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Factors and Rule Adaptation in Determining NFT Trademark Infringement

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Abstract
As non-fungible tokens (NFTs) generated by blockchain technology, NFTs may incorporate trademark elements, giving rise to complex infringement issues due to their technical characteristics and novel commercial forms. A review of leading domestic and international cases reveals core judicial concerns. Initially, at the level of legal characterization, it is essential to look beyond the underlying technology and focus on the external representations of the content linked by an NFT to ascertain whether it carries the commercial use attributes recognized under trademark law. Whether the NFT represents a purely virtual good or is tied to a physical asset, the analysis should center on whether the trademark's source-identification function is affected. Moreover, in assessing likelihood of confusion, one must consider the specificity of the trademark registration classes, consumer perceptions in real-world usage contexts, and the practical impact of industry-wide brand positioning, thereby constructing a framework suited to scenarios that span virtual and physical domains. Finally, in delineating the scope of fair use, non-commercial fair use is mainly divided into artistic expression, with originality and non-commercial intention as the core. Commercial fair use is mainly indicative use, which needs to be reviewed in combination with the differentiated binding form between NFT and physical objects to prevent infringement under the guise of art. Determining NFT trademark infringement thus demands a balanced approach that upholds the core objectives of traditional trademark law—protecting source identification and preserving market order—while accommodating the distinctive features of the technology. Through the interplay of judicial practice, theoretical research, and industry norms, a trademark protection system adapted to NFTs can be established.

Keywords
NFT; trademark infringement; legal characterization; likelihood of confusion; fair use

1 Introduction

The advent of cryptographic and decentralization technologies has spurred the NFT phenomenon. An NFT (non-fungible token) is a set of metadata on a blockchain that uniquely and immutably maps to specific content such as images, music, or artworks, serving as a digital certificate of rights that may anchor either real-world tangible items or purely digital works. Each NFT is unique and non-interchangeable; its value derives from the owner's ability to prove exclusive possession of the original, creator-signed work, with all transaction records being traceable to verify the flow and ownership of rights. Essentially, an NFT is a string of digital code acting as a certificate of rights. Visually, its form is defined by the external content it links to—content that may embody artistic value or attributes of tangible goods. Legally, its nature remains ambiguous, with prevailing theories classifying it as property rights, contractual rights, cryptographic certificates, currency equivalents, or virtual assets.As the metaverse and NFT markets expand, trademark protection issues have extended from physical goods into the virtual realm.

Trademark infringement typically involves unauthorized use of another's registered or statutory trademark, or use of a confusingly similar mark likely to cause consumer confusion. As NFTs gain global traction, numerous brands have ventured into the virtual sphere, and creators' enthusiasm has surged, yielding a proliferation of high-profile works. Domestic internet giants such as Alibaba and Tencent have launched NFT collectibles, often limiting circulation and stripping financial attributes to avoid trademark disputes, which has temporarily delayed overt conflicts but cannot eliminate infringement risks. NFTs can authenticate transaction existence and provenance, yet cannot prove the authenticity of the work itself or that the minter is the true creator.Trademark owners can commercialize NFTs to realize brand value in the virtual world, while unauthorized third parties may exploit marks for opportunistic gain, resulting in trademark infringement.

2 Examination of NFT Trademark Infringement Cases

2.1 Foreign NFT Trademark Infringement Cases

The decision in Hermès Int'l v. Rothschild[1]—often cited as the first NFT trademark-infringement case—established a judicial precedent for extending traditional trademark law into the virtual realm. In that dispute, artist Mason Rothschild created and sold on the OpenSea platform a series of NFTs entitled “MetaBirkins,” which depicted the iconic Hermès Birkin bag rendered in virtual fur. Hermès thereafter sued, alleging trademark infringement, dilution, and unfair competition. Rothschild countered that his work constituted artistic critique of luxury culture and was thus protected by the First Amendment. Hermès advocated application of the ordinary-goods infringement standard (the Gruner + Jahr test), characterizing NFTs as commercial products; Rothschild urged use of the expressive-works exemption (the Rogers test). The district court adopted the defendant's framework, holding that MetaBirkins should be analyzed as expressive art under Rogers, which requires both artistic relevance and absence of consumer deception. Although the court acknowledged the series' artistic qualities, it found that Rothschild's marketing slogan “Not Your Moth-

1 Hermes International et al v. Rothschild, No. 1:2022cv00384 ,(S.D.N.Y. 2023)

er's Birkin" deliberately evoked the Hermès brand, and that mass sales of high-priced NFTs on OpenSea demonstrated a commercial intent to capitalize on Hermès's goodwill. Because the "non-deceptive" prong of Rogers was not met, Rothschild was ordered to pay $133,000 in damages and to cease sales.

