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INTELLECTUAL PROPERTY RIGHTS IN THE METAVERSE

The contribution is examining the exciting technological phenomenon of the metaverse through the lens of Intellectual Property Rights (IPR) and their potential application in this virtual ecosystem. More precisely, the focus of the paper is on three types of Intellectual Property Rights – Copyright, Patents and more extensively Trademarks. Firstly, the author offers some definitions and pinpoints the main features of the emerging virtual realities, as well as clarifies their interplay with blockchain technologies. Also, she underlines the flexibility of IPRs and the intangible nature of their protected subject matter, which makes it easier to extend the implementation of their legal norms from the real world to the realms of the metaverse. Further, the paper explores for each of the three IPRs the potential to contribute to the development of the metaverse and its economy, e.g. through the creation of virtual works of art and trading with “art NFTs”; registering Patens for hardware systems and devices that enable access to the metaverse (e.g. AR or VR glasses), and creating, trading and protecting through Trademarks virtual goods, which represent intangible twins of their branded real-life products.

Keywords: Intellectual Property, metaverse, NFT, copyright, patent, trademark.

1. INTRODUCTION

During the COVID-19 pandemic, a myriad of very common and everyday activities such as visiting a museum or a gallery, buying clothing at the store and showing them off in a public setting, going to a concert, travelling, and doing a sightseeing tour, collaborating on a project with your co-workers etc. became impossible due to worldwide lockdowns and safety restrictions. Physical distancing became the new social norm and affected many aspects of our lives. This was particularly the case for people whose professions are based on interhuman connections and whose income relies to a major extent on implementing in-person events – such as musicians (EUIPO, 2022a). For many people, the first ever encounter with the concept of the metaverse, if it was even popularized as a term

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at the time, in fact, happened during the pandemic. It occurred through a series of virtual musical events, which took place in 2020 and 2021 in the virtual reality of the video game Fortnite (Ariana Grande and Travis Scott) or the metaverse Roblox (LiL Nas), with more than impressive audience numbers of 78 million for Grande and nearly 46 million for Scott (Mirrorworld, 2022; EUIPO, 2022a). However, some artists tested the “virtual-tour waters” even before, such as Marshmello in 2019 (Mirrorworld, 2022).

Due to the lack of social interaction, the curiosity for the potential of virtual worlds rose during those years, coupled with the enthusiasm for cryptocurrencies and non-fungible tokens or NFTs. With all those elements combined, virtual ecosystems started to develop. Virtual goods as digital twins of real-life (branded) products were created, cryptocurrencies were being used as the means of their payment on the virtual marketplaces, NFTs were minted on the blockchain, which referred to those goods or digital works of art, new software applications for the metaverse were implemented, and innovative hardware devices were introduced to enhance the merging of the real and the virtual worlds.

And then came the legal issues. While these arose in many areas of law, the present paper aims to examine the interplay between three particular Intellectual Property Rights - copyright, patents and trademarks - and the metaverse. Similar to the Internet, which was in the period of its emergence wrongfully considered ungovernable and lawless, the metaverse also does not represent a “virtual Wild West”. The question is, however, to what extent the legal norms of Intellectual Property drafted for the real world can be applied in the metaverse and which particular challenges does this technological phenomenon pose on copyright, patents and trademarks.

2. WHAT IS/ARE METAVERSE(S)?

Despite the fact many connect the term “metaverse” with the change of name of the company Facebook to Meta (Meta, 2021), this expression was coined long before. It was first used in the science fiction novel “Snow Cash” (Goodreads) from 1992, written by Neal Stephenson (Kaulartz, Schmid & Müller-Eising, 2022, p. 522; Uhlenhut & Bernhardt, 2023, p. 139). Even though the year of the book publication belongs in the era of Web 1.0 (Ro, Brem & Rauschnabel, 2018, p. 171), Stephenson had a vision of how Internet might evolve into a sphere based on virtual reality. The etymology of the phrase “metaverse” is based on the Greek word “*meta*”, which means “after” and the Latin word “*universus*” (Uhlenhut & Bernhardt, 2023, p. 139), which means “whole” or “turned into one”. Furthermore, although this concept became a catchphrase in recent years, many are unaware that already since 2003 and the introduction of the 3D virtual world “Second Life” (Second Life), we had the opportunity to “dive into” the predecessor of the metaverse of today (Uhlenhut and Bernhardt, 2023, p. 140; EUIPO, 2022a). The participants of this - what was back then considered only to be - a game, were able to create their own virtual reality, in which they would e.g. participate and interact with each other as avatars, buy and trade virtual goods and pay them with a virtual cryptocurrency “Linden Dollar” (Uhlenhut & Bernhardt, 2023, pp. 139 *et seq.*).

