Journal of Intellectual Property Rights
Vol 30, September 2025, pp 518-526
DOI: 10.56042/jipr.v30i5.6495

Tokenized Art: The Implications of Copyright Law on NFTs

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Received: 31st October 2023; revised: 15th July 2025

The mid-2010s marked an exponential rise in the popularity of NFTs, which instantaneously became one of the most lucrative and sought-after properties. With its introduction, several questions were raised in the field of law, more specifically in the realm of intellectual property and information technology law. Being a new crypto-asset class, NFTs lack a real regulatory mechanism in India but are still treated as a viable mode of trade, both in art and data. NFTs are digitalized assets representing an underlying work supported by several components like smart contracts and metadata. Although the underlying work is undoubtedly protected, if it is a copyrightable subject matter, the copyright ability of smart contracts and the metadata remains relatively unexplored. The copyright ability of these components has been extensively analysed in this article. Further, the potential of unauthorized tokenization, listing, and sale is a growing concern in the NFT realm, which has not only been highlighted in this article, but solutions to neutralize the issue have been proposed. Finally, the adequacy of the Indian legal regime has been tested; reforms and recourses have been suggested to fill recognized gaps in the Indian legal system with the aim of accommodating and facilitating the NFT market.

Keywords: Non-Fungible Tokens (NFTs), Blockchain, Copyrightability, Metadata, Smart Contract

The hype around NFTs began to emerge with Meni Rosenfeld's 2012 paper '*Colored Coins*,' an academic work that is often regarded as the epoch of the idea surrounding the use of blockchain, more specifically the *Bitcoin* infrastructure,to represent and manage real-world assets.[1] However, the idea never took off due to the inherent limitations of Bitcoin.[2] Nonetheless, this didn't stop Kevin McCoy, a digital artist, from minting the first NFT, known as '*Quantum*', in May 2014. As a reaction to these events, platforms were being built on the *Bitcoin*blockchain regardless of its limitations to facilitate the idea of Rosenfield. Developers went as far as establishing the *Counterparty* platform, colloquially referred to as *Bitcoin 2.0*, aimed towards creating digital assets. This was followed by *Spells of Genesis*, which pioneered in-game assets. The meteoric rise of social media paved the way for the *internet meme culture*, which resulted in an influx of *Rare Pepe* NFTs on the *Counterparty*platformin 2016. Due to the limitations of the *Bitcoin* platform, a shift to the *Ethereum*blockchain was observed, which was not only better suited but also facilitative towards NFTs due to the introduction of certain *token* standards, which was a derivative of the *smart contract* standard. Developers John Watinson and Matt Hall surfed on the tide and generated the most famous series of NFTs, the *CryptoPunks*. This was followed by the birth of NFT gaming, pioneered by *Axion Zen*, who introduced *CryptoKitties*, a game that was based on adopting, breeding, and trading virtual cats, and games like *Axie Infinity (AXS)*, followed by subsequent developments like *Decentraland (MANA),* a decentralized virtual reality platform based on *Ethereum,* and platforms like *Enjin Coin (ENJ),* which enabled the tokenization of in-game items.[3] Though the NFT market was booming, concerns about its unregulated nature sparked debates across the globe. Unaware purchasers were being exploited and defrauded due to a lack of knowledge relating to the functioning of the technology and the rights and liabilities that came along with it.[4]

In this article, we shall be exploring the intersection between copyright and NFTs, followed by testing the copyrightability of metadata and smart contracts in NFTs. Further, the article would ascertain whether there are potential threats of unauthorized tokenization that may lead to copyright infringement. Finally, we shall be gauging whether the current copyright mechanism is adept at protecting NFTs and their underlying work.