In Yuga Labs Inc. v. Ripps,[1] the court further reinforced intellectual-property protections in the NFT context. Defendant Ryder Ripps reproduced without modification the artistic elements of Yuga Labs's celebrated "Bored Ape Yacht Club" (BAYC) images and marketed them as a new NFT collection under the name "RR/BAYC." The court identified three critical findings: first, Ripps copied BAYC's ape characters and costume details in their entirety, without any substantive or critical transformation; second, he registered the domain rrbayc.com and promoted the NFTs with language promising "BAYC-style NFTs at a lower price," deliberately engendering confusion with the official project; and third, consumer complaints and market data established actual confusion, with purchasers believing they were acquiring genuine BAYC tokens. Accordingly, the court declined to apply the Rogers expressive-works defense, concluding that Ripps's conduct constituted commercial counterfeiting rather than protected artistic expression. Unlike Rothschild's virtual reimagining of a luxury handbag, Ripps offered no original commentary or transformative elements; he simply appropriated Yuga Labs's imagery, name, and blockchain context to deceive buyers. Ripps was held liable for trademark infringement, cybersquatting, and copyright infringement, ordered to pay some $9 million, and compelled to destroy the infringing NFTs and close related accounts.

The ongoing dispute Nike Inc. v. StockX LLC[2] highlights a third dimension of NFT trademark issues, namely the nature of the NFT itself. StockX, a resale platform for sneakers, introduced its "Vault NFT" service, claiming that each token represented a specific pair of Nike shoes stored in its warehouse, and that token holders could either trade the NFT or redeem it for the physical footwear. Nike's complaint in the United States District Court for the Southern District of New York alleges that StockX used Nike's trademarks and images without authorization in its NFTs, marketed them at inflated prices, and thereby led consumers to believe the project had Nike's endorsement. StockX responds that its NFTs function merely as "digital receipts" for legitimately purchased physical shoes and that the first-sale doctrine permits unrestricted resale of goods lawfully acquired. Nike counters that StockX's tokens are tradeable independently of any underlying shoes—often detached from the physical product—and therefore constitute standalone virtual merchandise subject to trademark regulation. This dispute implicates the Lanham Act's definition of "goods." Although Hermès v. Rothschild recognized that NFTs can be "virtual goods" capable of infringing trademarks even absent a direct link to physical items, it did not definitively resolve how courts should characterize NFTs when they promise optional redemption for real-world assets. StockX also invokes nominative-use principles, arguing that its use of the Nike mark merely identifies the linked product. The court must determine whether StockX's promotional emphasis on "Nike sneakers" exceeds what is reasonably necessary to describe the token's referent, thereby risking consumer confusion or dilution of Nike's trademark distinctiveness. As of March 2025, this case remains under advisement; its outcome is likely to clarify the trademark-infringement boundaries for redeemable NFTs that bridge the virtual and the tangible.

1 Yuga Labs Inc. v. Ripps, 2:22-cv-04355, (C.D. Cal.)

2 Nike Inc. v. Stockx LLC ,1:22-cv-00983,(District Court, S.D. New York)

2.2 NFT-Related Cases in China

To date, China has not adjudicated a seminal NFT trademark-infringement dispute, and publicly reported NFT litigation has predominantly concerned copyright infringement. However, the intellectual property system is a product of technological development, and relevant cases and regulations need to be adapted to the development of NFT technology.For example, in the “Fat Tiger Gets Vaccinated” NFT infringement case heard by the Hangzhou Internet Court,[1] the plaintiff held the exclusive copyright in the “I Am Not Fat Tiger” art series. On the defendant's NFT trading platform, Bigverse, a user reproduced the original “Fat Tiger Gets Vaccinated” image, complete with the artist's watermark, and minted it as an NFT without authorization. The court pierced the blockchain facade, defining NFTs as “digitally unique carriers” whose minting and transfer do not convey traditional property ownership but rather reflect the change of a “holder” and the redistribution of associated economic rights. From a legal-functional perspective, the court held that minting an NFT constitutes reproduction of the work, while subsequent trading entails online dissemination—both acts governed by the Copyright Law. Moreover, the platform was deemed contributorily liable: by charging “gas fees” and transaction commissions, it profited directly from the infringing activity and possessed the technical capability to vet uploaded content yet failed to verify copyright ownership before permitting minting and sale. Consequently, the court ordered deletion of the infringing NFTs and awarded damages to the rights holder.

