



Institutions of law in the metaverse

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Abstract

This paper scrutinizes the metaverse’s burgeoning impact on the digital landscape and legal systems, emphasizing the imperative for legal adaptation to match technological strides. We explore the widening gap between law and technology, redefining norms and institutions alongside evolving concepts of personhood and civil society. Central inquiries focus on metaverse regulation and its transformative societal implications, urging interdisciplinary collaboration to comprehend its complexities. We caution against inaction, stressing the urgent need for a new jurisdiction safeguarding personal data and property rights. We advocate for comprehensive governance frameworks akin to those addressing climate change, ensuring future generations confront neither the repercussions of our inactivity nor the challenges posed by this challenging technological frontier.

Key words

Metaverse; governance; law; artificial intelligence; technology

Resumen

Este artículo analiza el creciente impacto del metaverso en el panorama digital y el sistema jurídico, enfatizando la importancia de que la adaptación legal esté a la altura de los avances tecnológicos. Exploramos la brecha cada vez mayor entre el derecho y la

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tecnología, redefiniendo normas e instituciones junto con conceptos en evolución como el de personalidad y sociedad civil. El análisis se centra en la regulación del metaverso y sus implicaciones sociales transformadoras, instando a la colaboración interdisciplinaria para comprender sus complejidades. Advertimos contra la inacción, destacando la urgente necesidad de una nueva jurisdicción que salvaguarde los datos personales y los derechos de propiedad. Abogamos por marcos de gobernanza integrales similares a los que abordan el cambio climático, garantizando que las generaciones futuras no enfrenten las repercusiones de nuestra inactividad ni los desafíos que plantea esta desafiante frontera tecnológica.

Palabras clave

Metaverso; gobernanza; derecho; inteligencia artificial; tecnología

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1. Introduction: Warning

Humanity has a history of constant and accelerated technological evolution. Different tools, systems, and artifacts might change our behavior, individually as much as socially. Discoveries and inventions within the recent digital revolution change not only our world but our idea of 'reality' itself. This development, which goes beyond virtual or augmented reality, has attracted the attention of mass media, particularly as regards Artificial Intelligence and the popularity of Large Language Models like ChatGPT, Bard, Microsoft Bing AI, Codewhisperer, etc. Media are devoting increasing attention to the Fourth Industrial Revolution, sometimes providing unrealistic scenarios. Media consult experts who tend to either tone down or exaggerate the potential risks and opportunities. We can find computer scientists, engineers, neuroscientists, psychologists, jurists, and even moral philosophers, but seldom sociologists or socio-legal scholars among the most consulted experts.

It is rare, however, to find media engaging in interdisciplinary debates that might enrich our understanding of the scope of new technology and indirectly impact the essential socio-legal question of *social trust*. Expert opinion can be divided into two major groups: (i) those who trust the metaverse, its applications, and uses, who think the risks are related to excessive regulation, as an obstacle to speedy development; and (ii) those who are distrustful and tend to perceive digital entrepreneurs as money and power-savvy, companies disregarding the Common Good as escaping or flexing regulation. Can we be sure that our social conscience has moved on from that Sunday night of October 30, 1938, when Orson Wells and his CBS Radio team demonstrated the power of the media by convincing thousands of people across the United States of America that a full-scale alien invasion was in progress?

As socio-legal researchers, we cannot isolate ourselves from the latest technological developments nor from the way the media portrays them. Somewhere between the doom scenarios where Artificial Intelligence will bring about the end of humankind and the utopia of a technological paradise, there is plenty of space for different institutions to adapt to the new circumstances, avoid harmful outcomes of technological evolution, and counter the increasing inequality and asymmetry in the ownership of the means of production, information, and governance.

We do not aim to give an account of the genealogy of the metaverse, nor to trace a line of investigation to try to predict the outcomes of the advancement in the study and development of the metaverse. We aim to understand the technological advances that are usually confused under different terms, and then focus on the socio-legal analysis of the metaverse. To do so, the paper is divided into six sections. The first defines the metaverse, distinguishing it from other technological developments that intersect with it. With the delimitation of our subject of study, we aim to make clear what we understand as metaverse, from a socio-legal standpoint. In the following sections we address the overwhelming impact of technology on the legal system, in stark contrast with the limited impact law has on technology. This asymmetrical relationship between the law and the most recent technological advances, asymmetry has been expanding since the Industrial Revolution.

The fifth section is devoted to the institutions of law analyzing the relationship between norms, institutions, and order, and the new understandings of person, state, and civil

society. Understanding the institutions of law is a provocative way to introduce two questions: normative and socio-philosophical. The first is how to regulate the metaverse. Within the usual parameters of how much regulation is indeed needed, in which areas should it be applied, and if it is at all desirable, needed, or even possible. The normative question is interconnected with the socio-philosophical discussion regarding how the technological developments of the digital era, particularly the metaverse, transform the person, society, governance, and ultimately, also our thinking.

Beyond the paper structure or the methodological approach to the study of the metaverse, we would like to establish a warning, in two different directions: (i) we ignore how far the technological evolution in the digital era can go, particularly with the so-called Artificial Intelligence; (ii) but we sense the urgency of an interdisciplinary approach to the understanding of the phenomena of the artificial intelligence and the metaverse.