Decoding the Copyright Enigma of Smart Contracts and Metadata in NFTs

Before diving deeper into the discussion, it is crucial to conceptualize NFTs and their modus

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operandi. In the words of Sam Dean, a non-fungible token (NFT) is a unit of data stored on a digital ledger called a blockchain that certifies a digital asset to be unique, in turn making it uninterchangeable. He further explains that the NFT acts like a certificate of authentication for the asset, be it real or virtual in nature. Since it is stored on the blockchain, any changes made to it can be verified on a worldwide network, making it difficult to be swapped with a replica.[5]Upon dissecting the term, we are left with two distinct and interesting words, non-fungible and token. The concept of fungibility, i.e., a particular item possessing the capability of being replaced or interchanged by an identical item, plays a significant role in understanding NFTs due to the fact that, unlike other cryptocurrencies like Bitcoin, a fungible tokenthat can be swapped for another Bitcoin that is of an identical value, NFTs are unique and one of a kind which makes it non-fungible, i.e., non-interchangeable by an identical item, since they possessa non-transferable identity that cannot be replicated.[6] The word token has garnered different meanings over a period of time. In common parlance, a token is anything visible or tangible that represents a fact, but in the context of our discussion, tokens are cryptocurrencies, i.e., a digital currency created using encryption algorithms, acting as both currency and virtual accounting systems.[7] A pertinent point to note is that most NFTs are built on Ethereum, more specifically on ERC721, which is a token standard on Ethereum, which allows each NFT to be unique and non-fungible. This standard also sets out minimum functionality to harness information. For the purpose of this article, we shall restrict ourselves to the ERC721 standard, as it is the most widely used standard and its prerequisites of non-fungibility and uniqueness squarely fit into the purview of this study. Due to this characterizing nature of NFTs, it would be appropriate to refer to tokens as a crypto asset that runs on another cryptocurrency's blockchain.

NFTs are generally used to represent a digital asset, which can be in the form of .JPEG, .GIF, .MP3, or .MP4. However, the use case possibilities of NFTs are endless. It is not restricted to representing and storing pictures, songs, videos, but has the potential to be used in different industries in a meaningful way, for example, in the fashion and luxury goods industry, the gaming industry, the metaverse, in supply chains, or entertainment industry just to name a few.[8] There are essentially two ways of storing data on the blockchain, first, on-chain, where the information rests in the blockchain, i.e., the NFT hash, metadata and smart contract are written and stored on the blockchain and second, off-chain, where the smart contract is on the blockchain and the metadata and media are stored off-chain.[9] Storing data on-chain is generally avoided because it is storage and data-consuming, for example, if a full node on the Ethereum chain is to be run, then the entire blockchain, which is about 1,050 GB, has to be downloaded (archival nodes) or the entirety of the Ethereumblockchain which is about 9,000 GB since its launch has to be downloaded. This method is unfeasible because storing only 1 GB of data would cost around USD 75.75 million as of November 2021, and since HD images are about 2 to 20MB and a full-length movie is about 2 to 4 GB, the exercise would be futile and counterproductive in reality.[10] We shall also restrict ourselves to NFTs stored off-chain, generally preferred over on-chain storage, which is prohibitively expensive.[11] It is commonly believed that NFTs are themselves the underlying work, but to the dismay of these individuals, this is far from the truth; rather, NFTs just indicate the ownership of the digital assets. To access an NFT and its underlying work, one needs to get the Address that would lead to the smart contract, this smart contract can be represented in code of functions and is stored on the blockchain itself, which can perform a specific set of tasks assigned to it through which tokens can be owned, managed and traded.[12] Through the smart contract, the metadata can be accessed, which leads to the NFT. This metadata is stored in the smart contract in the form of a hash, i.e., a function that allows the mapping of arbitrarily sized data into an encrypted output of a fixed-size string length. The metadata of an NFT can store several details like the file name, file description, transaction history, the reference link to the underlying work, and other necessary information that the creator deems fit.