Similarly, in the Beijing Intellectual Property Court's adjudication of the “Jia Dao's Poetic Intention” NFT case[2] [(2023) Jing 73 Min Zhong 3237 Civil Judgment], the defendant—operator of the “Zhili Metaverse” app—digitized Fan Zeng's painting without permission, minted it as an NFT, and promoted the digital collectible via WeChat and Weibo. The court held the defendant and its sole shareholder jointly liable for over RMB 350,000 in economic losses and reasonable expenses, and ordered that the infringing NFTs be irrevocably transferred into an on-chain “black hole” address to prevent further circulation.These decisions, though grounded in copyright law, yield instructive parallels for trademark infringement jurisprudence in three respects:1.Legal characterization of NFT transactions. Courts uniformly classify NFT minting and trading as acts of reproduction and online dissemination—analogous to network communication—rather than traditional physical “distribution.” 2.Emphasis on external indicia of rights. Judgments scrutinize visible affirmations of authorship—such as inscriptions, seals, or watermarks—to establish prima facie ownership of the underlying work. 3.Assessment of promotional affiliation. Courts consider whether marketing emphasizes the connection between the NFT and a recognized artist or work, thereby strengthening the presumptive association in the public mind and supporting a finding of infringement. Together, these rulings underscore an “external-representation first” approach and delineate platforms' affirmative duty to examine the rights credentials of user-uploaded content, principles that will inform the adaptation of trademark protections in China's burgeoning NFT ecosystem.

Domestic and foreign jurisprudential divergences reveal two salient characteristics of China's current judicial approach. First, judicial practice thus far has placed greater emphasis on copyright protection, and the extension of trademark law into the NFT sphere has not yet crystallized into clear rules. Second, courts have

1 Civil Judgment (2022) Zhe 01 Min Zhong No. 5272 of Hangzhou Intermediate People's Court, Zhejiang Province

2 Civil Judgment of Beijing Intellectual Property Court (2023) Jing 73 Min Zhong No. 3237

tended to legalize NFTs principally as “virtual property,” downplaying their status as commercial goods and instead defining them as “digitally unique carriers” or “encrypted digital-equity certificates,” thereby underscoring their function as proof of ownership in the virtual realm.

This emphasis stems from the difference between copyright and trademark rights: copyright is automatically generated when the work is created, and does not require registration. It protects original expression, which is naturally consistent with the content attributes of NFT "digital carriers" and involves less complex connections in commercial scenarios; trademark rights must be obtained through registration, and their core is to protect the source identification function of commercial logos, which relies on the commercial use of goods and services.In China, regulatory guidance favoring the “de-financialization” of NFTs has further attenuated their characterization as commodities,and large-scale trademark-infringement disputes involving NFTs have not yet emerged.

However, the significance of studying NFT trademark infringement is becoming increasingly prominent: on the one hand, with the increasing commercialization of NFTs, brands have begun to deploy in the virtual field, and trademarks, as core tools for commercial competition, will inevitably increase in demand for protection; on the other hand, NFTs that use domestic brand logos without authorization have appeared on platforms such as OpenSea, indicating that the risk of infringement has emerged. More importantly, the judicial thinking of "external representation priority" in copyright cases and the logic of identifying platform review obligations can provide important reference for trademark protection and promote the formation of trademark infringement judgment rules that are adapted to the characteristics of NFTs.

3 NFTs' Influence on Judicial Decisions in Trademark Infringement

Drawing together the core disputes in the foregoing domestic and foreign cases and the intrinsic conceptual difficulties posed by NFT technology, it becomes clear that the key challenges in adjudicating NFT-related trademark infringements stem from the friction between blockchain's technical attributes and the traditional trademark legal framework. Current judicial practice reveals three principal layers of challenge: 1.The judicial characterization of NFT legal status, which determines the scope of trademark law's applicability; 2.The controversial standards for assessing likelihood of confusion at the nexus of virtual and real-world contexts; 3.The absence of clear adjudicatory rules governing fair-use defenses such as artistic expression or descriptive use.

