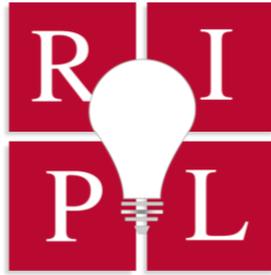


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IF THE METAVERSE IS BUILT, WILL COPYRIGHT CHALLENGES COME?

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ABSTRACT

The Metaverse has come under increasing media spotlight since October 2021, when Facebook rebranded itself as Meta. As part of its rebranding, Meta announced its plan to build the Metaverse—a new version of the Internet, where people can connect, work, play, and enjoy other activities, such as teleporting to ancient Rome. The announcement sparked explosive interest in the Metaverse. This article defines the Metaverse as the immersive Internet, where users are within three-dimensional online environment, using headsets or other equipment. Users need special digital agents (avatars) to represent them in the Metaverse. The article sheds light on some challenges that the Metaverse may raise for copyright law. One of the issues is whether the existing copyright framework may be applied to the Metaverse, or new rules may be necessary. The author argues that despite merging various technologies, the Metaverse should not require fundamental changes to copyright law. The existing copyright rules may regulate copyright issues on the Metaverse, at least on the initial stage of its development.



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LEVAN NANOBAHVILI*

I. INTRODUCTION

The Metaverse. This word has come under increasing media spotlight since October 2021, when Facebook rebranded itself as Meta.¹ As part of its rebranding, Meta announced its plan to build the Metaverse – a new version of the Internet, where people can connect, work, play, and enjoy other activities, such as teleporting to ancient Rome.² The announcement sparked explosive interest in the Metaverse, with many companies announcing their plans to invest in the new technology.³ Several months after the announcement, the attention to the Metaverse has started to fade. However, virtual Rome cannot be built in a day, and, according to some predictions, creation of the full scale Metaverse may take years, if not decades.⁴

What is the Metaverse? Is it a novel concept? Or is it the second life of already existing Internet platforms, such as, online game “Second Life”?⁵ Is the Metaverse rebranded Virtual Reality (“VR”) ? Perhaps the Metaverse is like a mythological Phoenix, born from the ashes of its predecessor online platforms, destined to live for a brief period, and to perish again.

It seems that there are as many definitions of the Metaverse as there are people discussing it. Some believe that the Metaverse already exists, in the form of online games and other Internet platforms.⁶ Others argue that the Metaverse is the

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¹ Denise Lee Yohn, *Facebook’s Rebrand Has a Fundamental Problem*, HARVARD BUSINESS REVIEW (Nov. 2, 2021), <https://hbr.org/2021/11/facebooks-rebrand-has-a-fundamental-problem>.

² See Meta, *The Metaverse and How We’ll Build It Together – Connect 2021*, YOUTUBE (Oct. 28, 2021), <https://www.youtube.com/watch?v=Uvufun6xer8> (noted in minute 31:40 through minute 32:08, on the Metaverse people can teleport not just to any place, but any time as well, for example, to ancient Rome).

³ Nina Aghadjanian, *These Brands Are Betting Big On The Metaverse*, ALIST (Feb. 25, 2022), <https://www.alistdaily.com/digital/brands-enter-the-metaverse/>.

⁴ See Mike Snider & Brett Molina, *Everyone wants to own the metaverse including Facebook and Microsoft. But what exactly is it?*, USA TODAY (Nov. 10, 2021), <https://www.usatoday.com/story/tech/2021/11/10/metaverse-what-is-it-explained-facebook-microsoft-meta-vr/6337635001/>; see also Jack Denton, *Mark Zuckerberg’s Metaverse May Take a Decade to Bloom. Wall Street Still Celebrated*, BARRONS (Apr. 28, 2022), <https://www.barrons.com/articles/mark-zuckerberg-metaverse-fb-stock-51651151274>.

⁵ Second Life, *Explore. Discover. Create.*, SECOND LIFE <https://secondlife.com> (last visited May 30, 2022).

⁶ Scott, *Facebook is late: the Metaverse already exists*, GLOBAL HAPPENINGS (Oct. 29, 2021), <https://globalhappenings.com/technology/30425.html>.

future of the Internet which may materialize after five, ten, or fifteen years.⁷ Through this article, I aim to add some clarity to the definition of the Metaverse and its copyright issues, without causing additional confusion. With this challenging meta-promise in mind, I will continue by discussing my understanding of the mysterious Metaverse and shedding light on various challenges that the Metaverse may raise for the area of copyright law.

Ultimately, everything genius is simple. The Metaverse is about *how* people experience the Internet. The Metaverse can be best described as the immersive Internet, where users are within a three-dimensional online environment, using headsets or other equipment.⁸ Current Internet experience is mostly two-dimensional, limited to screens of computers and mobile phone. As the Metaverse experience is immersive, users need special digital agents, or avatars, to represent them.⁹ This article will proceed based upon this understanding of the Metaverse.

“*Everything you can imagine is real.*”¹⁰ These words are often attributed to Pablo Picasso.¹¹ Maybe he was a dreamer, but he was not the only one. Neil Stephenson was also a dreamer who imagined the Metaverse in his dystopian science fiction novel *Snow Crash*, 1992.¹² In the Stephenson’s Metaverse people use digital avatars of themselves to interact in the online environment:

So, Hiro’s 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 lingvo, this imaginary place is known as the Metaverse. [...] Hiro is approaching the Street. It is the Broadway, the Champs Elysees of the Metaverse. It is the brilliantly lit boulevard that

⁷ John Mac Ghlionn & Brad Hamilton, *Metaverse clothing, travel, plastic surgery: Experts predict life in 2030*, N.Y. POST (Jan. 8, 2020), <https://nypost.com/2022/01/08/experts-predict-living-in-the-metaverse-by-2030/>.

⁸ Andrew Hayward, *What is the Metaverse? The Immersive, NFT-Powered Future Internet*, DECRYPT (Feb. 17, 2022), <https://decrypt.co/resources/what-is-the-metaverse-immersive-nft-virtual-world>.

⁹ Rachel Wolfson, *Digital identity in the Metaverse will be represented by avatars with utility*, COINTELEGRAPH (May 27, 2022), <https://cointelegraph.com/news/digital-identity-in-the-metaverse-will-be-represented-by-avatars-with-utility>.

¹⁰ See Jasper L. Tran, *To Bioprint or Not to Bioprint*, 17 N.C. J.L. & TECH. 123, 126 (2015).

¹¹ *Id.*

¹² NEIL STEPHENSON, *SNOW CRASH* 20 (2000). In this Article, the “Metaverse” is used with a capital “M,” for at least three reasons. First, by analogy with the “Internet” which is also used with a capital letter. Second, Neil Stephenson used “Metaverse” with a capital letter. And third, many authors use the capital “M” as well. *Id.*; see also VERNOT VINGE, *TRUE NAMES* (1981). Some argue that Stephenson’s vision goes back to Vinge’s series of William Gibson novels from the ’80s. *Id.*; see also MORTON HEILIG, *SENSORAMA* (1962). Both authors owe a debt to Heilig’s work. *Id.*; see also Ethan Zuckerman, *Hey Facebook, I made a Metaverse 27 Years Ago*, THE ATLANTIC (Oct. 29, 2021), <https://www.theatlantic.com/technology/archive/2021/10/facebook-metaverse-was-always-terrible/620546/>. Even prior to that, in 1935, the science fiction writer Stanley G. Weinbaum authored a short story “Pygmalion’s Spectacles,” describing a pair of goggles which allowed one to perceive a movie and experience its sight, sound, taste, smell, and touch. *Id.*; see also Stephen Johnson, *See The Future, Immersive Technology will Revolutionize Everything From Theme Parks to Daily Life*, BIG THINK (July 22, 2021), <https://bigthink.com/the-future/immersive-technology/#:~:text=July%202022%2C%202021-.Immersive%20technology%20will%20revolutionize%20everything%20from%20theme%20parks%20to%20daily.will%20change%20our%20lives%20forever.>

can be seen, miniaturized and backward, reflected in the lenses of his googles. It does not really exist. But right now, millions of people are walking up and down it.¹³

Many attempts have been made to create a *Snow Crash*-type digital world.¹⁴ However, for many years, technologies were not available for the full realization of Stephenson's vision.¹⁵ Various online games exist, but, according to some, none of them are close to the complexity and realism of the Metaverse described in *Snow Crash*.¹⁶

Various technologies have come together to make a full scale Metaverse possible. Augmented reality ("AR") and VR headsets are available with more power, more comfort, and at cheaper price.¹⁷ Blockchain supports digital currencies and non-fungible tokens (NFTs).¹⁸ New democratic ownership economy is possible where token-holders have voting rights and can participate in platform's governance.¹⁹ The foundation of the Metaverse seems to be developing faster than the Internet, which became mainstream in 1990s.²⁰

Technology is not the only reason behind the explosive interest in the Metaverse. The Covid-19 pandemic accelerated and deepened this digital transformation that has been steadily ongoing for years.²¹ Due to the pandemic, commerce, work, health, education, government services, court hearings, social interactions, and many other activities have fully moved to or have become more dependent upon the Internet.²² The pandemic has revealed the full potential of the

¹³ NEIL STEPHENSON, *SNOW CRASH* 20 (2000).

¹⁴ See Cory Ondrejka, *Escaping the Gilded Cage: User Created Content and Building the Metaverse*, 49 N.Y.L. SCH. L. REV. 81, 82 (2004).

¹⁵ *Id.*

¹⁶ *Id.* at 83.

¹⁷ Mark A. Lemley & Eugene Volokh, *Law, Virtual Reality, and Augmented Reality*, 166 U. PA. L. REV. 1051, 1054 (2018) (providing a description of AR); see also Thien Huynh, et al., *Artificial Intelligence for the Metaverse: A Survey*, ARXIV (2022), <https://arxiv.org/pdf/2202.10336.pdf>; Rachel Metz, *Why you Cannot have Legs in Virtual Reality (yet)*, CNN (Feb. 15, 2022), <https://www.cnn.com/2022/02/15/tech/vr-no-legs-explainer/index.html>; see also Microsoft, *Microsoft HoloLens 2*, MICROSOFT, <https://www.microsoft.com/en-us/hololens> (last visited May 30, 2022).

¹⁸ See Andres Guadamuz, *Non-fungible tokens (NFTs) and copyright*, WIPO MAGAZINE (Dec. 2021), https://www.wipo.int/wipo_magazine/en/2021/04/article_0007.html; see also Juliet M. Moringiello & Christopher K. Odinet, *The Property Law of Tokens*, 74 FLA L. REV. 1, 3-5 (forthcoming 2022).

¹⁹ Onyx by J.P.Morgan, *Opportunities in the metaverse*, JPMORGAN (2022) 5, <https://www.jpmorgan.com/content/dam/jpm/treasury-services/documents/opportunities-in-the-metaverse.pdf>.

²⁰ Michelai Graham, *Why the Metaverse Matters*, BOARDROOM (Dec. 7, 2021), <https://boardroom.tv/what-is-the-metaverse/>.

²¹ Hank Prybylski, *Two Years Into The Pandemic, Digital Transformation Is Moving Forward: Here's How*, FORBES (May 4, 2022), <https://www.forbes.com/sites/hankprybylski/2022/05/04/two-years-into-the-pandemic-digital-transformation-is-moving-forward-heres-how/?sh=8acd93147739>.

²² *Id.*; see also Rebecca Ruiz, *How a year of living online has changed us: Feeling different after spending the last year staring at a screen? Here's why.*, MASHABLE (Mar. 11, 2021), <https://mashable.com/article/covid-19-pandemic-internet-use>; see also Michael Legg & Anthony Song, *The Courts, the Remote Hearing and the Pandemic: From Action to Reflection*, 44 U.N.S.W.L.J. 126, 134 (2021) (regarding remote court hearings).

Internet, and most changes are already implemented and irreversible.²³ It is unlikely that society, businesses, or governments will fully return to their “pre-Covid” status.²⁴

Bloomberg estimates that the Metaverse may become an \$800 billion USD market opportunity by 2024.²⁵ After this estimate, it is not surprising that companies from around the globe have announced plans for entering the Metaverse; these companies include Walmart, Verizon, Gap, Nike, Hulu, Adidas, Atari, and others.²⁶ JP Morgan, a U.S. bank, is the first lender to arrive in the Metaverse, having opened a virtual lounge named “Onyx lounge” in Decentraland, a virtual world based on blockchain.²⁷ Accounting firm PricewaterhouseCoopers revealed that its Hong Kong unit acquired virtual real estate in the Sandbox (a virtual space where players can play, build, own, and monetize their virtual experiences).²⁸ Heineken presented its “digital beer” in the Decentraland.²⁹ The beer cannot be tasted, but, according to Heineken, the digital beverage still fulfils its main task by “bringing people together in one place.”³⁰

The idea of the Metaverse has been widely criticized, with some even comparing it to communist propaganda, which promised to build a bright and idealized future, and never materialized.³¹ According to another opinion, the Metaverse may be

²³ OECD, *Digital Transformation in the Age of COVID-19: Building Resilience and Bridging Divides*, DIGITAL ECONOMY OUTLOOK 2020 SUPPLEMENT, OECD (2020), www.oecd.org/digital/digital-economy-outlook-covid.pdf.

²⁴ James R. Bailey & Scheherazade Rehman, *How to Overcome Return-to-Office Resistance*, HARV. BUS. REV. (Feb. 14, 2022), <https://hbr.org/2022/02/how-to-overcome-return-to-office-resistance>. Many employees do not like the idea of returning to office after working remotely during the Covid-19 pandemic; some of these employees even prefer to resign. *Id.*

²⁵ Bloomberg Intelligence, *Metaverse may be \$800 billion market, next tech platform*, BLOOMBERG PROF'L SERVS. (Dec 1, 2021), <https://www.bloomberg.com/professional/blog/metaverse-may-be-800-billion-market-next-tech-platform/>; see also Investing News Network, *U.S. Consumer Video Game Spending Totaled \$60.4 Billion in 2021*, INVESTING NEWS (Jan. 18, 2022), <https://investingnews.com/u-s-consumer-video-game-spending-totaled-60-4-billion-in-2021/>. The “overall consumer spending on video games,” only in the U.S., “totaled USD 60.4 billion in 2021, an 8% increase over 2020.” *Id.*

²⁶ Onyx by J.P.Morgan, *supra* note 19, at 2; see also Jessica Golden, *Nike is quietly preparing for the metaverse*, CNBC (Nov. 2, 2021), <https://www.cnbc.com/2021/11/02/nike-is-quietly-preparing-for-the-metaverse.html>; Stefania Stimolo, *Nikeland: nearly 7 million people in the metaverse store*, THE CRYPTONOMIST (Mar. 23, 2022), <https://en.cryptonist.ch/2022/03/23/nikeland-nearly-7-million-people-shop-metaverse/>. Nike indicated that it intends to sell virtual branded sneakers and apparel in the Metaverse and filed several trademark applications; according to Nike, almost seven million people visited Nike’s shop in the Metaverse within five months from opening. *Id.*

²⁷ Ian Allison, *JPMorgan Is the First Bank Into the Metaverse, Looks at Business Opportunities*, COINDESK (Feb. 15, 2022), <https://www.coindesk.com/business/2022/02/15/jpmorgan-is-the-first-bank-into-the-metaverse-looks-at-business-opportunities/>.

²⁸ Mark Maurer, *Accounting Firms Scoop Up Virtual Land in the Metaverse*, WALL ST. J.: CFO J. (Jan. 7, 2022), <https://www.wsj.com/articles/accounting-firms-scoop-up-virtual-land-in-the-metaverse-11641599590>.

²⁹ Eleonora Spagnolo, *Heineken launches its beer in the Decentraland metaverse*, THE CRYPTONOMIST (Mar. 21, 2022), <https://en.cryptonist.ch/2022/03/21/heineken-launches-beer-decentraland-metaverse/>.

³⁰ *Id.*

³¹ Victor Tangermann, *CEO Born in Soviet Russia Says Metaverse Is Just Like Communist Propaganda*, FUTURISM (Jan. 12, 2022), https://futurism.com/metaverse-communist-propaganda?utm_campaign=trueanthem_AI&utm_medium=social&utm_source=facebook.

“opium for the masses.”³² Elon Musk, CEO of Tesla, is also skeptical about the future of the Metaverse.³³ Musk proposes his alternative: a chip developed by Neuralink, a company owned by Musk.³⁴ This chip would be surgically implanted into users’ brains taking users into a virtual reality.³⁵ After Musk’s proposal, the Internet-version Metaverse does not seem like a bad idea.