The first warning is not only concerned about the reach of the new technology but about the way new technology, can perform. As Professor Cristianini (2023) explains, this new technology can do things we cannot explain, generating its algorithms. This is particularly serious because it is not just the ordinary people who do not understand it. Programmers and developers themselves are calling our attention because they do not fully understand the parameters followed by artificial intelligence to harvest, manage, and use information for the development of new skills.

On the urgency for an interdisciplinary approach, we urge socio-legal scholars interested in the development of the metaverse and technologies involved in its improvement to collaborate with engineers, programmers, and philosophers of science to fully understand the social evolution that will be provoked by the metaverse. Also, in a historical moment where machines will become more like humans, interdisciplinary efforts of tech experts must be aligned with psychologists, sociologists, historians, and journalists to ensure that humans remain human and humane, and machines remain mechanical.

2. What is the metaverse?

In the realm of modern technologies, it seems like every digital advancement is being framed as Artificial Intelligence. However, modern technology is evolving in many ways, some of them away from the scope of Artificial Intelligence and some others intersecting with it. As mentioned before, this paper is concerned with technological advancements in their intersection within the metaverse. But what are we talking about when speaking about the metaverse and what does it have to do with Artificial Intelligence, Blockchain, Virtual Reality, or Augmented Reality? The short answer is that they have everything and nothing in common. To unveil this paradox, we will develop a genealogical understanding of the metaverse, followed by its current definition; to end up understanding the difference between the metaverse and other digital innovations and their inevitable intersection and mutual feedback.

2.1. Navigating the Technological Nexus: Unraveling the metaverse and AI Intersection

Artificial Intelligence (AI) is one of the great misunderstood technologies in computer sciences. Not everything done by a computer follows its paradigms. When talking about AI we usually refer to Large Language Models, based on Deep Learning Models. Moises Barrio (2023) explains that Large Language Models work by grouping humongous quantities of text and using probabilistic algorithms and training to return information, without fully understanding its meaning, but prioritizing that the user obtains the expected results. Algorithmic systems cannot function adequately without the content being carefully prepared for processing, without outcomes being checked and corrected for flaws, or without humans completing the so-called last-mile jobs, the filters, and firewalls. Mining and discriminating all these data to select what can be used and discard inappropriate material like child sexual abuse, bestiality, murder, suicide, torture, self-harm, or incest already requires an intensive and skillful workforce. But when trying to detect and discard material (textual or pictorial data) that contains racist or gender-degrading connotations things get even more difficult, and the cultural make-up of the human filter becomes crucial. These models are still evolving, and Generative Artificial Intelligence, with the right firewalls, could be the answer for those systems to understand the large amounts of data they are processing.

2.2. Metaverse Realities: From literary origins to Socio-Legal implications

Technological advancements throughout history; particularly since the emergence of the Industrial Revolution, have been inspired by fiction, science fiction, and dystopian novels.

The term “Metaverse” was originally coined by author Neal Stephenson for his 1992 novel “Snow Crash”, describing a three-dimensional social platform. It was not the first time that such a virtual reality had been described, as it was already earlier defined by Daniel F. Galouye in “Simulacron-3”, here even as an economic (market research) project. Most impact on modern pop culture had Ernest Cline’s “Ready Player One”. It presents a world marked by energy crisis, overpopulation, and climate change. The fictive eccentric tech-millionaire James Donovan Halliday created “The Oasis”, very similar to today’s concepts of the Metaverse (Henz 2022, p. 1).

This original appearance of the term in literature is important because it establishes; at least at the first stage, the limits and scope of the technology to be developed. The metaverse as understood today is a blend between what Stephenson imagined, the gamification stage of the metaverse, and what BigTech Tycoons are working on. What was seen once as science fiction, became a form of entertainment with the appearance of games such as Second Life, Minecraft, and Fortnite. However, the development of complex virtual worlds has been attracting the attention of the markets, which in the last decade has understood that virtual worlds can become more than video games, by intersecting with other technologies and enhancing their financial viability.

The metaverse’s current development is led by private initiative and jumped to the mainstream in October 2021, when Mark Zuckerberg announced the rebranding of Facebook, to become Meta Platforms as a declaration of intent to the commitment to develop the metaverse, following the efforts started by this company in 2019 with the

development of Facebook Horizon. The development of the metaverse (or metaverses, as we will discuss later) is led by BigTech because of its economic and financial potential. “The market cap was calculated around USD14.8 trillion as of October 2021 while the economic potential ranged from USD3.75 trillion to USD12.5 trillion” (Kasiyanto and Kilinc 2022, p. 299).

For Ritterbusch and Teichmann (2023) the metaverse is the result of BigTech conglomerates interest in the development of Web 3.0, Blockchain, Non-Fungible Tokens, and Cryptocurrencies; one might add Virtual Reality, Augmented Reality, and Mixed Reality. The combination of so many technologies; as well, as the implication of an expanding universe of private and public entities is making it more and more difficult to generate a final comprehensive definition of the metaverse. As Ritterbusch and Teichmann (2023) noted in their Systematic Literature Review, at least 28 different definitions could be found in 2022, within the interdisciplinary approach they developed, 17 coming from the computer science realm and 5 from the Social sciences, such as :

(1) In this world [Metaverse] individuals interact through a perceived three-dimensional landscape by creating avatars (artistically created virtual representations of individual users) that need a limited connection to the appearances of the people they represent. Each avatar is visible to all other users, and avatars interact with each other in this communal virtual space through software-specified rules (Taylor 1997, p. 177).

