

The Metaverse: From Science Fiction to Commercial Reality—Protecting Intellectual Property in the Virtual Landscape

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Introduction

The Metaverse, as technology often does, has deep roots in science fiction.

The term “Metaverse” itself comes from author Neal Stephenson’s 1992 novel *Snow Crash*, which describes it as an immersive world. When logged into the Metaverse, the character Hiro is “not actually here at all. He’s in a computer-generated universe that his computer is drawing onto his goggles and pumping into his earphones. In the lingo, this imaginary place is known as the Metaverse. Hiro spends a lot of time in the Metaverse.”¹ As described by Stephenson, the Metaverse is a computer-generated world, accessed with goggles and earphones and enabled by accurate-to-life graphical and audio user interfaces.² The Metaverse has much to offer to users, who are able to design, build, and own virtual real estate, and also engage in creative collaboration with other users. Of course, the Metaverse is also an ideal advertising space for corporations, with virtual billboards being seen by millions.³

Echoes of Stephenson’s conception of the Metaverse can still be seen today in how the metaverse is (or metaverses are) conceptualized.⁴ There is a critical difference, however: the advance of technology. Since Stephenson’s writing of *Snow Crash*, what was once only science fiction is now becoming increasingly technologically feasible and scientific fact. This change brings with it both new opportunities and new challenges for intellectual property. This article discusses the foundation of the metaverse, different visions of the (or a) metaverse, key components that define metaverses, IP rights, virtual objects which might be protected, and ways to protect virtual objects.

The Foundations of the Metaverse

In the decades after *Snow Crash*, various developments have continued to build a technological framework on which the metaverse is being built.

The metaverse first took a step towards reality with the launch of *Second Life*. Wasting no time, the team behind *Second Life* started working on their vision of a virtual world shortly after *Snow Crash*. Powered by the internet, *Second Life* was first launched in 2003 by Linden Lab. As the 2003 trailer defined it, *Second Life* was “a new society, a new world, created by you.”⁵ The 2003 trailer advertised that users would be able to “EXPLORE a world of surprise and adventure,” “CREATE anything you can imagine,” “COMPETE for fame, fortune or victory,” and “CONNECT with new and exciting people.”⁶ *Second Life* provides an

early example of a proprietary, centralized metaverse accessed through a computer display via the internet and designed to facilitate social interaction.

Soon thereafter, on the gaming side, Activision, Inc. (which would later merge with Blizzard Entertainment, Inc.—the company responsible for *World of Warcraft*—before being acquired by Microsoft Co.) launched *Call of Duty: United Offensive*—an early first-person shooter multiplayer expansion to the original *Call of Duty* game. While the original game had a multiplayer option, allowing players to participate in a virtual world shoot-out, the 2004 game introduced more and larger multiplayer maps, in-game vehicles, a variety of game modes, and an online ranking system.⁷ This expansion of the *Call of Duty*® franchise, by expanding the scope of multiplayer shooters, opened a new step in metaverse game play.

Coupled with these early examples of virtual worlds were developments in user controls. In 2006, Nintendo Co., Ltd. introduced its Wii® console, which utilized a handheld remote controller and nunchuk in conjunction with a sensor bar. This arrangement allowed its users to interact with the virtual game play on the screen far more than they were able to with existing keyboards, mice, and remote controls.⁸ Three-dimensional accelerometers in the controller and nunchuk, combined with controller tracking via the sensor bar, allowed the Wii console to track a user’s position and movement. This advance was an early step towards allowing users to become immersed in a virtual world involving game play, e.g., a tennis match or a dance off. Wii consoles also allowed users to individualize their Mii® avatars (virtual images of the player).