A question about the Metaverse is whether the existing copyright rules may be applied to this new technology. An alternate question is whether the Metaverse is so unique that the novel copyright regulation may be necessary. This article focuses solely on copyright law, even though the Metaverse may raise new challenges for various legal fields—particularly problems related to privacy of users and access to their behavioral data.³⁶

In this article, I argue that despite merging various technologies, the Metaverse should not require fundamental changes to copyright law. Existing copyright rules may regulate copyright issues within the Metaverse, at least in the initial stages of its development.

The Metaverse merges various technologies such as VR, AR, Artificial Intelligence (“AI”), blockchain, cryptocurrencies, NFTs, decentralized architecture, and others.³⁷ Looking to the variety and complexity of these technologies, the Metaverse appears intricate and challenging. Such complexity may be confusing and raise doubts about the possibility of regulating the Metaverse through existing copyright framework. However, instead of looking at Metaverse technologies, we can focus on the digital content which users may experience in the Metaverse. Such content may include mainly images, videos, text, and audio materials.³⁸ Copyright law has successfully regulated rights on such content for decades.³⁹ Because of this, such content will not be different from the content which currently exists on various Internet platforms and online games. This article does not claim that the Metaverse is the greatest challenge yet to copyright law. On the contrary, this article expresses strong faith in copyright law and its ability to survive the Metaverse challenge. What does not kill copyright law makes it stronger.

In this article, I will first discuss the definition of the Metaverse and its centralized or decentralized architecture. Next, this article will focus on the relationship between VR technology and the Metaverse, as well as opportunities and challenges associated with the Metaverse. Thirdly, this article will discuss the

³² Shirin Ghaffary, *Why you should care about Facebook’s big push into the metaverse*, VOX (Nov. 24, 2021), <https://www.vox.com/recode/22799665/facebook-metaverse-meta-zuckerberg-oculus-vr-ar>.

³³ Tangermann, *supra* note 31.

³⁴ Victor Tangermann, *Elon Musk Says the Metaverse Sucks and Neuralink Will Be Better*, FUTURISM (Dec. 22, 2021), <https://futurism.com/elon-musk-metaverse-sucks-neuralink-better>.

³⁵ *Id.*

³⁶ See Brittan Heller, *Watching Androids Dream of Electric Sheep: Immersive Technology, Biometric Psychography, and the Law*, 23 VAND. L. REV. 1, 27 (2021).

³⁷ See generally Matthew Ball, *Framework for the Metaverse*, MATTHEWBALL.VC (June 29, 2021), <https://www.matthewball.vc/the-metaverse-primer>.

³⁸ See Brooks Canavesi, *Past, Present, Future: How User-Generated Content Will Ignite the Metaverse*, ATD (May 25, 2022), <https://www.td.org/atd-blog/past-present-future-how-user-generated-content-will-ignite-the-metaverse>.

³⁹ See I. Trotter Hardy, *Not so Different: Tangible, Intangible, Digital, and Analog Works and Their Comparison for Copyright Purposes*, 26 U. DAYTON L. REV. 211, 233-36 (2001); see also SIMON STOKES, *DIGITAL COPYRIGHT: LAW AND PRACTICE* 28-30 (5th ed. 2019).

anticipated copyright challenges associated with the Metaverse, focusing on use of previously licensed copyrighted content on the Metaverse. Finally, this article will describe copyright issues related to the use of AI, development of software, and the use of blockchain technology on the Metaverse.

II. DISCUSSION

A. *The Metaverse*

This part of the article starts with the definition of the Metaverse, which is a difficult task as it does not yet fully exist. Thereafter, the article analyses possible centralized or decentralized architecture of the Metaverse. Subsequently, the article compares VR and the Metaverse. This section continues by discussing opportunities and challenges of the Metaverse. Finally, the article analyzes some anticipated copyright problems associated with the Metaverse.

1. *Definition of the Metaverse: Will I Know It When I See It?*

Describing the Metaverse in 2022 is like explaining the Internet in 1960s.⁴⁰ The comprehensive definition does not exist, like the Metaverse itself. In fact, everyone who talks about the Metaverse offers their own vision and interpretation of what it is.⁴¹ This article is no exception.

The term “Metaverse” is a portmanteau of two words: “meta” and “universe.” “Meta” (μετά) is a Greek word meaning “after,” or “beyond.”⁴² This word is often used in the scientific nomenclature as a prefix for names of certain disciplines, for example, metaphysics, metacriticism, and metafiction.⁴³ “Meta” also denotes transformation or a change, as used in metamorphosis.⁴⁴ Alternatively, “Metaverse” may mean “Meta’s universe,” i.e., the universe owned by Meta.⁴⁵ If we focus only on the pronunciation, “meta” sounds remarkably close to the Hebrew word for “dead.”⁴⁶ My sincere condolences, Meta.

⁴⁰ Tom K. Ara, et al., *Exploring the metaverse: What laws will apply?*, DLA PIPER (Feb. 22, 2022), <https://www.dlapiper.com/en/us/insights/publications/2022/02/exploring-the-metaverse/>.

⁴¹ Cointelegraph, *What is metaverse in blockchain? A beginner’s guide on an internet-enabled virtual world*, COINTELEGRAPH (2022), <https://cointelegraph.com/metaverse-for-beginners/what-is-metaverse-in-blockchain-a-beginners-guide-on-an-internet-enabled-virtual-world>.

⁴² Merriam-Webster, *Words We’re Watching: That’s So Meta – Things are about to get meta*, MERRIAM-WEBSTER (Jan. 2019), <https://www.merriam-webster.com/words-at-play/meta-adjective-self-referential>; see also Online Etymology Dictionary, *Meta-*, ETYMONLINE <https://www.etymonline.com/word/meta-> (last visited May 30, 2022).

⁴³ *Id.*

⁴⁴ Merriam-Webster, *Metamorphosis*, MERRIAM-WEBSTER DICTIONARY <https://www.merriam-webster.com/dictionary/metamorphosis> (last visited May 30, 2022).

⁴⁵ See Zuckerman, *supra* note 12.

⁴⁶ BBC News, *Meta: Facebook’s new name ridiculed by Hebrew speakers*, BBC (Oct. 29, 2021), <https://www.bbc.com/news/world-59090067>.

Existing definitions of the Metaverse can be divided into two main groups. The first one suggests that the Metaverse is the future of the Internet, which may materialize in five or more years.⁴⁷ This view is shared by Mark Zuckerberg, who believes that "[t]he best way to understand the Metaverse is to experience it yourself, but it is a little tough because it does not fully exist yet."⁴⁸ According to the second approach, the Metaverse technology already exists, in the form of various online games and Internet platforms based upon VR technology.⁴⁹

It is true that some immersive online platforms and virtual games already exist; however, it may be questioned as to whether they are real Metaverse.⁵⁰ Most of our online platforms and virtual games are "cartoonish," and user experience is awkward.⁵¹ For example, users' avatars are often legless.⁵² Legs are coming but they are lagging.⁵³

Why do we need the term "Metaverse" and why do we not just use the term the "Internet" instead—especially if the Metaverse is viewed as the future of the Internet? According to Matthew Ball, "[u]sing the [M]etaverse as a distinctive descriptor allows us to understand the enormity of that change and in turn, the opportunity for disruption."⁵⁴ While the Metaverse may cause important changes, it seems that the new term has many advantages related to other aspects of this new technology. First of all, the Metaverse may allow Meta to shake off negative public opinion associated with its social media platform, Facebook.⁵⁵ Moreover, as Joan Donovan suggests, "[a]s long as you can make technology seem fresh and new and cool, you can avoid regulation. And you can run defense on that for several years before the government can catch up."⁵⁶ Regardless of any specific reason, it seems that the term Metaverse has already established itself and it is here to stay.

The Metaverse is sometimes described as the "natural evolution of Web 3.0."⁵⁷ In order to explain this view, Internet history may be divided into three phases, with each developing gradually and without well-defined borders. The original Web 1.0 was based upon a client-server model where users only passively consumed read-only

⁴⁷ Ghlionn & Hamilton, *supra* note 7.

⁴⁸ Meta, *supra* note 2 (see minute 03:18 through minute 03:23).

⁴⁹ Geri Mileva, *Top 10 Metaverse Games to Immerse Yourself Into (2022)*, INFLUENCER MARKETING HUB (Mar. 1, 2021), <https://influencermarketinghub.com/top-metaverse-games/>.

⁵⁰ *Id.* Such games are, for example, "Axie Infinity," "Decentraland," "Sandbox," and "Alien Worlds."

⁵¹ Ghaffary, *supra* note 32.

⁵² *Id.*

⁵³ See Wall St. J., *Trapped in the Metaverse: Here's What 24 Hours in VR Feels Like*, YOUTUBE (Nov. 12, 2021), <https://www.youtube.com/watch?v=rtLTZUaMSDQ&t> (see minute 5:36 through minute 5:49).

⁵⁴ Adi Robertson and Jay Peters, *What Is the Metaverse, and Do I Have to Care?*, THE VERGE (Oct. 4, 2021), <https://www.theverge.com/22701104/metaverse-explained-fortnite-roblox-facebook-horizon>.

⁵⁵ *Id.*

⁵⁶ Elizabeth Dwoskin et al., *How Facebook's 'metaverse' became a political strategy in Washington*, WASH. POST: TECH. (Sept. 24, 2021), https://www.washingtonpost.com/technology/2021/09/24/facebook-washington-strategy-metaverse/?utm_medium=social&utm_campaign=wp_main&utm_source=twitter.

⁵⁷ Thought Leadership, *Metaverse: the natural evolution to Web 3.0*, WAMDA (May 18, 2022), <https://www.wamda.com/2022/05/metaverse-natural-evolution-web-3>.

content.⁵⁸ In Web 2.0, which is currently dominant, users interact with each other, create, and share Internet content.⁵⁹ However, corporations, such as Meta, Google, Microsoft and others, own such content and extract monetary value from it.⁶⁰ Users do not benefit from content which they created or personal information they shared with such corporations.⁶¹ Lastly, Web 3.0 is viewed as the future of the Internet, with users being both producers of content and beneficiaries of it.⁶² Moreover, Web 3.0 promises “decentralization” and “disintermediation” (i.e., disappearance of intermediaries which facilitate the Internet communication on the current Web 2.0).⁶³ As a result, users should be able to own their content and control the flow of information on Web 3.0. As Internet entrepreneur Jason Calacanis predicted in 2007, Web 3.0 would be “a return to what was great about media and technology before Web 2.0: recognizing talent and expertise, the ownership of one’s words, and fairness.”⁶⁴

Is the Metaverse really Web 3.0? If not, what is the difference between the two? The prevailing view is that the two concepts are different. Firstly, Web 3.0 focuses more on who owns and controls the Internet content.⁶⁵ However, the Metaverse focuses on how users experience the Internet.⁶⁶ The Metaverse can be defined as the immersive environment, where users not only see three-dimensional virtual world, but they are in that environment, represented by their avatars.⁶⁷ Secondly, the Metaverse may be either centralized or decentralized, as discussed in more detail in the subsequent part of this article.⁶⁸ However, Web 3.0 is viewed as decentralized and based upon blockchain, granting users control over their data.⁶⁹

The Metaverse promises to blur the line between the real world and virtual reality.⁷⁰ However, can a human brain be tricked into believing that the virtual world is real? According to some arguments, it can be. Such possibility was illustrated by a

⁵⁸ See Nupur Choudhury, *World Wide Web and Its Journey from Web 1.0 to Web 4.0*, 5 INT’L J. COMP. SCI. INF. TECH. 6 8090, 8096-8100 (2014).

⁵⁹ See Lisa Veasman, *Piggy Backing on the Web 2.0 Internet: Copyright Liability and Web 2.0 Mashups*, 30 HASTINGS COMM. & ENT. L.J. 311, 314-15 (2008); see also Jeffrey Zeldman, *Web 3.0*, A LIST APART (Jan. 17, 2006), <https://alistapart.com/article/web3point0/>.

⁶⁰ Kurt Ivy, *From Web 2.0 to Web 3.0: How These Entrepreneurs Made the Switch*, ENTREPRENEUR (June 8, 2022), <https://www.entrepreneur.com/article/42701>.

⁶¹ See Jackie Wiles, *What Is Web3?*, GARTNER (Feb. 15, 2022), <https://www.gartner.com/en/articles/what-is-web3>.

⁶² Tonya M. Evans, *Cryptokitties, Cryptography, and Copyright*, 47 AIPLA Q. J. 219, 231 (2019); see also George Bouchagiar, *Privacy and Web 3.0: Implementing Trust and Learning from Social Networks*, 10 REV. EUR. STUD. 16, 19 (2018).

⁶³ *Id.*

⁶⁴ Jason Calacanis, *Web 3.0, the “official” definition.*, CALACANIS (Oct. 3, 2007), <https://calacanis.com/2007/10/03/web-3-0-the-official-definition/>.

⁶⁵ PixelPlex Team, *Decentralized Economy – the Role of Blockchain in the Metaverse*, PIXELPLEX (Feb. 9, 2022), <https://pixelplex.io/blog/importance-of-blockchain-in-metaverse/>.

⁶⁶ *Id.*

⁶⁷ Wolfson, *supra* note 9.

⁶⁸ See Brooks Canavesi, *The Foundation of The Metaverse: Centralization Versus Decentralization*, THE AI BLOG (Jan. 19, 2022), <https://blog.alleninteractions.com/the-foundation-of-the-metaverse-centralization-versus-decentralization>.

⁶⁹ *Id.*

⁷⁰ See Lemley & Volokh, *supra* note 17, at 1136. According to cognitive research, users of VR often act in the same way as in the real world. *Id.* See also Gilad Yadin, *Virtual Reality Exceptionalism*, 20 VAND. J. ENT. & TECH. L. 839, 842 (2018).

so called “rubber hand illusion.”⁷¹ Researchers asked a person to sit down at a table with a rubber hand where a person’s real hand would be.⁷² Researchers simultaneously touched the rubber hand and a person’s real hand, tricking the brain into thinking the signal came from the rubber hand.⁷³ As a result, the human brain established connection with the rubber hand.⁷⁴ The researchers struck the rubber hand with a knife, causing stress for the person.⁷⁵ This experiment proves that the human brain is not perfect and can sometimes confuse reality with an illusion. As a result, the brain can view the Metaverse experience as a real-life event.⁷⁶ Moreover, the harassment and other improper behavior directed at users’ avatars on the Metaverse may cause the same real-life stress.⁷⁷

The Metaverse will require special hardware such as a headset, a pair of goggles, a head-mounted device, a haptic suit, tactile-sensing gloves, smartwatches, servers for storage of big data, and other equipment which does not fully exist yet.⁷⁸ The Metaverse will also require high speed Internet to allow for uninterrupted transfers of big data.⁷⁹ Some of this hardware already exists, but some is in the process of development.⁸⁰ Current developments in all necessary hardware supports the understanding that the Metaverse does not yet exist.

In 2014, Facebook bought Oculus, a producer of headsets for gamers for \$2 billion, and started working on the improvement of headset technology.⁸¹ According to

⁷¹ See Heller, *supra* note 36, at 21-2. This experiment was conducted for medical purposes about twenty-five years ago and it had nothing to do with the Internet or the Metaverse. *Id.*

⁷² See Joanna Aldhous, et al., *The Digital Rubber Hand Illusion*, BCS LEARNING AND DEVELOPMENT LTD. PROCEEDINGS OF BRITISH HCI, 2 (2017), <https://www.napier.ac.uk/~media/worktribe/output-847674/digital-rubber-hand-illusion-revised-version.pdf>.

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ Heller, *supra* note 36, at 22-3.

⁷⁶ *Id.*

⁷⁷ See Brittan Heller, *Reimagining Reality: Human Rights and Immersive Technology*, CARR CENTER FOR HUMAN RIGHTS POLICY HARVARD KENNEDY SCHOOL, 8 (2020), <https://carrcenter.hks.harvard.edu/publications/reimagining-reality-human-rights-and-immersive-technology>.