Demystifying the Copyrightability of Smart Contracts in NFTs

The law of contracts has been in existence for several centuries and has been a staple in commercial law.[13]With technological advancements, smart contracts have gained traction and popularity since the rise of the Ethereumblockchain. However, the idea of smart contracts was first conceived and given meaning in 1994 by Nick Szabo. Szabo took the digital revolution into consideration and questioned

the utility of traditional contracts in cyberspace. He opined that common law contracts have been in place for a substantial portion of history. Nevertheless, with changing times, principles of common law contracts can be used to design a new set of protocols.[14] Smart contracts are programs that are stored on the blockchain, which can run functions once predetermined conditions have been met. These contracts run on simple if()/then functions, which are coded into the blockchain.[15] As per Szabo, these contracts are made in such a manner that contractual clauses are embedded into the hardware and software, which reduces the possibility of breach owing expense that the breacher would incur. He compares smart contracts to vending machines, where the mechanism is such that it would have a certain result once a certain amount is inputted.

Naturally, comparisons have been drawn between traditional contracts and smart contracts, which has divided the masses into advocates of smart contracts, who claim that they supersede traditional contracts since they are more efficient, immutable, cost-effective, present virtually and have payment security and critics, who highlight the non-requirement of a third party for authorization, advancing arguments stating that smart contracts fail to fulfil the requisites needed to be classified as a real contract.[16] Hence, it is a ripe moment to determine whether smart contracts qualify to be real contracts.

A contract can be simply defined as an agreement enforceable by law for which mutual consent, consideration, the capacity of parties, and legality of the subject matter are required, alongside a valid offer and acceptance.[17]A smart contract, when juxtaposed with the common law principles of contract, satisfies the requirements of consent, consideration, capacity of parties, and legality of subject matter. However, the only hindrance to contracts of such nature is whether or not they are enforceable by law, which leads to the present discourse. The enforceability of smart contracts is somewhat tricky due to the varied stances on code-only contracts, but it is not completely beyond the purview of contracts. Here, we can fall back on Szabo's comparison of smart contracts and vending machines, where although there is no written contract, the essence of the contract emanates from the displayed price and the implied rights that the consumer has to pay for.

The US does not have any law that specifically points out the status of smart contracts, but the Electronic Signatures in Global and National Commerce Act, 2000, provides the much-needed weightage to smart contracts, where it is provided that contracts shall not be denied legal effect only because it is in electronic form. The Uniform Electronic Transactions Act, 1999 gives legal recognition to electronic records, computer programs, and electronic signatures. Further, the Uniform Commercial Code provides that agreements do not always need to be in writing to be enforceable.[18] However, the status in India is slightly different from the US. In India, the Indian Contract Act, 1872,[19] provides for the conditions required for a contract to be valid, which include free consent, lawful consideration, legal object.The Evidence Act, 1872[20] provides that electronic contracts are admissible in court. However, the Information Technology Act, 2000[21] provides that digital contracts are valid and enforceable provided that they have a digital signature by the certified authority of the government, which is not required in decentralized systems. However, it does not mean that it has not been used in India. SmartKiosk Software Private Limited created Kiosk Solution Private Limited, which used smart contracts based on the Ethereumblockchain back in 2008. Other start-ups like Cappasity have followed suit and have been immensely successful.[22] There is no denying that smart contracts are the future and are here to stay for the long term.

Now, the question arises whether smart contracts can be granted protection under Copyright Law. According to Nimmer, there appears to be no valid ground as to why contracts and other legal documents should not be protected under the law of copyright.[23] However, several debates have spawned surrounding this argument due to the US Constitutional mandate of providing intellectual property protection to only works that facilitate the progress of science and useful articles.[24] Many argue that books containing legal forms, contracts, and other legal documents do not convey information and thus shall be kept beyond the purview of useful articles.[25] However, this argument falls short and cannot be considered conclusive due to the fact that this case only deals with books containing legal forms or templates and not the expression of the legal forms or contracts with relevant information mentioned in them.[26] The English Court goes a step further and broadens the scope of protection wherein it held that literary works are deemed to be one that affords information or instruction in the form of literary enjoyment.[27]

Next, two aspects would play an integral role in the determination of the copyrightability of smart contracts and contracts in general. First, we shall be discussing contracts that are original or of first instance, and second, we shall be discussing contracts that are derivative works or secondary works.

