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Intellectual Property in the Metaverse

By Kevin R. Casey

Neal Stephenson coined the term "metaverse" in his 1992 science fiction novel Snow Crash as a portmanteau of "meta" and "universe." The term is generally understood to mean beyond the universe. Having started with online video games, the metaverse has become a virtual-reality space in which users can interact with a computer-generated environment and other users to socialize, play, entertain and work. It is an immersive network of multiple 3D virtual worlds facilitated by the use of virtual reality (VR), augmented reality (AR) and artificial intelligence (AI).

Introduction

The metaverse is the next big thing in business and technology. According to Bloomberg, the global metaverse market is projected to reach US$800 billion by 2024. Proposed applications for metaverse technology include improving work productivity, interactive learning environments, e-commerce, real estate and fashion. The economy of the metaverse operates using contracts based on blockchain, payments made through cryptocurrencies and digital assets like virtual products and non-fungible tokens (NFTs). Users create such assets (user-generated content or UGC), which can be bought, sold and traded. These assets include the intellectual property of their owners. Commercialization of IP has already started in the metaverse, and IP owners are presented with both opportunities and challenges.

Patents

The metaverse is enabled by many technological innovations that can be and are being patented. Among the innovations are optical devices such as VR goggles, wearable devices and image and video processing and generation technologies. The fragmented nature of the metaverse has generated interoperability requirements, protocols and standards and provided the opportunity to create and patent connectivity and networking technologies. There is not one single metaverse; rather, multiple interoperable metaverses exist. A user's avatar can switch from one virtual world to another, visiting, for example, Roblox, where users can socialize and play games created by other users; The Sandbox, where users can interact, play, build and own 3D virtual worlds; Omniverse, where individuals and teams can build custom 3D pipelines and simulate large-scale virtual worlds; Decentraland where users can buy plots of land, customize and monetize them, and interact with other users; and HoloFair where users attend events, network, explore 3D environments and play. Patent offices around the world have seen an increase in metaverse-related patent applications. Consideration should be given both to protecting patentable developments and to ensuring that no third-party patents are infringed in the process of commercializing technologies.

Another interesting development at the intersection of the metaverse and patents is the use of NFTs to represent patents in the metaverse. An NFT can capture and certify the ownership of the patent. Thus, the NFT could reduce or even eliminate the

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costs when recording assignments of patents at various patent offices around the world. The NFT could also be used to notify a potential infringer of the existence of a patent which is important for patent owners when establishing damages for patent infringement. IBM and IPwe have already collaborated to create the infrastructure for an NFT-based patent marketplace.

One challenge for metaverse-related utility patents is that courts and patent offices have become less receptive to software patents. They sometimes hold that software as an implementation of an abstract idea is ineligible for patent protection. Design patents, which protect the ornamental features of utilitarian objects, have limited scope. Policing patent infringement in the metaverse also has practical difficulties. Software typically runs behind the scenes and proving infringement hinges upon a source code comparison. Thus, proof likely requires filing proceedings, obtaining disclosure and instructing experts. This process is expensive and time-consuming and risks the infringer simply rewriting the source code to avoid liability.

Trade Secrets

In light of the challenges faced by metaverse-related patents, businesses may prefer to protect their metaverse technology via trade secrets. Trade secrets protect information that is maintained as confidential through the implementation of reasonable measures, and that gives the owner a competitive advantage. The success of the metaverse hinges upon an understanding of both the physical world (a place, shop or product) and its users (their location, habits and interests). The metaverse can apply real-world features to a virtual environment, for example, enabling an avatar to visit digital versions of real-life places. Clearly, the operation of the metaverse will generate significant data. And AR/VR/AI technology will generate data of unparalleled granularity – not just measuring where a person clicks, but how they move. The data are extraordinarily valuable, and trade secrets may protect the data.

Among the challenges of metaverse-related trade secrets are that trade secret protection is relatively narrow and that trade secret misappropriation is often difficult to prove. The good news is that if the requirements are met, trade secrets can last indefinitely (the Coca-Cola formula has been protected as a trade secret for well over a century). The bad news is that because technology shifts so rapidly, one questions whether any particular trade secret will have long-term relevance.