⁷⁸ See Andrew D. Kasnevich, *IP in the Metaverse: An Overview for Retailers in a New Landscape*, THE NAT. L. REV. (Mar 16, 2022), <https://www.natlawreview.com/article/ip-metaverse-overview-retailers-new-landscape>; see also Gregor Pryor & Stephen E. Sessa, *Reed Smith Guide to the Metaverse*, REEDSMITH, 5 (2022), <https://www.reedsmith.com/en/perspectives/metaverse>; Drake Baer, *The Real Reason Facebook Bought Oculus: Virtual Reality Will Be The On-Ramp To Optical Computing*, BUSINESS INSIDER (Nov. 20, 2014), <https://www.businessinsider.com/why-facebook-bought-oculus-2014-11>.

⁷⁹ See Doug Dawson, *Network Requirements for the Metaverse*, CIRCLEID (Mar. 12, 2022), <https://circleid.com/posts/20220312-network-requirements-for-the-metaverse>.

⁸⁰ See David Chen, *The Metaverse is Here...But is the Hardware Ready?*, SPICE WORKS (Mar. 14, 2022), <https://www.spiceworks.com/tech/hardware/guest-article/the-metaverse-is-here-but-is-the-hardware-ready/>; see also Adam Clark, *Facebook’s freaky new glove: Reality Labs is working on clothing that helps you feel things in the metaverse*, VOX (Nov. 17, 2021), <https://www.vox.com/recode/2021/11/17/22787191/facebook-meta-haptic-glove-metaverse>.

⁸¹ Molly Wood, *When Facebook bought Oculus did it make the VR firm less relevant?*, MARKETPLACE TECH (July 5, 2019), <https://www.marketplace.org/shows/marketplace-tech/when-facebook-bought-oculus-did-it-make-the-vr-firm-less-relevant/>; see also Megan Gordon, *THE METAVERSE: WHAT ARE THE LEGAL IMPLICATIONS?*, CLIFFORD CHANCE, 3 (2022), <https://www.cliffordchance.com/content/dam/cliffordchance/briefings/2022/02/the-metaverse-what->

some estimates, Meta sold 3.5 million headsets in 2020 and between 5.3-6.8 million in 2021.⁸²

Wall Street Journal conducted an experiment where a reporter used a headset to attend virtual meetings, online shows, and meet friends' avatars.⁸³ After spending the entire day wearing the headset, the reporter had a headache and eye pain.⁸⁴ According to one prediction, within a decade or more, the Metaverse equipment will be more comfortable and "virtual reality headsets will eventually shrink to the size of a pair of glasses."⁸⁵

Interaction in the Metaverse will require a 3-D avatar.⁸⁶ In general, avatars are a "virtual representation of the user, or of the user's alter ego or character, in the virtual world or the game."⁸⁷ Avatars may vary from a giant cat in a dress, to a medieval knight, to a cactus.⁸⁸ If we paraphrase one famous Internet-meme, on the Metaverse, nobody knows you are a dog, because the dog may have a human avatar.⁸⁹

One interesting example of an avatar is Wade Watts' avatar from the science fiction novel *Ready Player One*:

I'd designed my avatar's face and body to look, more or less, like my own. My avatar had a slightly smaller nose than me, and he was taller. And thinner. And more muscular. And he didn't have any teenage acne. But aside from these minor details, we looked more or less identical. The school's strictly enforced dress code required that all student avatars be human, and of the same gender and age as the student. No

[are-the-legal-implications.pdf](#); Ben Lang, *New Oculus Users Required to Use Facebook Account Starting in October, Existing Users by 2023*, ROAD TO VR (Aug. 18, 2020), <https://www.roadtovr.com/oculus-facebook-account-required-new-users-existing-users/>; Chip-Monks, *Why Facebook Bought Oculus VR For \$2 Billion*, MEDIUM (May 28, 2014), <https://medium.com/chip-monks/why-facebook-bought-oculus-vr-for-2-billion-1e34bc882362>. After Oculus, Meta acquired other companies working on VR technology, such as Unit 2 Games, Bigbox VR, Downpour Interactive, and Beat Games. Meta's acquisition of Oculus company was subject to the controversy whether Meta would require potential users of an Oculus headset to use Facebook account for accessing headsets. *Id.*

⁸² See Shawn Knight, *Oculus device sales estimated at nearly 7M units in 2021*, TECHSPOT (Jan. 3, 2022), <https://www.techspot.com/news/92833-oculus-device-sales-estimated-nearly-7m-units-2021.html>.

⁸³ Wall St. J., *supra* note 53.

⁸⁴ *Id.*

⁸⁵ Steven Tweedie, *Oculus CEO: Virtual Reality Headsets Will Eventually Shrink To A 'Set Of Sunglasses'*, BUSINESS INSIDER (Sept. 12, 2014), <https://www.businessinsider.com.au/interview-with-oculus-ceo-brendan-iribe-2014-9>.

⁸⁶ Stephenson, *supra* note 13, at 20. Neil Stephenson popularized the term "avatar" in his 2000 novel, *Snow Crash*. *Id.*

⁸⁷ Tyler T. Ochoa, *Who Owns an Avatar?: Copyright, Creativity, and Virtual Worlds*, 14 VAND. J. ENT. & TECH. L. 959, 961 (2012).

⁸⁸ See Parmy Olson, *It's Awkward Being a Woman in the Metaverse*, BLOOMBERG OPINION (Dec. 15, 2021), <https://www.bloomberg.com/opinion/articles/2021-12-15/the-metaverse-via-oculus-is-awkward-if-you-re-a-woman-and-beware-of-griefers?sref=YfHloOrL>.

⁸⁹ See Know Your Meme, *On the Internet, Nobody Knows You're a Dog*, KNOWYOURMEME <https://knowyourmeme.com/memes/on-the-internet-nobody-knows-youre-a-dog> (last visited May 30, 2022). "On the Internet, nobody knows you're a dog" is a meme regarding Internet anonymity which originates from Peter Steiner's cartoon published by The New Yorker in 1993. *Id.*

giant two-headed hermaphrodite demon unicorn avatars were allowed. Not on school grounds, anyway.⁹⁰

Avatars may raise issues of copyright ownership. Currently, most online game providers require players to agree on the provider's ownership of all copyrightable expression created during the game, and this requirement automatically applies to avatars.⁹¹ Such an approach may not work well in the Metaverse, considering possible interoperability between different Metaverse platforms and users' desire to freely move their avatars between platforms. Some websites already allow the creation of cross-platform avatars for various applications and games.⁹² However, some believe that having a single Metaverse avatar may be impossible, as each Meta-platform may create and run its own identity system.⁹³ This prediction is supported by the existing model of Internet accounts, none of which encapsulate the entire Internet.⁹⁴ Even though one avatar varying Metaverse platforms may be convenient, such technology may require a lot of effort from platform developers. Without clear benefits, developers may not be willing to invest in the "free movement of avatars."⁹⁵

Currently, it is unclear whether the Metaverse can have only one operator, such as the "Oasis" Metaverse in *Ready Player One*, or several operators.⁹⁶ A single operator is unlikely as various companies are already involved in the Metaverse rush.⁹⁷ It is likely that we will see many companies exercising various degrees of control over

⁹⁰ ERNEST CLINE, *READY PLAYER ONE* 28 (2011) (noting that the creation of an avatar which looks like a famous fictional character may raise copyright law concerns). *See also* Lemley and Volokh, *supra* note 17, at 1070. Avatars will need a name. *Id.* The following excerpt from *Ready Player One* may illustrate the potential problems which may arise regarding avatar's names,

You could give your OASIS avatar any name you liked, as long as it was unique. Meaning you had to pick a name that hadn't already been taken by someone else. Your avatar's name was also your e-mail address and chat ID, so you wanted it to be cool and easy to remember. Celebrities had been known to pay huge sums of money to buy an avatar name they wanted from a cyber-squatter who had already reserved it.

⁹¹ Ochoa, *supra* note 87, at 961, 964. There is a view applicable to online role-playing games that each avatar should be considered a joint work between the game provider and the user, as well as a contribution to a collective work (the game as a whole). *Id.* *See also* Meta, *Oculus Terms of Service*, FACEBOOK (April 11, 2022), <https://store.facebook.com/legal/quest/terms-for-oculus-account-users/>. "By submitting User Content through the Oculus Products, you grant us a worldwide, non-exclusive, transferable, royalty-free, and fully sublicensable (i.e. we can grant this right to others) right to use, copy, display, store, adapt, publicly perform, and distribute such User Content in connection with the Facebook Company Products [...]" *Id.*

⁹² *See* READY PLAYER ME, <https://readyplayer.me/> (last visited May 30, 2022).

⁹³ Matthew Ball, *The Metaverse: What it is, Where to Find it, and Who Will Build it*, MATTHEWBALL.VC (Jan. 13, 2020), <https://www.matthewball.vc/all/themetaverse>.

⁹⁴ *Id.*

⁹⁵ Adi Robertson & Jay Peters, *What Is The Metaverse, And Do I Have To Care?*, THE VERGE (Oct. 4, 2021), <https://www.theverge.com/22701104/metaverse-explained-fortnite-roblox-facebook-horizon>.

⁹⁶ Ball, *supra* note 93.

⁹⁷ XRToday, *Who is Building the Metaverse? A Group of 160+ Companies, and You*, XRTODAY (Dec. 7, 2021), <https://www.xrtoday.com/virtual-reality/who-is-building-the-metaverse-a-group-of-160-companies-and-you/>.

the distinct parts of the Metaverse.⁹⁸ Alternatively, certain parts of the Metaverse may be decentralized, with users having control and voting rights.⁹⁹

The important part of the Metaverse will be software, which will generate online environments, create visual effects, and control other aspects of the virtual experience.¹⁰⁰ Control over software means control over the Metaverse. Such software may be quite complex, involving computer-generated environments and AI.¹⁰¹

Many things may happen in the Metaverse in real time.¹⁰² Currently existing Web 2.0 technology allows for real time communication, such as chatting between users or responding to new content.¹⁰³ Concurrently, a substantial part of Internet content is stored on servers, and a user can access such content from a place and time chosen by the user.¹⁰⁴ For example, Internet users can watch a video uploaded on YouTube from almost any place where the Internet is accessible.¹⁰⁵ In addition to real-time experience, the Metaverse may allow access to stored content as well.¹⁰⁶

The Metaverse content will probably be created both by big corporations and users. According to some views on the Metaverse “[users] must be able to create truly new objects, to add value and innovate during the process of creation, and the market must be allowed to determine which creations have real value.”¹⁰⁷ Moreover, the Metaverse “will be so enormous that only distributed approaches to creation have any hope of generating its content, thus users must build the world they live in.”¹⁰⁸ Finally, users will be more engaged if they are allowed to create the Metaverse content.¹⁰⁹

⁹⁸ Jessica Goodfellow, *Who will control the metaverse?*, CAMPAIGN US (Nov. 2, 2021), <https://www.campaignlive.com/article/will-control-metaverse/1732106>.

⁹⁹ Justin Sun, *Why the future of the metaverse can only be decentralized*, DATADECISIONMAKERS (Mar. 5, 2022), <https://venturebeat.com/2022/03/05/why-the-future-of-the-metaverse-can-only-be-decentralized/>.

¹⁰⁰ Sam Reynolds, *Tech Giants Create Metaverse Standards Forum for Software and Terminology Standards Meta, Microsoft, Nvidia, Unity, Sony, and 30 other companies are coming together to build the infrastructure for an interoperable metaverse*, COINDESK (June 22, 2022), <https://www.coindesk.com/tech/2022/06/22/tech-giants-create-metaverse-standards-forum-for-software-and-terminology-standards/>.

¹⁰¹ Carlos Melendez, *The Metaverse: Driven By AI, Along With The Old Fashioned Kind Of Intelligence*, FORBES (April 18, 2022), <https://www.forbes.com/sites/forbestechcouncil/2022/04/18/the-metaverse-driven-by-ai-along-with-the-old-fashioned-kind-of-intelligence/?sh=6f4dd7c61b36>.

¹⁰² Ball *supra* note 37.

¹⁰³ See History Computer Staff, *Web 2.0 Explained: Everything You Need To Know*, HC (May 2, 2022), <https://history-computer.com/web-2-0/>.

¹⁰⁴ See generally WIPO COPYRIGHT TREATY, art. 8, Dec. 20, 1996, 2186 U.N.T.S. 121. This treaty has been in force for the US since March 06, 2002. *Id.*

¹⁰⁵ See Shubham Attri, *List Of Countries That Have Banned YouTube For Its Citizens*, DEASILEX (Nov. 9, 2022), <https://deasilex.com/countries-that-have-banned-youtube/>. YouTube is accessible almost at any place on the planet where the Internet is available. However, some countries have blocked it on their territories. *Id.*

¹⁰⁶ See Gregor Zavcer & Nicole Buckler, *Decentralized Storage: Why Metaverse-Builders Can't Ignore It*, BE[IN]CRYPTO (Feb. 9, 2022), <https://beincrypto.com/decentralized-storage-why-metaverse-builders-cant-ignore-it/>.

¹⁰⁷ Ondrejka, *supra* note 14, at 90.

¹⁰⁸ *Id.* at 101.

¹⁰⁹ Gene Park, *Epic Games believes the Internet is broken. This is their blueprint to fix it.*, THE WASHINGTON POST (Sept. 28, 2021), <https://www.washingtonpost.com/video-games/2021/09/28/epic-fortnite-metaverse-facebook/>.

Currently, online games, such as Minecraft, Roblox, Fortnite, and Second Life, exist.¹¹⁰ In these games, players may join or leave any time, and their game progress is saved and shared with other players.¹¹¹ These online games are often viewed as parts of the Metaverse or the Metaverse itself.¹¹² While games may exist on the Metaverse, they will not be the whole Metaverse.¹¹³ In addition to being an important gaming platform, the Metaverse will support activities such as work, travel, shopping, learning, and more.

Raphael Koster, a game designer, developed a taxonomy which may be helpful in distinguishing online worlds from the Metaverse.¹¹⁴ According to this taxonomy, “[o]nline worlds lead to multiverses which lead to metaverses. And just about no one has actual metaverses to offer right now.”¹¹⁵ Koster views the Metaverse as “a multiverse which interoperates more with the real world. In most conceptions, it includes significant elements of augmented reality – such as walking around a real city and seeing virtual things. It includes shopping at actual stores via VR interfaces.”¹¹⁶

The Metaverse would be intentionally designed to look, sound, and feel like the real world.¹¹⁷ According to some predictions, the Metaverse will mix digital content with the real world, allowing people to walk in a virtual London or New York City.¹¹⁸ If achieved, it may challenge the perception of the real, and “blur the cognitive line between imagery and physical presence,” as Lemley & Volokh stated regarding VR technology.¹¹⁹ Even though this statement was made about VR, it can be applied to the Metaverse.

The Metaverse will be a shared environment and may be experienced simultaneously by unlimited users who will have the sense of an individual presence.¹²⁰ This aspect of the Metaverse was envisioned by Stephenson when he described his vision of the Metaverse: “[the Street in the Metaverse] does not really

¹¹⁰ See Minecraft, *Welcome to Minecraft*, MINECRAFT, <https://www.minecraft.net/en-us> (last visited May 30, 2022); see Roblox, *Sign Up and Start Having Fun!*, ROBLOX, <https://www.roblox.com/> (last visited May 30, 2022); FTC, *What Are Fortnite, Roblox, Minecraft and Among Us? A Parent’s Guide to the Most Popular Online Games Kids Are Playing*, FTC: RESIDENTIAL (Oct. 5, 2021), <https://www.ftc.net/blog/what-are-fortnite-roblox-minecraft-and-among-us-a-parents-guide-to-the-most-popular-online-games-kids-are-playing/>; Joe Tidy, *Zuckerberg’s metaverse: Lessons from Second Life*, BBC (Nov. 5, 2021), <https://www.bbc.com/news/technology-59180273>.

¹¹¹ Monica J. White, *What is the metaverse? A deep dive into the ‘future of the internet’*, DIGITALTRENDS (Nov. 5, 2021), <https://www.digitaltrends.com/computing/what-is-the-metaverse-the-future-of-the-internet-explained/>.

¹¹² Ball, *supra* note 93.

¹¹³ Ball, *supra* note 37.

¹¹⁴ See Raph Koster, *Online world or metaverse?*, RAPH KOSTER’S WEBSITE (Sept. 2, 2021), <https://www.raphkoster.com/2021/09/02/online-world-or-metaverse/>. According to Raphael Koster’s taxonomy, “[i]n a real multiverse, there are multiple different [online] worlds connected in a network, which do not have a shared theme or ruleset. This lets you hop between very different worlds, with completely different types of experiences.” *Id.*

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ See Lemley & Volokh, *supra* note 17, at 1136.

