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PROPRIEDADE NO ASSUNTO

INNOVATION: SUSTAINABLE TECHNOLOGICAL ADVANCE

INNOVATIVE PERSPECTIVES ON INTELLECTUAL PROPERTY

Di Blasi, Parente 35 ANOS Associados

Instituto Di Blasi, Parente

Introduction

The “Propriedade no Assunto” magazine comes to the tenth edition and celebrates with a theme that is in the DNA of Di Blasi, Parente & Associados office: Innovation – Sustainable Technological Advancement.

Innovation has a direct correlation with Intellectual Property and it is the engine of the economy. This is the motto of several professionals who protect and support development, such as us from Di Blasi, Parente & Associados office, and was even mentioned in the special interview with Professor Luciano Leonel Mendes, coordinator of 5G and 6G research at the National Telecommunications Institute (Inatel). In the interview, the Electrical Engineering PhD at Unicamp spoke about the challenges of technological innovation, essential patents, the problem of patent trollers, what to expect from the new generation 6G and warns that 5G is not ready yet: “the only certainty that engineers are sure of is that people will use this technology (5G) in a way they could never imagine”.

What we can imagine – and expect – is revealed in the article that our Patent team elaborated on the advances and perspectives of the implementation of the fifth generation of mobile networks for the Internet of Things (IoT). Our experts warn that Brazil needs to break some barriers to keep up with technological developments, such as the qualification of labor, the advancement of telecommunications networks and the modernization of the infrastructure present in the national territory.

Our Trademark Law team prepared two articles. One of them addresses the tendency for brands to be explored in immersive virtual environments, such as the metaverse, presenting case examples and suggesting strategies for protecting brand identity in the digital world. The second article talks about the relevance of brand protection for the economic sustainability of the business and presents alternatives for its application in the digital world.

The NFT was the word of the year 2021 chosen by the British dictionary Collins and is the subject of one of the Legal team’s articles, which explores the appreciation of the NFT and the relationship with Copyright. The text argues about the real value of NFTs to the detriment of the insufficiency of intellectual property in dealing with the reality of information diffusion through digital means.

And last but not least, an article that addresses the technological solutions developed for the implementation of the Justice 4.0 Program, an initiative that aims to accelerate the digital transformation of the Judiciary. The National Council of Justice itself released a report in June 2022, revealing that artificial intelligence is already present in most Brazilian courts. There are 111 projects in execution or under development, which corresponds to an increase of 171% in one year.

Technology and digital transformation shape society’s behavior. And the Law follows this development. This issue shows how this change is happening.

Enjoy the reading!

Ronaldo Gueraldi & Editorial Committee

Di Blasi, Parente & Associados

Instituto Di Blasi, Parente

Summary

BEYOND IMAGINATION

Guest:

Luciano Mendes

Professor, PhD in Electrical Engineering, specialist in Telecommunications and researcher at the National Institute of Telecommunications

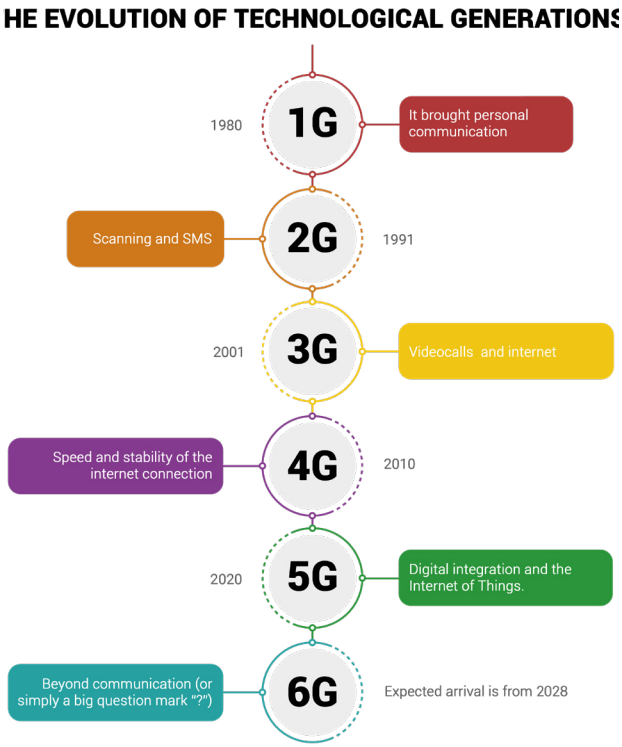
"The only certainty that engineers have is that people will use this technology (5G) in a way they could never imagine." This statement is from Professor Luciano Leonel Mendes, coordinator of 5G and 6G research at the National Telecommunications Institute (Inatel). He is Ph.D. in Electrical Engineering in the Telecommunications and Telematics areas from Unicamp and he believes that "we have not even scratched the tip of the iceberg, 5G is not actually ready yet". Professor Luciano has been studying the subject since 2013 and, in this interview, he talks about the challenges of technological innovation, the *patent trollers* issue, and what to expect from the new generation (6G) and warns: "the metaverse is not a matter of avatar, it is a concept that involves much more than a representative entity in a virtual environment".

Professor Luciano, you have a doctorate degree in electrical engineering, you are a specialist in telecommunications and a researcher in the digital communication area. There is a growing area of novelty in its use, such as the metaverse, and very dependent on technological innovation. One of your most recent articles talks about 6G technology. What is the difference between 5G and 6G? What are the untapped possibilities of 5G?

Answer: When we talk about mobile technology, **we have a decade-long space between research and commercial implementation.** Historically, that's how it's happening. I started studying 5G in 2013 and we are seeing the implementation in 2022, it is nine years apart. We are starting to study 6G now to be implemented in 2030, 2035. It is a system that will meet the demands of non-current society, but those that will arise with the advancement of technology in the next ten years.

But we have already realized that there are some gaps present in fifth generation (5G) technology that is inherent in the revolution it is causing. If we look at the history of mobile communications, the first generation brought personal communication, it was the first time that it was possible to call someone instead of calling somewhere, but the technology was low and the demand was huge, which generated prohibitive prices. Then came the second generation to solve these issues and there was the digitization of the system. So, the prices fell and mobile technology became popular. The third generation brought the cell phone with the internet, but then the navigation was very poor, and the experience was far below that you had on the desktop or laptop. Then came the fourth generation to solve these problems and transformed the experience to the point that you have the smartphone as the main tool for accessing the internet. Now the fifth generation is bringing a series of services, such as the internet

of things, integration with machines, and reduction of latency that will allow a series of new services. But they are very innovative, we do not yet know how they will behave. So, we understand that it will need to have a sixth generation for us to be able to sediment these services with sufficient quality for these new uses.



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The sixth generation will be born naturally due to this demand for service improvements that are very visionary. In addition, **the sixth generation is being developed to be something beyond communication**, it is being developed to be a tool that is in fact an integration between the physical, virtual and biological worlds so that you can be immersed in the network going beyond an interface with the screen. Today you need to rub your finger on the screen to be integrated, which is very limiting for human function. We want to bring new meanings to this network. The possibility of touching a hologram and feeling the texture, temperature, and other senses of what you are touching. In addition, it improves the possibility of remotely controlling machinery in places of difficult access and danger and increases the experience on the metaverse.

What is the metaverse for you? What needs to happen to become a reality and what would be the impact for companies?

Answer: This is a concept that people associate with a virtual environment, basically is that you have your representative entity in a virtual environment and can make interactions in that environment. But the concept of the metaverse involves much more than that. You need to have a full immersion of the physical world with the virtual, mapping several parameters that go far beyond you controlling an avatar. The network needs to be aware of the situation around you, what these things are done, what situation you are immersed in, and take this information to others. In addition, there is biological integration, not just where you are, but what you are. Monitoring of health, your parameters, and your reaction to certain experiences. That way you can better understand what you like and what's important to you. This integration between the three worlds is what will make the metaverse come true. **It's not just about the avatar**.

The biggest players in the market are interested in this novelty and we will see great advances

happening with the technology of communication, sensing and mapping need to evolve so that the metaverse can happen. And then the issue of 6G comes in because it will be in this environment that it will be developed.

In this expansion of the reality foreseen by 6G, what would be the risks and opportunities for society? With everything connected, there would be no danger of anything like cyberattacks on bank accounts, or health systems?