(2) “The metaverse,” a kind of cyberspace world that could be considered a glorified chat room with a total-body surround made possible by a sophisticated system of earphones and goggles that allowed individuals to live and act in cyberspace peopled by iconic representations as “avatars”: These avatars could be crude artifacts with little reality, rented by the hour. In appearance, these down-market avatars are somewhat wooden icons like those we use today. They could also run up to dramatically realistic or specially constructed representations created by talented hackers either for their use or for sale to wealthy clients (Friedman 1998, p. 94).

(3) “Technological advances in three-dimensional graphics, network connectivity, and bandwidth have just begun to enable online spaces that embody the Metaverse concepts of user creation and broad use” (Ondrejka 2005, p. 83).

(4) The Second Life, SL, system by Linden Lab is a persistent 3D world, or “metaverse”. Users access the online system with a proprietary client and interact with content and other “residents.” Unique features include simple tools for constructing 3D objects and scripting tools for interactive content -including connectivity with external web pages and internet resources (Kemp and Livingstone 2006, p. 13).

(5) “In particular, we consider the role of a Metaverse, understood as a globally accessible 3D virtual space and computing infrastructure —and today still a conceptual vision— as a mediator between technology trends and societal and business applications” (Rehm *et al.* 2015, p. 1).

As a result of the analysis of the collected definitions, Ritterbusch and Teichmann defined “Metaverse, [as] a crossword of “meta” (meaning transcendency) and “universe”, describes a (decentralized) three-dimensional online environment that is persistent and immersive, in which users represented by avatars can participate socially

and economically with each other creatively and collaboratively in virtual spaces decoupled from the real physical world” (Ritterbusch and Teichmann 2023, p. 12373). This definition is complemented by Song and his co-authors (2023) that underline six key characteristics of the metaverse: (i) Digitalization of assets, (ii) Application scenario-based, (iii) Economical scope, (iv) Industry universality, (v) Integrated innovation; and, (vi) Platform ecosystem.

The difficulty exposed by numerous researchers to define the metaverse unveils its potential to keep evolving. Now, as socio-legal researchers, we need to figure out a definition of the metaverse that understands the current technological state of the art and tries to advance the following steps to be taken by its developers. This adds another difficulty to the understanding of the metaverse; which is that there is not one metaverse, there are as many as investors and developers are willing to create, for as many purposes as you can imagine. The decentralization of this world beyond the material world creates a problem for the law, the problem of determining the jurisdiction applied to it. The jurisdiction linked to national estates and international institutions will evolve or give way to a new jurisdiction that understands the metaverse interactions as developed away from, and beyond the local, national, or international law realms. In the definition of the metaverse, it is important to consider the nature of the person, not only the human being interacting with the metaverse via avatars, and their data and right to privacy, but also those avatars that have no physical partner in the real world. As currently happens with legal entities (societies, enterprises, NGOs, governments, etc.) incorporating the difficulty of framing the avatars created by new technologies as Artificial Intelligence. Finally, a clear identification of property rights and the socioeconomic links between the metaverse and the real world must be designed.

With the elements listed before, we conceptualize the metaverse as an immersive multidimensional online environment with a decentralized jurisdiction whose users, developers, and administrators are represented by avatars that entail social, cultural, and economic rights and obligations attached to their legal existence in the real world. With this definition, we should explore the interrelation between the metaverse and legal practice.

3. The impact of technology on law and legal practices

The logic of law is not to create realities; therefore, it is usually a reactive discipline. The legal system adapts to the scientific state of the art, to the extent that new technologies affect people. In that sense, industrial revolutions have tested the value of the legal system and the capacity of the different levels of regulation to protect the rights of the subjects of law.

Technology changes the law more profoundly than normative change. Over time, great technological advances have caused socio-cultural changes, which in turn have given way to the adaptation of legal systems around the world. Particularly sensitive to scientific discoveries are intellectual property rights. The discovery of the Digest in the 11th century provoked not only the assimilation of the Roman Law compendium throughout medieval Europe but also the need to allocate an immense number of resources to study, comment (gloss), assimilate, and apply it or its hybrids with customary and canon law. All of this changed the way the medieval world taught and

conceived the law and legal knowledge, giving birth to the modern university at the University of Bologna.

Two centuries later, Gutenberg's invention of the printing press changed the world by unveiling the possibility of wide-spreading large amounts of data. This represents a huge milestone in the legal culture because it meant the possibility of democratization of knowledge. For our analysis, legal knowledge was widespread and became particularly important for philosophical-legal studies and dogmatics, all previous processes that led to the systematization of the Napoleonic Code, a way to understand the law that survives to this day.

More recently, the dissemination of digital technologies permitted people all over the world to access unimaginable amounts of data with the appearance of the World Wide Web (Web 1.0). At that moment, in the last decade of the past century, we all thought that it was impossible to acquire larger amounts of information, for legal practice this represented the possibility of accessing local and foreign legal instruments, doctrine, and theory. However, the irruption of Web 2.0 changed the equation decentralizing the production of knowledge and giving way to the possibility of creating even larger amounts of information; whose main characteristic is the decentralization in the production of information; however, leaving it centralized in terms of data storage. Both, Web 1.0, and Web 2.0 allowed the dissemination of legal texts, in much different hardware. The law is now practiced and studied in ancient buildings that house universities, courts, parliaments, and law practices; as well as in computers, tablets, and mobile phones all around the world. Telecommunications advancements of the last decades have allowed the legal practice via telematics, improving everyday possibilities, to the point where the irruption of the COVID-19 pandemic in 2020 forced the development of tools to participate in parliaments, courts, and universities in video calls with the same certainty as being in place.