We might get lost in search of its definition, as metaverse is a rather new technological phenomenon, which is still in development and there is in fact no unanimous and, in particular, no generally applicable legal definition of the term. Some call it a new phase in the evolution and development of the Internet (Dietsch, 2022, p. 378; Tann, 2022, p. 1645), others even label it as its successor (Uhlenhut & Bernhardt, 2023, p. 139), while some define it as a virtual space, where users, without leaving the comfort of their home, can interact with each-other in multitude of ways, such as shopping, gaming, collaboration etc. (Park, 2022, p. 1).

Nevertheless, what we can agree on is that metaverse is a rather broad concept, characterized by several definable features, including Virtual Reality, Virtual Assets, Digital Identities (avatars or digital twins) and Interoperability, and which can be more or less prominent depending on the type of metaverse (Kaulartz, Schmid & Müller-Eising, 2022, pp. 522 *et seq.*).

Furthermore, metaverse can be operated in a centralized (e.g. Second Life) or a decentralized (e.g. Decentraland) manner (Uhlenhut & Bernhardt, 2023, p. 140), it can be accessed through a browser (2D), or by means of Virtual Reality (hereinafter: “VR”), or Augmented Reality (hereinafter: “AR”) glasses (Ro, Brem & Rauschnabel, 2018, pp. 170 *et seq.*; Dietsch, 2022, pp. 279 *et seq.*), as well as with the help of so-called haptic, or VR- suits and it could be openly accessible to everyone or just a particular group of users (Kaulartz, Schmid & Müller-Eising, 2022, pp. 522 *et seq.* and 525).

Finally, it’s important to underline that the metaverse it’s not (yet) a single phenomenon, but there are currently many existing metaverses, which are not connected with each other, and their number is constantly increasing (Uhlenhut & Bernhardt, 2023, pp. 139 *et seq.*; Kaulartz, Schmid & Müller-Eising, 2022, p. 524; Ćeranić Perišić, 2022, p. 638).

3. VIRTUAL GOODS/SERVICES AND NFTs

From the perspective of Intellectual Property Rights (hereinafter: “IPR” or “IP”), in particular, the use of virtual goods/services, as well as non-fungible tokens (hereinafter: “NFT”) in the metaverse, which fall into the metaverse feature of Virtual Assets, carries a lot of weight. Nevertheless, before we begin discussing the specific scenarios and issues that occur in virtual reality regarding individual types of IPRs, it is of important to clarify the above-mentioned categories and the distinction between them.

Virtual goods (and services, as applicable) are intangible goods, which can be inspired by or represent a truthful digital replica of their physical counterpart (e.g. a virtual car, or a piece of clothing for an avatar, which also exists in the real world), but can also be fully an expression of their creator’s imagination and solely have a digital existence (Tann, 2022, p. 1645). Furthermore, not all virtual goods used in the metaverse are authenticated by NFTs and they don’t have to be, but they can (Tann, 2022, p. 1645). In case they are, the “trading” of those goods uses blockchain technology as an instrument, which supports the transactions on the online marketplace within a particular metaverse.