Answer: I will go back a little to the past, in the 1940s, 1950s, when we perceive an interesting behavior of scientists. At that time, a great deal of research was done in the area of nuclear energy that culminated in one of the greatest tragedies of humanity, which were the explosions of atomic bombs in Hiroshima and Nagasaki. After that, science came to be seen no longer with a purist vision, but as something that would have nefarious military ends. Science tried to armor itself with the idea that science alone has no application, that this task would later fall to politicians and the leaders of society would decide what to do with this technology. The idea was that science evolves by itself and the application of this evolution happens in the absence of science.

We see that now too. We are talking about the evolution of communication in absentia of what its applications will be where scientists are seeking the state of the art and the development to the maximum potential of technology for the benefit of society, and it will make use of it in the most appropriate way. That's the speech. **But the concern is inherent in technical discussions because there are many dangers**. Telecommunications involve the world and dictate rules of behavior, inventing new alphabets, through messaging applications, and we realize the power of technology in the formation of society.

Imagine that you have in your body some equipment that can measure your reactions, for example, a smartwatch that can measure blood oxygenation, heartbeat, frequency change, etc. I'm on the same company's computer as the watch looking at things in the company's browser. Then a car advertisement appears. At this point my heart rate goes up, my pupil dilates... These things connect and can become a very dangerous trap because the system can capture its biological reaction to advertisements and then it is possible to create tools that can arouse interest to the point of becoming irresistible for the consumer to buy some product. The human being will become a piece where buttons are pressed, and if they are pressed correctly, the purchase decision becomes automatic. **You end up a puppet!** Imagine the next step, where you can monitor hormones, the quality of your blood capable of making early diagnoses, how your adrenaline is when exposed to certain ads, which emotions you demonstrate when reacting to a certain song, in such a way that you can be directed to act to buy products by manipulating your emotions because the ad is irresistible. The network knows that.

We have security considerations. We're changing a little bit from the vision of the 1940s, 1950s. Now it is discussed how this information will be used, what are the applications, and what the limits are.

An article by his co-authorship talks about various applications for 5G. It's certainly very specific to our reader, but the question is: have we explored the full potential of 5G? What can we still advance in this technology? What are the untapped possibilities of 5G?

Answer: We didn't even scratch the tip of the iceberg. **5G isn't really ready yet**. It's a technology that's evolving. The first version came in 2018, the second version in 2020, is about to come out a third version in 2022 and each of them adding new features. We are far from understanding what are the limits of 5G on issues of use and benefits to society. We're far away from reaching our potential. In Brazil, specifically, we are talking about sub 6 giga Hertz (GHz), where the frequency 3.5 is the most famous, but we also have the auction that happened recently and the operators do not know how to do it; we have the issue of the operation of latency to make the 5G network a reference in industry 4.0; we have the issue of control of autonomous cars as a tool in the mobility process; we will still have the issue of the internet of things that will still arise the standard in 2022. This is the first time we can imagine 5G arriving in farming and also in companies. **The only certainty that engineers have is that people will use this technology in a way they could never imagine**.

In the last issue of this magazine, we had an article on essential patents and how Brazil was not prepared for 5G technology exactly because it was not prepared for these patents. In your opinion, what is the biggest tech bottleneck for Brazil?

Answer: Essentially these essential patents affect manufacturers or smartphones or infrastructure, they are essential patents to implement the functionality of the standard. Brazil, by itself, is not

in this market. It takes place outside the country in parts of Europe, Asia, and the United States. There are several essential patents and companies self-declare that they have certain patents that are essential to the standard. That is, the definition is a self-declaration of the company. I saw a survey that found about 28,000 essential patents that fall under this definition of self-declaration. Then a manual investigation was made, and it was found that **less than 10% were actually used according to the standard**[1]. In Brazil, we will be a little on the sidelines of this discussion. If anyone wants to venture, they will face a monstrous job. Even if it is at the level of 10%, rounding off 3,000 families of essential patents, it will have to go in search of the holders of these patents.

Even with essential patents, is there still market segmentation, when technologies only communicate with each other?

Answer: When you adhere to a pattern, the intercom has to happen. The standard exists for this: allowing diverse implementations to be compatible. For example, a company has a phone that works by bluetooth. What happens is the market reserve for extra features. The headset works by bluetooth with competing devices, but the active noise cancelation only works if it is connected to a smartphone of the same brand. So, you create an ecosystem of your own. Apple does it very well. It ends up becoming a tech prison to keep you up to date with tech from the same brand. This goes against the pattern, which was created to avoid this.

When you look back at the beginning of mobile telephony, there was a country pattern: the Japanese cell phone only spoke with Japanese, the American only with American, within Europe idem. There was a clear market reserve in the first generation (1G). Here in Brazil too, when there was segmentation within operators and states. **You bought a cell phone in São Paulo, went to Minas Gerais and couldn't talk because the standards were different**. It was an extremely curious thing. In the third generation came this concern of patents essential to have communication worldwide. But it didn't work out well. We had several variations of 3G. We just had a real standard unification in 4G. And this is what guarantees economies of scale, where you manufacture a chip that can be used worldwide. So, we live in a curious situation where technology seeks unification using standards, while manufacturers develop ecosystems to ensure market reserve. This reservation is no longer territorial, but for brand loyalty. **From a technological point of view, the search is for standardization, not segmentation.**

Essential patents are those that protect inventions whose uses are necessary for a given technological standard to be implemented. Furthermore, patents are rights granted by the State to individuals as a way of rewarding and encouraging investments and efforts made to develop a new technology. So, do you consider that the protection of essential patents generates pro-competitive effects that benefit consumers?

[1]https://clarivate.com/blog/demystifying-the-5g-standard-essential-patent-landscape-with-manual-sep-analysis/
https://clarivate.com/blog/demystifying-the-5g-standard-essential-patent-landscape-phase-2/

Answer: At first, not to the benefit of the consumer. It benefits technological evolution. In the long run, you can even put this form of benefit to the consumer who, without incentives to technology, could not use modern products. But to think immediately that you need to remunerate the patent holder and the commercial exploiter of the patent generates a burden that will be taken to the final price of the product. Therefore, the consumer pays more for the product. The cost of implementing a system ends up being higher by making use of a product that uses the knowledge of a person or company, which ends up raising the price. If we didn't, it would be cheaper. But in the long run, it's bad because without that cost there would be no incentive at all. Without patent protection, we would live in technological stagnation. Technological evolution depends on the patent because it is often the patent that finances research. Without the revenue from royalties, companies would not be able to invest. The question is complicated, and the answer is not simple. It would be different if we considered technological stagnation acceptable, which is not the case. **The economy itself needs technological evolution.**

How to deal with the patent right of essential technology, which can effectively define who will compete in the market?

Answer: That's the big question. First, we must define what is essential. Self-declaration leads to an infinite snowball. First, you need to define what is an essential patent or not. Then you do a process to check which patents are actually used because there is a division and the essential patents do not apply to the whole.

The essential facilities doctrine, which was born in the United States of America, is applied by analogy to essential patents. In this sense, it has been established that those who hold essential patents are required to license them under fair, reasonable, and non-discriminatory conditions (these conditions are usually referred to as FRAND – Fair, Reasonable and Non-discriminatory). Do you understand that this system, because it has subjective criteria, can open room for discussion, for example, how to determine what is a fair licensing condition? How to determine what is reasonable?

Answer: The model has worked well. Companies come to an agreement when there is the use of some essential patent whose royalty is not being remunerated. We realize that it converges very quickly, there are few cases in which they arrive in the media. When there is inequality in trading conditions, they soon come to light. If a company trades condition X from one technology to one company, it cannot trade 3X conditions to another. It shall have the same criteria. **If the patent is really essential, there is no longer the right to choose to enter the market, because if it is not using it, it does not enter**. Hence it is important to negotiate reasonable values to sustain the business. I am not an expert in the legal world, but I believe that in the judicial sphere these issues arise. Therefore, reasonable conditions are established in the commercial relations between the companies themselves. From an objective point of view, it

is difficult to define what is reasonable and fair. But I believe it is working, given the entry of new operators into the market.

The licensing of essential patents cannot constitute any burden that unbalances the patent holder/licensee relationship, falling only on the patent holder. So, what should be the means that brings a balance so that the patent owner is adequately compensated for the result achieved by him?