The development of Web 3.0 will allow a decentralization beyond the production and storage of data. Dwivedi and his co-authors (2022) believe that both, the production and storage of data will be decentralized, but also, the organizational structure, with the decision-making taken from investors to a Decentralized Autonomous Organization that will enable the participation and governance will be centered in the user consensus. This is supposed to be possible with the use of a decentralized digital economy based on Crypto Currencies, Digital Assets Ownership, and Non-Fungible Tokens.

The Web revolutions have signified a cultural break like that between literate and illiterate people, a very similar break in cultural terms to the one that the digital era is creating. The law should protect the rights of the people who are falling behind and ensure equality before the law and non-discrimination. Just like the different processes lead to the recognition of education as a Human Right, Digitalization should represent a change of paradigm where we ensure that nobody is left behind in terms of communication, technological access, and understanding of programming and prompting as ways to interact adequately within the metaverse. The socio-legal realm will suffer a new change of paradigm and as scholars, we should embrace the change and start thinking about how the future of law will look.

From the above, we can see technology has an enormous impact on law and legal culture. Lawrence Friedman (1969) considers technological developments to be the key drivers

of legal change. This gives a certain priority to external, technical, technological, and material aspects of culture over internal factors of legal culture (the idea of law itself). This idea is complemented by Vincenzo Ferrari (2021) who distinguishes between two fields where technology changes impact law: (i) information about law; and, (ii) formation of law. Major developments have taken place regarding information, and informatics: starting from the databases on case law and then the informatization process (being able to file a claim or a request online, to start a legal case).

One technological revolution after another from the popularization of semiconductors to personal computers, the Internet, biotechnology, social media, and smartphones. Even in an imperceptible field, the legal profession is changing at a speedy pace creating issues for foot-dragging, digitally illiterate members of the profession. New tools now allow the automation of legal services particularly in the field of legal advice or counsel (in this field chatbots, general and specialized are gaining momentum). The development of specialized platforms enables more efficient communication between clients and practitioners who no longer need to devote time to inform on minor legal events, clients can consult at convenience and in real-time. Other tools might favor the client lawyer experience, contract drafting revision tools, predicting judicial decisions based on previous cases, training programs for compliance, and monitoring cases. Clients will demand automatization, accuracy in prediction, saving time and money, and tailor-made solutions. In the judicial system, the Judges will demand user-friendly decision-support systems; as well as systems of telematic notifications.

All those changes refer to the information about the law, but technology also performs changes in the formation of the Law. As it is the state of the art, legal systems around the world are still too uncertain in some areas. Criminal codes are falling behind in the recognition of what is considered a criminal offense and its elements, the kind of compensation for the tort suffered by the victim; we might even consider who is the victim. Beyond the regulation of conduct as criminal offenses, the Legal system might need to be adapted to apply to judicial decision-support systems. The law might become some sort of prompt for these systems to apply the law. Something similar has been described by content creators around the world who have been reporting the algorithms in social media (Facebook, YouTube, WeChat, etc.) to misunderstand the contents and the context, leading to administrative sanctions within the environment of social media, without the possibility to access a human being to sort the injustice created by the blunt application of algorithms. That experience, applied to the legal system might create slot-machine judges *Da mihi factum, dabo tibi ius*, (Give me the facts, I will give you the law) as proven by the Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) in the USA as regards the assessment of recidiveness.

4. The limited impact of law on technology

Although the law is functionally a program of social action based on the binary structure of the rule “if A then B”, and structurally law is a system of communication, of meaning, not of data. Law is semantic, computing is syntactic. We must recognize that the relationship between technology and law is asymmetrical, in terms of the influence that the first has over the latter. However, the enormous impact that technological advancements have on legal culture does not imply that the relationship between law and technology is not bidirectional. To support a paradigm where technology influences

the legal system; without considering that law causes and drives technological changes would be to deny the essence of the law and limit it to being a science that describes reality; without the intention of generating norms of conduct that seek to regulate social interactions.

Law has a limited impact on technology and technological development. However, the technological development of the last centuries has been possible thanks to the fact that the law has made it possible to establish clear and predictable rules of conduct. The rule of law creates the ideal environment for the establishment of industrial development poles and benefits consumers and investors in contractual relations, and entrepreneurs in the protection of their property and intellectual property rights. Commercial law has made possible the exponential technological development that we enjoy today, but we cannot forget about the improvement in social rights – education, and equal opportunities - that create a positive environment for creativity and imagination. Finally, antimonopoly and antitrust laws may help avoid the dangers associated with the centralization of the development of the metaverse. This idea is supported by Mangada and his co-authors (2022) who believe that the fear of a monopolization of the Metaverse by the BigTech companies should wake up governments around the world, to avoid abusive and aggressive practices leading to anticompetitive and predatory behavior, with negative consequences for citizens and consumers.