Thereafter, in 2010, Microsoft released the Kinect® for Xbox.® The device was a major step toward bringing a *Star Trek* style holodeck to life—with users not needing any controller other than their own bodies. Relying primarily on cameras and infrared sensors, a game player’s position and movement could be traced and used as interactive input to the Xbox platform.⁹

Meanwhile, also in 2010, Hollywood introduced *Caprica*, a limited run prequel to Michael Moore’s version of *Battlestar Galactica*. *Caprica* introduced a sophisticated version

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of the metaverse, called “Virtual World” or V-World.¹⁰ As one of the fandom pages for *Caprica* explains, the V-World is a virtual reality space created by the character Daniel Graystone.¹¹ His invention, the holoband (an advanced version of VR goggles), is used to access the V-World.¹² In the V-World, participants interact with the world and others via their avatars.¹³

Caprica’s vision of a holoband started to come to life, when Oculus VR, Inc., a virtual reality start-up that was acquired by Facebook Technologies, LLC in 2014, introduced its first virtual reality headset—the Oculus Rift®—in 2016.¹⁴ The headset offered a new, immersive portal to virtual worlds and metaverses as compared to the computer display originally used in *Second Life* back in 2003.

In the same year that the Oculus Rift was released, Niantic, Inc., the publisher of the popular Pokémon® game series, published *Pokémon Go*, an augmented reality mobile game.¹⁵ The game proved to be widely popular and sparked the imagination of how augmented reality could be used to supplement the real-world environment with virtual objects. Each user in *Pokémon Go* had its own avatar (or virtual representation), which was placed in a virtual map corresponding to a real-world geographic location.¹⁶ As users walked around, so did their avatars.¹⁷ The mobile game also offered an augmented reality (AR) mode,¹⁸ which displayed different Pokémon appearing in the real-world environment by superimposing them on the view taken in with the camera on a user’s device.¹⁹

The difference between the technologies involved in *Pokémon Go* and the Oculus Rift showcases the difference between what is known as augmented reality (AR) and virtual reality (VR). AR places virtual objects in actual space—such as virtual Pokémon in the real world. Advanced versions of AR would come close to the holodeck in *Star Trek*. In contrast, VR places the user in an immersive experience of a virtual world to potentially interact with others. This is what *Second Life* offered back in 2003 (albeit in primitive form), and as will be discussed later in

this article, what the metaverse is trying to offer today and promises to offer in the future.

In July 2017, Epic Games, Inc. released *Fortnite*, one of the most popular online video games today, and far more advanced than the original *Call of Duty* release or *Second Life* release from the early 2000s. As originally envisioned, *Fortnite* was a game where players would build forts and defend them against attacks of zombie armies or travel to distant virtual worlds.²⁰ Players could be joined by other players or develop their own automated players.²¹ Epic also developed a popular player-against-player mode.²²

In February 2019, *Fortnite* began to evolve from its game playing roots into a more immersive shared experience, with its first ever live concert by the band Marshmello,® attended by over 10 million players.²³ *Fortnite*’s virtual world (or metaverse) showcases that the opportunity for virtual shared experiences in the metaverse is constantly evolving. Like *Second Life*, *Fortnite* is a proprietary centralized metaverse, owned and controlled by Epic.

Around this time, in 2018, the movie *Ready Player One* was released, providing an even more compelling virtual world, as envisioned by director Steven Spielberg and author Ernest Cline. Set in the year 2045, the movie featured people seeking to escape from reality through a virtual reality entertainment universe called OASIS.²⁴ Users entered this interactive world using goggles like the Oculus Rift.²⁵ Users could also buy body armor which provides them with haptic feedback, so that when a user is hit in OASIS, they feel it in the real world.²⁶

This movie illustrated a dystopian view of a metaverse, but with immersive technology that, with the developments discussed, looked more like science fact than science fiction. Interestingly, work on this project began in 2010 around the same time that *Caprica* originally aired.²⁷

Today, *Second Life* continues to exist, albeit in a new and much more robust format. As revamped, *Second Life* is much closer to the *Ready Player One* version of a metaverse than its rudimentary roots.

Other tools that provide new interfaces into a virtual world continue to be created and refined. In 2020, with the pandemic, existing collaborative tools such as Zoom® and Microsoft Teams® became essential and a key part of daily human activity, including work, school, and social interactions. Using these collaborative video conferences, users can speak and work with friends and colleagues from remote locations in real time, share documents, send text messages and more. As a social and business tool, video conference technology is an early step in the direction of a collaborative work metaverse (as opposed to merely social or game play one), as will be discussed later in the article.