¹¹⁸ See Pryor & Sessa, *supra* note 78, at 5.

¹¹⁹ See Lemley & Volokh, *supra* note 17, at 1136. According to cognitive research, users of VR often act in the same way as in the real world. *Id.*; see also Yadin, *supra* note 70, at 842.

¹²⁰ Stephenson, *supra* note 13, at 20.

exist. But right now, millions of people are walking up and down it.”¹²¹ Due to this, the Metaverse may become a place for virtual concerts and other mass events. Currently, various companies are developing technologies allowing virtual graduations, weddings, celebrations, and other mass events.¹²² In the Metaverse, there will be no limitation of the number of viewers and no necessity to travel to an event location.¹²³ Even the largest arenas in the world cannot accommodate audiences present at Metaverse events.¹²⁴ For example, Lil Nas X, Travis Scott, and Ariana Grande held online concerts on Internet game platforms attended by millions of people around the globe.¹²⁵

The Metaverse idea has been criticized and even viewed as the biggest disruption of our life.¹²⁶ Skeptics argue that virtual worlds have existed for years; however, most of them have been unsuccessful.¹²⁷ According to Dr. Thomas Furness, such “[technology] is just like the atom splitting. It can be used for helping mankind, lifting mankind, or it can be used for destroying mankind.”¹²⁸ According to Ethan Zuckerman, “Facebook’s promised metaverse is about distracting us from the world it’s helped break.”¹²⁹ The Metaverse should not and cannot be a solution to problems of the humanity or a place where we can hide from real life problems. We should also be mindful of the fact that most science fiction novels and Hollywood movies describe the Metaverse as a dystopian reality.¹³⁰

2. Centralized or Decentralized, That Is the Question

This section discusses the possible centralized or decentralized nature of the Metaverse. Both options are possible, and time will show which model of the Metaverse prevails. Alternatively, the Metaverse may combine both models.

¹²¹ Stephenson, *supra* note 13, at 20.

¹²² Clifford Chance, *THE METAVERSE: WHAT ARE THE LEGAL IMPLICATIONS?*, CLIFFORD CHANCE, 3 (2022), <https://www.cliffordchance.com/content/dam/cliffordchance/briefings/2022/02/the-metaverse-what-are-the-legal-implications.pdf>.

¹²³ Onyx by J.P. Morgan, *supra* note 19, at 9.

¹²⁴ Pryor & Sessa, *supra* note 78, at 22.

¹²⁵ Arda Ocal, *Billboard: Travis Scott's Astronomical drew more than 45 million viewers*, ESPN (July 24, 2020), https://www.espn.co.uk/esports/story/_/id/29532117/billboard-travis-scott-astronomical-drew-more-45-million-viewers; *see also* Ara, et al., *supra* note 40.

¹²⁶ Harry Robertson, *Jefferies predicts the metaverse will be the biggest disruption to how we live ever seen, as Wall Street gets excited about virtual worlds*, MARKETS INSIDER (Dec. 7, 2022), https://markets.businessinsider.com/news/stocks/metaverse-investing-wall-street-jefferies-land-sales-sandbox-crypto-nfts-2021-12?utm_medium=ingest&utm_source=markets.

¹²⁷ *Id.*

¹²⁸ *See* Heller, *supra* note 36, at 3 (noting that Dr. Thomas Furness is regarded as one of the first developers of immersive technologies).

¹²⁹ *See* Zuckerman, *supra* note 12. Ethan Zuckerman is a professor and the director of the Initiative for Digital Infrastructure at the University of Massachusetts. *Id.*; *see also* Victor Tangermann, *Facebook Shows Off Gloves That Allow You to "Feel" VR Objects*, FUTURISM (Nov. 17, 2021), <https://www.theatlantic.com/technology/archive/2021/10/facebook-metaverse-was-always-terrible/620546/>. “Perhaps Zuckerberg is showing off fun tech to replace reality because Facebook’s current reality is looking pretty grim.” *Id.*

¹³⁰ *See* Stephenson *supra* note 13, at 20; *see also* Cline, *supra* note 90.

The Metaverse may be decentralized and, hence, lack any governing authority.¹³¹ Such path resembles the early history of the Internet when some of the Internet's pioneers believed it had to be free from any intermediaries and control.¹³² In 1992, Timothy C. May wrote in "The Crypto Anarchist Manifesto" that computer technology could allow "individuals and groups to communicate and interact with each other in a totally anonymous manner."¹³³ May believed that technologies such as "public-key encryption, zero-knowledge interactive proof systems, and various software protocols for interaction, authentication, and verification" would fundamentally change the nature of governments, society, and corporations, as well as intellectual property.¹³⁴

A history showed that on the Internet, users could not interact without the help of one or more intermediaries.¹³⁵ Currently, "[a] significant distinguishing feature of the Internet is the fact that some form of intermediary is always involved in online interactions."¹³⁶ The existence of intermediaries affects conduct of the Internet users as they are often the most effective targets of injunctions and law suits.¹³⁷ Intermediaries can monitor and control users' conduct on their networks.¹³⁸ Moreover, the regulation of the Internet is possible, in part, by regulating intermediaries.¹³⁹ Three decades after the Internet's inception, Google, Facebook, Amazon, and other intermediaries have enormous power and control over the web.¹⁴⁰

Blockchain technology has revived the idea that the Internet may function without intermediaries or gate keepers.¹⁴¹ Blockchain is usually decentralized and supported by numerous computers (called "nodes" or "peers") located in different countries and connected through a peer-to-peer network.¹⁴² Such computers store identical or nearly identical copies of a blockchain and are coordinated by software.¹⁴³ Blockchain is usually not centrally maintained, meaning no single party can control it.¹⁴⁴ Web 3.0 is often predicted as decentralized by being based on the blockchain technology.¹⁴⁵

¹³¹ Canavesi, *supra* note 68.

¹³² See John Perry Barlow, *A Declaration of the Independence of Cyberspace*, EFF (Feb. 8, 1996), <https://www.eff.org/cyberspace-independence>.

¹³³ Timothy C. May, *The Crypto Anarchist Manifesto*, MIT (1988), <https://groups.csail.mit.edu/mac/classes/6.805/articles/crypto/cypherpunk/may-crypto-manifesto.html>.

¹³⁴ *Id.*

¹³⁵ JACQUELINE LIPTON, *RETHINKING CYBERLAW: A NEW VISION FOR INTERNET LAW* 9-10 (Edward Elgar Publ'g, 2015).

¹³⁶ *Id.*

¹³⁷ *Id.* at 10.

¹³⁸ *Id.*

¹³⁹ Yadin, *supra* note 70, at 845-46.

¹⁴⁰ See Jake Harfield, *Who Owns the Internet?*, MUO (June 29, 2021), <https://www.makeuseof.com/who-owns-the-internet/>.

¹⁴¹ Javad Zarrin, et al., *Blockchain for decentralization of internet: prospects, trends, and challenges*, CLUSTER COMPUTING 2842 (2021), <https://link.springer.com/content/pdf/10.1007/s10586-021-03301-8.pdf>.

¹⁴² PRIMAVERA DE FILIPPI, AARON WRIGHT, *BLOCKCHAIN AND THE LAW: THE RULE OF CODE 2* (Harv. Univ. Press, 2018).

¹⁴³ *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ Zarrin, et al., *supra* note 141, at 2843.

Blockchain technology does not always mean decentralization or “disintermediation.”¹⁴⁶ In some cases, such “disintermediation” may not be welcome.¹⁴⁷ For example, some blockchain platforms promise “disintermediation” regarding online music, in “relationship between artist and audience.”¹⁴⁸ However, often such platforms themselves assume the role of an intermediary.¹⁴⁹

According to some views, the “ideal” Metaverse shall be decentralized.¹⁵⁰ The Metaverse should offer not only “unparalleled user experience,” but also make users beneficiaries of the new platform.¹⁵¹ In the currently existing model of the Internet, , users often pay for the use of free platforms by their personal data.¹⁵² Platforms use such data for selling personally targeted advertisements to users and generating huge profits.¹⁵³ Many believe the Metaverse users should receive their share of the generated profit as a reward for their involvement in the decentralized platform.¹⁵⁴

Big companies will probably prefer the centralized architecture of the Metaverse.¹⁵⁵ The centralized Metaverse may raise challenges for an open Metaverse platform. For example, Epic Games CEO, Tim Sweeney, believes that “[t]he Metaverse is going to be far more pervasive and powerful than anything else. If one central company gains control of this, they will become more powerful than any government and be a god on Earth.”¹⁵⁶

Currently, big technological companies still have the choice to support the decentralized Metaverse or to support the creation of the “closed” systems with the aim of extracting value from users’ data.¹⁵⁷ However, in the latter case, users will probably stop using their platforms, because other Metaverse platforms may empower users to own their data and benefit from it.¹⁵⁸

The centralized or decentralized nature of the Metaverse may also depend on the nature of the software supporting the Metaverse. As any other software, such software may be open source, with various developers contributing to the platform’s development.¹⁵⁹ Or, alternatively, the software may be proprietary.¹⁶⁰ It is more likely

¹⁴⁶ Balazas Bodo, et al., *Blockchain and Smart Contracts: The Missing Link in Copyright Licensing*, 26 INT’L J.L. & INFO. TECH. 311, 318 (2018).

¹⁴⁷ *Id.* at 319.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

¹⁵⁰ See Sun, *supra* note 99.

¹⁵¹ *Id.*

¹⁵² Scott Goodson, *If You’re Not Paying For It, You Become The Product*, FORBES (Mar. 5, 2012), <https://www.forbes.com/sites/marketshare/2012/03/05/if-youre-not-paying-for-it-you-become-the-product/?sh=10db441c5d6e>.

¹⁵³ *Id.*

¹⁵⁴ Sun, *supra* note 99.

¹⁵⁵ Caleb & Brown, *The Metaverse Part 3: Centralised and Decentralised Metaverse*, CALEB & BROWN (Jan. 27, 2022), <https://www.calebandbrown.com/blog/the-metaverse-part-3-centralised-and-decentralised-metaverse>.

¹⁵⁶ See Know Your Meme, *The Metaverse*, KNOWYOURMEME <https://knowyourmeme.com/memes/cultures/the-metaverse> (last visited May 30, 2022).

¹⁵⁷ Sun, *supra* note 99.

¹⁵⁸ *Id.*

¹⁵⁹ Robert W. Gomulkiewicz, *De-Bugging Open Source Software Licensing*, 64 U. PITT. L. REV. 75,77-8 (2002).

¹⁶⁰ *Id.*

that the decentralized Metaverse will be based on open source, which anyone can study, change, and develop.

The final question in this section is how may decentralized and centralized Metaverses co-exist? The answer is unclear. It is possible that users may request such co-existence, forcing the creators of the Metaverse to establish it. For example, NFTs will probably play a significant role in the Metaverse.¹⁶¹ However, who would want to use NFTs in a closed, centralized Metaverse environment without being able to transfer them to another Metaverse platform?¹⁶²

3. Virtual Reality and the Metaverse

VR is the important technology on which the Metaverse will be based.¹⁶³ Creation of the term "virtual reality" is attributed to Jaron Lanier, an American computer scientist, who coined the term in the late 1980s.¹⁶⁴ *Merriam-Webster* defines VR as "an artificial environment which is experienced through sensory stimuli (such as sights and sounds) provided by a computer and in which one's actions partially determine what happens in the environment."¹⁶⁵

The term "VR" seems to be an oxymoron. On one hand, "virtual" means simulated, or unreal.¹⁶⁶ On the other hand, "VR" refers to "reality," i.e., something that is real.¹⁶⁷ How may something be simulated, unreal, and simultaneously real? This controversy may be clarified by giving "virtual" the meaning of "digital" or "electronic."¹⁶⁸

VR users have the illusion of walking, flying, and manipulating objects, in real time.¹⁶⁹ Moreover, users have the feeling of immersion and the ability to navigate in such environments.¹⁷⁰ VR is different from AR. While VR is fully immersive and places

¹⁶¹ Oleg Fonarov, *What Is The Role Of NFTs In The Metaverse?*, FORBES (Mar. 11, 2022), <https://www.forbes.com/sites/forbestechcouncil/2022/03/11/what-is-the-role-of-nfts-in-the-metaverse/?sh=7ad34d536bb8/>.

¹⁶² Sun, *supra* note 99.

¹⁶³ Saurabh Singh, *Metaverse: The future of (Virtual) reality*, FINANCIAL EXPRESS (Apr. 6, 2022), <https://www.financialexpress.com/industry/metaverse-the-future-of-virtual-reality/2483228/>.

¹⁶⁴ See Jonathan Steuer, *Defining Virtual Reality: Dimensions Determining Telepresence*, 42 J. COMM'N. 73, 75 (1992).

¹⁶⁵ Merriam-Webster, *Virtual Reality*, MERRIAM-WEBSTER ONLINE DICTIONARY <https://www.merriam-webster.com/dictionary/virtual%20reality> (last visited May 30, 2022).

¹⁶⁶ Merriam-Webster, *Virtual*, MERRIAM-WEBSTER ONLINE DICTIONARY <https://www.merriam-webster.com/dictionary/virtual> (last visited May 30, 2022).

¹⁶⁷ Merriam-Webster, *Reality*, MERRIAM-WEBSTER ONLINE DICTIONARY <https://www.merriam-webster.com/dictionary/reality> (last visited May 30, 2022).

¹⁶⁸ Joshua A. T. Fairfield, *Mixed Reality: How the Laws of Virtual Worlds Govern Everyday Life*, 27 BERKELEY TECH. L.J. 55, 68 (2012).

¹⁶⁹ Nick Ravo, *House-Hunting by Interactive Computer*, N.Y. TIMES (Nov. 22, 1992), <https://www.nytimes.com/1992/11/22/realestate/house-hunting-by-interactive-computer.html>.

¹⁷⁰ Greg S. Weber, *The New Medium of Expression: Introducing Virtual Reality and Anticipating Copyright Issues*, 12 J. MARSHALL J. COMPUTER & INFO. L. 175, 177 (1993); see also Alexis Dunne, *Copyrighting Experiences: How Copyright Law Applies to Virtual Reality Programs*, 12 J. BUS. ENTREPRENEURSHIP & L. 329, 337 (2019).

users inside a simulated reality, AR combines reality with virtual elements. Both VR and AR are varieties of mixed reality.¹⁷¹

VR has existed for many years; however, in the 1990s and 2000s, users and companies almost abandoned it.¹⁷² In 2012, Oculus revived VR through the development of a VR headset for video games.¹⁷³ Currently, VR is mostly associated with games. However, for many years, VR has been used for training astronauts, pilots, surgeons, military personnel, and for various other purposes.¹⁷⁴ VR has recently moved to the film industry with a new VR series, called “Alex Honnold: The Soloist VR.”¹⁷⁵ The show used VR to follow Honnold, an alpinist, as he ascended mountains in the Dolomites.¹⁷⁶ An Oculus headset is necessary for watching the VR series and experiencing the same environment as Honnold himself.¹⁷⁷

One of the key features of VR is the sense of being at different places than the user’s physical location.¹⁷⁸ Other activities, such as reading (except reading this article), browsing the Internet, or watching a movie can be engaging, but none create a psychological effect of being at a different place, making VR psychologically unique.¹⁷⁹ Moreover, VR users sometimes believe they are in the real world and, therefore, act accordingly.¹⁸⁰ Such sense of true presence does not fully exist in two-dimensional interfaces but can be experienced in more sophisticated 3-D VR platforms.¹⁸¹

What is the difference between VR and the Metaverse? Are they the same? Maybe the Metaverse is a more sophisticated or rebranded version of VR? The issue is complicated by the fact that VR already has its definition, while the Metaverse is described in variety of ways. It seems that VR and the Metaverse are different. Firstly, VR is only one way to experience the Metaverse.¹⁸² Many users are already experiencing existing virtual worlds without any VR devices.¹⁸³ Secondly, VR and the Metaverse can be distinguished by their purpose, because VR environments may be

¹⁷¹ *Id.* at 335, Mma Afoaku, *The Reality of Augmented Reality and Copyright Law*, 15 NW. J. TECH. & INTELL. PROP. 111, 113 (2017).

¹⁷² See Roya Bagheri, *Virtual Reality: The Real Life Consequences*, 17 U.C. DAVIS BUS. L.J. 101, 104-6 (2016).