When it comes to NFTs, it is important to underline the difference between the NFTs themselves on the one hand, which represent “unique digital certificates registered in a

blockchain, which **authenticate** digital items” and the particular digital item (e.g. virtual good or a digital work of art) to which the NFT refers to, and is distinct from the NFT (EUIPO, 2022b), on the other. They are not one and the same. The non-fungibility of the token is based on the fact that they are not exchangeable with tokens of the same kind (Grieger, von Poser & Kremer, 2021, p. 406), unlike e.g. crypto-currencies. Finally, it needs to be pointed out that there are several attributes not substantially assigned to these cryptographic units of data (Ramos, 2022, p. 1), only some of which we will clarify later in the context of metaverse and copyright.

4. METAVERSE AND IPRs

The concept of dealing with and awarding protection to something that is intangible (i.e. immaterial), which constitutes one of the main features of the metaverse and the virtual markets in the context of virtual assets, is rather “old news” for IPRs, such as copyright, patents, trademarks or industrial designs. For more than 300 years, the purpose of IPRs has been to safeguard the intangible creations of the human mind. Therefore, it is a natural consequence that IPRs are playing a pivotal role in shaping the metaverse realm (Uhlenhut & Bernhardt, 2023, p. 146), but also that the participants in this virtual reality will need to respect IPRs just like in the real world (Ramos, 2022, p. 2).

As is the case with the Internet, in the metaverse as well there is no legal vacuum (Uhlenhut & Bernhardt, 2023, p. 141) and it is without a doubt that IPRs enjoy protection also in virtual reality, particularly due to their above-mentioned nature (Ramos, 2022, p. 2). However, it is necessary to establish - and that will probably be the role of courts - how to apply the existing national and EU IP norms to the circumstances that occur in the virtual sphere. Nevertheless, one might argue that despite their adaptable nature and the similarity of the subject matters they protect, with the virtual assets dealt with in the metaverse, IPRs would still need to undergo a certain reform, in order to be applicable in the metaverse. That might even be true. However, we can hardly expect some radical interventions in the existing legal framework. While the IPRs have throughout their history been continuously challenged by technological advancements - from the printing press, radio and television broadcasting, the photocopying machine, digital technologies, and the Internet, the existing IP principles and legal provisions were always able to accommodate such developments, without the need to “reinvent the wheel” each time (EUIPO, 2022a).

4.1. Metaverse and copyright

Case law (Urteil des Landgerichts Köln, 2008, p. 535) confirming that works that are eligible for copyright protection can also be generated in the virtual space, like in the metaverse game “Second Life”, is already in place.

Digital (or virtual) art and the online market for such art is not a novelty introduced by the birth of the metaverse but has been a rather profitable business (Papastefanou, 2022, p. 344) for decades. The emergence of digital technologies resulted in the digital format

becoming the predominant form of expression for different categories of copyrighted works. Consequently, the marketplaces within particular metaverses can also include the trade of digital or digitized works of art – in the sense of them being “digitally born” (originally created in the digital format and even in the metaverse itself) or representing digital twins of physical works from the real world (Papastefanou, 2022, p. 344). Unlike the physical art, where a lot of the market value of the actual work is vested in the fact that there is only one unique piece of it (an original), or an explicitly limited number of pieces of that work, which is/are authenticated by its author’s signature, this does not apply to digital art. Every digital file of that work of art is the same and it can be usually very easily (also illegally) reproduced, once the work is online (Garbers-von Boehm, Haag & Gruber, 2022, p. 18). That is when the so-called “art NFTs” come into play and connect the metaverse marketplaces with the blockchain economy, in the way that they attempt to resolve the problem of the lack of “uniqueness” of digital art (Papastefanou, 2022, p. 344). Namely, through the connection of the file of the digital work of art to the unrepeatable and unique token, a public perception is created that the latter file can be considered an “original (file)”, which increases its value due to this new-won “uniqueness” (Garbers-von Boehm, Haag & Gruber, 2022, p. 17). However, as a matter of fact, this “uniqueness” is nothing more than a matter of impression, since the category of “digital original” is somewhat of an oxymoron (Papastefanou, 2022, pp. 344 *et seq.*).