And earlier this year, technology titans continued to invest in even more corporate acquisitions to help capture key opportunities in the metaverse. For example, Microsoft announced that it is acquiring Activision Blizzard, Inc. (the owner of the Call of Duty franchise and other metaverse games) for \$69 billion.²⁸ No doubt more is to come.

This history illustrates the many roads that have led to what this article considers to be the metaverse—a virtual reality of creation, gaming, and collaboration; the product of technological progress, innovative systems, and the ongoing discourse between fiction and reality.

Different Visions of “the” or “a” Metaverse

With this background, it is important to keep in mind some of the competing visions of what should be “the” metaverse, versus what constitutes “a” metaverse. As is apparent, there is currently no single metaverse, and there are several players in the field. Meta Platforms, Inc. (“Meta”) and Microsoft are both pursuing corporate (and proprietary) metaverses, whereas The Sandbox and Decentraland are creating decentralized metaverses that are developed and governed by the users.

Proprietary Metaverses: Meta’s Vision and Microsoft’s Mesh

In October 2021, Mark Zuckerberg made a very public announcement that Facebook would be rebranding as Meta, representing a commitment to its own metaverse.²⁹ At the same time, in his October 2021 keynote speech at Connect 2021, Zuckerberg shared his vision of what the metaverse is, what it should be, and how Meta wants to implement it.³⁰ In the hour-long video, his vision comes straight out of a science fiction book or video like *Ready Player One* or *Caprica*, combined with the key investments Meta has been making over the past decade.

Meta introduced its vision of the basic concepts of the metaverse as including several different elements. Meta wants users to have a feeling of presence, allowing users to feel like they are physically present in the metaverse by enabling interaction with the environment as well as other users. To enable this, Meta’s vision includes giving users a selection of avatars (virtual representations for each individual), as well as a home space (and presumably other

public spaces) to give users the ability to relax as well as entertain.³¹ In Meta’s world, users would not interact with the links between spaces, instead relying on “teleporting,” a quick means of traveling, to get between spaces.³²

One of the important goals of metaverses generally, including Meta’s, is virtual goods and services (such as concert tickets, outfits, and the like) available for purchase by consumers. This would also encompass virtual goods which correspond to real-life goods. A Meta user could, for example, teleport to a virtual store, similar in design to a real store, browse and purchase items, and have real-life versions sent to the user’s home. Meta’s vision also includes interoperability, or compatibility between different metaverses. This would allow items, avatars, and other goods purchased on Meta’s metaverse (or another metaverse) to be transferred between metaverses. This is not currently the case, and it will be interesting to see who ultimately decides the standards for interoperability: Meta or the marketplace in general. Beyond implementing interoperability, Meta also hopes to innovate by making user interfaces more “natural” by reducing reliance on conventional technology such as display screens, keyboards, mice, and even virtual goggles like the Oculus Rift.³³ Instead, Meta hopes to incorporate AR and other technologies to increase user presence.³⁴ Finally, Meta noted that it considered privacy and safety as one of the key elements of its metaverse.³⁵

Meta also discussed what it believed to be key goals and use cases for its metaverse.

First, Meta’s vision of the metaverse is the next step in social media and the internet, as a means for establishing and maintaining social connections. A key component is that the metaverse is “immersive”—users will feel as if they are together with others in the metaverse.³⁶ Second, like *Fortnite* (and the social clubs in *Caprica*), Meta envisions the metaverse as including both entertainment and gaming.³⁷ Third, reminiscent of the early Wii consoles with Wii remotes and nunchuks as interfaces, Meta’s vision of the metaverse also allows users to exercise and play games, like table tennis, with other users—many steps beyond what even Peloton® offers today. Last, Meta also seeks to enhance the work experience beyond Zoom and Microsoft Teams to allow immersive workspaces and classrooms.³⁸

Of course, commerce is likely to be a primary focus of Meta’s metaverse. Commerce includes both real-world devices, like the hardware interfaces that allow users access to the virtual world (including Oculus goggles and computers systems that provide access points to the metaverse), as well as virtual objects within the metaverse. Virtual objects are discussed below in greater depth with relation to the decentralized vision offered with blockchain technology later on.