Though there is no concrete definition of the term original, there are several sources from which a working definition of the term can be constructed. In the US, the Congress has intentionally not defined the term and left it for judicial interpretation to allow purposive construction. The term originality, rather than indicating novelty, indicates that the work has originated from the author. However, the standard of originality in the US is raised compared to countries like the UK and India due to their constitutional mandate of usefulness.[28]

In India, there appears to be no such mandate or limitation, and thus, copyright can be granted to any work that satisfies the requirement of originality.[29] The quality, style, or literary merit of the work is not a determining factor for the subsistence of copyright, unlike in the US.

Coming to contracts, the Indian stance is clear. The Indian law requires the expression of the contract to be original, i.e., it shall originate from the author and shall not be a copy of another work.[30] There needs to be the involvement of some labour in the process, i.e., the work need not be novel or revolutionary. The mere undertaking of work and the input of labour suffice the standard of originality for works of first instance based on the doctrine of *sweat of the brow*. Further, the work needs to be fixed in a medium. However, it is pertinent to note that the clauses of the contracts in most cases are not copyrightable due to the idea-expression dichotomy[31] but the complete expression of the contract, be it with or without all information, satisfies the standard of originality required for works of first instance.

Another specialized dimension through which the copyrightability of smart contracts as literary works can be tested is through the lens of computer programmes. The Indian copyright law has provisions that deal with the same after the 2012 amendment. A smart contract is made up of a back end, which contains executable code, and the front-end aids in representing the code in the human-understandable language, creating an interface that runs on inputs given by the user, outputting the respective results determined by parameters embedded in the computer programme. Since the Indian law recognizes computer programmes as a subject matter of copyright, there is no doubt that the back end of a smart contract is copyrightable. However, when considering the copyrightability of the front end, there are certain confusions that need to be resolved. Since the front end of the smart contract is essentially a representation of its back end, it shall be either protected as a literary work or an artistic work, depending on the layout. However, when delved deeper, it is abundantly clear that even the front endrepresentation of the smart contract possesses elements of executable parameter forms, upon entry of which the contract would be shown on the screen. This means that the front end of the contract is a combination of codes, words and since the Indian definition of computer programs covers code, words, schemes, or any other form including computer readable medium capable for triggering the computer to perform a task,[32] the combination of which is also copyrightable under the Indian regime.

Now, since it has been inferred that smart contracts are indeed copyrightable under the Indian regime, we need to determine whether subsequent smart contracts emanating from the work offirst instance or derivative works would be copyrightable or not. In the absence of a statutory definition of derivative work, we need to rely on judicial interpretations of the term. As previously discussed, the standard of originality followed in the USA is higher than that of India, i.e., the modicum of creativity coupled with their constitutional mandate of usefulness.[33] The standard is significantly mellower in the UK, wherein the doctrine of sweat of the brow is deemed sufficient.[34] However, the Indian court took a slightly different approach, similar to the Canadian court, by devising a standard where the standard of originality is not as high as the US but higher than the UK court in the case of derivative works.[35] When it comes to derivative works in India, the addition cannot be mechanical or trivial, and the author needs to showcase some degree of skill and judgment to qualify for copyright protection.[36] In the case of smart contracts, the changes that are made to each contract are made in a batch. Further, stylistic changes in the draft are irrelevant and barely play in determining the copyrightability of any literary work.[35] However, this fact doesnot eliminate the possibility that the compilation and systematic arrangement of the smart contracts of the entire batch could be copyrightable as a whole.