Although the hype around the so-called “Art NFTs” is still very much ongoing, one needs to bear in mind that the acquisition of the NFT only gives one the power to dispose of the token itself, but not necessarily also the right to the digital asset that the token is referring to (Kaulartz, Schmid & Müller-Eising, 2022, pp. 527 *et seq.*; Hugendubel & Dönch, 2022, p. 454). In case the asset represents a digital work of art protected by copyright, the NFT “owner” also, as a rule, obtains no copyright by the act of creation, or the “purchase” of the NFT at stake. Finally, the connection between the NFT and the digital artwork itself is more trust-based than actually technical or legal and it is built on the perception and mutual trust within the NFT communities (Papastefanou, 2022, p. 347). Hence, the spirit of idealization surrounding the potential, capabilities, and attributes of “art NFTs” and NFT markets, did not necessarily take into consideration the technical and in particular the legal limitations related to this technological phenomenon (Papastefanou, 2022, p. 342).

Several potential issues related to “art NFTs” from the copyright perspective are being discussed, particularly the legal implications of the technical steps that accompany the process of “minting”, or the creation of the “art NFTs”. Then, regardless of whether the digital file of the work of art (the source), to which the new “art NFT” is going to refer to, is stored on the blockchain (which is rarely the case), or in a repository outside of it, this act of storing represents a reproduction of the work, which is an exclusive economic right of the author (Garbers-von Boehm, Haag & Gruber, 2022, pp. 31 *et seq.*). Consequently, as a rule, only the authors or third authorized parties are entitled to create such NFTs, or otherwise there is a copyright infringement, which can thus also take place on the metaverse marketplaces.

4.2. Metaverse and patents

When it comes to the topic of this particular IPR, metaverse-related patent filings stand at the forefront of the discussion. Patents give their owners a set of exclusive rights to economically exploit the protected inventions and thus incentivize further innovation, but also play an important role in the stimulation of technological progress through the dissemination of technical information. Again, patent legislation also extends its application to the realm of the metaverse. Therefore, inventions developed, and patents obtained for use in the metaverse will need to meet the same protection requirements as the ones for the real world, i.e. novelty, inventive step and industrial applicability (European Innovation Council and SMEs Executive Agency, 2022).

The metaverse represents an emerging technological phenomenon, the borders, applications and manifestations of which we are yet to grasp. Filing patents for metaverse-related inventions represents a strategic step for visionary companies, which are brave enough to act as “first movers” and, despite the (economic) risks, attempt to secure their position and obtain priority in shaping and influencing the form and content of the virtual realities (Caulder, Kovarik & Benham, 2022). Consequently, future-oriented technology companies, such as Roblox, Nvidia, Epic Games, Microsoft, IBM, Unity, Apple and of course, Meta have long begun applying for patent protection regarding metaverse technologies (Caulder, Kovarik & Benham, 2022). The latter include software inventions (where the relevant patent legislation allows it) and inventions of hardware systems and devices (headsets, suits, displays, cameras, user control interfaces etc.) related to the above-mentioned AR, VR, but also mixed reality (hereinafter: “MR”) and extended reality (hereinafter: “XR”) (Caulder, Kovarik & Benham, 2022; De Pablo, 2023; European Innovation Council and SMEs Executive Agency, 2022; Zodieru & Gelfound, 2023; Gerratana, 2023). The goal of the metaverse-related hardware innovation is partially focused on removing real-life difficulties when accessing virtual realities, which at this point still determines metaverse as a niche technological concept. They include e.g. the reduction of the weight and bulk of VR/AR/MR/XR kits for the users to be able to wear them for longer periods of time and introducing means in these kits that prevent e.g. motion sickness etc. (De Pablo, 2023). When it comes to patenting software-based inventions, e.g. the ones implementing processes that are new, or perhaps also already known in the real world, it is important that they also entail metaverse-specific problem solutions, in order for them to qualify for obtaining patent protection (Gerratana, 2023).

From January 2020 to May 2022 there have been 4,670 metaverse-related patent applications filed at the United States Trademark and Patent Office (hereinafter: USPTO) (Cryptoflies, 2023). The surge of metaverse-patenting is mostly related to the United States of America and China as a runner-up, but not necessarily to Europe, mostly due to the lack of patentability of computer programs per se (De Pablo, 2023). Notwithstanding, a computer program-based invention, which displays technical application or implementation, could potentially obtain patent protection in Europe as well (European Innovation Council and SMEs Executive Agency, 2022).