Answer: I have never thought about this question. What if there was a balance that did not burden manufacturers so much and adequately remunerate the patent holder? The matter is far more complex. What I realize and what is not very connected to the question is a performance in the market that seems to me quite bad about the so-called *patent trollers*, companies that go hunting patents throughout the world and then manage to map where they are being used and start suing everyone. **There is a wave of lawsuits from these companies that buy secondary patents, not so innovative, but which are in some ways used**. These companies, which have nothing to do with the development of the patent, with the innovation itself, buy these rights and start suing everyone. This seems to me to be quite proprietary and the patent market allows it to happen. It seems like blackmail around the world around this practice. **These "blackmailing" companies do not use *royalties* to develop new technologies**. Sounds like a negative flow to me. Although I do not answer your question, I think this current model allows this practice and I consider it bad. I don't see it as a proper approach.

How is professional training in Brazil compared to other international markets? Are we competitive in an increasingly global market?

Answer: The exact sciences go through a worldwide problem that is the lack of public interest. **People enjoy the benefits that exact sciences bring, but the number of people interested in contributing to this advancement is decreasing**. This challenge is not only in Brazil, not only in Inatel. It is a challenge to encourage young people to be interested in the study that leads to these developments, more specifically in the processes of mathematics and physics, which are the basis of engineering. If you compare Unicamp's candidate-vacancy ratio, for example, which is one of the best and most disputed engineering schools in the country, in the mid-1990s with now, you will see that **significantly decreases the interest of young people to enter these courses**. We hope to reverse this deficit so that we can implement 6G and 7G technology to our satisfaction.

Candidate/vacancy ratio at Unicamp in the space of 25 years

Course	1996	2021
Production Engineering	33,7	7,6
Telecommunications Engineering	8,6	2,8
Electrical Engineering	19,3	5,6

Inatel has a series of technology training courses. What is the main differential of the institute in the face of the challenges that are approaching, such as 5G, metaverse, IoT?

Answer: We, from Inatel, have a very great concern about the quality of the professionals we deliver to the market. At Inatel we are concerned with **looking at what the needs of the market really are and preparing our curriculum so that these demands are met**, so that our engineers can arrive at playing the game within the companies and not have to learn the rules of that market, in an internal internship or training. This is one of the greatest advantages of Inatel to act in an integrated way in the market to solve the problems of companies. Inatel has many partnerships with universities in Europe (Germany and Spain) and the United States, promoting exchanges among students. We realize that seriousness in our educational demands is an important role in understanding which technologies are relevant for the future. **We seek to insert in the students this entrepreneurial mindset**, of how to make the most of this knowledge and this technology, being able to create their own business or undertake within the company, adding value in their actions and thinking outside the box. In this way, we perceive the effectiveness of students and alumni in the labor market.

How do you see Intellectual Property in promoting national innovation? How can it add to the training of new innovation professionals? What bridge can and should be created to increase Brazil's innovative potential?

Answer: It is relevant to recognize the intellectual effort of the people behind the process. Understand that these people invest an intense amount of time, and ideas do not fall from the sky. It takes study, investment, and dedication for a truly innovative technology to emerge. It is necessary to understand that **these royalties are the main fuel of innovation** and that is where we take the effort to continue contributing to solving the problems that are increasingly difficult.

People must think a little more about ways to make use of this technology more fairly and beneficially. It is necessary **to involve society more, not just companies and scientists, avoiding the condition of exploitation of patents in a parasitic way**: does not create, buys from those who create, and blackmails those who produce. This is something that we could eliminate from the process to cheapen the product to the final consumer because the manufacturer is never at a loss.

It is important to mention that **technological evolution is a continuous process**, which works practically like a river. It must run constantly in order to irrigate technological growth. **This issue of us already researching the 6G network is essential for the country**. In the past we didn't have this river running, we tried to meet the river halfway. We imported technology and knowledge and tried to design solutions for something that was created for another scenario. With this, we reached sad results, such as the total disconnection of our farming. The agricultural sector suffers greatly from the lack of information, with the lack of connectivity. There is a lack of awareness that this "technological river" is a continuous flow. This is now being circumvented with 6G technology, with a pioneering program in Brazil in the area of telecommunications, doing coordinated research countrywide.

IOT AND 5G: ADVANCES AND PROSPECTS FOR THE IMPLEMENTATION OF THE FIFTH GENERATION OF MOBILE NETWORKS FOR IOT

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Abstract: *This article argues how the fifth generation of mobile networks (5G) drives the Internet of Things (IoT) and the scope of Industrial Property, resulting in essential patents and technological developments that already directly impact society. The text also points out barriers that Brazil needs to break to enjoy the benefits of this innovation.*

Keywords: 5G Mobile Network – IoT – patent

Introduction

The *International Organization of Standardization* (ISO), the *International Telecommunication Union* (ITU), *the Institute of Electrical and Electronics Engineers* (IEEE) and the 3rd *Generation Partnership Project* (3GPP) are examples of organizations that aim to standardize the creation, sending and reproduction of technologies among the most varied devices, such as *smartphones, tablets, notebooks* and smart appliances. It is from this standardization that companies and educational institutions can promote the development of new technologies responsible for the implementation of new standards.

The main objective of technological standardization is to allow interoperability between a variety of devices designed and manufactured by different companies around the world. According to the *European Industry Association Information* Systems Communications Technologies *Consumer Electronics* (EICTA, 2004), currently known as DigitalEurope, interoperability, in free translation, can be defined as "the ability of two or more networks, systems, devices, applications or components to exchange information between themselves and to use the information exchanged". For example, the standardization of IEEE 802.11 technology, also known as *Wireless Fidelity* (Wi-Fi), a trademark of the Wi-Fi Alliance, is widely present in everyday society.

When the technological components necessary for the existence of these standards permeate Industrial Property, these are considered as essential patents. This type of patent is related to methods and systems that are critical to the implementation of a given technology. This type of patent is extremely strategic because, among several factors, it provides the company that holds the protection rights with the possibility of getting better product quality, reducing the time needed to bring new technologies to the market, promoting industrial property and contributing to the growth of a relevant market worldwide.

In this sense, in order for other companies to have access to a certain technology, companies holding essential patents adopt the negotiation of their licenses and the calculation of the licensing fee according to the FRAND (*Fair, Reasonable and Non Discriminatory*) principle. This principle aims to ensure fair, reasonable and non-discriminatory conditions in the licensing of protected technologies.

Recently, telecommunications patents focus on the implementation of 5G technology and its use for the dissemination of the Internet of Things (IoT), which is a technological concept aimed at interconnecting smart devices with low processing capabilities.

According to data from the report of the China National Intellectual Property Administration (CNIPA, 2022), by 2021, there were approximately 29,000 families of essential patents related to 5G and about 125,000 patents and applications that refer to the same standard registered worldwide. In 2022, however, these numbers grew exponentially. Currently, there are about 47,000 families of essential patents encompassing 210,000 essential patents related to 5G, which represents an increase of 62% and 68% respectively. At present, China holds approximately 40% of these essential patents, with a total of 18,728 patent families. Second, there is the United States with about 34% and then the Republic of Korea with about 9.2% of households.

In Brazil, even before the auction for the concession of operation in the 5G frequency bands, in November 2021, the applications for telecommunication patents related to this mobile network were already in progress in the country. According to data published for Brazil, there are currently about 2,493 essential patents already granted by the BPTO and 9,604 applications in progress. Regarding 5G technology and its registered standards, we have 1,010 patents granted in Brazil and 4,295 applications in progress. The main holders of these patents and applications for 5G technology in Brazil are the US giant Qualcomm with 42% of the patent filing and the Japanese NTT Docomo with about 13%.