Another relevant tool that the law provides to developers is intellectual property rights. Probably the area of the legal system that has more impact on the interaction between law and technology, entails a paradox. On one hand, the protection of intellectual property rights provides certainty to tech developers by protecting their inventions or discoveries from being used by third parties without permission. This generates incentives for technological development, ensuring that there will be no unfair competition in the marketing of products or services that arise because of the scientific and industrial development protected by these laws. On the other hand, some voices call for a different regulation of intellectual property rights. These voices identify intellectual property rights to monopolistic practices that create access barriers to technological innovations, harmful in two ways: (i) avoiding access to other developers, who could generate exponential technological development, using scale technologies; and (ii) unfairly, making access to technologies more expensive for the public.

Neither case is absolute; in both, access can be granted in three ways: (i) through payment, this is the most common case, where individuals and developers pay a fee of use in the form of a license; (ii) by law, this is the case of certain necessary medications and vaccines, for which regulation may provide that free replication is allowed to address a public health disruption; and, (iii) Out of altruism, the developer or holder of the intellectual rights of the technological development can release them for use without compensation, such was the case of the three-point seat belt in 1959. (Bell 2019)

On the other hand, there is always a large amount of background knowledge and social organization of knowledge upon which all inventors build, so that a general interest, commons-based approach pleads in favor of sharing the exploits of inventions with society, in a more social understanding of equity. The law can have an impact in redistributing the benefits of patents, industrial designs, and copyright.

Now that digital knowledge is available around the globe, the law, and its capacity to institutionally adapt are more relevant than ever. The institutional development of the Metaverse and other technologies require the institutions of law, to be particularly relevant to the contracts, privacy agreements, property rights, and the principles that rule the personality and civil and criminal responsibility. However, leaving the development of the metaverse solely to private agents will require that different jurisdictions opt between different regulatory strategies. Those strategies will unveil an already existent jurisdictional market that should add up to the antimonopoly efforts against the centralization of the metaverse. We have identified at least three regulatory strategies that can be followed by national and international jurisdictions:

- (i) Regulating;
- (ii) Co-regulating;
- (iii) Not regulating, but letting providers develop standards; or,
- (iv) Not regulating at all (full *laissez-faire*).

The regulating strategies require a different approach to the centralization of the production of the *corpus iure* that should serve as a regulatory reference for the development, management, and governance of the new technologies, particularly the metaverse. The regulating strategy requires a centralization in the production of the norm, within the boundaries of democratic procedures and the rule of law. It distinguishes itself from the co-regulating strategy in the transparency applied in the legislative procedures. In both scenarios, BigTech companies and other developers of the new technologies will participate in the legislative process, via lobbying in the first and via co-governance in the second one. If participation is made transparently, resources are better aligned and developers, service providers, and users take part in the process of regulation.

The other approach is better identified with the initial conception of the developers of the metaverse: self-regulation in two different degrees, entrusting providers to develop ruling standards. This approach entails the risk of normative atomization of the regulation, with the consequent problem of not having a general standard to be used by the service providers. The extreme alternative of not regulating the use of new technologies at all not only entails a problem within the developers and service providers but also the misuse of an entropic system devoid of certainty and the support of the rule of law.

Behind the complex models created by social scientists, the reality is that technology will always advance faster than the law. However, it is crucial to establish a solid legal framework that can support and guide technological progress. We argue that the institutions of law that have developed in our legal cultures by tradition, innovation, and transplants are a sufficient foundation upon which future technological advancements may be regulated.

5. Institutions of law

Law is institutional normative order, and the law of the contemporary state is one form of law. There are others, such as international law, the law of emerging new politico-legal forms such as the European Union, canon law, shari'a law, the laws of sporting

organizations and of the games they regulate, and doubtless many others. All have in common the aspiration to order (in the sense of 'orderliness', not that of 'command'). An elaborate set of patterns for human conduct is taken to be 'binding' on all persons within the ordered domain, and order prevails among the persons addressed to the extent that they succeed in matching their conduct to the stipulated patterns. The possibility of orderliness arising out of conformity to such patterns depends, obviously, on the set of patterns amounting to a rationally intelligible totality. Therefore there is a postulated systematic quality about the supposed conduct patterns or 'norms' that underlie the aspiration to order (MacCormick 2007, p. 11).

5.1. Navigating Legal Pluralism: understanding institutional norms

This quote is the initial paragraph of Neil MacCormick's *Institutions of Law* which recognized the existence of a multiplicity of institutional normative orders that can interact with official state law. For MacCormick an aspiration to order, orderliness, lies at the top of the design of any institutional system. The design of the metaverse follows the same idea; however, the system's aspiration to order must follow (at least) one of the regulatory strategies analyzed in the previous section of this paper. We should consider whether the metaverse should follow the logic behind the rules of the public (top-down regulation in the general interest) or private law (contract and private interests), to begin with. The distinction is pertinent, particularly given the state of the art of the metaverse. We could frame it as a public place of private ownership. The private law areas most exposed to the current modernization wave (technological and virtual, digitization, artificial intelligence,) are consumer law, internal market, *lex mercatoria*, data protection, standardized contracts, copyright, and IP, finance, and political economy, and labor.

As Burrell and Fourcade (2021) convincingly argue, digital technological developments have created an 'informational capitalism', which was possible by the co-optation of the legal system and its institutions, particularly contracts, and property.