¹⁷³ BBC News, *Oculus Rift Virtual Reality Headset Gets Kickstarter Cash*, BBC (Aug. 1, 2012), <https://www.bbc.com/news/technology-19085967>.

¹⁷⁴ Gilad Yadin, *Virtual Reality Intrusion*, 53 WILLAMETTE L. REV. 63, 66 (2016). See also Dan Robitzski, *The U.S. Army Is Using Virtual Reality Combat To Train Soldiers*, FUTURISM (Mar. 22, 2019), <https://futurism.com/army-soldiers-vr-combat-training>.

¹⁷⁵ See Patrick Hipes, *Benjamin Cleary’s ‘Glimpse’, ‘Alex Honnold: The Soloist VR’ Take Top Honors At Cannes Xr Program*, IMBD (May 24, 2022), <https://www.imdb.com/news/ni63638364>.

¹⁷⁶ Ben Church, *Alex Honnold: New Series Offers Immersive Experience Watching ‘Free Solo’ Star Climb Without Ropes*, CNN (Apr. 20, 2022), <https://www.cnn.com/2022/04/20/sport/alex-honnold-solo-virtual-reality-spt-intl/index.html>.

¹⁷⁷ *Id.*

¹⁷⁸ Yadin, *supra* note 174, at 85.

¹⁷⁹ *Id.*

¹⁸⁰ Gilad Yadin, *Virtual Reality Exceptionalism*, 20 VAND. J. ENT. & TECH. L. 839, 866 (2018).

¹⁸¹ *Id.*

¹⁸² Ball, *supra* note 37.

¹⁸³ *Id.*

enjoyed at any time without interaction with other users.¹⁸⁴ However, the purpose of the Metaverse, as declared by its developers, is connecting more people and making such connections more enjoyable.¹⁸⁵ Lastly, the ownership of the content differs as developers usually own content on VR, while the Metaverse promises to grant ownership to users.¹⁸⁶

4. Opportunities and Challenges of the Metaverse

The development of the Metaverse differs from the history of Internet creation, because the latter was developed by researchers without the initial involvement of corporations.¹⁸⁷ The Metaverse seems to be developing in a different way: even before its full creation there is huge interest and active involvement of various businesses.¹⁸⁸ While such a path will affect the Metaverse, specific outcomes may only become clear in the future.

The original architecture of the Internet, as Professor Lawrence Lessig argued, made its regulation extremely difficult.¹⁸⁹ However, the architecture can always change.¹⁹⁰ Professor Lessig believed that cyberspace, comparable to the Metaverse, would be “the most regulable space humans have ever known.”¹⁹¹ Time will show how the Metaverse regulation will be affected by its architecture.

Time will tell whether users will embrace the new technology and be willing to “put TV on their nose,” as Musk describes.¹⁹² The COVID-19 pandemic separated people to an unimaginable degree. After such separation, spending more time online may not be acceptable for many people. Moreover, the Metaverse may cause addiction in the same way as the Internet.¹⁹³ According to some views, the Metaverse will meet the needs of younger generations who are already spending substantial time playing online games and buying various digital goods.¹⁹⁴

Entertainment and online games may become the major drivers of the Metaverse. Technological progress related to online games has already contributed to

¹⁸⁴ Monica J. White, *What Is The Metaverse? A Deep Dive Into The ‘Future Of The Internet’*, DIGITALTRENDS (Nov. 23, 2021), <https://www.digitaltrends.com/computing/what-is-the-metaverse-the-future-of-the-internet-explained/>.

¹⁸⁵ *Id.*

¹⁸⁶ James Howell, *Metaverse v. Virtual Reality: Key Differences*, 101 BLACKCHAINS (Mar. 4, 2022), <https://101blockchains.com/metaverse-vs-virtual-reality/>.

¹⁸⁷ See LAWRENCE LESSIG, CODE: AND OTHER LAWS OF CYBERSPACE, VERSION 2.0 33 (2006); see also Raphael Cohen-Almagor, *Internet History*, 2 INT’L J. OF TECHNOETHICS, 45, 48-9 (2011).

¹⁸⁸ See Dean Takahashi, *Newzoo: More than 500 companies are building the metaverse*, VENTURE BEAT (June 28, 2022), <https://venturebeat.com/2022/06/28/newzoo-more-than-500-companies-are-building-the-metaverse/>.

¹⁸⁹ Lessig, *supra* note 187, at 32.

¹⁹⁰ *Id.*

¹⁹¹ *Id.*

¹⁹² Tangermann, *supra* note 34.

¹⁹³ See Narelle L. Warden, et al., *Internet Addiction*, 11 PSYCHIATRY, PSYCHOL. & L. 280, 285 (2004) (regarding internet addiction).

¹⁹⁴ Alex Pils, *Is The Metaverse Really The Future Of The Internet?* BAIRESDEV (Oct. 21, 2021), <https://www.bairesdev.com/blog/is-the-metaverse-the-future-of-the-internet/>.

the idea of the Metaverse.¹⁹⁵ Online games may contribute to interconnectivity among different Metaverse platforms as well.¹⁹⁶ Moreover, online games have already become platforms for mass events such as virtual concerts.¹⁹⁷ In the future, we may see the increase in numbers, varieties, and geographies of such mass events within the Metaverse.

The Metaverse may offer unique opportunities, not only to individual users, but to businesses as well. For example, before buying a certain product, a company may be able to test it in a virtual environment, or a complex factory may be digitally constructed and tested.¹⁹⁸ Small business may buy or lease offices in the Metaverse and operate entirely online, instead of paying for more expensive physical space.¹⁹⁹ Moreover, products acquired on the Metaverse shops may be delivered to a real-world location.²⁰⁰

The COVID-19 pandemic has revealed both positive and negative aspects of remote work and has transformed employment. In line with this new reality, some companies have started working on virtual office technologies. For example, Meta is developing a product called Horizon Workrooms, and Microsoft is developing Mesh.²⁰¹ Both technologies will allow meetings of avatars in three-dimensional space.²⁰²

In the Metaverse, every action of users may be recorded and stored for data mining, security, user convenience, and other purposes.²⁰³ The same is true regarding today's Internet.²⁰⁴ However, the Metaverse may record not only personal information of users, but also their behavior and habits.²⁰⁵ Moreover, as Lemley and Volokh argue, VR technologies, the basis of the Metaverse, may often feel like the real world.²⁰⁶ Therefore, there is high likelihood that people may act the same in the Metaverse as

¹⁹⁵ See Ian Sherr, *How the Game Industry Is Charging Into the Metaverse. The video game industry has been playing with the idea of digital worlds for decades*, CNET (Mar. 22, 2022), <https://www.cnet.com/tech/computing/how-the-game-industry-is-charging-into-the-metaverse/>; see also Esther Shein, *Game on: The gaming industry is core to development of the metaverse*, TECHREPUBLIC (May 18, 2022), <https://www.techrepublic.com/article/gaming-industry-core-development-metaverse/>.

¹⁹⁶ Akash Takya, *Interoperability and the Future of the Metaverse*, LEEWAYHERTZ, (Mar. 15, 2022), <https://www.leewayhertz.com/metaverse-interoperability/>.

¹⁹⁷ See Forbes, *Concerts in the Metaverse Are Making Artists Millions*, YOUTUBE (Nov. 18, 2021), <https://www.youtube.com/watch?v=p6fr0UFhLiA>.

¹⁹⁸ Onyx by J.P.Morgan, *supra* note 19, at 10.

¹⁹⁹ Graham, *supra* note 20.

²⁰⁰ Pascale Davies, *Order Your McDonald's In The Metaverse? The Company Applies For NFT And Virtual Trademarks*, EURONEWS (Nov. 2, 2022), <https://www.euronews.com/next/2022/02/11/order-your-mcdonald-s-in-the-metaverse-the-company-applies-for-nft-and-virtual-trademarks>.

²⁰¹ Nishant Thacker, *Microsoft Mesh – A Technical Overview*, MICROSOFT (Mar. 2, 2021), <https://techcommunity.microsoft.com/t5/mixed-reality-blog/microsoft-mesh-a-technical-overview/ba-p/2176004>.

²⁰² Gordon, *supra* note 81.

²⁰³ See Lemley & Volokh, *supra* note 17, at 1070 (raising similar arguments for VR).

²⁰⁴ *Id.*

²⁰⁵ Rashmeet Kaur, *Challenges Faced By The Metaverse In Becoming A Reality*, DATADRIVENINVESTOR (Feb. 9, 2022), <https://medium.datadriveninvestor.com/challenges-faced-by-the-metaverse-in-becoming-a-reality-d02219d29370>.

²⁰⁶ Lemley & Volokh, *supra* note 17, at 1070.

in the real world but will share secrets and forget that their words and actions are digitally recorded.²⁰⁷

The Metaverse may allow the collection and processing of behavioral data of users, such as facial expressions, emotions, eye movement, and body language.²⁰⁸ Currently, big tech companies do not possess such data.²⁰⁹ However, immersive technology makes collection possible.²¹⁰ How will companies use such information and how will they analyze users' behavior? Today, the answers to these questions remain unclear. Existing laws do not restrict the collection and processing of such behavioral data.²¹¹ The focus of current privacy laws is more on identity of users.²¹² Behavioral data may be collected and processed for analysis of users' likes, dislikes, creation of their psychological profiles, and for many other purposes which still remain unclear today.²¹³ Some privacy laws, which regulate the collection and processing of biometric data, do not cover physiological data collected in immersive virtual worlds.²¹⁴ Even when laws extend to such data, they are limited only to "authentication purposes."²¹⁵ Lawmakers should think about this problem before the vast amount of behavioral data becomes available to companies and is out of users' control.

Current privacy problems related to the use of social media will probably migrate to the Metaverse.²¹⁶ One such problem is facial recognition of users.²¹⁷ While Meta promised to stop this technology on Facebook, its promise does not fully apply to Metaverse products.²¹⁸ Moreover, the Metaverse users need various hardware and sensors which may be placed within their homes and offices.²¹⁹ Such technology may be extremely invasive and may collect more information about users than companies currently collect today.²²⁰ There are many forthcoming questions related to privacy on the Metaverse which cannot be answered with certainty today.

²⁰⁷ *Id.*

²⁰⁸ Daniela Marinelli, *The Metaverse needs to keep an eye on privacy to avoid Meta's mistakes*, COINTELEGRAPH (Apr. 23, 2022), <https://cointelegraph.com/news/the-metaverse-needs-to-keep-an-eye-on-privacy-to-avoid-meta-s-mistakes>; see also Shelly Kramer, *Metaverse Privacy Concerns: Are We Thinking About Our Data?*, FORBES (June 1, 2022), <https://www.forbes.com/sites/forbestechcouncil/2022/06/01/metaverse-privacy-concerns-are-we-thinking-about-our-data/?sh=678a46caffb8>.

²⁰⁹ See Tatum Hunter, *Surveillance will follow us into 'the metaverse,' and our bodies could be its new data source*, WASHINGTON POST (Jan. 13, 2022), <https://www.washingtonpost.com/technology/2022/01/13/privacy-vr-metaverse/>.

²¹⁰ Heller, *supra* note 36, at 28-9.

²¹¹ *Id.* at 34-6.

²¹² *Id.*

²¹³ *Id.* at 27.

²¹⁴ *Id.* at 35.

²¹⁵ Heller, *supra* note 36, at 36.

²¹⁶ See Isaque Criscuolo, *What Is The Metaverse And What Will The Future Of The Internet Hold?*, DOMESTIKA (Nov. 30, 2021), <https://www.domestika.org/en/blog/9435-what-is-the-metaverse-and-what-will-the-future-of-the-internet-hold>.

²¹⁷ See Rebecca Heilweil, *Facebook Is Backing Away From Facial Recognition. Meta Isn't*, VOX (Nov. 3, 2021), <https://www.vox.com/recode/22761598/facebook-facial-recognition-meta>.

²¹⁸ *Id.*

²¹⁹ See Kate O'Flaherty, *Why Facebook's Metaverse Is A Privacy Nightmare*, FORBES (Nov 13, 2021), <https://www.forbes.com/sites/kateoflahertyuk/2021/11/13/why-facebooks-metaverse-is-a-privacy-nightmare/?sh=3b0280e66db8>.

²²⁰ Lesley Harrison, *Meta's Metaverse: The Future Of Digital Experience Marketing?*, CMSWIRE (Feb. 17, 2022), <https://www.cmswire.com/digital-experience/facebook-metaverse-the-future-of->

The Metaverse will probably include many interconnected and interoperable worlds.²²¹ For example, Disney has announced plans to build their own version of the Metaverse.²²² If interoperability is achieved, it could be possible to travel among different Metaverse platforms without changing one's identity or avatar.²²³ This interoperability requirement applies not only to the software of the Metaverse, but to hardware, such as VR headsets.²²⁴ Metaverse hardware should be compatible with different platforms, just as any computer can be used to access different services, such as Google, Facebook, or TikTok.²²⁵ Interoperability between different Metaverse platforms may be encouraged by markets or mandated by law.²²⁶ However, effective interoperability will require uniform standards and the question becomes: who can create such standards? We can draw analogies with the agreement between Apple, IBM, and Motorola signed in 1991 regarding standardization of personal computer technology.²²⁷ Companies working on the creation of the Metaverse may agree on some standardization. However, the creation of standards by private companies may raise antitrust concerns.²²⁸ Moreover, it is not clear whether companies will have enough incentives for the creation of such standards for the Metaverse.

According to Matthew Ball, Metaverse users will experience “continuity of data, such as identity, history, entitlements, objects, communications, and payments.”²²⁹ Such continuity of data may imply the right of users to create their avatars, build online presences, acquire digital property, and leave a meta-digital footprint in the Metaverse. Moreover, such continuity may also imply the right of users to keep their avatars or digital data when moving from one meta-platform to another. This right may be compared to the data portability right laid by the European Union in the General Data Protection Regulation.²³⁰ Data portability obligates data controllers to make the data available in a structured, commonly used, machine-readable, and interoperable format, and allow individuals to transfer the data to

[digital-experiencemarketing/#:~:text=Metaverse%20Could%20Bring%20Surveillance%20Into,embattled%20Company%20another%20monopoly%20online.%22.](#)

²²¹ Gordon, *supra* note 81. Various companies have already announced plans to create their own versions of the Metaverse. One of such companies is Disney which plans to develop its own Disney Metaverse. *Id.*

²²² *Id.* Disney even filed a patent for a virtual simulator of a park for the Metaverse. *See also* Vincenzo Cacioppoli, *Former CEO of Disney In The Metaverse With A Startup*, THE CRYPTONOMIST (Mar. 17, 2022), <https://en.cryptonist.ch/2022/03/17/former-ceo-disney-metaverse-with-startup/>; White, *supra* note 184.

²²³ *See* Upanishad Sharma, *What Is an Avatar in the Metaverse?*, BEEBOM (Feb. 5, 2022), <https://beebom.com/metaverse-avatars-explained/>.

²²⁴ *See* Lemley & Volokh, *supra* note 17, at 1131.

²²⁵ *Id.*

²²⁶ *Id.*

²²⁷ Mark Potts, *IBM-Apple Venture May Pose Challenge To Microsoft*, THE WASHINGTON POST (July 4, 1991), <https://www.washingtonpost.com/archive/business/1991/07/04/ibm-apple-venture-may-pose-challenge-to-microsoft/463e364a-5327-4e32-b1f5-7705c5ef0756/>. The agreement had several goals. First, to create a new technological standard which could be used by computer industry. Second, to limit Microsoft's monopoly. Lastly, to simplify choices for computer users. *Id.*

²²⁸ *See* Gordon, *supra* note 81.

²²⁹ Ball, *supra* note 37.

²³⁰ *See* Council Reg. (EU) 2016/679, art. I, O.J. (L 199) 1, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679>.

another data controller.²³¹ Continuity of data may also imply that the Metaverse will be “persistent,” and that it will not stop once a user leaves the Metaverse.²³²

Companies have already started thinking about protecting their trademarks on the Metaverse.²³³ McDonald’s filed several trademark applications for a Metaverse restaurant, where a user can order food for online and real-life delivery.²³⁴ McDonald’s trademark will apply to on-line actual and virtual concerts, and other entertainment opportunities within virtual McCafé’s.²³⁵ Further, footwear company Skechers recently filed a trademark application for the sale of virtual merchandise on the Metaverse.²³⁶ Some lawyers predict that the number of Metaverse-related trademark applications will substantially increase due to companies not wanting to ignore the potential of the new technology.²³⁷

The Metaverse may significantly expand learning opportunities. Online learning has existed for many years—even before the Metaverse became a widely discussed topic.²³⁸ During the COVID-19 pandemic, online education has become the only alternative for students from primary schools to universities.²³⁹ Despite problems, online learning has positives as well, such as remote access to a classroom and affordable cost.²⁴⁰ In the future, online learning may stay as a form of education, applied alone or in combination with class-room experience.

