockchain platform in order to patent it. Further, they upload the information which consists of the patent content and the intellectual property belonging to them. A built-in mechanism provides checking the data to prevent their dubbing and other manipulations. Here one should mark that the model constructors do not disclose an important aspect related to the formal and essential expertise of the application, as well as the mechanism of its further conversion into a patent or a rejection of its issuance. Based on the current level of technology, one may assume that solution of these tasks is imposed on artificial intelligence means built into the platform. Further, if the patent is issued it becomes visible to all users of the blockchain.

The potential consumers who need access to the patent content, after registering in the network, apply to the rightholders. As a result of communication between the parties, a smart contract is composed, with the terms of using the patent, which comes into effect after payment by one of the available means: fiat money, cryptocurrency or unique tokens. Additionally, a non-disclosure agreement (NDA) is generated and signed by the parties. The smart contract mechanism controls the parties' consent with the deal terms and its further execution.

At the application level, if a buyer agrees with the open terms of using the patent, stated by its rightholder, they may make payment and immediately unblock the rights to its exploitation without additional interaction between the parties. While patent systems of the world are of national or regional character (for example, Eurasian patent system), tokenization of patents will help to eliminate geographical barriers between them through the mechanism of search enquiry in a distributed ledger. Simple and cheap search, automated licensing, speedy transactions for obtaining and paying for the rights to using patents scattered around the world will help the interested persons to facilitate implementing innovative solutions. The proposed system may also be used for alienating patents and tracing information about rightholders. The system architecture includes adjudicatory module for dispute resolution, the functions of processing claims, supporting confidential information exchange, checking and proving authorship, transfer of rights, creation and placement of protection publications.

Feasibility and potential of the project of patent rights and copyright tokenization is confirmed by the partnership between IBM and IPwe corporation, aimed at stimulating patent transactions using the IBM blockchain platform. They claim at IBM Services that the patent NFTs they develop are simplified smart contracts for intellectual assets with

an accessible supply chain<sup>28</sup>. This said, patent tokenization is still seen as a matter of the future, unlike tokenization of the objects of copyright and neighboring rights, which has launched the market turnover of respective tokens in today's reality.

## 9. Tokenization of scientific works

Above, we have discussed the NFT trend in relation to works of art and solutions of technical problems, but tokenization of scientific works seems rather promising, too. One should remember that the amount of transferred rights is determined by the author as the original rightholder of the work created and the potential seller of a token for a scientific work. According to the intellectual rights doctrine, the author completely and irreversibly keeps personal rights, including the right to the name, the right to be called the author of the work, the right to protection of the work against distortion and other rights of this type; at the same time, the author may dispose of property rights or a part of them to their own advantage and without harm to their reputation, by issuing a token for a scientific work.

We believe that in the modern society there may be many of those wishing to become an owner of a token for a scientific work, as the positive effect of the results of scientific research can be observed daily, and the popularity of science and innovations is constantly growing in developed countries. For this reason, owning a token for a scientific work will increase prestige and status of its rightholder. Besides, tokens for scientific works have a high potential as a means of value measuring in the post-economic society and a tool for its accumulation. Due to global integration and inclusion into the branch "scientific clubs", the academic community is fully ready for efficient application of the mechanisms of consensual elaboration of the value of scientific works for their subsequent tokenization and, hence, logging on to a completely new source of means for rewarding researchers and funding academic work.

## Conclusions

This article analyzes the hypothesis and a set of supporting arguments stating that non-fungible tokens for objects of digital art are a technology for extracting means from the asses that have no real value, through deceiving their purchasers. To justify this position, its proponents list the absence of material component of the goods; the presence of unrestricted possibilities to create additional digital copies of the work, devaluating the original and the replicas; and the fact that non-fungible tokens have value only in narrowly specialized limited communities, but not in the broad market.

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<sup>28</sup> Berman, B. (2021). IBM-IPwe Partnership Hopes to Increase Patent Efficiency, Propel Transactions. *IPWatchdog*. <https://www.ipwatchdog.com/2021/06/07/ibm-ipwe-partnership-hopes-increase-patent-efficiency-propel-transactions/id=134326>

The article presents a description of the techniques of unlawful enrichment using NFT via misappropriation of someone else's property, unlawful acquisition of rights to it, violation of copyright, and inflicting harm by fraud or abuse of trust. Recommendations are proposed to prevent and eliminate the described risks.

Positive prospects of tokenization of creative products are demonstrated in detail by the example of music industry. Eleven models of innovative use of musical recordings are described. Positive and negative aspects of these approaches are analyzed, as well as their impact on social relations in the sphere of music creation and consumption. A conclusion is made that, under the realities of remix culture formed as a result of broad dissemination of content creation, use and transformation technologies, the relations and development trends formed in the music industry will be spread to other spheres of science and art.

In conclusion, we have considered the deductions of researchers about tokenization of other results of intellectual activity. Among them are computer gaming artifacts, results of classical and digital visual arts, patents for inventions, useful models and industrial samples, as well as an original view of the expediency of scientific works tokenization.

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# Риски и перспективы токенизации творчества

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## Ключевые слова

NFT,  
блокчейн,  
искусство,  
музыка,  
право,  
произведение,  
творчество,  
токен,  
токенизация,  
цифровые технологии

## Аннотация

**Цель:** токенизация творчества в одном ряду с криптоэкономикой и сетевой инфраструктурой Web3 представляет собой заметный тренд развития современного общества в третьем десятилетии двадцать первого века. Цель настоящей статьи заключается в исследовании рисков и перспектив, возникающих в процессе распоряжения результатами творческого труда в виде невзаимозаменяемых токенов.

**Методы:** методика настоящей работы построена на анализе различных точек зрения ученых на эту проблему, включая диаметрально противоположные концепции. Полярные позиции наблюдателей характеризуют их отношение к токенизации творческих продуктов как к спекулятивной схеме, с одной стороны, и перспективному инструменту развития творческих индустрий – с другой.

**Результаты:** выявлены возможные негативные последствия токенизации результатов интеллектуальной деятельности, а также авторские рекомендации по управлению этими рисками. Еще одним результатом настоящей публикации выступает анализ экономико-правовых перспектив, вытекающих из токенизации объектов авторских и смежных прав на примере музыкальных произведений.

**Научная новизна:** состоит в выдвигании и обосновании гипотезы о том, что отношения, сформировавшиеся в музыкальной индустрии в современных социокультурных и технологических реалиях, будут воспроизводиться в других творческих индустриях. Кроме того, научная новизна также заключается в анализе перспектив токенизации таких результатов интеллектуальной деятельности, как игровые артефакты, произведения художественного и цифрового изотворчества, патентов и достижений науки. Применение невзаимозаменяемых токенов в экосистеме сетевых компьютерных игр позволит геймерам покупать

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и продавать права на игровые произведения независимо от издателя. Токенизация объектов промышленной собственности и средств индивидуализации обеспечит защиту интеллектуальных прав их авторов в период ожидания выдачи государственного охранного документа. В современном обществе найдется немало желающих стать собственником токена на научное произведение, поскольку популярность науки и инноваций непрерывно растет в развитых странах. Владение токеном на научное произведение будет считаться моральной инвестицией, повышать престиж и статус его правообладателя. Токены на произведения науки имеют высокий потенциал в качестве средства измерения ценности в постэкономическом обществе.

**Практическая значимость:** практическая значимость исследования состоит в описании инновационных способов использования творческих продуктов и бизнес-моделей, основанных на токенизации результатов интеллектуальной деятельности, готовых к воплощению на практике.

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