3.1 Impact on Legal Applicability: Judicial Characterization of NFT Attributes

As blockchain-generated non-fungible tokens, NFTs are, at bottom, immutable strings of unique digital code and lack any intrinsic physical substrate for bearing trademark elements. Accordingly, trademark use in the NFT context manifests through the token's linked virtual imagery, digital artwork, or virtual goods—the external indicia by which consumers recognize the branded content. In assessing whether trademark law applies to a given NFT dispute, courts therefore must choose whether to focus on the token's underlying technical nature or on its outward representation, and must also decide whether an NFT, when tethered to a physical asset, retains independent commercial-goods status.

Judicial practice has largely settled on the external-indicia approach for purely virtual-goods NFTs. In Hermès International v. Rothschild, the U.S. district court did not delve into the technical coding of the "MetaBirkins" NFTs but instead concentrated on the defendant's reproduction of Hermès's Birkin bag imagery and its commercial sale of those virtual images, holding that the NFTs constituted virtual goods subject to the Lanham Act. The court observed that consumers base purchasing choices on their perception of the virtual bag designs, not on the blockchain code, and thus regulation under the Lanham Act was appropriate. Yuga Labs, Inc. v. Ripps further entrenched this reasoning. There, the defendant had wholesale copied the Bored Ape Yacht Club imagery linked to the original NFTs without any creative transformation. The court treated his use of that external content as the touchstone of trademark infringement, reaffirming that content—rather than technology—must govern the analysis. Chinese courts, though addressing NFTs through copyright cases, have similarly emphasized external indicia. In the "Fat Tiger Gets Vaccinated" decision, the Hangzhou Internet Court defined the NFT as a "digitally unique carrier," not in reference to the code itself but to the digital work it conveys. Such emphasis on the content's attributes suggests a potential blueprint for trademark law: where an NFT's linked virtual content incorporates a trademark and is exploited commercially, courts can analogously regard the token as a "digital carrier" of that mark, rather than scrutinizing blockchain mechanics.

When NFT is bound to physical assets, the focus of the dispute over its attributes is whether it should be regarded as an attached certificate of the physical object or an independent virtual commodity. The Nike Inc. v. StockX LLC case in the United States presents a typical form of this dispute. Although the case has not been concluded, the dispute itself reveals two qualitative ideas for NFT: due to the binding relationship between NFT and physical objects, its attributes are determined to be subordinate to the physical object, and thus the traditional property law or commodity resale rules are applicable; or based on the fact that NFT can be traded separately from the physical object, the price formation mechanism is independent of the physical object, and it is given the positioning of investment digital assets in publicity, it is judged that it has the commercial attributes of an independent commodity. Since trademark law focuses on the actual impact of logos on consumers in market circulation, the author believes that the value dependency standard should be established based on the core function of trademark law, "source identification": when NFTs show independent value from physical objects through independent pricing, independent circulation, and highlighting the value of digital assets in publicity, their trademark use should be reviewed according to the attributes of virtual goods, focusing on whether the trademark logo in the content linked to the NFT is likely to cause confusion about the source; on the contrary, if NFTs are only used as authentication tools for physical objects and have no independent transaction value, their trademark use is regarded as an extension of physical goods and is included in the scope of trademark regulation of the category to which the physical objects belong. This recognition is consistent with the reality that "content value takes precedence over technical form" in NFT transactions, and is also in line with the focus of trademark law on commercial use.

The practice of trademark management departments in various countries has further strengthened the orientation of external representation priority, firmly agreeing that "although most NFTs are digital representations in Web 3.0, in fact, they are just symbols of off-chain assets",and its core is reflected in the specific requirements for the content of NFT registration. The Korean Intellectual Property Office (KIPO) and the European Union Intellectual Property Office (EUIPO) clearly stated in the examination guidelines that NFT-related trademark applications must accurately describe the linked content (such as "virtual clothing" and "NFT-certified digital artworks"), and it is prohibited to generalize with vague expressions such as "NFTs". In essence, it is to define the scope of trademark rights by defining the category of external content. The USPTO also requires that the specific direction of NFTs must be clearly stated in the application (such as "virtual sneakers certified by NFT").If the description is vague and the source identification function is unclear, it may be rejected for "easy to cause confusion". This management logic echoes judicial practice: no matter what the technical form is, without the mapped digital work, NFT cannot play any indicative function and loses the possibility and necessity of independent evaluation.Therefore, only when the content linked to the NFT has specific and identifiable commercial attributes, the regulation of trademark law has a clear object.