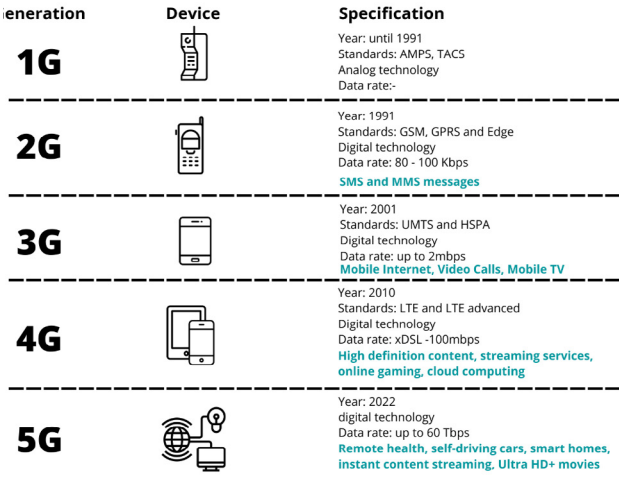
5G mobile network

The new generation of 5G mobile internet presents many changes compared to previous generations. Such changes encompass a higher connection speed, low latency, and increased ability to connect devices to a single antenna, through new multiple access techniques.

These changes make it possible, among other things, to expand the reach of the internet in rural and industrial areas that today are without signal in countries of continental dimensions such as Brazil. This increase in the coverage radius is due to the fact that while in the 4G network the coverage is around 10 thousand devices per square kilometer, in the 5G network the coverage can be up to 1 million devices in the same area.

The Picture below shows a comparison between the generations of the mobile internet network.

Comparison of mobile internet network



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Source: Authors, 2022

5G technology will provide wireless connectivity for various applications such as cities and smart homes, *wearables* (devices such as smartwatches), security and/or traffic control, high-speed media delivery, and industrial processes.

Certainly, the implementation of fifth-generation networks in Brazil will directly impact the improvement of the country's economic indicators. The study carried out by the International Telecommunications Union (ITU, 2019), entitled "Economic contribution of broadband, digitization and regulation of ICT: econometric modeling for the Americas", suggests that there may be an increase of up to 1.9% of GDP for every 10% expansion of broadband coverage.

IoT and 5G

One of the fundamental premises of IoT is to allow *machine-to-machine* (M2M) communication and, thus, to make several devices connect to the Internet without necessarily requiring human intervention for data acquisition and manipulation. This means that any device can be connected to the network at anytime and anywhere.

Current IoT applications are well-supported by 4G-based technologies such as LTE-M (*Long Term Evolution for Machines*) and NB-IoT (*Narrowband-IoT*). These technologies are used in low complexity devices, but with a high volume of data, such as sensors that monitor temperature and humidity in a greenhouse.

However, with 5G arrival, more robust IoT devices can be connected to the network, as more data can travel and be processed more quickly, since the use of 5G networks allows greater connection speed and lower latencies in communication between these devices.

In Brazil, in 2019, the National Internet of Things Plan was created, an initiative of the Ministry of Science, Technology, Innovation and Communications (MCTIC), Ministry of Economy and the National Bank for Economic and Social Development (BNDES) in partnership with civil society.

The study carried out prior to the creation of the Plan, entitled "Study of Internet of Things", developed by the Ministry of Science, Technology and Innovations in 2017, discussed which pillars IoT could be used in Brazil as a tool for the sustainable development of society. The main

goals of the plan involve improving people's quality of life, promoting efficiency gains in services, promoting professional training related to the development of IoT applications and the generation of jobs in the digital economy, in addition to increasing productivity and fostering the competitiveness of Brazilian IoT developers.

Applicability of 5G network in IoT

Around the world there are several successful cases of 5G network implementation in IoT applications that directly impact everyday life.

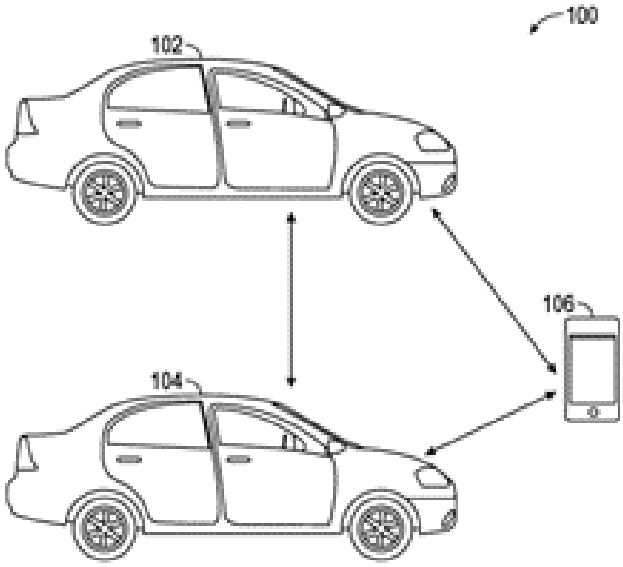
In 2015, the 5G *Automotive Association* (5GAA) was created, a corporate coalition that aims to develop and promote standardized communication protocols for automotive vehicles that use 5G. Among the founding members of the association are telecommunications giants such as Ericsson, Huawei, Intel, Nokia and Qualcomm Incorporated, as well as automobile companies such as AUDI AG, BMW Group and Daimler AG. Since its inception, 5GAA has expanded rapidly to include the largest *players* in the global market in the automotive, technology and telecommunications industries. Today, more than 130 companies are already part of 5GAA.

Three years later, in 2018, the essential North American patent document entitled "*Dual Connectivity for Reliability*"[1] by Apple Inc was published, which clearly exemplifies an application of the 5G mobile network with an impact on everyday life and shows how wireless communications are evolving.

Its technology is based on a dual connectivity system for communication from device to vehicle or vehicle to vehicle, on a 5G mobile network, as standardized by 3GPP.

The Apple document describes how a 5G mobile network allows communication between vehicles without human interference. Thus, the concept of intelligent car, which manages to take the user from one point to another, autonomously, tracing the best route and avoiding traffic accidents is increasingly close.

Illustration of the dual connectivity system between device and vehicle or vehicle and vehicle



Source: Document US Patent Application Number US20180235022A1 – 2018

In Michigan, in the United States, the concept of "Road of the Future" has been developed with great strides. In the highway construction, a lane

[1]US patent application number US20180235022A1 entitled "Dual Connectivity for Reliability"

is exclusively dedicated to autonomous vehicles. Thus, cars, motorcycles and trucks will be able to connect to the highway network in order to establish a "conversation" between the software and that one of the highway.

The goal of this type of project is to reduce accidents generally attributed to human errors and optimize daily activities.

In the same year, during the PyeongChang Winter Olympics in South Korea, the government established 5G pilot networks that provided augmented reality navigation for game-goers. Such applications indicate a strong technological trend aimed at implementing increasingly intelligent and connected cities.

Also in 2018, Ericsson together with other companies such as BT, Verizon, King's and Unmanned Life autonomously controlled and managed a fleet of drones in central London. This fleet was launched from the United States by Verizon on a dedicated 5G network , within BT's mobile network.

The following year, in September 2019, due to the 5G networks provided by China Unicom and Huawei, remote surgery was performed on a patient diagnosed with bladder cancer in the province of Guinzhou, China. Along with the country's intelligent medical perception and interaction technology and the medical robot system, it was possible to perform the surgery at a distance of 3,000 km.

For the years between 2020 and 2030, according to Butaney (2022), in projections published by Cisco, the IoT industry shall move about 19 trillion dollars around the world. From this total value, it is estimated that 860 billion dollars will specifically impact Latin American economies, 40% of which is the share corresponding to the Brazilian market.

Conclusion

Although the forecasts are quite optimistic, there is still a lot of work to be done in the world and especially in Brazil. In countries such as the United States, the IoT ecosystem is at least 20 times larger than the Brazilian one.

That said, Brazil needs to break some barriers to be able to leverage in the IoT scenario. Among them, we highlight the qualification of labor, the advancement of telecommunications networks and especially the 5G mobile network[2], as well as the modernization and maintenance of the infrastructure present in the national territory.

In a long-term basis, the advances between the IoT and 5G relationship will be even more noticeable, through larger and more impactful projects. It is known that the technological scenario is constantly evolving, with increasingly transformative technologies that allow IoT to exercise its maximum efficiency with the arrival of 5G.