While Meta discussed collaborative building of the metaverse, some might suspect that Meta is more concerned with control over the metaverse, including the

access points, virtual currency, and stores, than a decentralized collaborative vision shared by others. In this regard, Meta notes that interoperability is a key component to develop the metaverse.³⁹ Interoperability was the same challenge computer manufacturers faced when building computers and the internet.

Meta is not the only corporation with a vision of a metaverse. Microsoft is also developing its own version of a metaverse, called Mesh, building on its enterprise roots like Microsoft Teams and Office 365®.⁴⁰ Unlike Meta, Mesh is principally focused on providing a virtual space for workplace and educational collaboration.⁴¹ At the same time, with its Xbox platform and recent acquisition of the Activision Blizzard game franchises, it seems obvious that Microsoft also seeks to participate in the metaverse from its game playing entry points. Microsoft has not held the same sort of keynote speech as Meta regarding its vision of the metaverse, and while Microsoft has released some information, it is less clear exactly what it sees the metaverse as.

Crypto (Decentralized) Metaverses: Sandbox and Decentraland

In contrast to a private or centralized version of a metaverse, a crypto metaverse is decentralized and based on blockchain technologies. No one person or entity owns or controls a decentralized metaverse, as compared with proprietary metaverses.⁴² Governance tokens⁴³ and blockchain technology enable staking and a determination on how the metaverse will run. While this ideal may not always be realized in so-called decentralized metaverses, it nevertheless presents a significant distinction.

The Winklevoss brothers and their Gemini entities have helped to explain what crypto metaverses are. As their *Cryptopedia* (an online encyclopedia “designed to facilitate” public understanding of “the mechanisms and utility” of cryptocurrency by “providing free, high-quality crypto education to the world”⁴⁴) explains:

A metaverse is a shared, immersive virtual world in which players, usually represented by avatars, can interact with each other, construct experiences, and create in-world objects and landscapes. Metaverses typically have their own intrinsic economies and currencies, with which users can buy, sell, and trade digital real estate, items, avatar accessories, and more. You can experience the metaverse via a computer, virtual reality (VR) headset, or smartphone.⁴⁵

Key features of a crypto metaverse, as further explained by Gemini’s *Cryptopedia*, include decentralization, user governance, provable provenance (through non-fungible tokens, or NFTs), and real-world economic value.⁴⁶

The Sandbox is an existing crypto metaverse that users can participate in today. As its co-founder Sébastien Borget explains in a *Cryptopedia* article:

The Sandbox is a decentralized, community-driven virtual world where creators can design, share, and sell in-world assets. The Sandbox metaverse is one of several blockchain-based virtual worlds attempting to change the dynamics of the gaming market and reward creators for the value they produce through user-generated content.⁴⁷

Another existing crypto metaverse is Decentraland. *Cryptopedia* explains that:

Decentraland is a user-owned, Ethereum-based virtual world where you can play, explore, and interact with games and activities. You can also purchase parcels of land on which to build your own environments, marketplaces, and applications. Decentraland’s three native tokens—MANA, LAND, and Estate—all play a unique role in furnishing the Decentraland economy. The platform is governed by its users through the Decentraland DAO, a decentralized autonomous organization.⁴⁸

In particular, Decentraland is a virtual world that is integrated with Ethereum. On the Decentraland platform, users can explore a multifaceted, user-generated landscape that incorporates real estate, gaming, and social media elements. MANA, an ERC-20 token, is the digital asset token used to pay for goods and services in Decentraland. Users can own virtual real-estate as well: LAND is a non-fungible ERC-721 token that represents the ownership of virtual land.

Key Components of the Metaverse

While the exact style of a metaverse may change between the different metaverse creators, the above discussion demonstrates that current conceptualizations share four key components.

First, a metaverse enables social connectivity. Users can interact with each other in an augmented reality and/or virtual reality, using their own avatars to represent themselves.

Second, metaverses provide virtual space. They are places where users can work, play, and interact. This can occur in different contexts, such as professional, educational and/or entertainment (e.g., virtual concerts, plays and/or games). In some metaverses, such as The Sandbox, digital space may be a limited resource, with only a certain number of private areas available for the entire world. Depending upon how users travel between spaces, rela-

tive locations between spaces can also become an important and valuable resource.