This "external-representation-first" principle is not unique to NFTs but a continuation of the logic of intellectual property adjudication in the digital era of the Web2.0 era. In the AM General LLC v. Activision Blizzard, Inc.[1] in the Web2.0 era, the court determined that the trademark infringement of the appearance of virtual cars in online games was based on the players' cognition of car images rather than the underlying game code. This judgment standard is consistent with the recognition of content taking precedence over technology in the NFT field, and both reflect the value of intellectual property law that commercial substance is superior to technical form, providing a historical reference for the application of trademark law in the NFT field.

In sum, judicial characterization of NFTs need not be mired in debates over blockchain mechanics. The decisive criterion is whether an NFT's outwardly presented content performs the source-identification function that trademark law protects. Whether it is a purely virtual product or one that is bound to a physical object, as long as the trademark logo is used in the transaction scenario and such use is sufficient to affect consumers' perception of the source, the Trademark Law has room for application.

3.2 Impact on Infringement Determination: Assessment of Likelihood of Confusion

After the legal attributes of NFT are clarified, the core of trademark infringement determination turns to the judgment of "likelihood of confusion". This process needs to be further refined and judged in the framework of "whether the relevant public has misunderstood the source" in traditional trademark law, combined with the virtual characteristics of NFT.

The delineation of trademark registration categories is the basic legal basis for judging the likelihood of confusion. The core of this is to clarify whether the content linked to the NFT and the scope of the registered trademark constitute "the same or similar goods/services". According to Article 56 of my country's Trademark Law, the exclusive right of a registered trademark is limited to the approved registered trademark and the approved goods for use. This principle also applies to the NFT field. To judge infringement, it is necessary to first clarify whether the goods/services linked to the NFT in question and the approved category of the registered trademark constitute the same or similar, and then evaluate the likelihood of confusion in combination with the similarity of the marks. Looking at the trademark examination practices of

1 AM Gen. LLC v. Activision Blizzard, Inc., 1:17-cv-08644-GBD-JLC (S.D.N.Y. 2017).

various countries, some differentiated standards for "the similarity of the categories of virtual and physical goods" have been formed. The Korean Intellectual Property Office (KIPO) clarified in the guidelines that NFT-related registrations must specifically point to specific content such as "virtual clothing" and "virtual artworks", which are classified into Class 9 (downloadable digital files), and stipulate that virtual goods and physical goods are "not considered similar for the time being" unless there is sufficient evidence to prove that the relevant public has associated the two. This means that if a brand is only registered for physical clothing (Class 25), and others use similar logos for virtual clothing (Class 9), additional evidence of "the public associates virtual with physical" is required to determine confusion. The European Union Intellectual Property Office (EUIPO) places more emphasis on "content relevance",believing that the similarity judgment of virtual and physical goods requires case-by-case analysis: if virtual and physical goods have a high degree of overlap in function and consumer groups, even if they belong to different categories, they may still be deemed similar due to "substantial association". The review logic of the USPTO echoes this, requiring that NFT registrations must clearly specify the certified digital items,such as "virtual trading cards in the form of NFTs", otherwise they will be rejected due to "ambiguous descriptions", which essentially provides clear boundaries for the judgment of the possibility of confusion through category refinement. These practices show that the category registration of NFTs is not a simple "technical classification", but a premise that directly affects the possibility of confusion. The more specific the category and the clearer the association with the physical goods, the more solid the basis for the determination of confusion.