[2]Dedicated networks are networks focused on the corporate market that have a much higher speed than those offered by broadband internet plans and they are more stable

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IMMERSIVE VIRTUAL ENVIRONMENTS AND INTELLECTUAL PROPERTY

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Abstract: *The article talks about the trend for trademarktrademarks to be exploited in immersive virtual environments, such as the metaverse, presenting case examples and suggesting strategies to protect the trademark's identity in the digital world. The article also reveals companies that are investing in protection in this innovative scenario.*

Keywords: Intellectual Property – Metaverse – Trademark – Games

Introduction

One of the bets of large business companies regarding innovation and technology are immersive virtual environments, built through various augmented reality technologies. The simulation of life in the virtual environment is already a technology known and used by Internet users. In games such as *World of Warcraft, GTA RP* and *Second Life*, you can be part of virtual communities and interact in real time with people from all over the world through customizable avatars.

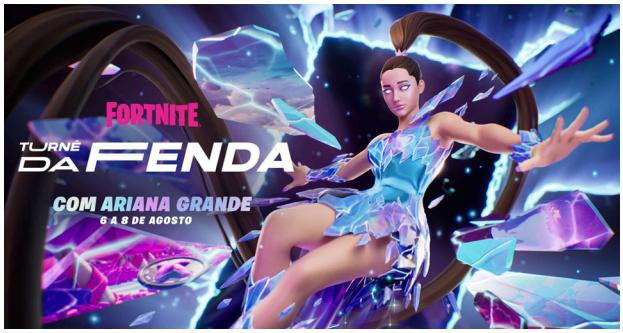
However, the current proposal for the creation of the Metaverse, which has been shaking the international market, innovates by planning an even more immersive and interactive universe through the use of virtual reality technologies, and it is even possible to use cryptocurrencies to purchase virtual and non-virtual products within the platforms. Thus, creating an environment never seen before of reinvention in intellectual property. In fact, the metaverse as imagined, in which it will be possible to work, play and visit totally unusual places, is in creation.

Examples on the metaverse

Therefore, some platforms are already exploring this idea, such as the *Horizon Workroom*, which allows users to enter a virtual reality room for work meetings. The application can be downloaded for free, but to be used it is necessary to use the *Oculus Quest 2*, virtual reality glasses of its creator Meta. The topic got even more notoriety with the news of the first *Fashion Week* in the metaverse, held in March 2022, on the *Decentraland* platform and featured renowned trademarks such as *Paco Rabanne*, E*tro, Tommy Hilfiger, Dundas, Cavalli, Nicholas Kirkwood, Dolce & Gabbana* among others. On the other hand, companies such as *Adidas, Nike, Jordan, Balenciaga* and *Gucci* opted for another investment: partnerships for the sale of digital products within interactive platforms.

The entertainment industry has also already taken the first steps towards the metaverse. Several American music stars, such as Travis Scott and Ariana Grande, performed in the game *Fortnite* through avatars.

Presentations by Ariana Grande and Travis Scott in Fortnite



Source: Epic Games, 2021 – 2022

The South Korean group AESPA went further and created avatars for its members, allowing the artists to perform with their versions in the virtual world, being common in their video clips presentation side by side.

In Brazil, the well-known digital network platform Magazine Luiza (also known as Magalu) created Lu, an avatar recognized as the most notorious virtual personality in the world. According to the article published by Revista Exame, Lu is the most followed virtual influencer in the world with 31.2 million followers on their social networks. Influencers Lucas Rangel and Nyvi Estephan also released their virtual reality avatars and created Instagram social media accounts for them.

K-Pop AESPA

Source: Tangerina, 2022

How to Protect Yourself on the Metaverse

However, it is important to remember that the creative environment provides violations of rights involving intellectual property. Therefore, even though the holders possess and seek conventional protection, the new environments provided by the metaverse can lead to innovative violations of law.

In the search to measure and reduce the risks of infringement of intellectual property rights with the commercialization of intangible assets, digital products will have formats of NFTs (non-fungible tokens), which hinders acts of piracy in augmented reality environments and facilitates the identification of counterfeit digital products.

However, the risks of trademark infringement stand out, because the immersive environment is a place without borders, which makes it difficult to delimit trademark law and raises the possibility of a possible violation of third-party rights. In this sense, the company that wishes to market in this environment must outline a protection strategy so that it is not penalized for infringing the prior rights of others, including those from another country.

Likewise, as a way to mitigate risks, it is advisable to register, when possible, intellectual property assets to ensure legal protection within the Brazilian jurisdiction as a favorable precedent for the protection of the distinctive sign and its performance in the desired branch. In this sense, large companies have shown interest in protecting their trademarks within the innovative marketing method, such as McDonald's. According to the *Business Insider* website, the fast-food chain has requested 10 new trademark applications from the U.S. Patent and Trademark Office (USPTO) protecting "virtual food and beverage products and operating an online virtual restaurant with home delivery" proving the intention to inaugurate a restaurant in the virtual environment of the metaverse.

Still, after obtaining registration, the choice of a strategy for the protection of intellectual property rights is recommended for those who value the security, exclusivity and visual identity of their trademarks and other creations. This strategy, which varies according to the specificities and needs of each business, aims to constantly evaluate possible infractions and the appropriate measures against the responsible users, resulting in greater security for the company's intellectual property assets.

Due to the increasing advancement of technologies and the interest of large companies, it is estimated that the metaverse will become a billionaire market in a very short time, reaching approximately US$1 trillion by 2024. Despite the uncertainties surrounding an innovative scenario, more and more companies, such as those mentioned above, invest in protection, which demonstrates the intention to act in the new market reality.

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THE DIGITAL ASSET MARKET: DO COPYRIGHTS EXPLAIN WHY NFTs CAN BE SO EXPENSIVE?

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Abstract: *This is a brief reflection that seeks to understand the influence of Copyright in the pricing of digital assets certified by NFT. Addressing traditional concepts of intellectual property, especially about the separation between the work's Corpus mysticum and Corpus mechanicum, a broader view is sought from Adorno's Aesthetic Theory and the complex relationship between ownership and control over intangible goods.*

keywordes: NFT – copyright – digital asset market

NOT EVERYTHING THAT HAS (FINANCIAL OR LEGAL) VALUE CAN BE TOUCHED: THE IMMATERIAL MATTERS

The digital asset market is consolidating itself as an investment possibility to be taken seriously. According to DappRadar data, the commercialization of NFTs (*non fungible tokens*) generated about US$23 billion in 2021, with units reaching US$69 million (HERRERA, 2021). In this scenario, several texts quickly emerged with reflections in varying degrees of refinement on the relationship between Copyright and NFTs.

The emergence of new technologies and applications, such as the metaverse and the *blockchain* (sometimes not so new, such as Artificial Intelligence), usually generates a bibliographic explosion applying old concepts of intellectual property theory on that innovation. Sometimes there is a real need to deepen certain specific debates due to the particularities of a technology (such as the work of SCHIRRU, 2020). Other times, the feeling is that one reads the same text, with the same lessons, only disguising centenary concepts as pioneering.

The reality is that for lawyers specialized in the intellectual property area, NFTs do not present a great challenge from the point of view of the assignment of rights. At this point, it is probably already common knowledge (even for the general public) that the acquisition of an NFT is not to be confused with the transfer of ownership of copyrights.

It has been a long time (at least since the eighteenth century) since the immaterialist theories spread, establishing a certain consensus that the artistic work is not to be confused with the material support in which it presents itself to the world. According to Reid (2007, p. 14), George Berkeley was an exponent (and almost an extremist) of the basis of this thought. He held that "there is no such thing as matter in the universe." For him, all that we interact in the world, including "the sun and the moon, the earth and the sea, our own bodies, and those of our friends, are nothing but ideas in the

minds that think about them," and that "they have no existence when they are not objects of thought".

This way of thinking is a construction that has gradually getting space over time. As Mendes (2007, p. 14) explains, Descartes argued that "the existence of objects of the senses is not self-evident", and Norris stated that "the existence of an external world is only probable, but by no means certain". Thus, "the new philosophy was gradually approaching Berkeley's opinion."

When it comes to art, the separation between the physical and immaterial existence of creation makes notorious sense, given that the very identification of what is or is not art varies from the temporal, spatial and social circumstances (BOURDIEU, 2007, p. 283). Thus, it is fully possible to appreciate a work that is not even materialized in a fixed support – as in the case of performance works –, and it is possible that an object once seen as banal is resignified within a new social context, becoming a work of art – as the Dada movement proved.

