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Non-fungible tokens, commonly referred to as NFTs, have been front-page news thanks in part to the record-setting Christie's auction of an NFT attached to a Beeple digital collage for $69 million and the dramatic uptick in NFTs associated with collectibles, video clips, music, and digital art.

An NFT is a digital certificate of certain rights associated with an asset—typically, a digital one – that is made secure and immutable through blockchain technology. That is a powerful tool in the digital asset space given that ownership typically cannot be demonstrated through physical possession, and works can be quickly and easily replicated. A creator could also release a limited number of NFTs associated with a work.

There has also been experimentation with linking NFTs to real assets. For example, tennis pro Oleksandra Oliynykova auctioned part of her serving arm through an NFT, allowing the NFT holder to determine what tattoo to place there, and Nike has a 2019 patent for technologies that would link an NFT to purchased footwear.

While considerable attention has been focused on the commercial value of NFTs and the creation of an "ownership economy," there are equally compelling questions about the scope of legal rights being acquired, and the extent to which content creators, rights holders, who may be different from the content creators, NFT purchasers, and NFT marketplaces, are protected. This article addresses the key intellectual property and contractual issues presented by NFTs that all stakeholders should consider.

While many in the blockchain space often maintain that the "code is the law," this is clearly not the case when it comes to NFTs given the interplay between blockchain technology and traditional intellectual property concepts.

Technology Background

Markets typically rely on a trusted third party to authenticate market participants and maintain a central ledger of each party's holdings. Blockchain technology, which underpins most cryptocurrencies, seeks to replace that trusted third party with a fully decentralized network of computers storing an identical copy of the ledger, and in which new transactions are validated through a consensus-based mechanism.

Participants are not authenticated by a central third party, but through a method of cryptography known as "public key." A powerful feature of blockchains, and one that is essential to NFTs, is that because each block of transactions is cryptographically based on the previous block, they are immutable; meaning that for all practical purposes historical records cannot be altered.

Blockchain transactions are also transparent such that anyone can observe all transfers of an asset from its point of creation, with each participant represented on-chain by their blockchain address—a string of alphanumeric characters. Importantly, there is not a single "blockchain" the way one might speak of a single internet. Rather, blockchain is a type of technological approach, and not all blockchains can necessarily interact with one another.

The Advent of NFTs

Most digital assets stored on blockchains, such as cryptocurrencies are fungible, meaning that like dollars, they are all the same. The idea of "non-fungible tokens," which came to fruition in 2017, was to generate blockchain tokens that were each unique and could be used as identifiers of specific assets. "Tokens" are somewhat of a misnomer, as NFTs are actually pieces of so-called "smart contract" computer code that reside on blockchains and include, among other fields, the NFT's unique ID and the blockchain address of its current owner. Given the transparency of a blockchain, anyone can view that address as well as the address of each owner since the creation or "minting" of the NFT.

NFTs became more widely adopted within the blockchain community in 2018 with the release of a common standard (ERC-721) for NFTs minted on the Ethereum blockchain. Such developments in standardization are critical to NFT adoption. For example, a commonly discussed NFT use case is a programmable royalty function that automatically transfers a specified amount of cryptocurrency to the on-chain wallet of the work's creator each time the NFT is transferred.

However, many NFT marketplaces have implemented incompatible approaches to royalties creating uncertainty as to whether royalties will be honored as NFTs are transferred across platforms. A royalty payment standard (EIP-2981) that would standardize royalties, at least for ERC-721 tokens, is currently in development. Still, standardization has its limits, as the standards adopted for one blockchain may be incompatible with those adopted for another.

The current boom in NFTs has been attributed to a number of factors, including a general revival of interest in collectibles, people at home during the pandemic, dispensable wealth of some cryptocurrency investors, and new marketplaces that have made minting, selling and purchasing NFTs easier.

Legal Issues Presented by NFTs

Jurisdiction and Applicable Law

A threshold legal question when discussing NFTs is which jurisdiction's laws should apply, especially given that certain relevant laws, such as copyright, may differ between jurisdictions. The question becomes more complex when one factors in a decentralized blockchain ecosystem as NFT transfers are often paid for in cryptocurrencies and can be effectuated without either party revealing any geographic-identifying information such as a shipping or billing address.