Beyond statutory classes, the interaction between actual usage scenarios and public perception is the core direction of evidence for determining the possibility of confusion in infringement cases. The core value of trademark protection is to ensure that consumers can make choices based on clear source identification, and its legitimacy stems from maintaining market transaction efficiency and fairness by reducing information retrieval costs and preventing source confusion, rather than absolute control over the symbol itself. Therefore, compared to other legal systems, the trademark system needs to consider consumer cognition more. Just as in the Herm è s v. Rothschild case, the plaintiff argued that the key evidence of confusion directly points to "promotional behavior reinforcing source association" and "actual consumer misidentification," the Yuga Labs v. Ripes case also highlights the evidential value of "identification similarity" and "misguiding consumers. From this, it can be seen that the evidence for the possibility of confusion in the NFT field can focus on three aspects: first, the degree of similarity in the use of identifiers; The second is the guidance of association in propaganda; The third is the actual evidence of public perception. EUIPO explicitly states in the "Guidelines for the Examination of Virtual Goods Trademarks" that the similarity between virtual and physical goods requires a case by case analysis of "the degree of overlap in function, purpose, and consumer group", which is consistent with the analysis path of "subjective standards as the main criterion, objective standards as a supplement" in China's judicial interpretations, and declares the important influence of public perception on the determination of the possibility of confusion.

Industry behavior further reinforces or mitigates confusion. Leading brands such as Nike, Converse and Saint Laurent have preemptively registered trademarks covering virtual goods, from downloadable sneakers to retail services for NFT collectibles. By publicly signaling a brand's extension into the virtual domain, these registrations heighten consumer expectations that a given NFT bearing the mark derives from the same source as its physical counterpart. As a result, when a well-known brand applies a similar identifier to an NFT for virtual apparel, courts are more likely to find that consumers will naturally associate that token with the established label, thereby favoring a finding of confusion. The brand layout in the NFT field is strengthening the connection between the virtual and the real through the "publicity effect" of trademark registration, providing market reality support for the judgment of the possibility of confusion.

Taken together, these developments suggest a tripartite, NFT-adapted framework for assessing likelihood of confusion: first, a rigorous comparison of registration classes to determine legal overlap; second, a fact-driven inquiry into consumer perception, focusing on mark similarity, promotional context, and actual confusion; and third, an appreciation of broader market practices—particularly brand registration strategies—that shape public expectations. By preserving the trademark regime's core mission of source identification while refining its evidentiary procedures for digital-only goods, this approach offers a coherent means of reconciling traditional principles with the novel attributes of NFTs.

3.3 Impact on Defense Determination: Scope of Fair Use Principle

Trademark law's built-in mechanism of balancing interests ensures that the expansion of trademark rights is never unilateral but always accompanied by limitations and the preservation of the public domain. At its core lies the need to reconcile trademark protection with the public's legitimate freedom to use marks.The Fair Use Principle—permitting certain uses of another's mark without the trademark owner's permission and without constituting infringement—serves as a crucial defense in infringement disputes. When a trademark logo appears in the content of an NFT link, what kind of use constitutes descriptive use or indicative use, or can be deemed as non-commercial fair use, requires refining the boundaries based on traditional standards and the characteristics of virtual scenes.

From the earliest days of NFTs—deployed to represent museum-grade artworks—these tokens have been closely associated with artistic expression, often manifesting as digital art or virtual creations that carry collectible value. Accordingly, "artistic expression" frequently underpins arguments that NFT related trademark use is non-commercial fair use. China's "Initiative on Preventing Financial Risks Related to NFTs" defines these assets explicitly as "NFT digital collectibles" and forbids weakening their non-fungible character. Yet judicial practice is not tolerant in determining fair use of artistic expression. In Hermès v. Rothschild and Yuga Labs v. Ripps, courts scrutinized the originality of the work: mere reproduction of a trademark or core imagery for trading, even under the banner of "artistic creation," failed as a defense. Only when trademark elements are materially transformed and not leveraged for commercial gain can a fair-use exemption succeed. Although China has not yet heard an NFT trademark fair-use case, copyright-infringement decisions offer analogous reasoning: in the "Fat Tiger Gets Vaccinated" ruling, the court rejected minting an NFT by simply copying an existing work, holding that only genuinely creative transformation could escape liability. In the "Jia Dao's Poetic Intention" matter, the defendant's mass issuance of Fan Zeng's painting as an NFT—coupled with promotional claims of a "world premiere" by a national-art master and clear profit-making—was deemed to exceed the scope of artistic expression. These precedents demonstrate that an NFT's artistic aura does not automatically shield it from infringement; rather, defenses turn on factors such as creative originality, independent expressive content, and the absence of free-riding on an established brand's goodwill.