Third, metaverses can contain digital marketplaces. These digital marketplaces often allow entrepreneurs to bring creativity in exchange for a profit. Users can buy the latest avatars, clothing, and gadgets, often as NFTs, as discussed below.

Last, as even Mark Zuckerberg recognized, like the internet itself, interoperability is a key. In the crypto metaverse, NFTs are one vehicle that may be used to achieve this interoperability. Note, however, that interoperability is currently not implemented.

The Types of Law Applicable to the Metaverse

Like other forms of online and digital spaces, traditional forms of IP continue to apply in the new and evolving metaverse.

Copyrights. Original expressions of virtual objects can potentially be protected by copyright law, like any other digital objects. For example, NFTs used in the metaverse—such as accessories for digital avatars—may be eligible for copyright protection as pictorial or graphical works.⁴⁹ Copyright owners can make use of existing law, such as the DMCA, which can be used to remove infringing material from metaverse platforms.⁵⁰ Metaverses themselves have been sympathetic to rights owners—several different metaverses recognize that the copyright of an NFT resides in the creator of the token and will enforce copyright.⁵¹ The Sandbox, for example, notes that “it would be a violation of international copyright and trademark laws” to “make an ASSET of a [copyrighted] character.”⁵²

Additionally, users who upload their content to a metaverse platform may be inhibited in their capacity to control its use once uploaded due to clauses in the platform’s terms of service, which can grant broad licensing rights to the platform.⁵³

Trademarks. Goods and services which are made available in a metaverse can be protected with source identifiers like names, images, and sounds, using trademark law.

The U.S. Patent and Trademark Office has provided sample descriptions which cover goods and services related to the metaverse. For example, ostensibly to cover avatar accessories, the USPTO offers as a description of a class 9 good: “Downloadable virtual goods, namely, computer programs featuring {specify nature, type, e.g., articles of clothing} for use in online virtual worlds.”⁵⁴ To cover the marketplace for these goods, the USPTO gives as an example in class 35: “Retail store services featuring virtual goods, namely, {specify type, e.g., clothing} for use in online virtual worlds.”⁵⁵ These descriptions provide a good starting point for those seeking metaverse registration.

Various companies have begun to register their trademarks for metaverse protection, although they deviate from the USPTO’s description. For example, Nike has sought trademark protection for its NIKE mark in connection with “providing on-line, non-downloadable virtual footwear . . . for use in virtual environments.”⁵⁶ Meanwhile, Epic has sought protection for the mark FORTNITE PARTY ROYALE⁵⁷ in conjunction with providing virtual concerts, and successfully registered FORTNITE⁵⁸ in connection with providing digital goods in exchange for cryptocurrency.⁵⁹

That said, there may be complications. The Ninth Circuit has held that the First Amendment may offer protection for potential trademark infringers in the virtual context.⁶⁰ Finding that the use of a real-life strip club’s trademark and trade dress in *Grand Theft Auto* was subject to a First Amendment defense, the Ninth Circuit reasoned that the use of a trademark “in the body of the work” would not violate the Lanham Act unless it had “no artistic relevance to the underlying work whatsoever” or it was “explicitly mislead[ing] as to the source or the content of the work.”⁶¹ The Ninth Circuit considered the threshold for First Amendment protection to be a low one,⁶² and, given historic and continuing roots of metaverses in video games, this precedent may pose a challenge to those wishing to control use of their brand in the metaverse.

Patents. Innovative technology used to access and implement metaverses can potentially be protected by patent law.

Other. Other legal mechanisms like business torts, trade secret law, right of publicity, and contract law are also available to protect and enforce IP rights in the real world against violations with respect to virtual spaces.