Although the terms of use for most NFT marketplaces include a governing law provision, that law would likely only apply to disputes arising between the user and the marketplace itself, and would not itself determine the governing law under which to assess rights in the work associated with the NFT. As the use of NFTs and blockchain technology expands, it will likely take a series of court cases, at least in the U.S., to establish a framework around how these issues are to be resolved, similar to the jurisdictional case law that developed during the early days of domain name adoption. We may also see NFTs develop such that the NFT's metadata specifies the applicable governing law for the NFT and its associated work.

The Issue of Persistence

Critically, while an NFT is stored on a blockchain, in many cases the work associated with the NFT is not—i.e., it is “off-chain”. This is because most blockchains are programmed to extract a fee, known as a “gas fee,” for storing or transferring files, and for the large files that comprise most digital works associated with an NFT that cost would be prohibitive.

Instead, most NFTs include a metadata field with a pointer or link to an off-chain resource where the associated work is stored. Thus, while the NFT might itself be immutable, the off-chain work may not have that same persistence. For example, an NFT might include a pointer to an online location, such as a URL, where the underlying work can be observed. The risk of location-based pointers is that the file at that location could be changed, much the way a website can change from one visit to the next. In a recent well-publicized case, a digital artist known as “Neitherconfirm” highlighted this persistence issue by changing the computer-generated portrait images associated with the NFTs the artist had sold into photos of carpets, simulating a scam known as a “rugpull.”

One solution is to use file storage systems that rely instead on content identification, such as the Interplanetary File System (IPFS), a peer-to-peer distributed file system. In a content identification system, files are identified through a Content ID — a cryptographic “hash” of the content—as opposed to where the file is located. If a creator modified its digital work, the modified work would generate a new Content ID, while the original file linked to the NFT would remain.

An NFT is therefore only as valuable as the persistence of its underlying work. For NFT purchasers this is a commercial risk issue. For creators, rights holders, and NFT marketplaces, this important technical point may effect a myriad of provisions in NFT-related agreements, such as risk factors to be disclosed and limitations on, or disclaimers of, liability.

Authentication Issues

A common misconception is that an NFT automatically provides an immutable certification of authenticity. In reality, while an NFT allows one to view the blockchain address of its original creator, some independent means of verification is required to know that the person or entity associated with that address is who they claim to be or had the appropriate rights in the associated work.

This may require direct interaction with the minter of the NFT (a solution that may not be scalable) or use of a trusted third party to authenticate that party. In all cases, those within an NFT ecosystem need to be cautious about explicit claims of authenticity. Some NFT marketplaces, such as SuperRare, address issues of authentication by controlling which artists can mint NFTs through their platform. Others, such as NBA Top Shot, are offered by a known entity (here, the NBA) providing comfort that the NFTs available for purchase are authentic. In many cases, however, NFT purchasers bear the risk of authenticity. For example, the OpenSea NFT marketplace cautions that the company "makes no claims about the identity, legitimacy, or authenticity of assets on the platform."

What Rights Are Being Acquired in the Underlying Work?

Purchasing an NFT does not provide the purchaser with ownership of intellectual property rights, particularly copyright rights, in the associated work. Under U.S. law, the copyright holder has the exclusive right to reproduce, prepare derivative works of, publicly perform and publicly display the work. This "bundle of rights" can be held or licensed by the copyright holder in whole or in part, but critically, unless they are expressly assigned or licensed away, the rights remain with the copyright holder.

Some NFT marketplaces address this issue directly in their terms of use by informing purchasers that they are not acquiring any rights in the associated work, but if the marketplace or an NFT agreement is silent on this point, it means the copyright remains with the rights holder. It is also important to note that the intellectual property provisions included in many marketplaces' terms of use concern the marketplace's ownership rights in its own intellectual property, and the license the user has to those rights. These provisions should not be confused with the scope of rights an NFT purchaser may be acquiring in the associated work.

The first sale doctrine of U.S. copyright law would probably not dictate a different result. Under that doctrine, the owner of a physical copy of a copyrighted work has the right to sell or otherwise dispose of that copy, such as by reselling a book. Purchasers of NFTs may conclude that this doctrine provides comparable rights allowing them to mint NFTs of digital works they have purchased. However, the U.S. Copyright Office and at least one court decision—Capitol Records, LLC v. ReDigi Inc., No. 16-2321 (2nd Cir. Dec. 12, 2018)—have concluded that the first sale doctrine does not necessarily apply to digital works given that each digital transfer effectively creates a new copy of the work.