5.2. Personhood in the Metaverse

"First, tech firms defined the personal data that were produced through cookies and trackers as abundant and free for the taking. They harvested them through platform protocols and seemingly benign boilerplate contracts that framed the process as a mutually beneficial exchange. Second, they jealously protected their data bounty through legal performances of ownership involving patents and arguments about trade secrecy. Once marked with all the "indicia of legal privilege" (Cohen 2019, p. 64), the data that supposedly lay within individuals or in the public commons were effectively appropriated and recoded as private capital or assets (Pistor 2019, Birch and Muniesa 2020, Sadowski 2020), as if in a modern process of enclosure or colonization (Couldry and Mejias 2019)" (Burrell and Fourcade 2021, p. 215).

We take a different starting point. Within the institutional order of the metaverse, one of the keystones is the person. Here, we follow Neil MacCormick (2007) who thought that the notion of a person is intrinsic to the normative order. The Universal Declaration of Human Rights requires the recognition and protection of the person before the law. This notion is not only relevant to the law but to any institutionalized normative system. If by becoming a person the being becomes a subject of rights and obligations, the sole

recognition of the system creates the legal idea of the person as an institution, as a point of imputation of legal rights and obligations, status, and dignity. The ensuing question is whether the normative order in the metaverse can create this fiction of imputation, by addressing the avatar as a person for the metaverse, or whether the avatar or a series of avatars must be necessarily imputed to a physical person, as legal persons (incorporations) are ultimately imputed to the physical persons who have set them up.

If the institutionalization of the person in the metaverse is to be made via the avatar, which rights and obligations will be transferred from the person to the avatar? Which rights and obligations contracted by the avatar will be imputed to the person? Will the existence of the avatar be attached to the person, or we will reach a stage where having a virtual life will be an extension of the civil existence of the person? Professor Lau is concerned about the connection with use interaction in the metaverse and raises the following question "Are our existing laws on sexual harassment and sexual assault robust enough to tackle these kinds of actions in the metaverse?" (Lau 2022, p. 100). If the avatar commits a crime punishable by imprisonment in the metaverse, should the person be imprisoned outside of the metaverse? What other forms of criminal responsibility may be developed? Maybe the opposite could also happen, or not. If the person dies, the avatar might also die, but this is not necessary; right now, social media has people with social media existence, who are no longer alive; some of them died after having a Facebook account, and some of them do not even envision the existence of the internet. If my avatar dies, I could resuscitate it, as happens in any multiplayer game, which means that right now, I could decide to commit suicide without any other consequence than restarting this second life.

Given the state of the art, the avatar and the person are still two different institutions; however, what would happen if we transited from the metaverse of the Meta Quest or the Apple Vision to the Neuralink? The ultimate protection of the person should be to ensure that the physical consequences of whatever happens in the multiverse, will only trespass to the real world if all those concerned by the action or inaction are aware of the consequences and agree to the trespass (e.g. a medical operation on the metaverse with consequences on the physical world).

Linked to the institutionalization of the person as an avatar in the metaverse, questions about property in the metaverse should be raised. Again, MacCormick (2007) seems to have anticipated the scenario that the metaverse would propose regarding the institution of the property when distinguishing the rights and duties between two persons and those that involve the ownership of property and other forms of proprietary rights. The metaverse breaks the idea of property as linked to the tangibility of things, but also the existence of things and the property rights attached to them. Cryptocurrency and Non-Fungible Tokens are two ways of understanding intangible assets; the original idea was to decentralize the mechanism of protection of money and intellectual property.

"Cryptocurrency represents a digital asset, whose main purpose is to be a medium in exchange, and while doing that, it uses cryptography so that all the transactions are secured, everything new that appears is controlled by its own system. It is possible to say that cryptocurrency is a subset of digital currencies" (Milutinović 2018, p. 106). Since the appearance of Bitcoin in 2009, the number of cryptocurrencies has been growing

exponentially, to the point that some governments have started creating their own digital currencies, that cannot be cataloged as cryptocurrencies, because the state intervention goes against the original idea of decentralizing the currency. Non-fungible tokens (NFT) represent another way to decentralize the faculty of the state to authenticate certain assets, by becoming a “virtual ownership certificate, which serves as a form of authentication” (Dwivedi *et al.* 2022, p. 27).

The use of blockchains that support the decentralization of the economic system in Web 3.0 raises an issue that has been around the legal system for decades and must be addressed more seriously. The new models of enjoyment of non-tangible goods have disrupted the idea of ownership. The use of licensed goods is now the new normality, particularly in the entertainment industry; with access to millions of songs, movies, games, and books; However, not owning their property, but a license that allows us to reproduce them until the different platforms decide that for geographical, commercial or convenience reasons, are no longer available. The big question is how that is going to work at the metaverse when the house bought with cryptocurrency is no longer available for our use or if we travel, some of our virtual goods are not available, due to commercial agreements.

This initial concern on the institutional design of the metaverse gets us back to the initial question of how to bring order and justice to the metaverse. The following chapters are devoted to the socio-legal challenge presented by the development of the metaverse. With the institutional approach developed by Neil MacCormick as background we would like to present a possible scenario of how the metaverse could be regulated; and which transformations could be performed regarding the technological changes presented by the fourth industrial revolution and the proposal for regulation itself.

6. The normative question: how to regulate the metaverse?

The inevitable implementation of the metaverse requires an institutional approach to the different challenges; some of them are already in process. We are going to relate some of the efforts that have been carried out in the European Union, contrasting them with the challenges posed by the development of the metaverse, among other technologies.