Trademarks

Digital items comprised more than a $10 billion market in 2021. According to TurnTo Networks, 9 out of 10 consumers report that UGC influences their purchasing decisions. The best way to protect a brand in the metaverse is to register as a trademark the name, logo, trade dress (both packaging and product design) and any phrase or slogan used to promote virtual products and services. Therefore, not surprisingly, companies are already creating branded digital items, such as virtual Gucci bags for Roblox avatars. Nike has delved into the metaverse by building “Nikeland” on Roblox, and users can purchase Nike outfits for their avatars. McDonald’s has filed applications to register trademarks for virtual restaurants offering home delivery, and Walmart has applied to register trademarks for financial services “for use by members on an online community via a global computer network.”

Leveraging the metaverse has potentially significant advantages for brands, but reaching a wider audience comes with increased potential to infringe third-party rights as brands expand into new territories and new promotional services. Licensing terms should be reviewed to determine whether they cover metaverse plans and activities or whether an extension of coverage must be negotiated. Further, trademark owners have not been universally successful in preventing the infringing use of their trademarks in virtual worlds. The owner of the trademark HUMVEE was unable to prevent the use of its mark in Call of Duty games, for example, because the court determined that such use had “artistic relevance” and evoked “a sense of realism and lifelikeness” protected by the First Amendment. Still further, companies risk negative publicity and consumer backlash as trademark “bullies” if they are too aggressive in enforcing their trademarks. One alternative is to embed symbols of authenticity into digital goods to discourage counterfeits. Another alternative is to grant limited permissions for fan art and other UGC, such as allowing users to create works using brand IP but not for commercial use or financial benefit.

Copyrights

Copyright law protects original works of authorship, such as literary (books), dramatic (movies), musical (songs) and artistic (paintings) works. In the metaverse, copyright law usually applies to UGC, such as avatars, virtual buildings and digital artwork. Computer programs (source and object code) running the metaverse also may be copyright-protectable works. If a user creates something in the metaverse that is substantially similar to a copyrighted work in the real world, however, the user might infringe on the copyright. For example, if a user creates an avatar that is based on a copyrighted character, the owner of the copyright might file an infringement action. Copyrighted works are already being minted into NFTs, sometimes without the permission of the copyright owner.

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Broadly speaking, infringement of copyright in the metaverse should mirror infringement of copyright on the Internet. In most cases, virtual works can infringe on physical works, and vice versa, but complications arise in the metaverse. If a copyrighted work is created by a large number of metaverse users in different parts of the world and is constantly being developed, determining authorship and ownership of the copyright in that work at any given point in time is likely to be challenging. It also may be difficult to search metaverse platforms such as Decentraland and The Sandbox for copyright infringements. And, once found, infringing content cannot be deleted from the blockchain, so it is questionable how certain findings of infringement by a court can be enforced. Metaverse platforms may have takedown procedures that can assist enforcement efforts.

Metaverse terms of use pose another challenge to the commercialization of any form of IP in the metaverse. Before using the metaverse platform operated by a provider, the user may be required to register an account and accept the terms of use offered by the platform provider on a non-negotiable basis. It is important to carefully review the terms before accepting them. Under Roblox's terms of use, for example, a user who has generated new content on Roblox's platform grants Roblox a worldwide, perpetual, royalty-free and irrevocable right and exclusive license to exploit that content without charges. This IP license may be broad enough to deprive the user of any right to exploit the content inside and outside of Roblox.

Conclusion

Although we remain a long way from the full potential of the metaverse, the time to consider IP in the metaverse is now. There is little doubt that the metaverse will present new challenges for IP law. IP law has historically shown itself to be adaptable to new technologies, however, even if it has often taken time to catch up and has not always been well-received by all stakeholders. IP law will no doubt adapt again to the evolving challenges of the metaverse. One thing is for certain: businesses that ignore IP in the metaverse risk being left behind.

Non-Human IP Rights

By Kevin R. Casey

You might recall the "monkey selfie" copyright saga. Between 2011 and 2018, a series of disputes arose involving the copyright status of selfies taken by a monkey using equipment belonging to a British nature photographer named David Slater. Slater argued that he had a valid copyright claim because he engineered the situation that resulted in the photographs by traveling to Indonesia, befriending a group of wild macaques and setting up his camera equipment in such a way that a selfie picture might result. People for the Ethical Treatment of Animals (PETA) argued that the monkey should be awarded the copyright. In December 2014, the U.S. Copyright Office stated that neither was correct; rather, works created by a non-human, such as a photograph taken by a monkey, are not copyrightable. More specifically, the Office stated: "only works created by a human can be copyrighted under United States law, which excludes photographs and artwork created by animals or by machines without human intervention. ... Because copyright law is limited to 'original intellectual conceptions of the author,' the Office will refuse to register a claim if it determines that a human being did not create the work."