While ownership of an NFT might not include any copyright rights in the associated work, an NFT owner's ability to authenticate themselves cryptographically on a blockchain could provide a type of passkey to allow the owner to access physical goods or experiences. For example, the Kings of Leon auctioned an NFT that included four front row tickets to one Kings of Leon headline show per tour anywhere in the world, a meet and greet with the band, tour merchandise, and use of an SUV limousine.

Determining the Appropriate Rights Holder

Anyone minting an NFT, be it an individual creator or an entity with a library of intellectual property assets, will need to determine whether they have the appropriate rights to do so. The creator, or in copyright parlance "author," of a work may not necessarily be the holder of the copyright in that work or have sufficient rights to tokenize that work into an NFT.

As a general matter, under U.S. law, copyright vests in the author(s) of a work with two exceptions: if a work is created by an employee in the course of their employment, copyright vests in the employer, and for certain limited categories of works, if the work is created by an independent contractor under a "work made for hire" agreement, copyright vests in the commissioning party.

In all other cases, the author must explicitly assign their copyright in a work for it to transfer. The nuance between whether the copyright in a work initially vested in a party or was assigned to it can have important repercussions. Assignors of a copyright have a "right of reversion" under which they can terminate the assignment and reclaim their copyright after 35 years.

While this may seem like a distant problem, purchasers of NFTs as collectibles or for long-term investment purposes may want to know whether the original author has a right of reversion. Those minting an NFT will also need to take into account whether there are joint authors or licensees who have applicable legal rights that could impact the minting of an NFT.

Many NFT marketplaces seek to protect themselves from issues of copyright ownership by requiring those minting NFTs to represent they have the appropriate rights, and by disclaiming any liability to purchasers if that proves not to be the case.

What Rights Are Required to Create an NFT?

One of the most interesting copyright questions presented by NFTs is what copyright rights are necessary to tokenize a work as an NFT. Where the minter of the NFT holds the entire bundle of rights, this is a non-issue. However, in cases where the bundle of rights has been dispersed amongst multiple parties, including through exclusive license arrangements, the answer may be less clear. The minting of an NFT requires at least some exercise of copyright rights since the work needs to be displayed, such as on a marketplace, so that the purchaser knows what they are acquiring. Video clips and music offered as NFTs may trigger performance rights. However, since the NFT typically does not include the transfer of any copyright rights in the underlying work, the scope of rights required to mint an NFT of a work may not be apparent.

In most cases, the parties will need to look back at agreements that memorialized the allocation of rights to determine who can authorize the creation of an NFT, keeping in mind that this might entail approval from multiple parties. These parties will also need to consider the commercial terms of these arrangements. For example, does a right to "commercialize" a work include the right to create an NFT?

Those seeking to mint or exploit an NFT must also consider the moral rights of the author of the associated work. The scope of moral rights are jurisdiction-specific but generally protect certain noneconomic rights of the author. While in the U.S. such rights are limited to visual works under the Visual Artists Rights Act of 1990 (VARA) and extend only to the right of attribution and integrity, in other jurisdictions it may include an author's control over whether and in what way their work is displayed and how it is used. Whether an author can seek to invoke their moral rights to prevent the creation of an NFT associated with their work remains to be seen, but should not be discounted.

Deciphering the NFT Licensing Approach

At present, the scope of rights an NFT purchaser obtains is largely dictated by the marketplace through which they acquired their NFT. In general, NFT marketplaces today are divided into two categories: those that offer curated content where the rights holder in the associated work has been authenticated, and those merely offering an exchange that matches buyers and sellers.

Disclosures regarding what the purchaser is acquiring and representations required from the seller will often depend on which model a marketplace has adopted. However, in all cases, rights holders and marketplace providers are best protected through explicit statements of the rights included with an NFT sale and those that are excluded.

For example, the SuperRare marketplace states that by minting NFTs on the platform, the artist grants to the purchaser a "limited, worldwide, non-assignable, non-sublicensable, royalty-free license to display the underlying work." That display right is limited, in part, to promoting or sharing the purchaser's "purchase, ownership, or interest" in the underlying work—e.g., through social media—promoting discussion of the work, displaying the work on marketplaces or exchanges in connection with selling the NFT, or displaying the work within decentralized virtual environments.

The terms for the NBA Top Shot NFT marketplace provides purchasers with a worldwide, non-exclusive, non-transferable, royalty-free license to use, copy and display their digital highlights (or Moments) solely for purchasers' personal non-commercial uses, as part of a marketplace to purchase and sell the Moments, or by displaying the Moments on third-party websites.