This jurisprudential approach aligns with NFTs' technical features. As the UK Intellectual Property Office's Statutory guidance PAN 2/23 emphasizes, NFTs' tradability imparts an inherently commercial character—even if creators assert "non-profit" intent, blockchain transaction records can evidence market circulation and thus blur the line between fair use and commercial exploitation.In U.S. Lanham Act practice, courts frequently exclude fair use where the defendant has "directly or indirectly gained a commercial advantage." In the NFT realm, this principle translates into a clear standard: if the token circulates on trading platforms, generates commissions, or functions as a traffic driver, its commercial nature is unmistakable. Even when cloaked as art, a deep integration of the NFT's minting and trading with profit-seeking activities may render it infringing. Conversely, an NFT held solely for personal collection, never offered on the market and without any promotional effort, may qualify as non-commercial fair use.

Among the two types of commercial fair use, descriptive use and indicative use, since the purpose of using other people's trademarks in the NFT scenario is usually to "point to external brands" rather than "describe oneself", NFT trademark infringement is mainly manifested as indicative use, which is manifested as "necessary use of trademarks to explain the relationship between goods". In addition, since the particularity of NFT is reflected in the "description of the relationship between virtual goods and physical goods", whether it constitutes fair use needs to be specifically judged in combination with the binding form of NFT and the real object: when NFT is only used as an authentication tool for physical objects, it is necessary to examine whether it has no independent transaction value and is only used for title confirmation or traceability. When it is only used to explain the brand attributes of the authentication object and does not highlight or imply authorization, it may constitute fair use. At this time, the use of NFT's trademark is attached to the physical object, and the judgment of indicative use can refer to the rules of the category to which the physical object belongs. The judgment logic is consistent with the traditional indicative use of "explaining the source of the goods", and the focus is on "whether it exceeds the necessary description scope". When NFT shows independent value independent of the physical object, such as when NFT certification brings about a product premium or is affected by the brand effect, indicative use must meet stricter "necessity" restrictions and ensure that its use is limited to necessary descriptions. For example, if content can be prompted by text, there is no need to adopt dynamic display. Trademark associations must not be strengthened through unnecessary designs, and it must be clearly stated in publicity that it is a non-official cooperation to prevent confusion of sources.

Ultimately, fair-use principle in the NFT domain requires distinguishing between two scenarios. For artistic expression uses, courts should focus on the degree of creative transformation and the absence of profit motive. For indicative use, the inquiry should hinge on the NFT's status as either a standalone asset or a mere certificate for a physical good, with corresponding calibration of the necessary-use standard. This approach both respects the technological realities of NFTs and addresses the unique challenges of applying trademark defenses in the virtual sphere, while upholding trademark law's fundamental aim of preventing source confusion.

4 Conclusion

NFT technology's rapid ascent has extended the scope of trademark protection from the physical world into an entirely virtual domain, presenting a fundamental challenge: how to recalibrate traditional trademark law so that it accommodates the technical characteristics and commercial configurations of digital carriers. Review of judicial decisions and regulatory guidance suggests three guiding principles. First, courts should look beyond blockchain code to the outward presentation of the content to which an NFT links, using the mark's source-identification function as the touchstone for determining whether trademark law applies. Second, assessments of confusion must be grounded in real consumers' perceptions, integrating the legal boundaries set by registration classes with empirical evidence from actual use scenarios and market-level brand strategies, so as to craft a standard fit for hybrid virtual-physical environments. Third, fair use principle should be circumscribed by the twin considerations of creative originality and non-commercial intent when invoking artistic expression, and by the nature of an NFT's connection to a physical asset when evaluating nominative or descriptive use. Together, these strands of analysis emphasize that the correct response to NFTs in trademark law neither succumbs to technological determinism nor resorts to rote application of legacy rules, but centers squarely on safeguarding source identification and preserving orderly market competition amid digital innovation.

Looking ahead, as NFT commercialization deepens and virtual and real world experiences become ever more intertwined, the forms of trademark infringement will continue to evolve, and questions of cross border transactions and platform liability will demand further inquiry. What is clear, however, is that future adjudicatory frameworks must both preserve the core tenets of trademark doctrine and remain responsive to the unique facets of blockchain-based assets. The aim should be to strike an enduring balance between deterrence of bad-faith misuse—thereby giving brand owners confidence to extend their presence into virtual spaces—and sufficient flexibility to allow legitimate artistic expression and technological experimentation to flourish. Achieving this equilibrium will depend not only on sustained judicial innovation but also on coherent theoretical scholarship and industry-wide norm setting, so as to construct a trademark protection regime tailored to the digital age.

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