One of the most prominent examples of patents in relation to metaverse and the supporting blockchain technology is related to the project “CryptoKicks” and it’s a patent owned by the company Nike for the “system and method for providing cryptographically secured digital assets” (Patent No. US 10, 505,726 B1, 2019). According to the published patent, when a consumer buys a genuine pair of shoes (“kicks”), a digital representation of a shoe may be generated, linked with the consumer, and assigned a cryptographic token (an NFT), where the digital shoe and cryptographic token collectively represent a “CryptoKick”. Consequently, the invention enables the connection between a physical pair of sneakers, and their digital representation (virtual good), which can be worn by the buyer’s avatar in virtual reality (De Pablo, 2023) - the Nike-created metaverse called “Nikeland”. In a sense, the “CryptoKick” NFTs also serve as certificates of authenticity for the physical shoes (Hugendubel & Dönch, 2022, p. 452; European Innovation Council and SMEs Executive Agency, 2022).

Notwithstanding the latter, there is a number of questions that the virtual reality of the metaverse poses before the patent law, e.g. the legal regime of inventions created in the metaverse by an avatar, the conflict between the territoriality of patent protection and the ubiquity of the metaverse (European Innovation Council and SMEs Executive Agency, 2022), the assessment of novelty in the context of metaverse (Nega, 2023) etc., which are yet to be answered.

4.3. Metaverse and trademarks

The last, but certainly not the least interesting IPR, which is of particular significance in the context of the metaverse, is trademark. Unlike with regard to works of authorship, which are created in the domain of literature, science and art, where the focus is on the author as the original copyright holder and his/her connection to the work, or patents where the legal systems award protection to inventors to promote further innovation and publication of technical information, with trademarks we find ourselves primarily in the arena of commercial activities of subjects, who use their trademarks as identifiers in market competition. A trademark is at the same time an instrument of business and a right that protects a sign, which serves to distinguish goods or services of one participant in the economic life from the same, or similar goods or services of other participants.

Initially, when introducing trademark rules, the national and EU-legislator had only in mind the identification and distinction of physical goods (and services), which are available on the real or the digital market (e-commerce), without anticipating the creation of the metaverse as a completely independent, virtual market of intangible goods. Hence, the emergence of the metaverse introduced several very new and controversial dilemmas. For example, in the event that virtual goods/services in some way contain a trademark of an entity, that has not given its consent for the use of that trademark in those goods/services, does this represent a trademark violation, even though the trademark protection only applies to physical goods/services? A similar question arises also in the context of NFTs when someone creates an NFT and the virtual goods or services

to which that NFT refers, or the NFT itself, involve a trademark of a third person, who is not the “owner” of the NFT in question. Furthermore, does the trademark protection from the real world, which is acquired for physical goods and services, in general, extend to the virtual environment and virtual goods and services? Finally, is it a prerequisite for establishing trademark violation in the metaverse, that the trademark holder himself already operated in the virtual market in the same sector as the unauthorized trademark-NFT creator, or the creator of virtual goods/services including his trademark? And many, many more.

The mentioned dilemmas did not seem to negatively affect the metaverse economy. According to the latest data, the revenue in the metaverse Virtual Assets market is projected to reach US\$ 2.45 billion in 2023 and the number of users in this market is expected to amount to 38.56 million by 2030 (Statista). It is of importance to underline that this economy is being implemented with the support of other technologies, in particular blockchain technology, which enables the acquisition and trading of virtual goods (and services) in the virtual marketplaces that exist within metaverse platforms. Furthermore, these goods (e.g. clothing, cars, real estate) and services (e.g. in the field of education or tourism) are being paid in cryptocurrencies (Uhlenhut and Bernhardt, 2023, p. 140), thus the metaverse and the blockchain economy are vitally intertwined.