Opportunities of the Metaverse for learning seem limited only by human imagination. Instead of reading a history book, it may become possible to sit in the Roman Senate, listening to Cicero’s speeches against Catiline.²⁴¹ Metaverse experiences may include sailing with Capitan James Cook in his famous voyages. Metaverse classes may also allow visits to archaeological sites or other planets.²⁴²

Metaverse users will probably be allowed to create copyrightable content to the extent provided by developers. For example, a user may create an avatar from diverse options offered by the developer, combining facial expression, hair color, eyes, body

²³¹ *Id.* at art. 20.

²³² See Harris Weems Henderson, *Through the Looking Glass: Copyright Protection in the Virtual Reality of Second Life*, 16 J. INTELL. PROP. L. 165, 166 (2008). Such “persistence” exists in Virtual Words as well. *Id.*

²³³ Grace Dean, *McDonald’s Has Filed A Trademark For A Restaurant Int The Metaverse That Will Actually Deliver Food To Your Home*, BUSINESS INSIDER (Feb. 10, 2022), <https://www.businessinsider.com/mcdonalds-metaverse-virtual-online-restaurant-trademark-delivers-food-web3-nft-2022-2?r=US&IR=T>.

²³⁴ *Id.*

²³⁵ Mason Bissada, *McDonald’s Files Trademark For Metaverse-Based ‘Virtual Restaurant’*, FORBES (Feb. 9, 2022), <https://www.forbes.com/sites/masonbissada/2022/02/09/mcdonalds-files-trademark-for-metaverse-based-virtual-restaurant/?sh=208f09dc6678>.

²³⁶ Randall Williams, *Skechers Shapes Up The Metaverse*, BOARDROOM (Jan. 25, 2022), <https://boardroom.tv/skechers-metaverse-trademarks/>.

²³⁷ Bissada, *supra* note 235.

²³⁸ See Ilker Koksall, *The Rise Of Online Learning*, FORBES (May 2, 2020), <https://www.forbes.com/sites/ilkerkoksall/2020/05/02/the-rise-of-online-learning/?sh=1493921372f3>.

²³⁹ Ara, et al., *supra* note 40.

²⁴⁰ Koksall, *supra* note 238.

²⁴¹ See Meta, *supra* note 2. Such opportunity is very likely, considering Meta’s promise that on the Metaverse people can teleport not just to any place, but any time as well, for example, to ancient Rome. *Id.*

²⁴² Ara, et al., *supra* note 40.

parts, and other details provided in advance.²⁴³ This may raise the question of who owns copyright on the final work? Will the user and developer own joint copyright on the avatar? Or, alternatively, will the developer's contribution be considered as *de minimis* in comparison to the user's creative contribution, excluding the developer's copyright claims?²⁴⁴ In real life, the user and the developer rarely intend to share copyright on the user's intellectual creation, unless provided for in the respective platform's terms of use.²⁴⁵ The finding of a solution may be further complicated if a Metaverse user utilizes a pseudonym.²⁴⁶ The problem may become more difficult if the work is created by several Metaverse users, raising the issue of joint authorship.²⁴⁷

Important challenges of the Metaverse will be the monitoring of users' behavior. Developers should find ways to control users' language, gestures, movements, and other activities so as to prevent harassment, bullying, and other improper behavior.²⁴⁸ Altspace VR, the social platform of Microsoft, employs special moderators who attend online events and control people's online behavior.²⁴⁹ Altspace users can block those who behave improperly or can activate a special "space bubble" to protect themselves from others.²⁵⁰ On Horizon Worlds, which is being developed by Meta, users can block other users from interacting with them or record the incident on a headset and report it to the platform's administration.²⁵¹

According to some views, we already live "mediated lives," where corporations control and often manipulate our access to news and information.²⁵² Corporations provide us with personally customized news, fake news, or deepfakes which distort our perception of the reality.²⁵³ Today, we can go to a public place and enjoy the reality; however, with AR and the Metaverse, this option may disappear as technological companies place digital layers on reality.²⁵⁴ When fundamental problems already exist, mitigation of the damage is very difficult; therefore, Metaverse technology needs to be correctly built from the very beginning.²⁵⁵

Metaverse platforms will be global, with users from around the world.²⁵⁶ Such platforms must consider the challenges of complying with laws of various jurisdictions.²⁵⁷ Moreover, different countries may contribute to the creation of the

²⁴³ Ochoa, *supra* note 87, at 962-64.

²⁴⁴ See Matthew R. Farley, Making Virtual Copyright Work, 41 GOLDEN GATE U. L. REV. 1, 12 (2010).

²⁴⁵ *Id.*

²⁴⁶ See Chris Butler, *Identity Problems get Bigger in the Metaverse*, O'REILLY (Mar. 15, 2022), <https://www.oreilly.com/radar/identity-problems-get-bigger-in-the-metaverse/>.

²⁴⁷ See Farley, *supra* note 244, at 12.

²⁴⁸ See Olson, *supra* note 88.

²⁴⁹ *Id.*

²⁵⁰ *Id.*

²⁵¹ Alex Heath, *Meta Opens Up Access To Its VR Social Platform Horizon Worlds*, THE VERGE (Dec. 9, 2021), <https://www.theverge.com/2021/12/9/22825139/meta-horizon-worlds-access-open-metaverse>.

²⁵² See Louis Rosenberg, *Metaverse: Augmented Reality Pioneer Warns It Could Be Far Worse Than Social Media*, BIG THINK (Nov. 6, 2021), <https://bigthink.com/the-future/metaverse-augmented-reality-danger/>.

²⁵³ *Id.*

²⁵⁴ *Id.*

²⁵⁵ *Id.*

²⁵⁶ Ara, et al., *supra* note 40.

²⁵⁷ *Id.*

Metaverse, while other countries may decide to build their own Metaverse. For example, India, a country with a highly developed online gaming sector, may help contribute to the Metaverse.²⁵⁸ The Chinese version of the Metaverse may be different and, perhaps, more tightly regulated than other areas of the global Metaverse.²⁵⁹

Settlement of the Metaverse related disputes may also require specific approaches. Creators of the Metaverse may integrate meta-courts with meta-jurisdictions. Terms of use may compel users to settle disputes in such Meta-courts.²⁶⁰ Moreover, the Metaverse will require legal advice for novel and challenging problems.²⁶¹ Privacy, data protection, advertising, intellectual property, and many other issues will need reconsideration and application to this unique environment.²⁶² Without any doubt, lawyers and lawmakers will be quite busy in the coming years.²⁶³

The meta-question which may be asked about the Metaverse is what does it symbolize? Is the Metaverse meant to exist *with* our world or is it a form of escape intended to take us beyond the real world, full of unresolved problems and horrifying news?²⁶⁴ As with many questions raised in this article, there are no definite answers yet.

B. Anticipating Copyright Challenges Within the Metaverse

This part of the article discusses anticipated copyright problems associated with the Metaverse. Based on the currently available information about the Metaverse, it should not raise substantial challenges for copyright law. Therefore, the existing legal framework should be capable of protecting interests of copyright holders on the Metaverse.

The U.S. Supreme Court noted, in *Sony Corp. of Am. v. Univ. City Studios, Inc.*, that “[f]rom its beginning, the law of copyright has developed in response to significant changes in technology.”²⁶⁵ Technology is always developing; however, not every advance is significant for copyright law. Innovative technology is only legally remarkable “when its introduction into the mainstream requires a systemic change to the law or legal institutions in order to reproduce, or if necessary, displace, an existing balance of values.”²⁶⁶ For example, the printing press was legally exceptional

²⁵⁸ Tech Desk, *India will Hugely Contribute in Building Metaverse, says Mark Zuckerberg*, INDIA EXPRESS (Dec. 16, 2021), <https://indianexpress.com/article/technology/tech-news-technology/mark-zuckerberg-believes-india-will-hugely-contribute-to-metaverse-7673876/>.

²⁵⁹ Dashveenjit Kaur, *Metaverse in China will look different from the rest. Here’s why*, TECHWIRE (Feb. 17, 2022), <https://techwireasia.com/2022/02/metaverse-in-china-will-look-different-from-the-rest-heres-why/>.

²⁶⁰ Ciarán McCollum, *Metalaw: the Law of the Metaverse*, IT FOR ALL (Jan. 24, 2022), <https://www.iotforall.com/metalaw-law-of-metaverse>.

²⁶¹ See Ara, et al., *supra* note 40.

²⁶² See Pryor & Sessa, *supra* note 78, at 7.

²⁶³ *Id.*

²⁶⁴ Nathan Dufour Oglesby, *Facebook and the True Meaning of ‘Meta,’* BBC FUTURE (Nov. 14, 2021), <https://www.bbc.com/future/article/20211112-facebook-and-the-true-meaning-of-meta>.

²⁶⁵ *Sony Corp. of Am. v. Univ. City Studios, Inc.*, 464 U.S. 417, 430 (1984).

²⁶⁶ Ryan Calo, *Robotics, and the Lessons of Cyberlaw*, 103 CALIF. L. REV. 513, 552 (2015).

technology and it gave impetus to the creation of copyright law.²⁶⁷ While it took many years to solve the legal issues caused by the Internet, it was also the legally remarkable innovation which challenged copyright law.²⁶⁸

If we look at the variety of technologies that the Metaverse may incorporate, implementing regulations may seem challenging. The Metaverse will merge VR, AR, AI, NFTs, cryptocurrencies, decentralized infrastructure, smart contracts, blockchain, and various existing and future innovations.²⁶⁹ How can copyright law be enforced in such a complicated virtual world to protect interests of copyright holders?

The Metaverse may raise various challenges for copyright holders. First, policing of copyright infringements on the Metaverse may be difficult.²⁷⁰ This challenge may be mitigated by incorporation of special copyright filters in the Metaverse software.²⁷¹ However, it is unclear whether the developers of the Metaverse will be willing, or able, to incorporate such filters. Second, if content creators have acquired rights on a copyrightable work by a license prior to the emergence of the Metaverse, it will be necessary to make sure that such licenses allow use of a work on this new technology.²⁷² Considering the complexity of the Metaverse, users of copyrighted content may need broad rights which could be granted under a copyright license.²⁷³

Copyright disputes may be a significant challenge for the Metaverse. Such tendency is already clear from lawsuits related to another technology: NFTs. In *Roc-a-Fella Records, Inc. v. Damon Dash*, in June 2021, music recording company Roc-A-Fella Records sued its co-founder Dame Dash who registered and tried to sell as NFT the copyright on Jay-Z's debut album "Reasonable Doubt."²⁷⁴ While the case has been settled by the parties,²⁷⁵ the registration of the album as an NFT and the attempt to sell it were considered a landmark event both for the music industry and the crypto world.²⁷⁶

Additionally, various plaintiffs claimed that Epic Games, Incorporated, the developer of the online game "Fortnite," copied their dance moves and added them to "Fortnite," without their consent.²⁷⁷ Following the 2019 United States Supreme Court decision in *Fourth Estate Public Benefit Corporation v. Wall-Street.com, LLC*, which was issued after filing of law suits, the plaintiffs were required to register their dances

²⁶⁷ See Nina I. Brown, *Artificial Authors: A Case for Copyright in Computer-Generated Works*, 20 COLUM. SCI. & TECH. L. REV. 1, 40 (2018).

²⁶⁸ HECTOR L. MACQUEEN, COPYRIGHT AND THE INTERNET, 205 LAW AND THE INTERNET: A FRAMEWORK FOR ELECTRONIC COMMERCE (Lilian Edwards & Charlott Waelde eds., Hart Publishing 2000).

²⁶⁹ Ball, *supra* note 37.

²⁷⁰ See Pryor & Sessa, *supra* note 78, at 28.

²⁷¹ See MGM Studios, Inc. v. Grokster, Ltd., 545 U.S. 913, 940 (2005) (discussing copyright filters).

²⁷² See Pryor & Sessa, *supra* note 78, at 28.

²⁷³ *Id.* at 51.

²⁷⁴ Roc-A-Fella Recs, Inc. v. Dash, No. 21-CV-5411 (JPC) (S.D.N.Y. Jun. 29, 2021).

²⁷⁵ Blake Brittain, *Jay-Z label settles lawsuit over 'Reasonable Doubt' NFT*, FORBES (June 14, 2022), <https://www.reuters.com/legal/litigation/jay-z-label-settles-lawsuit-over-reasonable-doubt-nft-2022-06-13/>.

²⁷⁶ Jon Blistein, *Dame Dash Prohibited from Selling Jay-Z's 'Reasonable Doubt' as NFT Following Roc-A-Fella Lawsuit*, ROLLINGSTONE (June 22, 2021), <https://www.rollingstone.com/music/music-news/jay-z-roc-a-fella-records-dame-dash-reasonable-doubt-nft-lawsuit-1186875/>.

²⁷⁷ Ara, et al., *supra* note 40.

in the U.S. Copyright Office.²⁷⁸ As a result, the plaintiffs withdrew lawsuits and proceeded with finalization of the copyright registrations.²⁷⁹ The U.S. Copyright Office rejected copyright registration of some dances, arguing that certain moves were simply routine and not registrable as choreographic works.²⁸⁰

This article expresses hope that copyright law will survive the Metaverse challenge. Some amendments and updates may be necessary; however, in general, the Metaverse should not substantially change copyright law.

1. General Overview of Copyright Law

Copyright law accommodates at least two competing interests. First, it grants authors a limited monopoly on their works, so they may receive revenue from their creations.²⁸¹ Second, copyright law grants public access to works for everyone to benefit from content and ideas contained in copyrighted works.²⁸² However, balancing of these two interests is often a challenging task.

The idea of the balanced copyright law is expressed in Article One of the United States' Constitution: "[t]he Congress shall have the power [t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."²⁸³ Authors are granted certain rights; however, only for a limited period. Copyright laws of other countries are also based upon the idea of balance.²⁸⁴

Under the United States' Copyright Act, copyright in original works of authorship arises from the moment they are "fixed in any tangible form."²⁸⁵ No registration is required.²⁸⁶ Copyright protection guards from the copying of the expression contained in the work without the creator's permission.²⁸⁷ However, it does

²⁷⁸ Ali Johnson, *Copyrighting TikTok Dances: Choreography in the Internet Age*, 96 WASH. L. REV. 1225, 1257 (2021).

²⁷⁹ *Id.*

²⁸⁰ See *Ferguson v. Epic Games, Inc.*, No. 2:18-cv-10110 (C.D. Cal. Dec. 5, 2018); *Ribeiro v. Epic Games, Inc.*, No. 2:18-cv-10412 (C.D. Cal. Dec. 17, 2018); *Redd v. Epic Games, Inc.*, No. 2:18-cv-10444 (C.D. Cal. Dec. 17, 2018); *Baker v. Epic Games, Inc.*, No. 2:19-cv-00505 (C.D. Cal. Jan. 23, 2019).

²⁸¹ MARSHALL A. LEAFFER, UNDERSTANDING COPYRIGHT LAW 17 (6th ed. 2014).

²⁸² *Id.*

²⁸³ U.S. CONST., art. I, § 8, cl. 8.

²⁸⁴ See Council Directive 2019/790, art. 1, 2019 O.J. (L 130/92). See also Council Directive 96/9/EC, 1996 O.J. (L 77/20) and Council Directive 2001/29/EC, 2001 O.J. (L167/10). In Article 1 (Subject Matter and Scope), Directive 2019/790 specifically mentions two objectives: (a) harmonizing the copyright legislation, and (b) laying down exceptions to copyright protection:

This Directive lays down rules which aim to harmonize further Union law applicable to copyright and related rights in the framework of the internal market, taking into account, in particular, digital and cross-border uses of protected content. It also lays down rules on exceptions and limitations to copyright and related rights, on the facilitation of licenses, as well as rules which aim to ensure a well-functioning marketplace for the exploitation of works and other subject matter.

²⁸⁵ 17 U.S.C § 102(a) (2022).

²⁸⁶ 17 U.S.C § 102 (2022).