For example, consider the right of publicity, which (where it exists) protects a person’s identity against commercial exploitation.⁶³ Metaverse terms of service may reinforce this right. However, given the dual creative-commercial character of the metaverse, it may be difficult to define the exact contours of what constitutes “commercial exploitation.” Relatedly, privacy rights, while important, may also be difficult to enforce. Terms of service frequently limit the rights which users of a site may have. The nature of NFTs and the blockchain as establishing a chain of title may likewise inhibit user privacy. At the same time, users are able to engage in self-help by anonymizing their online behavior by creating usernames or avatars which are dissimilar from their real-world identity. Finally, while some protections exist, users may also have difficulty in controlling the access and use of data by platforms.⁶⁴ While users retain control over their own content in most cases, they also, in nearly every case, agree to licensing as a condition for use of a metaverse platform.⁶⁵

In addition to traditional IP tools, smart contract in blockchain implementations, user rules, private dispute

mechanisms, and technological solutions also will offer new and different tools in future metaverses.

There is one significant advantage that users in the metaverse have for enforcing their rights: the ability to use smart contracts. In a traditional sales model, such as for a painting, there are transaction risks. For example, both the painting itself and the payment for the painting may be fraudulent. To reduce risks, parties often employ what can be costly measures, such as experts to verify authenticity and escrow accounts to hold money. What's more, an artist who sells their work may have limited means to further monetize it. Even if an artist seeks to include a clause in the sale stating he or she will receive a portion of the money of any future sale, the artist is forced to go to court to enforce it.

NFTs built on smart contracts provide another option. In future sales following the first sale of the NFT, the smart contract is capable of automatically sending some portion of the sale to the artist. The artist, thus, is able to profit off of his or her work's popularity. And, as opposed to traditional sales, due to the security of the blockchain, there is little to no risk of fraud or non-payment.

Virtual Objects in Virtual Worlds

This section considers various virtual objects which can exist in a metaverse and how intellectual property law rights and violations might arise.

Virtual Land. Just like in the real world, virtual worlds will have virtual spaces where avatars can live, work, play and/or be entertained. Such spaces may be public (like a public square in a city) or private (like a theatre, casino, store, or home.) In many metaverses these spaces can be bought and sold. For example, crypto metaverses like The Sandbox and Decentraland use NFTs as deeds to show ownership and maintain control over such spaces. Property ownership of such spaces is controlled using technology—e.g., NFTs and blockchain protection. But IP can also come into play, just like it does in the real world. For example, just like a store front in the real world may have signage (like Macy's® at Herald Square in New York City), a virtual plot can also have virtual signage like the Atari® plot in The Sandbox.⁶⁶ Thus, traditional notions of trademarks (and service marks) can also be applicable to virtual land and the use of marks with respect to goods and services offered in such space.

Avatars. Every user/participant in virtual worlds will have their own virtual representation (or avatar). A user may present themselves as video images, like in Zoom and Microsoft Teams, or as avatars, such as in relation to the Nintendo Wii. Avatars can be made to look like the user, as with bitmojis, or to bear no resemblance at all to the user, making it difficult to know the user's identity at first glance. Often times, avatars are or will be customizable, and accessories (perhaps as NFTs) like digital clothing or

digital apparel may be purchased to customize them further. In some cases, avatars themselves might be NFTs (like a Snoop Dogg avatar). Copyright can protect those who create avatars and/or avatar accessories from third parties making unauthorized copies or use of those "works." Similarly, the right of publicity may allow some to prevent their image from being used as an avatar without their authorization.⁶⁷ As with virtual land, traditional notions of IP can be applicable in the metaverse.

Virtual Services. Participants in virtual worlds will frequently offer virtual services, such as concerts, entertainment, and even game play. Just like how consumers will often purchase tickets to attend an in-person concert, users can purchase virtual objects to experience virtual services. For example, users on The Sandbox can purchase a pass (as an NFT) to access the Snoopverse, a part of The Sandbox where Snoop Dogg will perform a virtual concert.⁶⁸ As part of this, users can also purchase access to a private party with Snoop Dogg.⁶⁹ Like tickets in real life, the pass can be resold on the open market. As an advantage of the NFT, however, ownership can be traced back to the original seller, allowing for buyers and metaverse providers to be assured of the authenticity of any ticket.