4.3.1. The scope of trademark protection in the metaverse

Many companies have discovered and recognized the virtual reality world as a new business opportunity. The latter is, in particular, the case with cosmetic, entertainment fashion and sports fashion (e.g. Nike and Converse) industry, where the garments are offered either solely as virtual clothing for the avatars (so-called “skins”), or as so-called “phygitals” (Prior, 2021), i.e. as a combination of a physical good (e.g. a pair of shoes) for the real person and the respective virtual good for his/her avatar in the metaverse (Uhlenhut & Bernhardt, 2023, pp. 140 *et seq.*; Park, 2022, p. 1). A number of renowned fashion companies, such as Hugo Boss, Tommy Hilfiger, Versace and Levi’s recently filed trademark applications at the USPTO to enter the metaverse, offer virtual goods, but also virtual spaces where brand-lovers can socialize and establish communities and also participate in virtual fashion shows, such as Decentraland’s Metaverse Fashion Week (Cryptoflies, 2023).

However, there are also other companies, that have not (yet) shown interest in expanding their business activities to the metaverse, which some third parties recognized as an opportunity to use those branded products in the metaverse to their gain, like in the case of Hermès (Eshaghian, 2023), or even to try and obtain trademark protection in bad faith for themselves, as it was the case with Gucci and Prada (Uhlenhut & Bernhardt, 2023, p. 143; Park, 2022, p. 2). This poses the question, to what extent can someone else’s trademark be freely used in connection to a virtual good or an NFT referring to that good? Since there is a myriad of potential applications for a trademark in the virtual sphere, there is no clear answer to that question and only the future case law on this issue will provide us with some clarity.

However, in the context e.g. of gaming, there are already to an extent some principles established by courts (Uhlenhut & Bernhardt, 2023, p. 143; Körber & U-Ju, 2007, pp. 613, 615; Ramos, 2022, p. 3). According to the latter, the target users of a computer game, which e.g. includes a computer-simulated replica of a model vehicle that actually exists in reality and carries the trademark of the manufacturer, will actually not assume that this virtual vehicle stems from the original producer, but only perceive it as an expression of a truthful virtual representation of reality. Furthermore, like in the case of the use of the Humvee military vehicle in the video game “Call of Duty”, the goal of the game manufacturer was not to use the trademark, but to display a realistic virtual replica in the game setting, which includes also a truthful virtual simulation of the vehicle (including the trademark it carries). Therefore, such use was established by the United States District Court of the Southern District of New York to have artistic value and to fall under fair use. Hence, there was no trademark infringement.

However, it is questionable if this principle can also be applied to the case of virtual goods and trademarks in the metaverse. The marketplaces, in particular of the open metaverse platforms, are based on a different approach by the relevant public, in the sense that the participants in the virtual reality are searching out, purchasing and trading virtual goods, exactly because they represent a counterpart of the branded physical good of a particular manufacturer (Uhlenhut & Bernhardt, 2023, p. 144). Perhaps one that they desire and would like to buy in the real world but cannot afford, or plainly cannot even have access to, due to its exclusivity. Consequently, virtual products carrying strong trademarks can be viewed as status symbols as much as their counterparts from the real world (Uhlenhut & Bernhardt, 2023, p. 141).

Furthermore, there is another reason for the distinction regarding the approach to the use of branded virtual goods in plain virtual computer games, on the one hand, and in the metaverse-type virtual realities on the other. Specifically, it lies in the demarcation between these two types of virtual worlds based on their characteristics (Dietsch, 2022, p. 380). Whilst virtual computer games usually display the elements of closed virtual worlds (so-called “Theme parks” and “Mashup Systems”), metaverses are open virtual realities, which can be internalized (e.g. Second Life) and are classified as so-called “Walled Gardens”, or externalized, and fall into the category of so-called “Sandboxes” (e.g. Decentraland) (Dietsch, 2022, pp. 380 *et seq.*; Radoff, 2022). Both “Walled Gardens”, in which the users can participate in designing the virtual world by e.g. creating new content (even new virtual goods), but the economy of the world (e.g. rules, currency and purchasing) is controlled by the platform’s creator and “Sandboxes”, as platforms that can be altered and redesigned by users and shared also outside of this system, have the potential of harbouring real markets within these virtual worlds (Dietsch, 2022, pp. 380 *et seq.*; Radoff, 2022). Furthermore, when we consider that transactions related to virtual goods in the metaverse are based on the use of cryptocurrencies and also often the use of blockchain technology by means of NFTs identifying these goods, it is clear that virtual markets have an enormous economic impact. The latter is a feature that makes them different from virtual computer games and justifies a different legal approach toward the use of trademarks in the metaverse.