Unveiling the Copyrightability of Metadata in NFTs

Diving deeper into the topic, a brief understanding of metadata is required. In simple terms, any data that indicates or identifies other data is known as metadata. This data is such that it stores information like file description, file name, other information deemed necessary and relevant by the creator, and most importantly, transaction history, which forms the very base of the NFT market.[37] Another essential component of metadata is that it would have a reference to the digital asset.[38]A widespread confusion in the minds of NFT buyers is that they are buying the underlying work; however, in reality, they are only buying the metadata that leads them to the underlying work.[39] This confusion cannot just be attributed to the ignorance of the buyer but also to the exorbitant price of some NFTs and the mainstream media's portrayal of NFTs, which could even be works that do not even attract the law of copyrights at all.

Whilst discussing the copyrightability of NFT metadata, we need to understand that metadata, in essence, is just a compilation of data, which could come in bits and pieces, and are pure facts. Copyright laws are designed in a manner such that they just protect the expression of data and not the underlying data itself. In the case of metadata in NFTs, a close reference can be made to digital data management systems. A common phrase that is frequently used is "*if it is not digital, it does not exist*," which in a certain context is applicable to digitalization.[39]A surge in the use of metadata for making scholarly work widely available to the public can be observed in recent times. Metadata is being used as a tool for finding scholarly material, as it can store a certain amount of information, which can be used to point toward the scholarly work itself. However, in the US, metadata is viewed as a compilation of facts, which the US Supreme Court does not deem enough to warrant copyright protection, as held in the case of *Feist Publication* v *Rural Telephone Service.*[33] The doctrine of *sweat of the brow* was extensively discussed in this case, where the Hon'ble Bench held that substantial investment of time, money, and effort was not sufficient for copyright protection. However, this does not rule out the possibility of copyrighting a compilation. If the compilation is such that it exhibits sufficient creativity in the selection, coordination, and arrangement of the data, it can be afforded copyright protection.[40] The Canadian courts took a different view in this regard and held that protection could be granted to a database if the same is the author's own data, but if the same is compiled from another source, then it does not qualify the test of copyrightability. The European Union takes a different approach under their *sui generis* system established under their Database Directive and provides protection for a term of 15 years,[41] even if the database does not reflect any protectable expression.[42]

In the Indian context, metadata can be viewed through two separate lenses. First, as has already been discussed, it can be afforded protection as a computer programme under literary works, since metadata in a batch of NFTs is essentially a set of URLs, which runs on an underlying source code. Second, if we treat metadata as a database, then certain conditions need to be fulfilled for it to be considered as a subject matter of copyright. The Indian courts have adopted the doctrine of sweat of the brow on multiple occasions. In *Govindas*[43] and *McMillan*,[44] the courts were of the opinion that compilations created with the investment of money, skill, time, and effort are to be protected as a literary work irrespective of the fact that the data has been taken from a common source. However, it is worth noting that merely acting as a *copyist*[31] would not be sufficient for warranting protection, which in turn gives rise to the notion that even a minor amount of creativity would be enough to qualify for copyright protection. Subsequently, the Delhi High Court[35] opined that there needs to be a modicum of creativity in the approach taken by the author, and the exercise cannot be merely mechanical or trivial.[36] It shall also be noted that the Indian law not only provides for copyright protection to traditional databases but also goes on to grant protection to computer or digital databases. Here, it is pertinent to note that the metadata is not just a mere representation of facts that relate to the NFTs but is one that is systematically arranged and in most cases, is the first representation of that data in a compiled format. However, protection as a database would only be afforded to a batch and not when it is in bits and pieces. Here is where TokenIDs come into play; when a certain TokenID is inputted in a batch of NFTs that share the same contract, it would lead to the specific NFT that the TokenID represents, essentially making it a database rather than a standalone piece of work. Nonetheless, NFT metadata is undoubtedly eligible to be protected under the Indian copyright regime as a literary work, be it in the form of a computer programme or a database.