Beyond the world of the arts, if the division between the work itself and the physical support in which it presents itself to the world is not a novelty for philosophers, it is also not a surprise for jurists. Not by chance, the Brazilian Copyright Law expressly provides in its article 7 that the creations of the spirit, expressed by any means or fixed in any support, tangible or intangible, known or invented in the future are protected intellectual works. In addition, it has been at least six years since the Superior Court of Justice had the opportunity to clarify that:

> "the artist, by transferring ownership of the corpus mechanicum (the painting, the engraving, the sculpture, among other forms), does not lose exclusivity over any and all use of the work of plastic art for the benefit of the purchaser. In fact, the alienation of artistic creation, unless otherwise agreed, implies only the transmission, to the buyer, of the right to expose it to the public, which does not reach the moral rights of the author nor the exclusive right of economic exploitation with its reproduction. It is evident, therefore, the dissociation between the physical support of the work of plastic art and the copyright itself." (STJ - REsp: 1438343 MS 2013/0095665-3, Rapporteur: Minister LUIS FELIPE SALOMÃO, Judgment Date: 12/01/2016, T4 - QUARTA TURMA, Publication Date: DJe 02/22/2017)

On the other hand, it is quite true that certain ways of human creation test the limits of the differentiation between the Corpus mechanicum and the Corpus mysticum of the work, as is the case of single-issue paintings (CAMPOS and SOUZA, 2019) and phonograms recorded by the author of the song (ABRÃO, 2014). In these cases, for example, damaging the only physical support of creation has much more serious effects than when one among millions of physical supports is damaged in which another work is fixed – burning one of the 500 million copies of Harry Potter's books is not as tragic as the destruction of single works lost in the fire of the Museum of Modern Art of Rio de Janeiro in 1978. Even if Miró's works burned that night still exist immaterially and are protected by Copyright, an important dimension of creation is lost, especially in view of the death of the artist, who can no longer reproduce it.

In any case, regardless of specific characteristics of certain ways of creation, one

thing is certain: even the rational and cold Law has already concluded that there is value in both the material and immaterial dimensions of the same object, even when these two dimensions seem to be confused.

NFTs, however, do not exhibit similar complexity to the examples given above in which the material and the immaterial appear to merge into a single body. *Non-fungible tokens* are digital certificates that, through *blockchain*, attest to the origin of a certain digital media – whether it is a jpeg file, a gif, an mp3 file, or any other format. It is not a technology very different from a seal or from a certificate of authenticity, but it is digital and has sophisticated monitoring and verification mechanisms.

Thus, if the commercialization of a painting fixed on a canvas (certified as original by a paper or not) is not confused with the transmission of the copyright of the represented work, it is evident that the acquisition of a file, certified or not by NFT, is also not confused with the assignment of the copyrights of the represented work.

In fact, behind so much textual production about the relationship between the acquisition of NFTs and the assignment of copyrights there seems to be a hidden indignation: why would anyone pay so much money for a simple file that doesn't even convey copyrights? After all, acquiring the rights of a work is clearly an investment, since it will allow the exclusive economic exploitation of its use (within the legal and constitutional limits). But what would justify paying so much for a file that anyone can simply copy without giving you satisfaction? Perhaps potential users should ask for the author's permission to use the work contained in the certified file, but certainly one does not need to ask permission for the owner of the file registered in NFT.

This question, which many seem to be ashamed to express publicly, is understandable. If the separation of the *Corpus mysticum* and the *Corpus mechanicum* from the work is well known, the dynamics of the digital asset market (and of immaterial goods in general) are not. It would be more appropriate for an economist to think about this subject to understand what is related to NFT pricing. This brief reflection seeks to collaborate only with a suggestion: if it is difficult to say what is behind such exorbitant prices, it is easy to say what is unrelated – Copyright.

WHY A MERE DIGITAL CERTIFICATE CAN BE SO EXPENSIVE: CONTROLLING MATTERS MORE THAN OWNERSHIP

The valorization of some files certified by NFTs should not cause so much astonishment. For ages (even before capitalism has consolidated itself as a predominant economic model), art (in its various ways of expression) is commercialized and retains market value regardless of the assignment of copyrights.

When Banksy's "Japanese Bridge" (a re-interpretation of Monnet) was auctioned for $10 million (DEUTSCHE WELLE, 2020), there was no assignment of copyrights. When Rembrandt's "Portrait of a Man" was auctioned for $33 million (FRANCE PRESSE, 2009), the work was already in the public domain – there were no patrimonial

Copyrights to be assigned. Even common fund creations (those that never received Copyright protection, according to CHOISY, 2002, p. 2) have already been marketed for impressive amounts: according to Reuters (2017), someone paid US$37 million for a Chinese vessel of the Song dynasty, that had no originality.

The value of an object (whether an artistic creation or not), thus, seems to have no necessary relationship with the incidence of copyright protection. The most beautiful and creative of the drawings ever made by the author of this text will certainly never come close to the value of, for example, a box of John Kennedy's spoiled cigars, which was acquired for almost $600,000 at a pawn shop (HISTORY FANBOY, 2018). Perhaps the drawing with no monetary value is protected by Copyright, but the valuable box of cigars is not, since it does not belong to the fields of art, literature or science.

The question of the market value of NFTs, then, does not pass-through Copyright. It is possible, however, to extract from it a debate about the importance of control and not necessarily the ownership of a certain right or good. In another context, Comparato (1976, p. 3) already said that "the fundamental problem of modern economics is no longer the ownership of wealth, but the control over it". Barbosa (2014, p. 10) explains that:

> "The mere fact of ownership of the existence of a proprietary bond will also not mean complete control of the legal situation (...) Therefore, the quantity and quality of autonomy in the exercise of a certain legal position are not predetermined a priori due to their legal nature, but, factually, responds to the political choices of the Legislature regarding the scope of broad competition." (BARBOSA, 2014, p. 10)

In fact, being the owner of copyright (or any intellectual property right) is less important than having effective control over that creation, including by virtue of the limited nature of the exercise of IP rights. It is known that the copyright holder of a work is limited to exercising its exclusive right under an exception regime, subject to material and temporal limitations arising from Fundamental Rights, because:

> "Freedom of initiative and information, of course, is the rule, which is constrained by privileges and exclusive rights. The spontaneous order is the free flow of ideas and creations, and the dissemination of technology. The act of the State that must be established is the granting of the exceptional right of intellectual property". (BARBOSA, 2004, P. 94)

In this context, being the copyright holder of a song did not prevent a record company from seeing a candidate for congress to parody it in its political campaign (REsp 1810440/SP). As narrated by Chalhub et al (2019), being the copyright holder of "The Imperial March" was not enough to convince the public that *Warner Chappel* should have control over the work to the point of preventing a *youtuber* from creating a series of videos about *Star Wars*.

Therefore, it is increasingly necessary to create business models that do not depend only on the exploitation of exclusive rights and the imposition of *royalties* on the market. "The divorce between property and control, resulting from this process, almost necessarily involves

a new form of organization of society" (BERLE & MEANS, 1984, p. 3). It is in this context that the real value of NFTs seems to reside. It is not a question of ownership of rights, it is a question of creating control mechanisms in the face of the insufficiency of intellectual property in dealing with the reality of information dissemination through digital means.

THE CONTROL AND FETISHIZATION THROUGH NFTs

Certification through *blockchain* allows some degree of control over a digital file, especially in relation to origin. Insert this tool into a world where information is transmitted almost instantly and at lower and lower costs, where owning something that only the owner has access to is almost impossible. The result is easy to perceive: more than being a control tool that guarantees the exercise of rights (as in the case of the resale right and the possibility of creating a condominium over the work), the NFT serves a purpose of fetishization through exclusion.

Since 1970, the philosopher Theodor Adorno (1970, p. 27) argues that:

> "The fetishistic representation of the art work as a property that it is possible to have and that can be destroyed by reflection corresponds closely to the fetishistic representation of the good usable in the psychological economy. If it is admitted that art, according to its own concept, is a product of becoming, then its classification as a means of pleasure is no less so. (...) In a society where art no longer has any place and which is shaken in all its reaction against it, art is rooted in cultural property that is something and numb and in obtaining pleasure that the client recovers and that, in most cases, has little to do with the object. The subjective pleasure in the work of art would approach the state that evades empiricism as the totality of being-for-other, not empiricism. Schopenhauer would be the first to notice that. The happiness produced by works of art is a precipitous escape and not a fragment of what art has withdrawn from; it is always accidental, more inessential to art than the happiness of its knowledge.". (ADORNO, 1970. p. 27)

An NFT-certified file turns any sequence of binary codes into a true original copy of an artistic creation as a desirable good. In other words, the NFT certificate serves a purpose of creating value to a file, even if reproducible, as being that original and therefore true. It allows to differentiate one among so many others that apparently are the same.