4.3.2. *Similarity between virtual and physical goods*

When entering the virtual market, cautious trademark owners from the real world should as soon as possible seek trademark protection for corresponding virtual goods. It is questionable whether the effects of trademark protection for tangible goods and for services provided in the physical context can without reservation be expanded also to the virtual reality. Furthermore, one could argue as to whether there is even similarity between physical goods and real-life services and their virtual counterparts (Uhlenhut & Bernhardt, 2023, p. 145) and whether a likelihood of confusion between the real-life trademark and identical or similar signs used on virtual goods/services can be established (Park, 2022, p. 3).

As some authors point out (Tann, 2022, pp. 1646 *et seq.*), a vast number of elements were examined in order to establish the existence of that likelihood, or a lack thereof, such as the relevant public, similarity of goods with regard to their distribution channels, promotion, designated use and business practice, show that there even might not be one. Although the examination result will most certainly be case-dependent, in general, the analysis shows (Tann, 2022, pp. 1646 *et seq.*) that the relevant public displays a higher level of attention when buying virtual than real goods, that virtual goods have different distribution channels than their physical counterparts and that those two categories don't substitute each other regarding the designated use. Nevertheless, similar platforms are used for the promotion and marketing of both virtual and real goods and due to new business practices of companies, which tend to extend their real-life business to virtual markets and corresponding expectations of the public to find virtual twins of their physical products, the conclusion is that there is a level of similarity between virtual and material goods; however it is considered to be weak (Tann, 2022, pp. 1647 *et seq.*). In other words, trademark owners need to enhance their trademark portfolios with a set of separate trademarks for the virtual counterparts of the goods and services they offer in the real world. Otherwise, they might find it difficult to protect themselves from the use of those real-life trademarks on virtual goods and services by third parties in the metaverse.

The latter should not however necessarily be a problem for owners of well-known marks, since they only need to show the likelihood of association or the mental link between their trademarks and the signs used on virtual goods/services (Park, 2022, p. 3; Tann, 2022, pp. 1649 *et seq.*).

4.3.3. *Registration of trademarks for the metaverse*

Notwithstanding the latter, several issues arise also when a trademark application is sought in connection to virtual products used in the metaverse. One of them is, for example, comparable to patents, the principle of territoriality of trademarks, which poses the question of which territories trademark protection for virtual goods/services be sought, in order for it to enjoy protection in the (worldwide) metaverse (Uhlenhut & Bernhardt, 2023, pp. 144 *et seq.*). Finally, there is also the dilemma of which class(es) of goods and services should a "metaverse-trademark" be applied for.

The metaverse-enthusiastic companies have in the early stages of “metaverse-oriented” trademark filing identified class 9 to be the most applicable for the virtual goods (downloadable virtual goods, namely computer programs) and classes 35, 36, 41 and 42 for the virtual services (Park, 2022, p. 2; Hugendubel & Dönch, 2022, p. 456). Hence, it was inevitable that, under the onslaught of trademark applications for virtual goods and services (as well as NFTs), the competent regional administrative bodies and international organizations needed to respond quickly to the needs of the market and adjust their rules.