Potential Threats of Unauthorized Tokenization Leading to Copyright Infringement

Before delving into the discussion of the potential threats that unauthorized tokenization of NFTs poses, the term tokenization needs to be conceptualized. Tokenization is the replacement of sensitive data with surrogate values known as tokens. It is essentially a form of encryption where sensitive data is masked or obfuscated. The concept was popularized by Trust Commerce in 2001 to protect their clients' credit card information[45], but the inception of the same can be traced back to the 1970s when tokenization was viewed as a tool for data protection by financial institutions. In the case of NFTs, tokenizing essentially means converting real-world tangible assets or even virtual assets into digital units that can be traded, and this process is often referred to as minting. The products of the minting process, i.e., the token, are capable of being fractionally owned by multiple investors or patrons, like other asset classes like real estate, which not only opens the market to smaller investors but also facilitates democratization.[46]

Even though NFTs are a fairly new addition to the pool of asset classes, there is no doubt that the underlying work, be it an artwork, a musical work, a cinematographic film, or a literary work, is eligible for copyright protection like any other traditional work. The author of the work shall enjoy the bundle of rights that is automatically acquired with the creation of the copyrighted material. However, the conflict would arise when an NFT is created on a work that is not in the public domain or not owned by the minter, or the copyright of the work lies with someone other than the minter. The possibility of infringement in these cases cannot be ruled out, even though most NFTs are newly created artworks.

Unauthorized listing of NFTs by persons other than the copyright holder has been highlighted as one of the major concerns in the NFT sector at the *Cornell Blockchain Conference* in *New York*. This is commonly referred to as the *right-click saveissue,* i.e., individuals are saving the NFT images and minting them as their own. This issue is intensified due to the fact that NFTs are available for public viewing like any other form of art, and its digital nature allows identical copies of the same to be either downloaded or screenshotted onto electronic devices like smartphone's and computers.[47]

Herein we shall delve into two possible scenarios: first, where a copyrighted work is being used without any license from the copyright owner, and second, where a copy of the artwork has been legally acquired but the same is being minted into an NFT. The first case is commonplace when it comes to NFTs. Zach Burks, founder of Mintable, compared screenshotting and right-click saving of NFTs to taking a photograph of traditional paintings and argued that the same would have no value since possessing a copy of the painting or the NFT does not confer any rights or any form of ownership. However, it shall be noted that, unlike photographs or paintings, a copy or screenshot of an NFT is an exact copy of the underlying artwork, which makes unsuspecting buyers susceptible to buying NFTs minted on artworks that are essentially stolen products.[48] Taking the screenshot will not lead to copyright infringement, but minting it would attract infringement under Section 51 alongside attracting several provisions under the Information Technology law of the country. In the second case, the person could have rightfully obtained a copy of the artwork upon payment of a certain consideration. However, buying a copy of the painting does not grant the buyer the copyright in the artwork, even though the concept of the *first sale* comes into question; it merely grants the rights attached to the physical copy of the artwork. Drawing an example of a book that has been authored, published, and released in the market. If one buys a copy of the book, he shall only have rights to the physical copy of the book but will not enjoy any rights to the actual content of the book and thus, if he makes copies of the copies or derivatives of the copy without obtaining a license from the copyright holder, then the same will amount to infringement. This principle would be identically applicable in the case of NFTs. If an individual simply buys a copy of an original artwork from an artist who enjoys the copyright, he shall not have the right to reproduce it or convert it into an NFT until and unless there exists a license or assignment of the work by the artist, which has been reduced to writing in the form of an agreement. However, the greater concern that follows is the extremely time-consuming and resource-intensive process of tracking down the infringer.

The Adequacy of the Indian Legal Mechanism to Protect NFTs

It would be safe to infer that the Indian Copyright law has all the necessary provisions for the protection of copyright that could subsist in an NFT, be it the smart contract, the metadata, or even the underlying work itself. However, the problem does not specifically rest in the provisions themselves but in the interpretation and

implementation of these provisions along with their interplay with other laws like the Contract Act, Information Technology Act, and the Evidence Act.