Other sites, take a broader, albeit more indirect approach. For example, Mintable never explicitly grant rights to the purchaser and instead states that the party minting the NFT "grants to each other user a worldwide, non-exclusive, royalty-free license to use, reproduce, distribute, prepare derivative works of, display and perform the underlying work."

The marketplace license may also limit how an underlying work may be used. For example, the NFT License 2.0, an open source form license developed by Dapper Labs—the group behind the early CryptoKitties NFTs and NBA Top Shot—prohibits the NFT owner from using the creative work in connection with media that depicts hatred, intolerance, or violence, or that otherwise infringes upon the rights of others, or for commercial purposes.

Most marketplaces also include a wide range of disclosures and risk factors that cover the use of blockchain technology, the potential regulatory issues with payment in cryptocurrency, and a variety of other technical and regulatory issues that minters of NFTs and purchasers should take into account. Knowledge of how blockchains and cryptocurrencies operate is often essential to appreciating the scope of these disclosures.

Incorporating NFTs into Agreements

Whenever a new technology is introduced, ranging from CD-ROMs to streaming, there is always a rush to incorporate that technology into the grant of rights sections of agreements. We can expect similar treatment of NFTs in a variety of agreements such as freelance agreements; agreements pursuant to which a copyright holder grants rights to a third party to exploit or commercialize their work; and agreements between talent—e.g., musicians, actors, athletes, or influencers—and an agency or representative.

However, merely adding "NFTs" to a litany of rights will likely fall short of addressing the underlying complexities of what NFT rights actually mean; where the NFT and associated content will be stored; and the growing number of ways NFTs can be structured. Contractual obligations to use commercially reasonable efforts to police and enforce a rights holder's intellectual property rights are also more complicated in the context of NFTs given, as discussed below, the limited ability to take-down unauthorized or infringing NFTs. The parties will also want to consider the inclusion of blockchain-specific disclosures and risk factors.

Enforcement by Rights Holders

New technologies to commercialize intellectual property rights also inevitably yield cases of infringement and piracy, and NFTs are no exception. Companies with robust intellectual property libraries may want to push out statements that any NFTs associated with their properties are unauthorized unless originating from the company, and educate their employees and freelancers about whether they have the right to mint NFTs of works they created for the company. For example, DC Comics cautioned its freelancers in a recent letter that was reported by the media that the offering for sale of any digital images that include DC's intellectual property with or without NFTs is not permitted.

Once an unauthorized NFT is minted, rights holders may face unique challenges to enforce their rights. Many NFT marketplaces, such as OpenSea and Nifty Gateway, allow copyright holders to submit take-down notices under the Digital Millennium Copyright Act ("DMCA") if they believe their work is being infringed.

However, a successful take-down likely only means the images of the work displayed on the marketplace will be removed. It does not mean that the infringing work is being deleted from whatever platform it may be stored on, and the rights holder would need to pursue those rights separately. The IPFS file storage system, for example, includes its own DMCA take-down process. Removal of the NFT itself will likely be impossible given the immutability of blockchains; however, rights holders may take some comfort in the fact that an NFT pointing to a work that has been removed will likely have little value.

Remedies for NFT Purchasers

In the event a work associated with an NFT is taken down due to copyright infringement or otherwise, the rights of the NFT owner may be significantly limited. As an initial matter, locating the person or entity that minted the infringing NFT may be difficult given the fact that the blockchain only includes alphanumeric addresses of blockchain participants and the fact that the person could be located anywhere in the world.

In addition, most NFT marketplaces are careful to disclaim any liability for the authenticity or legitimacy of the NFTs offered on their sites and make abundantly clear that the purchaser is acquiring the NFT at their own risk. Some marketplaces, such as those that curate the creators whose works they offer, have mechanisms in place to try and minimize risk for the purchaser. For example, under the SuperRare terms and conditions, the artist is required to refund the NFT purchaser and/or SuperRare the entire portion of the Ether cryptocurrency received from the sale of a work removed because of a DMCA take-down request.

Conclusion

While much of the recent hype around NFTs has focused on the amounts paid for certain collectibles, NFTs present significant new opportunities for rights holders to monetize their works. Understanding the legal rights required to mint an NFT and careful drafting of agreements that cover NFTs will be an essential component of this evolving market.