Regarding the Nice Classification (WIPO, 2023), the commission of experts, composed of representatives of all the countries that make up this international agreement, and responsible for updating the classification, which is published every year in the form of new versions and every three years in the form of new editions (WIPO), didn't wait very long with its reaction. The new, 12th edition of the Nice Classification, which is effective from January 1, 2023, includes changes in classes 9, 41 and 42. What is interesting is that virtual goods and services are not classified in the same classes as their physical counterparts (Uhlenhut & Bernhardt, 2023, p. 141), but in the three above-mentioned classes. So, for example, luggage and leather clothing and footwear, which are classified in class 18, when in a virtual format (so-called virtual fashion), are not in that class, but in class 9. That class has been updated to include “downloadable digital files which can be authenticated by non-fungible tokens”. In other words, these are virtual products that are linked or identified by NFTs. Furthermore, the goods that in the earlier edition of the classification were qualified as “downloadable computer software for managing crypto-currency transactions using blockchain technology” have been redefined to “downloadable computer software for managing crypto-asset transactions using blockchain technology”, which clearly extends this class to other types of crypto assets, such as NFTs. In addition, class 41 now includes “providing of online virtual guided tours”, which may be an activity/service relevant to activities in the metaverse, and class 42 has been comparably expanded with respect to virtual services, so that instead of “crypto-currency mining/crypto-mining” now the term “crypto asset mining/crypto-mining” is used.

On the EU level, the European Union Intellectual Property Office (hereinafter: EUIPO), as an EU- executive body responsible for the registration of the supranational EU-Trademark, which exists parallel with the national trademark systems of the Member states, also adjusted its Examination Guidelines in 2023 (EUIPO, 2023, 6.25). The goal of this amendment was to accommodate the need of right-holders to protect their trademarks in the virtual world and to unify and regulate its approach to the classification and qualification of NFTs and virtual goods and services in this context. In general, the position of the EUIPO is that the terms “downloadable goods” and “virtual goods” lack clarity and precision and must be further specified (indicate which goods they refer to, e.g. downloadable goods, namely, downloadable multimedia files in class 9, or retail of virtual clothing in class 35 (EUIPO, 2023, 6.25). The term “NFT” as such is not considered by EUIPO to be acceptable and must also further specify the category (asset) to which it refers to (e.g. downloadable digital art, authenticated by an NFT in class 9) (EUIPO, 2023, 6.25; Tann, 2022, p. 1645).

5. FINAL REMARKS

Who would have thought that what at first glance seems only like a futuristic “make-believe world” (Park, 2022, p. 1) could have so many legal implications and raise a vast number of legal questions? This is true both for IPRs, but perhaps even more in relation to other legal fields, which are unfamiliar with the concept of protecting and dealing with intangible subject matter. There are many more dilemmas to come since the trajectory in which the metaverse will develop is still rather open. Also, its mainstream success is very much dependent on the possibility for its potential participants to use it on a mass scale (Kaulartz, Schmid & Müller-Eising, 2022, p. 522). This accessibility was not necessarily given when it comes to 3D virtual realities, due to the inadequacies and the prices of the hardware devices (e.g. AR/VR/MR glasses and haptic suits), but this can significantly change in early 2024, once a brand-new Apple product enters the market. In the Fall of 2022 Apple announced the development of its own mixed reality headset (Gerratana, 2023) and at the beginning of June of 2023 the Apple Vision Pro was introduced to the broad public (Apple, 2023). The latter represents an expression of spatial computing technology, it blends the digital and real world and supports both AR and VR applications (Cross, 2023). Since Apple is by now known to be able to boost new product categories (Sorkin *et al.*, 2023), this new headset might just be the catalyst for precipitating technological development in this field and could even conventionalize the use of such headsets. Finally, when we look at this new development from an IP perspective, it is noteworthy that Apple has filed over 5000 (metaverse-related) patent applications in connection to this headset (Cross, 2023).

Although many would be happy about it, as elaborated in this contribution, the metaverse by no means represents a lawless sphere (Kaulartz, Schmid & Müller-Eising, 2022, p. 531). In particular, the IPRs find it easier to achieve transferability and applicability of their legal norms to virtual realities. However, the enforcement of IPRs in the metaverse, due to its ubiquity, will be a separate challenge (Uhlenhut & Bernhardt, 2023, p. 146). The further developments in this field and the legal responses to it remain to be seen – from a real, or a virtual desk.

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