It may seem like a complex novelty of the digital world, but a similar pattern has already been seen in the material world. In the 2000s, Finchman (2012) reports that the renowned Knoedler art gallery in New York was the protagonist of a scandal. Works auctioned for millions of dollars by the gallery, authenticated by experts as being originals of Pollock and Rothko, later proved being false. They were nothing more than reproductions made by a talented painter with no reputation. However, the paintings remained objectively the same after the discovery that they did not actually come from Pollock and Rothko. What justified the total loss of monetary value of the paintings that led the Gallery to ruin was therefore subjective: the emptying of the property fetish over something rare and unique.

This is what much of art has been reduced to in the face of capitalism – a commodity that is the object of desire. However, certification itself is not

enough to create desire. A drawing made by the author of this text, certified or not, will possibly be worth less than an uncertified creation about which there are rumors that it was created by a great Renaissance master.

In the end, therefore, perhaps certain NFT-certified creations are as valuable for the same reason that a painting certified as genuine can be as valuable. Two identical copies of works actually painted by Leonardo Da Vinci may have different prices if one is authenticated as original by someone with social credibility and the other is not. Even if they are absolutely equal, the value will be different, because there will be a mystique about certified creation that allows to exercise more properly a fetishistic power of art as a commodity, even if the artistic value itself is exactly the same.

Therefore, questioning the market value of digital assets is the same as questioning the art market itself. It does not mean that it is useless or inappropriate because it is a kind of sacred field that cannot be challenged. It only means that the market for digital or digitized arts certified by NFT is not so different from the market for arts fixed on material physical media, at least with regard to the incidence and transfer of copyrights and the fetishization behind the dynamics of exchanging works as commodities.

Perhaps, in the end, what causes strangeness in the pricing of digital files certified by NFT is only its virtualization (its absence of tangible physical matter) and this has no necessary relationship with Copyright. If that is the case, it is worth asking: perhaps the digital asset market will come to further reinforce that Berkeley is possibly not as radical as he was a true visionary. More than showing that Copyright is not so important with regard to the financial value of human creations, NFTs serve to show an already well-documented trend of the loss of the value of matter itself, which gives space to the value of information and its ways of being organized, stored and used.

Whether or not the general public or the most sophisticated Academy is dissatisfied, the reality is that digital files, certified by NFT or not, can have surprising financial values. Similar astonishment caused the urinal presented as art by Duchamp in 1917.

Many questions arise in the context of relations between Copyright and NFTs. Almeida, Branco and Negri, participants of ITS Rio (2021), comment on some of them, such as: would indemnity be paid by an author who sells a work fixed in material form as a single, but later sells a digitized version of this work certified by NFT? How to regulate the possibility of condominium over works that NFT creates?

Among these and many other complex questions that arise about the relationship between NFTs and Copyrights, none of them has any relation to the attribution of copyright to a work or the assignment of rights due to NFT certification. It is reinforced: it is difficult to say what is behind exorbitant prices on some NFTs, but it is easy to say what is unrelated – Copyright

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IMMERSIVE TRADEMARK EXPERIENCE

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Abstract: *The commonplace says that the internet is a "lawless land". It does not apply with respect to Intellectual Property. The article presents the relevance of trademark protection for the economic sustainability of the business and presents alternatives for its application in the digital world, seeking to protect the position that its trademark occupies in the market.*

Keywords: Digital platform – trademark – protection

Introduction

It is interesting to observe the permanent state of change of things. The way of thinking of a social group, the trends, the way of communication and interaction – everything follows the continuous flow of transformation. It is even more interesting to observe how some principles go through the changes and become a kind of nucleus. The arrival of 5G in the capitals of Brazil brings the wind of change intertwined with principles that go on and on. Among them is the ownership of a trademark – a key element for the development of companies and entrepreneurs.

In general terms, the function of the trademark is to be a sign capable of differentiating products and services from similar ones. The idea is that the consumer can distinguish one product from another, thus allocating their financial and time resources to something that really suits them. Therefore, it is common to have several trademarks, which do not necessarily have a commercial relationship with each other, offering the same type of product or service. The absence of identification would create real confusion and harm for both consumers and businesses. Therefore, it is not allowed to use the name of the product or characteristic to identify the product itself, for example, "good car" as a car trademark.

According to Brazilian legislation on the subject, the Industrial Property Law (LPI - acronym in Portuguese for Lei da Propriedade Industrial), the trademark can be a word, image, drawing, picture, color combination, combination of words with images, among others, as long as it does not fall under legal prohibition. The more prestige the trademark gets, the greater the demand of consumers for products or services identified by it, which know about the level of quality and its good reputation in the market. In this aspect, the idea of protection stems from the threat that the thing suffers from the possibility that someone will do something that harms it.

Imagine the situation where a person copies a third party's account on a social network and begins to manifest publicly, defending ideas that are not theirs or propagating facts that could not

even be called facts. Certainly, the audience of this third party (friends, family, followers) would be at least confused, but probably disgusted with the third party, at least until the situation is clarified. Something similar happens with the trademark that is reproduced or imitated by a third party without authorization. This type of fraud messes with the impression of the public and their way of seeing a certain trademark. After all, the trademark is also a way for the consumer to associate quality and origin.

When obtaining the registration of a trademark, the person (physical person or legal entity) has several rights and duties. Among the rights are assignment, license, and the right to care for the material integrity or reputation. Therefore, when unauthorized third parties use a trademark, the proprietor may request the interruption of its use. Another defense mechanism is to file an administrative petition with the Brazilian Patent and Trademark Office (BPTO), a state agency whose main purpose is to implement, at the national level, the rules that regulate industrial property. This defense is applicable when the third party, in addition to using the trademark reproduced or imitated, tries to get its registration.

Regarding the duties, there is the care and use of the trademark in the way that it was granted by BPTO. It arises as a consequence, for example, of a trademark removal from the public domain for commercial purposes. If the trademark is not available it is because it is already being used. Thus, the protection of the trademark is also the responsibility of its owner, who must be aware of possible infractions and attempts to commercial approach without authorization – a common

situation in cases where the competitor wishes to surf in the good name of an existing trademark.

Immersive Trademark Experience

According to Yoshida (2022), the migration to the consumption of immersive content should increase after the effective implementation of the fifth generation of mobile telephony (5G) in Brazil. From the feasibility of faster technology, lower cost and with lower failure rate during connection, the development of immersive experiences tends to increase and bear good results. One of the reflections of this potential preference for immersive content may be the change in the form of consumption and in the choice of products and services by the consumer. Tools change, but marketing continues to have the same principles and possible implications.

The new way of trade brings new ways of infringement, such as profiles that replicate publications in full from a competitor and companies that, due to technical ignorance, end up being inspired a little too much in an existing trademark. It is common to have conflict between companies that do not agree to live by dividing similar trademarks, which can reside both in the words themselves (nominative aspect) and in the combination of specific colors or images (figurative aspect).

In his studies, Castro (2015, p. 22) points out that consumer remembrance is directly related to this. The general audience remembers a product or service that displeased them and is used to the standards adopted by trademarks of the same owner. Current advertising helps in this by adopting transmedia narratives, in which an information network is distributed through different media, which dialogue so that the total meaning of a story is assembled. In summary, several contents are generated that complete and divide the same universe, that is, they are stories created specifically for each platform that complement each other at the end.

The way in which this information is consumed has also changed. Just swipe your finger over the panel to quickly scroll through the content offered, where the gaze is faster and you can't always identify minimal differences. With the advancement of digital content consumption, advertisements and disclosures no longer occupy only physical spaces. The screens are present in several daily tasks and through them we have contact with the dissemination of products and services.