Marketplaces. There are venues where virtual objects can be bought and sold as an NFT or other digital objects. These marketplaces can include LAND, avatars and accessories, and other virtual objects and/or virtual services (like tickets to the concerts discussed above). Selling virtual goods on these marketplaces is a major early opportunity that many real-world companies are seeking to participate in.⁷⁰

No one is a stranger to online shopping, but marketplaces for the metaverse are distinct from the average online site in one distinct way: choice of currency. Marketplace offerings for the metaverse rely upon cryptocurrencies and crypto tokens, instead of standard currency. SAND (used for The Sandbox) and Mana (used for Decentraland) are key tokens on the Ethereum blockchain that allow users to participate in their respective metaverses by purchasing NFTs. Ether, an underlying blockchain which supports smart contracts and other tokens, is the major rail underlying these, and other, cryptocurrencies.

Additionally, various utility tokens are being created to support the operations of the metaverse. Filecoin (FIL), an early cryptocurrency, was set up to tokenize decentralized disk storage. Render (RNDR) is a utility token that provides decentralized GPU usage for rendering graphics in the metaverse. A wide array of NFTs is also available to allow for the purchase and transfer of goods and services in the metaverse. These new virtual marketplaces represent an expansion of the standard idea of currency as well as the goods that one can purchase.

Conclusion: The Future of the Metaverse

The present is merely the beginning of the next generation of the Metaverse, and the IP implications are only beginning to be understood. It remains to be seen how these new virtual worlds will result in new opportunities and, unfortunately, pitfalls, for their participants.

Endnotes

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4. Note on style: this article refers to “the Metaverse” to refer to the conception in *Snow Crash*, and “the metaverse” to refer to all other conceptions.
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28. Subrat Patnaik and Supantha Mukherjee, *Microsoft to Gobble Up Activision in \$69 Billion Metaverse Bet*, Reuters (Jan. 19, 2022, 12:12 AM), <https://www.reuters.com/technology/microsoft-buy-activision-blizzard-deal-687-billion-2022-01-18/>.
29. *Introducing Meta: A Social Technology Company*, Meta (Oct. 28, 2021), <https://about.fb.com/news/2021/10/facebook-company-is-now-meta/>.
30. *Meta, The Metaverse and How We'll Build It Together—Connect 2021*, Youtube (Oct. 28, 2021), <https://www.youtube.com/watch?v=Uvufun6xer8>.
31. *Id.*
32. *Id.*
33. *Id.*
34. *Id.*
35. *Id.*
36. *Id.*
37. *Id.*
38. *Id.*
39. *Id.*
40. See *generally Home Page*, Mesh, <https://www.microsoft.com/en-us/mesh> (last accessed Feb. 4, 2022).
41. Mesh was originally targeted toward “people who work with 3D physical models,” and was designed to give designers and engineers a space to collaborate. John Roach, *Mesh for Microsoft Teams Aims to Make Collaboration in the 'Metaverse' Personal and Fun* (Nov. 2, 2021), <https://news.microsoft.com/innovation-stories/mesh-for-microsoft-teams/>. While Mesh also hopes to provide a space for all sorts of work and education, for now, its goals seem limited to facilitating professional collaboration. See *id*; see also Anastasiya Tarnouskaya, Qian Wen & Jim Walker, *What Is Microsoft Mesh?*, Microsoft Mesh (Preview) FAQ (Jan. 16, 2022) (<https://docs.microsoft.com/en-us/mesh/faq>).