²⁸⁷ 17 U.S.C § 102(b) (2022).

not protect ideas, procedures, processes, systems, methods of operations, concepts, or principles.²⁸⁸ While valuable components of many works, they are not protected because copyright law promotes learning and the sharing of ideas.²⁸⁹ The purposes of learning can be achieved only if facts and ideas are used and reused without any limitation.²⁹⁰ These exceptions also confirm the principle of balance.

Copyright law is different from other fields of law. First, it is strongly affected by technological progress.²⁹¹ Initially created for printed media, copyright law is often amended to accommodate innovative technologies, which cannot be regulated by prior copyright framework.²⁹² Moreover, copyright law may be changed due to lobbying by copyright holders, such as companies and industries.²⁹³ Lobbying may disrupt the balance between copyright protection for authors and access to works for the public.²⁹⁴ As a result, copyright law is sometimes viewed as complicated and counterintuitive.²⁹⁵

The Internet challenged copyright law.²⁹⁶ Copyright, following from the direct meaning of this term, means the right to copy. Simply, copyright means control of copying the reproduction of a work.²⁹⁷ However, the Internet mostly functions by the making of copies. In essence, the Internet is a giant copying machine.²⁹⁸ For example, by downloading this article from the Internet, you received a digital copy of the file available on a server. Other users may download this article, making their own digital copies. Each digital copy is of the same quality as the original file.

People do not always follow copyright law in their daily life.²⁹⁹ Personal computers, smartphones, and the Internet gave us greater access to copyrighted content than ever before in the human history.³⁰⁰ But technology also gave us tools for reproduction and dissemination of this content, sometimes in breach of copyright laws.³⁰¹ In 21st century we, the users, have become serial infringers and often engage “in thousands of actions that likely constitute copyright infringement.”³⁰²

²⁸⁸ *Id.*

²⁸⁹ *See generally* Feist Publ'n, Inc., v. Rural Tel. Serv. Co., 499 U.S. 340 (1991); *see also* Baker v. Selden, 101 U.S. 99 (1879).

²⁹⁰ JESSICA D. LITMAN, DIGITAL COPYRIGHT 17 (2d ed. 2006).

²⁹¹ Leaffer, *supra* note 281, at 25-7

²⁹² *Id.*

²⁹³ Litman, *supra* note 290, at 23.

²⁹⁴ *See generally* Eldred v. Ashcroft, 537 U.S. 186 (2003) (upholding the constitutionality of the 1998 Sonny Bono Copyright Term Extension Act); compare to LAWRENCE LESSIG, FREE CULTURE: HOW BIG MEDIA USES TECHNOLOGY AND THE LAW TO LOCK DOWN CULTURE AND CONTROL CREATIVITY 213 (Penguin Press, 2004) (criticizing *Eldred v. Ashcroft*).

²⁹⁵ Litman, *supra* note 290, at 23.

²⁹⁶ Leaffer, *supra* note 281, at 30.

²⁹⁷ Litman, *supra* note 290, at 177-9 (offering a different opinion).

²⁹⁸ *Id.* at 25.

²⁹⁹ *Id.* at 111.

³⁰⁰ JOHN TEHRANIAN, INFRINGEMENT NATION. COPYRIGHT 2.0 AND YOU 1 (2011).

³⁰¹ *Id.*

³⁰² *Id.*

2. Use of Previously Licensed Copyrighted Content on the Metaverse

In the future, we may see challenges related to use of the previously licensed copyrighted content on the Metaverse. Some licenses were signed at a time when no Metaverse was on the minds of the parties. Will such licensees allow use of copyrighted works on the Metaverse?

Use of previously licensed copyrighted content on a newly invented platform is not a new problem.³⁰³ Such challenges arose in the past when innovative technologies developed.³⁰⁴ This issue was discussed by courts in the context of the digital technology in *Random House, Incorporated v. Rosetta Books LLC*.³⁰⁵ The *Random House* court found that digital books were outside of the Random House's copyright license, allowing it to produce works only "in book formats."³⁰⁶

In general, freedom of contract allows copyright holders to transfer rights on all known or unknown uses of a copyrighted work.³⁰⁷ The problem may arise if the transfer wording is vague, or rights are split between the parties. In such a case, licenses may be interpreted to find the true intent of parties. During copyright license signings, parties often realize that future novel technologies may appear, resulting in the express regulation of such scenarios.³⁰⁸ However, it is quite difficult to foresee an innovative technology several decades in advance. The Metaverse seems to be one of such unforeseeable innovation.

The problem of previously licensed copyrighted content is well illustrated by the ongoing legal dispute between Quentin Tarantino and Miramax Studio, regarding the NFT of the original hand-written script for "Pulp Fiction."³⁰⁹ The parties had a contract by which Tarantino explicitly reserved certain rights to the screenplay; however, the question is whether those reserved rights cover NFTs.³¹⁰ By the time of this writing, the dispute will still be pending in court.

United States' law does not prohibit the transfer of rights on uses of works which are unknown at the moment of transfer.³¹¹ At the same time, United States' copyright law allows authors to terminate any lifetime transfer of copyright and reclaim ownership of their rights thirty-five years after the date of the transfer.³¹² This

³⁰³ See Dotan Oliar, *The Copyright-Innovation Tradeoff: Property Rules, Liability Rules, and Intentional Infliction of Harm*, 64 STAN. L. REV. 951-4 (2012).

³⁰⁴ *Id.*

³⁰⁵ See generally *Random House, Inc. v. Rosetta Books LLC*, 150 F. Supp. 2d 613 (S.D.N.Y. 2001).

³⁰⁶ *Id.*; see also *Boosey & Hawkes Music Publishers, LTD. v. Walt Disney Co.*, 145 F.3d 481 (1998) (discussing whether the language of the 1939 copyright license concerning a musical composition allowed Walt Disney Company to distribute the movie incorporating the musical work on video cassettes and DVDs).

³⁰⁷ Kate Darling, *Contracting About the Future: Copyright and New Media*, 10 NW. J. TECH. & INTELL. PROP. 485, 486 (2012).

³⁰⁸ *Id.*

³⁰⁹ *Miramax, LLC v. Tarantino*, No. 2:21-cv-08979-FMO-JC (C.D. Cal. Mar. 10, 2022).

³¹⁰ Kal Raustiala & Chris Sprigman, *Guest Column: Tarantino vs. Miramax – Behind the NFT 'Pulp Fiction' Case, and Who Holds the Advantage*, THE HOLLYWOOD REPORTER (Nov. 24, 2021), <https://www.hollywoodreporter.com/business/digital/tarantino-miramax-pulp-fiction-nft-1235052378/>; see also Complaint and Demand for Jury Trial, *Miramax, LLC v. Quentin Tarantino; Visona Romantica, Inc.*; and Does 1-50, No. 2:21-cv-08979 (C.D. Cal., Nov. 16, 2021), <https://s3.documentcloud.org/documents/21111461/miramax-tarantino-nft.pdf>.

³¹¹ See Darling, *supra* note 307, at 488.

³¹² 17 U.S.C. § 203(a) (2022).

right protects the creator when the work is financially successful and allows re-negotiation of an unfair contract.³¹³ This right was created to “safeguard [...] authors against unremunerative transfers, needed because of the unequal bargaining position of authors, resulting in part from the impossibility of determining a work's value until it has been exploited.”³¹⁴ The termination right does not apply to works made for hire, and, in cases of joint authorship, a majority of authors is required for termination.³¹⁵

Authors who transferred rights on or after January 1, 1978, were first empowered by United States’ law to terminate such transfers starting on January 1, 2013.³¹⁶ The termination right remains even if a contrary agreement between the parties exists.³¹⁷ Therefore, this right is nonwaivable and inalienable.³¹⁸ In the future, we may see termination of copyright transfers or their re-negotiation to regulate issues related to the Metaverse.

Contrary to the United States’ approach, legislation of some countries, such as Spain, Belgium, Greece, Poland, Hungary, and the Czech Republic, do not allow for the transfer of copyright for uses unknown at the time of transfer.³¹⁹ Such a restrictive approach may be justified by fairness.³²⁰ While original creators of works should have the opportunity to reap the benefits from the use of their works, often such authors are weak parties in contractual negotiations and are forced to accept unfavorable terms.³²¹ Due to the legislative restrictions, authors in the above countries will be unable to assign rights on unknown future uses of works.³²² Following from these rules, authors may retain rights on use of their works on the Metaverse, if copyright transfer agreements have been signed prior to the creation of the Metaverse. However, it may be a problem to determine when the Metaverse is actually created. These questions should be answered by courts of such countries in each and every case.

Parties to copyright licenses should draft them carefully to say who owns the Metaverse rights. As discussed in this article, the definition of the Metaverse is still unclear. Therefore, it may not be enough to mention in copyright licenses only the Metaverse rights. Broad wording may be necessary to cover all possible uses of copyrighted works on virtual platforms falling under existing or future definitions of the Metaverse.

³¹³ Darling, *supra* note 307, at 486.

³¹⁴ See Ray Charles Found. v. Robinson, 795 F.3d 1109, 1112 (9th Cir. 2015) (citing H.R. Rep. No. 94-1476, at 124 (1976)).

³¹⁵ 17 U.S.C. § 203(a) (2022); 17 U.S.C. § 203(a)(1) (2022).

³¹⁶ 17 U.S.C. § 203(a)(3) (2022).

³¹⁷ 17 U.S.C. § 203(a)(5) (2022).

³¹⁸ See *Marvel Characters, Inc. v. Simon*, 310 F.3d 280, 290 (2d Cir. 2002) (citing *Stewart v. Abend*, 495 U.S. 207, 230 (1990)); see also Tonya M. Evans, *Statutory Heirs Apparent: Reclaiming Copyright in the Age of Author-Controlled, Author-Benefiting Transfers*, 119 W. VA. L. REV. 297, 303 (2016).

³¹⁹ See Darling, *supra* note 307, at 486. Laws of these countries allow copyright contracts only regarding those uses which are known at the time of the contract. *Id.*

³²⁰ *Id.* at 487.

³²¹ *Id.*

³²² *Id.* at 486-87.

3. Artificial Intelligence and the Metaverse

AI may become a fundamental pillar of the Metaverse. Millions of users will experience the Metaverse in real time and it will be updated every second, producing a huge volume of information.³²³ AI will be necessary for the processing of such information to make sure the Metaverse functions smoothly.³²⁴ AI may project into the virtual Metaverse users' real-world movements, facial expressions, emotions, body language, and speech.³²⁵ AI may be used to synchronize users' speech and avatars' lip movements.³²⁶ Moreover, AI may simultaneously translate speech of the Metaverse users and facilitate access from different countries.³²⁷ One potential use of AI may be the identification of users' illegal behavior.³²⁸ AI will probably play a crucial role in blurring of the line between the real world and the virtual Metaverse.³²⁹ Developers may use AI to induce users to stay and experience the Metaverse for long periods of time.³³⁰

A comprehensive definition of AI does not exist.³³¹ AI systems are often described as “creative, unpredictable, independent, autonomous, rational, evolving, capable of data collection, communicative, efficient, accurate, and having free choice among alternatives.”³³² Like humans, AI often functions in an unpredictable way, surprising even its creators.³³³

AI may be divided into two main types: narrow and general. Narrow AI is used for “special application areas such as playing strategic games, language translation, self-driving vehicles, and image recognition.”³³⁴ General AI refers “to a notional future AI system that exhibits apparently intelligence behavior at least as advanced as a person across a full range of cognitive tasks.”³³⁵ A form of general AI is used online for communication with users; however, most human users realize that they are dealing

³²³ See Luca Sambucci, *How Will AI Power the Metaverse?*, ARTIFICIAL INTELLIGENCE NEWS (Feb. 24, 2022), <https://www.artificialintelligence.news/how-will-ai-power-the-metaverse/>.

³²⁴ *Id.*

³²⁵ Huynh, et al., *supra* note 17, at 5.

³²⁶ Monica J. White, *What Is the Metaverse? A Deep Dive into the 'Future of the Internet'*, DIGITALTRENDS (Nov. 23, 2021), <https://www.digitaltrends.com/computing/what-is-the-metaverse-the-future-of-the-internet-explained/>.

³²⁷ *Id.*

³²⁸ *Id.*

³²⁹ Huynh, et al., *supra* note 17, at 5.

³³⁰ Sambucci, *supra* note 323.

³³¹ See Shlomit Yanisky-Ravid, *Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era: The Human-like Authors Are Already Here: A New Model*, 2017 MICH. ST. L. REV. 659, 673 (2017); see generally Ryan Calo, *Artificial Intelligence Policy: A Primer and Roadmap*, 51 U.C.D. L. REV. 399 (2017).

³³² *Id.* at 679-681.

³³³ KATE DARLING, *THE NEW BREED: WHAT OUR HISTORY WITH ANIMALS REVEALS ABOUT OUR FUTURE WITH ROBOTS* 40 (Henry Holt Publ'g 2021).

³³⁴ COMMITTEE ON TECHNOLOGY NATIONAL SCIENCE AND TECHNOLOGY COUNCIL, *PREPARING FOR THE FUTURE OF ARTIFICIAL INTELLIGENCE* 7 (2016).

³³⁵ *Id.*

with computers, and not humans.³³⁶ At a certain point, general AI may surpass humans in intelligence.³³⁷ This moment will be known as “singularity.”³³⁸

AI may also be used for harvesting data about behavior, preferences, interests, likes, and dislikes of billions of Metaverse users.³³⁹ Such data may be analyzed for different purposes, and it will be valuable for advertisers, employers, governments, and other interested parties. In the future, developers of the Metaverse may receive large profits from such data.³⁴⁰

Currently, works created with the help of AI are not protected by copyright law, as such works do not have a human author.³⁴¹ According to the United States’ Copyright Office, “[t]o qualify as a work of “authorship” a work must be created by a human being.”³⁴² The United States’ Copyright Office does not register works produced “by a machine or mere mechanical process that operates randomly or automatically without any creative intervention from a human author.”³⁴³ According to the prevailing view, only humans need copyright protection as an incentive for creativity, not machines or AI.³⁴⁴ However, there are arguments that copyright protection may provide incentives for a creator of AI that generates creative works.³⁴⁵

Countries such as Spain, Germany, and Australia, only protect copyright works created by humans.³⁴⁶ Georgia follows the same path.³⁴⁷ Japan has proposed protection of AI-created works under unfair competition law, not copyright law.³⁴⁸ Under this approach, AI can produce an unlimited number of creative works.³⁴⁹ If copyright monopoly applies to content, it may threaten human creativity by barring the creation of similar works.³⁵⁰

The European Union (“EU”) is reviewing whether the human authorship requirement should remain in copyright law.³⁵¹ In 2020, the EU published its Report

³³⁶ *Id.* at 336.

³³⁷ KATHERINE B. FORREST, COPYRIGHT LAW AND ARTIFICIAL INTELLIGENCE: EMERGING ISSUES 347, 352; *see also* THEODORE FRANKLIN CLAYPOOL, THE LAW OF ARTIFICIAL INTELLIGENCE AND SMART MACHINES: UNDERSTANDING A.I. AND THE LEGAL IMPACT (ABA Book Publ’g, 2019).

³³⁸ *See* Darling, *supra* note 333.

³³⁹ David Roe, *Why Facebook’s Metaverse Is Still Only a Pipedream*, CMSWIRE (Aug. 10, 2021), <https://www.cmswire.com/digital-workplace/why-facebooks-metaverse-is-still-only-a-pipedream/>.

³⁴⁰ *See* Kramer, *supra* note 208.

³⁴¹ *See* Yanisky-Ravid, *supra* note 331, at 670.

³⁴² *See* U.S. COPYRIGHT OFFICE, COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 313.2, 21 (3d ed. 2021) (citing *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884)).

³⁴³ *Id.* at 21-2; *see also* *Naruto v. Slater*, No. 16-15469 (9th Cir. 2018) (holding that the crested macaque monkey cannot be an author of a selfie).

³⁴⁴ Committee on Technology National Science and Technology Council, *supra* note 334, at 337.

³⁴⁵ Brown, *supra* note 267, at 20.

³⁴⁶ Committee on Technology National Science and Technology Council, *supra* note 334, at 336, 345.

³⁴⁷ *See* National Intellectual Property Center of Georgia, *Law of Georgia on Copyrights and Related Rights*, SAKPATENTI, Ch. I, art. 4(a) (May 4, 2010), <https://www.sakpatenti.gov.ge/en/page/55/>.