The High Commissioner’s Office of the United Nations report on the Right to Privacy in the Digital Age (2022) focuses its concerns on the user’s privacy. Three areas are relevant for the discussion: (i) hacking activities; (ii) use of encryption software; and (iii) monitoring of public spaces. Although, the focus of the report focuses on the interaction of people with digital technology within the framework of surveillance capitalism. The hacking activities that concern the High Commissioner’s Office focus on attacks carried out using Pegasus spyware used by at least 60 government agencies all over the world. Similarly, the report analyses the restrictions perpetrated by governments against the use of encrypted communications. Finally, the analysis of the increasing monitoring of public space underlies the role of online monitoring, which is an increasing concern for the Human Rights defenders. However, this is just the beginning of an increased attack against human rights in the digital era.

Our concern is that the attack on privacy and security online is analyzed under the lens of Web 2.0; however, the progressive introduction and popularization of the immersive Web 3.0 will elevate the possibilities of governmental and industrial intervention in

communications in the metaverse. It will not only be a matter of privacy and security, but a matter of surveillance in the use of digital currencies, licensing of goods, and expulsion from privately owned online communities. People have been sanctioned or even expelled from social media and multiplayer online gaming platforms after losing large sums of money, crossing the online environments where it was produced.

The Committee on Artificial Intelligence of the Council of Europe is preparing a Framework Convention on Artificial Intelligence, Human Rights, Democracy, and the Rule of Law and recently published a consolidated working draft of that Framework Convention. The Convention of the Committee on Artificial Intelligence (2023) aims to ensure the respect for human dignity, human rights, fundamental freedoms, and individual autonomy within democratic values in the development of any Artificial Intelligence that has a direct relationship with human affairs. The development of new Artificial Intelligence systems must follow six principles: (i) Transparency and oversight; (ii) Accountability and responsibility; (iii) Equality and non-discrimination; (iv) Privacy and personal data protection; (v) Safety, security, and robustness; and (vi) Safe innovation.

For us, the most relevant outcome of the document is the focus that it places on digital literacy and skills. “Each party shall encourage and promote adequate digital literacy and digital skills for all segments of the population as well as for those responsible for the design, development, use, and decommissioning of artificial intelligence systems, as set out in its applicable domestic law” (Committee on Artificial Intelligence of the Council of Europe 2023, p. 9).

Some other measures and propositions to adapt European Law to the advancements of technology include the European Council’s (2016) General Data Protection Regulation that provides that authorization is necessary as a lawful basis for the massive collection and processing of personal data, duties of information to users, obtaining consent from users, limits to sharing data with other providers; need to control accuracy of data and information and to limit fake news, need to verify the age of users. GDPR provisions, specifically established the so-called right to obtain human intervention, closely linked to the right not to be subject to a decision based solely on automated processing, and the right to information on automatic decision-making and the logic involved. Despite these provisions, the traditional legal response does not seem adequate in the case of predictive algorithms and automated decision-making impacts on society. While it offers valuable protection, there are sometimes concerns about overregulation, over-intrusive regulation, and excessive bureaucracy, stumping innovation.

The proposed European Union’s Regulation on Artificial Intelligence envisages minimum transparency obligations for specific systems—where chatbots or ‘deep fakes’ are used. The draft text was presented in April 2021 and is undergoing legislative scrutiny. It classifies AI systems according to four risk levels: (i) unacceptable; (ii) high; (iii) limited; and (iv) minimal.

The European Union institutions (European Parliament, European Council, European Commission) declaration of 23 Jan 2023 on the European Digital System (EDS, Digital Rights, and Principles for the Digital Decade), based on the European Union Charter of Fundamental Rights (Art 8, right to data protection) and the Treaty on the Functioning of the European Union: the principle of equivalence: whatever is illegal in the physical

world is also illegal online; regulators much analyze the impact of the proposed regulation in cost/benefits terms; EDS must be inclusive and sustainable: the EDS concerns persons (citizens), companies, legal actors and third-country nationals; AI must be transparent, fair, neutral (non-intrusive) and safe; digital services and markets must be free, democratic, transparent, competitive and innovative.

European Union cases on the clash between privacy and personal data protection on the one hand and the general interest related to public security, protection against crime and terrorist acts on the other (e.g., Digital Rights, Tele2 and Watson, Quadrature du Net, Prokuratuur). The rights and interests of individuals seeking access to information, freedom of expression, and protection against surveillance and censorship may have to be weighed in the balance with the right to be forgotten (*Google Spain* case), as well as intellectual property and copyright protection (the latter currently heard by the full Court in *La Quadrature du Net II*).

Nevertheless, personal data protection is only one of the challenges and risks posed by Large Language Models ChatGPT and its sisters, such as DALL·E, Synthesia, and MusicLM. There are also serious technological, ethical, social, environmental, and political concerns. Risks related to surveillance, unemployment, and autonomous weapons systems. According to Berkley sociologists Jenna Burrell and Marion Fourcade (2021) beneath the fetish of Artificial Intelligence a digital coding elite is exploiting a cybertariat “a global digital assembly line of silent, invisible men and women, often laboring in precarious conditions, many in post colonies of the Global South” (Burrell and Fourcade 2021, p. 219).

While positive law is still trying to figure out data protection in the digital era, challenges over social affairs arise every day, the dignification of technological labor is just one of the many challenges that the legal system will face, having outcomes that reflect on people life's, society, and even our way of thinking.