Trademark Protection in the digital world

Trademark infringement cases have become so common in the digital sphere that popular platforms have implemented whistleblowing forms. Through them it is possible to indicate the infringing profile or publication and present proof of ownership of the trademark being copied or reproduced. Everything can be done through the platforms themselves, which analyze the case and, if they understand that there is reason in the complaint, they take the appropriate measures. The common point between the platforms that have a complaint channel is the need to present proof of ownership of the trademark that is being copied or reproduced. It is not enough just to inform the fact, it is also necessary to prove the right.

Innovation in the environment in which products and services are made available to the consumer has not changed the need for protection over the trademark that identifies them. On the contrary, the need for protection was enhanced by the arrival of new competitors and new means of marketing in the market. There are complex cases in which the misuse of a trademark involves disruption of commercial society, but there are many others linked to the ignorance of the third party. Despite being known and remembered by some, intellectual property is often foreign and forgotten to others. Therefore, the basis of the recipe for effective protection – real and accessible defense – is the protection of names, images, drawing, picture, symbol, color combination, plastic shape and the application of a sign in a unique position, among others provided for in LPI.

The revenue is so certain that companies, which intend to enter immersive virtual environments, are depositing their well-known trademarks aiming at the new reality, such as Nike and McDonald's.

After all, the fame of a trademark carries the risk of copies and reproductions, even when products and services have been identified by them for years. Therefore, it is not surprising that third parties seek to reproduce or copy a famous trademark in immersive virtual environments on the grounds that it is a new world, a place not yet populated.

The discussion about the products and services offered in the new world, which should be requested from BPTO, however, has been the subject of debate by experts in the area in recent months. Recently, the topic was discussed at the 1st ABPI Scientific Meeting and at the event aimed at Young Members of APPI.

With the document that certifies the trademark ownership, it is simpler and faster to take the measures available to avoid confusion for consumers and possible damage to the good reputation got by the trademark, not only with the platforms and social networks, but also and mainly with the Judiciary.

The holder can use several tools, customized to contemplate the strategies and interests that meet their reality. The type of trademark protection strategy depends on several factors, such as the niche in which it operates, the locations or means of making products or services available, the budget allocated to the operation and the way to approach possible offenders.

The strategies, which vary according to the specificity of each entity, always serve the same purpose: the protection of the position that its trademark occupies in the market.

One of the most used measures is the constant inspection of marketplaces and social networks most used in Brazil. Thus, it is possible to identify misuse and take appropriate measures before damage occurs to the trademark image or loss arising from the sale of false products or services.

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JUSTICE 4.0: PANDEMIC HERITAGE OR FUTURISTIC UTOPIA?

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Abstract: The article addresses the technological solutions developed for the implementation of the Justice 4.0 Program, an initiative that aims to accelerate the digital transformation of the Judiciary. A case study in the State Court of Rio de Janeiro is reviewed, a pioneer in cases involving industrial property, copyright and business name, and concludes with the first results of this initiative.

Keywords: CNJ – Justice 4.0 – Statistical data

Introduction

The advent of the COVID-19 pandemic in the first quarter of 2020 and the need to comply with social isolation measures determined by health authorities imposed several challenges on the Judiciary in Brazil. With the doors closed for face-to-face service and adopting a comprehensive home office regime, new solutions had to be devised to ensure the continuity of jurisdictional provision in times of abnormality, especially the displacement of judicial activities to the online environment, such as hearings and trial sessions.

It is in this context that Justice 4.0 emerged, a program created by the joint effort of the National Council of Justice (CNJ - acronym in Portuguese to Conselho Nacional de Justiça), the Federal Council of Justice (CJF - acronym in Portuguese to Conselho da Justiça Federal) and the United Nations Development Program (PNUD - acronym in Portuguese to Programa das Nações Unidas para o Desenvolvimento), to implement digital justice in Brazilian courts and consolidate important technological advances in Brazil.

Aiming at democratizing access to justice and maximizing effectiveness and transparency in courts, the Justice 4.0 Program innovates by using artificial intelligence and technology to build a more transparent, collaborative, efficient and integrated jurisdictional system, strategically dividing its performance into four axis: innovation and technology; preventing and combating corruption and money laundering and asset recovery; information management and judicial policies; and strengthening the institutional capacities of the National Council of Justice.

To this end, the important technological solutions developed include the implementation of the 100% digital Court, virtual clerk support and justice centers 4.0, which guarantee effectiveness to the axis of action focused on innovation and technology, in addition to the creation and improvement of the DATAJUD, Codex, Sniper and SNBA programs, digital platforms that comply with the other axis of action of the Justice 4.0 Program.

Means and ends of the Justice 4.0 Program

DATAJUD, which is the National Database of the Judiciary and concentrates the data related to the

productivity of the courts, works in an integrated manner with the Codex system, which extracts, indexes and centralizes all the information contained in the judicial proceedings in progress, allowing the functionality of automating the completion of the statistics of the Judiciary. As a result of the initiative, data were compiled and made available regarding the number of lawsuits filed, pending completion, ruled, suspended, among other pertinent data, also allowing the research of statistics for a specific period.

In addition, the Sniper and SNBA programs allow, respectively, the crossing of data on corporate, equity and financial ties of individuals and legal entities, and the management and destination of assets seized by the Judiciary, which reinforce the axis of prevention and fight against corruption and money laundering and asset recovery, in addition to collaborating for the effectiveness and satisfaction of judicial decisions, especially in civil enforcement proceedings.

In addition, the 100% digital Court was implemented, created by CNJ Resolution No. 345 of October 9th, 2020, whose premise is the practice of procedural acts exclusively by electronic and remote means, including to serve the public and hold hearings. In order to operationalize the installation and operation of the 100% digital Court, the digital clerk support was also created, an electronic tool that allows parties and lawyers to remotely contact magistrates through the secretariats of the courts and chambers, facilitating access to justice and expediting the progress of proceedings. Finally, the laudable initiative of the Justice 4.0 Program also brought an important jurisdictional tool with the creation of the Justice Nuclei 4.0, established by CNJ Resolution No. 385, of April 6th, 2021 and CNJ Resolution No. 398 of June 9th, 2021.

The State Court of Rio de Janeiro (TJ/RJ), a pioneer in the aggregation of the nuclei to the jurisdictional activity, currently has seven implemented Justice Nuclei 4.0, each specialized in a specific matter, with the practice of procedural acts in a completely digital way. The first nucleus, installed in October 2021 at TJ/RJ, has jurisdiction throughout the State of Rio de Janeiro, and is exclusive for the appreciation of matters related to industrial property, copyrights, and business names, alleviating the workload of the business courts.

The procedure for referral of the case to the Nucleus of Justice 4.0 is simple, with the request of one of the parties and the agreement of both parties to be implemented. From that moment on, the dockets migrates from the physical business court to be ruled by the justice center, where all procedural acts become exclusively electronic and remote.

Although the Justice 4.0 Program is optional, its acceptance by the courts is quite expressive: in only one year in force, it counts with the full adherence of all Superior Courts, Federal Justice and Labor Justice, in addition to having been implemented in 96% of State courts, 59% in Electoral Justice and 33% in Military Justice.

Likewise, the results obtained in the balance sheet of the first year of the existence of the Justice

4.0 Program, also impress: according to data disclosed in DATAJUD, database of the National Council of Justice related to the 100% digital Court, by 03/31/2022, the State Court of Rio de Janeiro, in the first instance, received 240,443 new cases, while 202,273 cases have already been tried. As for the Justice Nuclei 4.0 of the Court of Justice of the State of Rio de Janeiro itself, there is still no data compiled and made available on the results of its performance in its eight months it has been in force.

Is it a path of no return?

According to the Legal Counsel (2022), a CNJ survey released in June 2022 revealed that artificial intelligence is already present in most Brazilian courts. It identified 111 projects with this technology, in execution or under development. In June 2021, they were 41 – an increase of 171% in the period. Currently, 53 courts develop solutions using this technology. Most impact a high number of lawsuits: 90% of projects benefit more than a thousand lawsuits.

Thus, attentive to scientific and technological progress, the Justice 4.0 Program, funded by the National Council of Justice (CNJ) and the Federal Council of Justice (CJF), complies with the established objectives, especially regarding the modernization of the Brazilian judicial system, presenting consistent numbers in a year of term, and pointing out a new direction of judicial lawsuits, towards the expansion of access to justice and seeking to relieve physical services through simplification and expedition of the practice of procedural acts.

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