³⁴⁸ Committee on Technology National Science and Technology Council, *supra* note 334, at 336; 345.

³⁴⁹ *Id.*

³⁵⁰ *Id.*

³⁵¹ *See* Committee on Legal Affairs, *REPORT on intellectual property rights for the development of artificial intelligence technologies*, EUROPEAN PARLIAMENT (Oct. 7, 2020), https://www.europarl.europa.eu/doceo/document/A-9-2020-0176_EN.html.

on “Intellectual Property Rights for the Development of Artificial Intelligence Technologies” which stated: “we seem to be moving towards an acknowledgement that an AI-generated creation could be deemed to constitute a work of art on the basis of the creative result rather than the creative process.”³⁵² The Report further stated that an assessment should be made on the advisability of granting copyright to a natural person who prepares and publishes a “creative work” prepared using AI.³⁵³

Exclusion of AI produced works from copyright protection due to non-existence of human authorship is often criticized.³⁵⁴ Neither the United States’ Constitution nor Congress, through the Copyright Act, expressly require human authorship.³⁵⁵ Moreover, the Copyright Act grants authorship to non-humans at least in one case, namely in “work for hire” arrangements.³⁵⁶ The Copyright Act requires that “[i]n the case of a work made for hire, the employer or other person for whom the work was prepared is considered the author.”³⁵⁷ In most cases, an employer is a company, but not a human.³⁵⁸

The Metaverse may accelerate bringing AI-generated works under the copyright umbrella or granting such works protection through other legal means.³⁵⁹ This article does not argue in favor of any specific solution. This issue is quite complex, and it is outside of the scope of this article. However, the Metaverse will likely stimulate active discussion of legal protection of AI generated works.

4. Copyright of Metaverse Software

Software will likely be one of the most important pillars of the Metaverse. The creation of such software will be a complex task, requiring the involvement of many programmers.³⁶⁰ Nvidia, for example, opened access to Omniverse, its real-time 3-D design Metaverse building software platform for creators and artists.³⁶¹ The company is also working on the “[M]etaverse for engineers.”³⁶² According to Nvidia, Omniverse was downloading more than one hundred thousand times by January 2022.³⁶³

³⁵² *Id.*

³⁵³ *Id.*

³⁵⁴ See Brown, *supra* note 267, at 5.

³⁵⁵ *Id.* at 29.

³⁵⁶ *Id.*

³⁵⁷ 17 U.S.C. § 201(b) (2022).

³⁵⁸ Brown, *supra* note 267, at 29.

³⁵⁹ See Shlomit Yanisky-Ravid, *Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era: The Human-like Authors Are Already Here: A New Model*, 2017 MICH. ST. L. REV. 659, 705 (2017). According to one proposal, AI generated works may be protected under Works Made for Hire model, according to which the AI system would be a creative employee or an independent contractor. As a result, ownership on the work would be granted to humans or legal entities that use AI systems and enjoy its benefits. *Id.*

³⁶⁰ See BBC News, *Facebook to hire 10,000 in EU to work on metaverse*, BBC (Oct. 18, 2021), <https://www.bbc.com/news/world-europe-58949867>.

³⁶¹ Brandy Betz, *Nvidia Makes Its Metaverse-Building Software Free for Individual Creators*, COIN DESK (Jan. 4, 2022), <https://www.coindesk.com/business/2022/01/04/nvidia-makes-its-metaverse-building-software-free-for-individual-creators/>.

³⁶² *Id.*

³⁶³ *Id.*

Most jurisdictions protect software under copyright law, as a literary work.³⁶⁴ Since 1980, the United States' Copyright Act also protects "computer programs" as literary works.³⁶⁵ The EU follows the same approach.³⁶⁶ In 1991, the European Community agreed the Software Directive which clarifies copyright protection of software and regulates mandatory exceptions.³⁶⁷

In general, software may be closed-source or open-source. Closed-source is usually proprietary, like Apple's iOS, and users cannot change or study it.³⁶⁸ On the other hand, the open-source software is open for anyone to study and develop, such as Android's software.³⁶⁹ Such software is not a classic copyrightable work.³⁷⁰ Rather than using copyright law to maximize revenue, open source relies on copyright to allow free access and wide distribution of the software.³⁷¹ While open-source software is provided to users for free³⁷², software providers still earn revenue, not from selling but by supplying consultations and other services.³⁷³

Interoperability is valuable for various fields, but in case of the Metaverse it may be particularly important as the Metaverse will likely be based on software created by various developers.³⁷⁴ Moreover, some platforms may be proprietary, based on closed-source software.³⁷⁵ On the other hand, some platforms may be based on open-source.³⁷⁶ The future of the Metaverse may depend on which approach prevails.³⁷⁷ Moreover, interoperability between different Metaverse platforms may require reverse engineering of software.³⁷⁸ Copyright laws of most jurisdictions allow such reverse

³⁶⁴ See MARSHALL A. LEAFFER, UNDERSTANDING COPYRIGHT LAW §3.04 (6th ed., 2014); see also SIMON STOKES, DIGITAL COPYRIGHT: LAW AND PRACTICE 137 (5th ed., Hart Publ'g 2019).

³⁶⁵ 17 U.S.C. § 101 (2022).

³⁶⁶ See Council Directive No. 2009/24/EC, 2009 O.J. (L 111) 16. Article 1 states:

In accordance with the provisions of this Directive, Member States shall protect computer programs, by copyright, as literary works within the meaning of the Berne Convention for the Protection of Literary and Artistic Works. For the purposes of this Directive, the term 'computer programs' shall include their preparatory design material.

³⁶⁷ Council Directive No. 91/250/EEC, 1991 (O.J.) (L 122) 42 (repealed in 2009 and replaced by codified text: Council Directive No. 2009/24/EC, 2009 O.J. (L 111) 16)); Stokes, *supra* note 364, at 137.

³⁶⁸ See 17 U.S.C. § 1201(f) (2022). Users can still decompile the closed source software, but only in cases exhaustively listed by law. *Id.*

³⁶⁹ Stokes, *supra* note 364, at 158-9.

³⁷⁰ *Id.*

³⁷¹ See generally Mark A. Lemley & Ziv Shafir, *Who Chooses Open-Source Software*, 78 U. CHI. L. REV. 139 (2011).

³⁷² *Id.*

³⁷³ *Id.*

³⁷⁴ Pryor & Sessa, *supra* note 78, at 27.

³⁷⁵ Karyn Gorman, *Open or closed? A key battle over the metaverse is underway that will decide the buzzy technology's future*, FORTUNE (Mar. 12, 2022), <https://fortune.com/2022/03/12/metaverse-open-closed-source-nft/>.

³⁷⁶ *Id.*

³⁷⁷ *Id.*

³⁷⁸ See Stokes, *supra* note 364, at 158-59; see also Leaffer, *supra* note 281, at § 10.13.

engineering, subject to certain preconditions.³⁷⁹ However, this issue may become more important with the development of the Metaverse.

5. Blockchain Technology and the Metaverse

Blockchain may have a huge role on the Metaverse. According to some, the Metaverse may be successful only if it is decentralized, based on blockchain, and open for all contributors.³⁸⁰ On Web 2.0, big companies control data while bringing in large profits from it.³⁸¹ On the other hand, Blockchain may give control over data to its users.³⁸²

Blockchain revolutionized the recording, storing and synchronization of digital information.³⁸³ Blockchain may be defined as “distributed ledger technology” as it uses a peer-to-peer network of computers to store a ledger of synchronized data.³⁸⁴ Such data is not controlled by a single entity or a single controller.³⁸⁵ Rather, it is controlled by a consensus of users jointly agreeing to modify such data.³⁸⁶ As a result, blockchain is disintermediated, contrary to the Web 2.0 Internet, which is centralized and controlled by big corporations.³⁸⁷

Blockchain blends several prior technologies, such as peer-to-peer networks, public-private key cryptography, and consensus mechanisms.³⁸⁸ As a result, blockchain creates “what can be thought of as a highly resilient and tamper-resistant database where people can store data in a transparent and nonrepudiable manner and engage in a variety of economic transactions pseudonymously.”³⁸⁹ Blockchain technology allows for the hiding of users’ identity; however, most blockchains rely on pseudonymous technology, rather than purely anonymous technology.³⁹⁰

Blockchain may also be a main pillar of the Metaverse. Firstly, blockchain technology is viewed as more secure than the centralized infrastructure.³⁹¹ Secondly, blockchain may allow for the incorporation of NFTs, smart contracts, and

³⁷⁹ See 17 U.S.C. § 1201(f) (2022); see also Council Directive No. 2009/24/EC, art. 6, 2009 O.J. (L 111) 16) on the legal protection of computer program. In 2021, the Court of Justice of European Union (CJEU) ruled that the reverse engineering of software to correct errors in the functioning of that software does not infringe copyright (case C-13/20, Top System SA v. Belgian State). *Id.*

³⁸⁰ Bart Cywinsky, *Metaverse vs. VR – why they’re not the same*, UIG INSIGHTS (Feb. 11, 2022), <https://uigstudio.com/insights/metaverse-vs-vr-differences-future>.

³⁸¹ See APRIL FALCON DOSS, *CYBER PRIVACY: WHO HAS YOUR DATA AND WHY YOU SHOULD CARE* 65-6 (BenBella Books, 2020).

³⁸² Guy Zyskind, et al., *DECENTRALIZING PRIVACY: USING BLOCKCHAIN TO PROTECT PERSONAL DATA*, 180 (2015) <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7163223>.

³⁸³ Evans, *supra* note 62, at 233-34.

³⁸⁴ *Id.*

³⁸⁵ PRIMAVERA DE FILIPPI & AARON WRIGHT, *BLOCKCHAIN AND THE LAW: THE RULE OF CODE 2* (Harv. Univ. Press, 2018).

³⁸⁶ *Id.* at 42.

³⁸⁷ Doss, *supra* note 381, at 65-6.

³⁸⁸ Filippi & Wright, *supra* note 385, at 2; see also Balazas Bodo, et al., *supra* note 146, at 313-4.

³⁸⁹ Filippi & Wright, *supra* note 385, at 2.

³⁹⁰ *Id.* at 83.

³⁹¹ Pixelplex, *Decentralized economy – the Role of Blockchain in the Metaverse*, PIXELPLEX (Feb. 9, 2022), <https://pixelplex.io/blog/importance-of-blockchain-in-metaverse/>.

cryptocurrencies.³⁹² Thirdly, blockchain may facilitate interoperability of different Metaverse platforms.³⁹³ Fourthly, the Metaverse may be successful only if all users can experience identical, synchronized, virtual environments, and the decentralized blockchain may allow for such synchronization.³⁹⁴ Lastly, blockchain may function globally, providing access to the Metaverse without involvement of a centralized authority.³⁹⁵

Technology, which may “give birth” to the Metaverse, can also help prevent copyright infringements common on the Internet.³⁹⁶ On Web 2.0, one of the challenges copyright holders face is an inability to police copyright infringements and enforce rights.³⁹⁷ However, problems created by one digital technology may be solved by applying other digital technology, such as blockchain.³⁹⁸ Blockchain allows for the registration of work in digital form, attaching, “a unique fingerprint (also known as a cryptographic hash) for each copyright record . . . [that] contains the image file as well as the copyright owner’s name and email.”³⁹⁹ Having registered a work, copyright holders may digitally police various websites to find infringing content.⁴⁰⁰ However, despite its importance, blockchain cannot solve all copyright problems of the Metaverse.⁴⁰¹

III. CONCLUSION

It is currently unclear who will build, own, or run the Metaverse. Even the definition of the Metaverse is still under discussion. Despite the uncertainty that exists, at least two things are clear. First, the Metaverse feels real and there is some evidence that it may become reality.⁴⁰² Second, the Metaverse may raise various legal issues, including ones related to copyright law.⁴⁰³ These issues require legal analysis which may keep lawyers and lawmakers busy for many years to come.

In this article, the Metaverse is described as the immersive Internet where users utilize headsets or other equipment within a three-dimensional online environment.⁴⁰⁴ Users must utilize avatars to represent them in the Metaverse.⁴⁰⁵ The

³⁹² *Id.*

³⁹³ *Id.*

³⁹⁴ *Id.*

³⁹⁵ *Id.*

³⁹⁶ JOHN TEHRANIAN, INFRINGEMENT NATION. COPYRIGHT 2.0 AND YOU 2-4 (2011).

³⁹⁷ Evans, *supra* note 62, at 258.

³⁹⁸ Tom Kulik, *How Blockchain Just May Transform Online Copyright Protection*, ABOVE THE LAW (Feb. 12, 2018), <https://abovethelaw.com/2018/02/how-blockchain-just-may-transform-online-copyright-protection/>.

³⁹⁹ *Id.*

⁴⁰⁰ Evans, *supra* note 62, at 259.

⁴⁰¹ Kulik, *supra* note 398.

⁴⁰² Ghlionn & Hamilton, *supra* note 7.

⁴⁰³ Nitin Kumar, *Six Unaddressed Legal Concerns for The Metaverse*, FORBES (Feb. 17, 2022), <https://www.forbes.com/sites/forbestechcouncil/2022/02/17/six-unaddressed-legal-concerns-for-the-metaverse/?sh=2b3a1b437a94>.

⁴⁰⁴ See Chen, *supra* note 80; see also Clark, *supra* note 80.

⁴⁰⁵ Wolfson, *supra* note 9.

Metaverse promises to blur the line between the real world and virtual reality.⁴⁰⁶ Despite this futuristic concept, some studies suggest that such blurring is possible.⁴⁰⁷

The Metaverse will probably develop faster than adoption of its legal regulation.⁴⁰⁸ Moreover, global regulation will also be a significant challenge.⁴⁰⁹ If the regulation of the Metaverse is adopted too early, without substantial research and open discussion, it may not bring desired results.⁴¹⁰ On the other hand, if the technology develops unchecked and uncontrolled, its ensuing damage may be irreversible.

This article argues that despite merging various technologies, the Metaverse should not require fundamental changes to copyright law. The article expresses hope that the core principles of copyright law can provide answers to most Metaverse related copyright challenges. At the same time, we should be mindful of the fact that copyright law has not fully adapted to the realities of the Web 2.0 Internet. This article does not provide answers to all questions related to the Metaverse and its possible copyright challenges. Its purpose is to start a discussion of potential problems.

It is unclear how the Metaverse may affect users' privacy. However, if developed, the Metaverse will likely raise challenges related to the collection and processing of users' behavioral data such as facial expressions, emotions, eye movements, and body language.⁴¹¹ Currently, big technological companies do not possess such data.⁴¹² How will companies use such information and how will they analyze users' behavior? Today, the answers remain unclear. However, these issues require the attention of lawmakers before the behavioral data is available to big companies and is rendered forever out of users' control.

I conclude this article by expressing hope that the humanity will not hide in the Metaverse from its real-life problems. The Metaverse may be used for various beneficial purposes, but it should not become a dystopian nightmare where people spend most of their time aiming to escape from a disappointing reality.

⁴⁰⁶ Pryor & Sessa, *supra* note 78, at 5.

⁴⁰⁷ Lemley & Volokh, *supra* note 17, at 1136 (according to cognitive research, users of VR often act in the same way as in the real world); *see also* Yadin, *supra* note 70, at 842.

⁴⁰⁸ Dwoskin et al., *supra* note, at 56.

⁴⁰⁹ Martyn Boyd, *Regulating the Metaverse: Can We Govern the Ungovernable?*, FORBES (May 16, 2022), <https://www.forbes.com/sites/martinboyd/2022/05/16/regulating-the-metaverse-can-we-govern-the-ungovernable/>.

⁴¹⁰ *See* Louis B. Rosenberg, *Regulation of the Metaverse: A Roadmap The risks and regulatory solutions for largescale consumer platforms*, 6TH INTERNATIONAL CONFERENCE ON VIRTUAL AND AUGMENTED REALITY SIMULATIONS (ICVARS 2022) (March 25-27, 2022),

https://www.researchgate.net/publication/358989449_Regulation_of_the_Metaverse_A_Roadmap; *see also* Louis B. Rosenberg, *The metaverse needs aggressive regulation*, VENTURE BEAT (Dec. 4, 2022), <https://venturebeat.com/2021/12/04/the-metaverse-needs-aggressive-regulation/>.

⁴¹¹ Heller, *supra* note 36, at 27-9.

⁴¹² *See* Hunter, *supra* note 209.