The Copyright Office's reference to "machines" foreshadowed IP questions raised by artificial intelligence (AI). AI is intelligence demonstrated by machines, as opposed to the natural intelligence displayed by animals and humans. AI is now being used to create inventions and artistic works without the involvement of human beings.

On Aug. 5, 2022, in *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022), the U.S. Court of Appeals for the Federal Circuit considered whether AI can be an inventor on a U.S. patent and answered "no." The court decided, as a matter of statutory interpretation, that the U.S. Patent Act requires that inventors listed on patent applications be natural persons.

The two inventions at issue in *Thaler* allegedly were developed solely by Dr. Stephen Thaler's AI system called "DABUS," which stands for "Device for the Autonomous Bootstrapping of Unified Sentience." Thaler has described DABUS as "a collection of source code or programming and a software program." Thaler filed two patent applications with the U.S. Patent and Trademark Office (PTO), listing DABUS as the sole inventor on both applications. In lieu of an inventor's last name, Thaler wrote on the applications that "the invention [was] generated by artificial intelligence." The PTO concluded that both applications lacked a valid inventor and, therefore, were incomplete. The PTO sent Thaler a Notice to File Missing Parts of Nonprovisional Application for each application and requested that Thaler identify valid inventors. After the PTO denied Thaler's petitions to vacate the

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Notices, Thaler pursued judicial review of the PTO's decisions in district court. The district court granted summary judgment to the PTO, concluding that an "inventor" under the U.S. Patent Act must be an "individual," and the plain meaning of "individual," as used in the statute, is a natural person. Thaler appealed to the Federal Circuit.

The question before the Federal Circuit in *Thaler* was "whether an AI software system can be an 'inventor' under the Patent Act." In answering this question, the Federal Circuit recited the statutory language, which defines an "inventor" of a patent as "the individual ... who invented or discovered the subject matter of the invention." The Federal Circuit observed, however, that the Patent Act does not define the word "individual." The Federal Circuit applied various principles of statutory interpretation to interpret "individual" and concluded that the U.S. Patent Act unambiguously "requires that inventors must be natural persons; that is, human beings."

The current state of the U.S. law regarding AI inventions is consistent with a growing body of decisions around the world finding that AI may not be an inventor. As it stands now, AI is not recognized as an inventor under the patent laws of the United States, Europe, and Australia. But that position is not uniform; the patent office of South Africa (the Companies and Intellectual Property Commission) allowed DABUS as an inventor. Whether patent laws will evolve to recognize AI as an inventor remains to be seen. Thaler and his supporters have argued that the laws must evolve in this fashion in order to encourage innovation.

Meanwhile, the owners of AI systems are not left without IP protection. If a human being uses AI to develop a solution or to verify an outcome, then this human being can be named the inventor. In addition, AI-related technologies can be protected as computer-implemented inventions. Thus, the primary question for patent applicants is not whether but how to apply for patent protection of AI-related inventions. The current answer to that question in the United States is that the applicant can only identify a human being – not AI – as the inventor.

IP Client Spotlight

COVATION BIO™

CovationBioStradley Ronon handles IP law (patents, trademarks, copyrights, trade secrets and related areas) matters for Covation Biomaterials LLC. Launched earlier this year (2022) as an independent business, following the acquisition of the DuPont Biomaterials business by the Huafon Group, CovationBio is a leading global innovator offering a product portfolio of high-performance, sustainable and bio-based materials. The company combines decades of world-class science and engineering with game-changing investment and manufacturing expertise to deliver novel solutions at scale across multiple industries, including apparel, carpeting, cosmetics, food and packaging. Through product lines such as Sorona®, Susterra® and Zemea®, the mission of CovationBio is to deliver sustainability at a scale that will enable customers to replace petroleum-based polymers with bio-based products accessible to everyone.

Stradley Ronon's IP attorneys worked closely with CovationBio representatives to transition CovationBio's worldwide patent and trademark portfolios following the acquisition by the Huafon Group, including the entry of active matters into Stradley Ronon's docketing system. Together, we have begun to address IP issues that arise for CovationBio and assisted in-house counsel with negotiating and drafting IP-related agreements. Stradley Ronon's ever-growing knowledge of CovationBio's needs and goals, and the bio-based product manufacturing industry in which CovationBio thrives, has already served both Stradley Ronon and CovationBio well. Stradley Ronon is also proud to assist CovationBio with a variety of non-IP work, including corporate governance, tax matters, litigation and general corporate counseling. CovationBio's General Counsel is Christina Kaba, a Stradley Ronon alumnus.

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