The first issue that arises while testing whether the Indian law is adequate to protect NFTs relates to contract law. Since smart contracts do not require the intervention of a third party, i.e., the court of law, the legal enforcement of smart contracts is implicitly excluded, and thus, to a certain extent, smart contracts are incapable of fulfilling all the prerequisites of a contract. The very nature of smart contracts would lead to automatic enforcement and permanence; thus, once the terms have been accepted, there can be no alterations.[49] However, this permanence leads to less speculation and paints a clear picture of the intent of the party. Adoption of an *ex-post* evaluation approach by the courts could prove to be befitting, since that would allow the review of the automated enforcement as well as freedom of adjudication. Thus, all principles of traditional contracts would be squarely applicable to smart contracts as well.

The second issue pertains to digital signatures. The Information Technology law in India requires a certifying agency when it comes to authenticating digital signatures. However, this very practice is in contrast with the norms of NFTs. However, this issue can be mitigated by simply using the MAC addresses of the systems through which the NFTs are being created or traded as an alternative to digital signatures. This substitution of MAC addresses in place of digital signatures could greatly benefit the integration of NFTs in the legal system, as it would logistically support the speedy identification and resolution of disputes if one arose.

The third issue that arises is that of right-click saving and screenshot ting. This issue can be dealt with in three potential solutions. First, the websites hosting NFTs would have to take active measures to identify, report, and eliminate any sort of pirated NFTs through their algorithms, either with the aid of AI, automation, or manual searches upon creation or trading. Second, the principles of caveat emptor, along with mass sensitization relating to matters of NFTs and intellectual property-related issues, need to be emphasized and integrated into the legal regime. Third, a barrier needs to be created that would prevent right-click saving and screenshotting of images. This could be in the form of a paid membership to the platform, which would restrict access to the NFTs. Another deployable method is by disabling screenshots through functions embedded in the website or by image blurring, both of which have been granted legitimacy by the Indian information technology law as technical protection methods.[50] These methods are being widely used by the banking sector and certain NFT platforms as of now.

In the case of NFTs, the approach shall not be such that they are excluded from the ambit of IPR protection. Rather, it shall harmonize the IP laws, IT laws, Contract law, and the Evidence Act in a manner such that it is future-proof and inclusive of NFTs and its components. A remarkable approach was taken by the Chinese Court in 2022, wherein the Hon'ble court prescribed certain measures for the furtherance of the NFT market without compromising with IP laws. First, NFT websites shall compulsorily establish an IP review mechanism that shall conduct a preliminary check of ownership, shall restrict and refuse to host any infringing work. Second, the websites shall only allow the owner of the copyright or a person authorized to sell NFTs. Third, the platform shall possess significant control over the digital works and conduct the previously mentioned review and monitoring without incurring or charging additional costs. Fourth, the platform shall be incentivized by shares of profit received from every transaction on the platform.[51]

Conclusion

NFTs are still in their nascent stages of development and the potential benefits that they can provide have barely been tapped into. Unlike the common perception of NFTs, they can be designed in a manner that is utility-based and can be used in several industries. However, it should be considered that with the rise of advanced technologies, legal issues would emerge as a natural reaction to it. Issues of tokenization can only be tackled by community-driven approaches due to the lack of any specific and formal regulatory mechanism dealing with NFTs. An incentive-based rating system would also greatly benefit the state, which would evolve into the duty of the users of the space once the Government actively takes measures to strengthen the consumer regulations, which at this point in time are moving at a slower pace compared to the exponentially expanding NFT space. The maintenance of a higher degree of oversight by the copyright holder and the NFT platformsis imperative to prevent infringement, alongside sensitizing and educating the consumers to ensure a safe marketplace. The utilization of TPMs could aid in preventing unauthorized use, the incorporation of KYC standards to verify and link the

minter's, lister's, and purchaser's identity alongside substitution of digital signatures with MAC addresses could not only provide heightened security but also catalyse the tracking process in case of fraud or infringement. The aim shall be to harmonize the laws to include NFTs into our systems, as it is a technology of the future with ample scope for growth and significant potential to benefit not only the creators but also the economy as a whole.

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