42. Cryptopedia Staff, *What is a Crypto Metaverse?*, Cryptopedia (Dec. 23, 2021), <https://www.gemini.com/cryptopedia/what-is-metaverse-crypto-nft-game-blockchain>.
43. Holders of governance tokens are “are typically able to propose changes to the protocol as well as use their tokens to vote on those changes.” *Glossary: Governance Token*, Cryptopedia, <https://www.gemini.com/cryptopedia/glossary#governance-token> (last visited Feb. 24, 2022). In the ideal decentralized metaverse, these governance tokens thus ensure that changes to the metaverse occur more or less democratically.
44. *Our Mission*, Cryptopedia, <https://www.gemini.com/cryptopedia> (last accessed Feb. 24, 2022).
45. Cryptopedia Staff, *supra* n.43.
46. *Id.*
47. Sébastien Borget, *The Sandbox (SAND): Tokenized Assets for Gaming Ecosystems?*, Cryptopedia (Dec. 23, 2021), <https://www.gemini.com/cryptopedia/the-sandbox-sand-crypto-nft-virtual-world>.
48. Cryptopedia Staff, *Decentraland: A Virtual World Built on Ethereum*, Cryptopedia (Dec. 23, 2021), <https://www.gemini.com/cryptopedia/decentraland-defi-ethereum-based>.
49. 17 U.S.C. § 102(a).
50. See 17 U.S.C. § 512(c) (providing a safe harbor for service providers who act upon a takedown request by a copyright owner).
51. See, e.g., *Second Life Terms and Conditions*, LindenLab, <https://www.lindenlab.com/legal/second-life-terms-and-conditions> (last accessed Feb. 4, 2022); *Rights Ownership and Copyrights of Assets*, The Sandbox, <https://sandboxgame.gitbook.io/the-sandbox/assets/what-are-assets/rights-ownership-and-copyright-of-assets> (last accessed Feb. 4, 2022).
52. *Rights Ownership and Copyrights of Assets*, *supra* n.51 (“Can I make an ASSET of a Marvel / Disney / Pixar / Pokemon / Family Guy / Futurama / Other character which I do not own the rights to? No. This would be a violation of international copyright and trademark laws. Your ASSETS must be unique and must not depict characters that you do not own the intellectual property rights for.”).
53. For example, see *id.* When users “upload content to The Sandbox,” they grant it “a worldwide, non-exclusive, royalty-free, perpetual, irrevocable, sub-licensable (through multiple tiers), transferable right and license” to use and distribute the content, albeit for a limited purpose. *Id.*
54. *Trademark ID Manual*, USPTO, <https://idm-tmng.uspto.gov/id-master-list-public.html> (last accessed Feb. 18, 2022) (search for “virtual world”).
55. *Id.*
56. Trademark Serial No. 97/096,366.
57. Trademark Serial No. 88/907,828.
58. Trademark Serial No. 88/709,517.
59. SLART, registered by Richard Minsky, is an example of a trademark that was registered in connection with a virtual art gallery. Despite being enforced in court, see *Minsky v. Linden Research*, 1:08-CV-819, 2008 U.S. Dist. LEXIS 143547 (N.D.N.Y. Sept. 4, 2008), the mark was later cancelled after being voluntarily surrendered, see Paper Correspondence Outgoing, Reg. 77137283 (Apr. 7, 2009) (surrender of trademark).
60. See *E.S.S. Entm’t 2000, Inc. v. Rock Star Videos, Inc.*, 547 F.3d 1095 (9th Cir. 2008).
61. *Id.* at 1098.
62. *Id.* at 1100.
63. See Restatement (Third) of Unfair Competition: Appropriation of Trade Values §§ 46-49 (1995).
64. See *Internet Privacy Laws Revealed – How Your Personal Information is Protected Online*, Thomson Reuters, <https://legal.thomsonreuters.com/en/insights/articles/how-your-personal-information-is-protected-online> (last visited Feb. 17, 2022) (providing a brief overview of (the relatively sparse) internet privacy laws in the U.S.).
65. See *Rights Ownership and Copyrights of Assets*, *supra* n. 51.
66. *Map*, The Sandbox, <https://www.sandboxgame.com/en/map> (last visited Feb. 4, 2022). The Sandbox allows users to create “ESTATES,” which are combinations of smaller sized LANDs. On the map of The Sandbox, these ESTATES can appear as logos. *What are ESTATES?*, The Sandbox, <https://sandboxgame.gitbook.io/the-sandbox/land/what-is-land/what-are-estates> (last visited Feb. 4, 2022).
67. See the discussion in Section: IP Rights and Protection in Virtual Worlds.
68. *Market Listing for the Snoop Dogg NFT Collection*, <https://www.sandbox.game/en/shop/?collections=26> (last visited Feb. 4, 2022).
69. *Id.*
70. For examples, see Bernard Marr, *How Luxury Brands Are Making Money in The Metaverse*, Forbes (Jan 19, 2022, 1:56 AM), <https://www.forbes.com/sites/bernardmarr/2022/01/19/how-luxury-brands-are-making-money-in-the-metaverse/>.

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