7. The social philosophy question: How do such developments transform people, society, governance, and our thinking?

So far, we have analyzed the legal changes that have been made in the European Union. However, as we have already seen, usually, the law follows social changes and rarely this is the other way around. It is the case that the changes taking place within the fourth industrial revolution are no different. We already anticipated the changes taking place at the workplace level within the BigTech industry. The challenges that new technologies bring to our lives will keep going with the potential influence of transforming the way we think.

Algorithms are transforming the very nature of our moral intuitions—that is, the very nature of our relations to self and others—and what it means to exist in the social world. This is already observable in the development of Web 2.0 with social networks. Although some behaviors have been proscribed by society, we have also internalized the monitoring of terms and conditions or codes of conduct through algorithms. Some are so simple that they determine sanctions for the use of isolated words or expressions, even without the ability to discern their meaning. The issue goes at least two steps beyond. As individuals and as a society we are accepting the algorithmic resolution of

misbehavior and ultimately, we tend to believe that the conducts algorithmically tagged as misbehavior become misbehavior online as offline.

In Thompson's (2020) comprehensive analysis, the advent of the digital revolution is intricately weaving a bifurcated societal fabric. As Silicon Valley engineers align themselves with fringe movements fixated on radical life with fringe movements fixated on radical life extension and transhumanist pursuits, parallels with the Gilded Age predecessors emerge. Their endeavors range from the pragmatic elimination of time-wasting activities through meal substitutes to the establishment of ambitious philanthropic ventures, echoing themes explored by Giridharadas (2019). However, the consequences are starkly evident in the streets of San Jose and San Francisco, where an increasing number of individuals grapple with hunger and homelessness, revealing a disconcerting underbelly to the purported technological utopia.

Contrary to expectations of a reckoning, the COVID-19 pandemic, as noted by Morozov (2013), seems to have paradoxically fortified the assertions of tech "solutionists." This resilience is particularly observable in the realm of digital education, where new and profound inequalities have surfaced. The pandemic, rather than prompting a systemic correction, has seemingly propelled the technologically driven elite into further prominence, exacerbating the existing socioeconomic divisions. Thompson's (2020) examination beckons us to scrutinize these developments through the lens of the sociology of law, shedding light on the complex interplay between technological advancements, societal stratification, and the perennial quest for innovative solutions.

Social relations are suffering changes, particularly in the online realm, which is the natural realm of the metaverse; some of the threats are the development of more aggressive bots, cyborgs, and algorithmic processes that also structure how people come to know and associate with one another, and how technical mediations intersect with the perception and production of self and community; which can trespass the virtual realm. By seemingly eliminating human arbitrariness, the new regime of algorithmic classification lends itself to an argument for procedural fairness. However, it may not satisfy other social definitions of fairness. Max Weber would add that, bureaucratic administration is more perfectly developed the more it is dehumanized.

Another negative outcome of the popularization of digital technologies is the phenomenon of the platformization of society, particularly of labor. Casilli and Posada (2019) list five social implications of this phenomenon: (i) platforms emerged as a response to deficiencies in markets and enterprises; (ii) platforms capture users' content and data to generate value; (iii) platforms' prosperity is predicated on their capacity to put their uses to work; (iv) to generate data, platforms 'taskify' labor processes; and, (v) platform-based labor is the secret ingredient of automation. The proletariat was physically copresent, densely packed in factories. Digital warehouses and click farms sometimes have these qualities but decreasing. As crowdsourcing platforms take over, members of this digital precariat are more and more individualized and isolated from one another. Their working conditions resemble more the old proto-industrial putting-out system, or piecework, by which laborers are supplied materials that they transform at home. An investigation by Billy Perrigo (2023) for *Time* magazine revealed that Kenyan workers paid less than US\$2 an hour were given the job of trying to ensure the data used to train the AI platform ChatGPT was free from discriminatory content. This

phenomenon is not exclusive to the global south, precarious platform work is widely popular among well-educated city youth (call centers, web content moderators, search engine optimization, copywriters, and ghostwriters).

In his 2015 book, *Homo Deus*, the historian Yuval Harari predicted that the most likely outcome of AI would be a radical division – much stronger than the class divide – within human society. Soon enough, biotechnology and computer algorithms will join their powers in producing “bodies, brains, and minds,” resulting in a widening gap “between those who know how to engineer bodies and brains and those who do not.” In such a world, “those who ride the train of progress will acquire divine abilities of creation and destruction, while those left behind will face extinction.” The prediction made by the best-seller author might sound apocalyptic or excessive. However, depending on the evolution of the metaverse, the difference in digital literacy and access to new technologies could be crucial for the development of large population groups.

A new wave of anti-discrimination legislation in the 1970s had made reliance on human judgment increasingly problematic. Evidence had accumulated that both private and public decision-makers were routinely giving into vague intuitions, personal prejudices, and arbitrary opinions. These decisions were deemed unfair in the sense that they were often skewed against minorities or were simply inconsistent. Historical accounts of the rise of actuarial techniques thus emphasize progressive efforts to both demand accountability from institutions and redress histories of bias, favoritism, and exclusion. The mechanics of modern algorithms offered promises of transparency and equal, dispassionate treatment – behind the veil of ignorance – without making distinctions based on prohibited demographic characteristics such as race or gender. Conceptualizing algorithmic discrimination as a sociotechnical system inscribed in historical racializing practices requires: (i) algorithmic tools used by the public sector as sociotechnical systems inscribed in longstanding discriminatory processes (critical race and science and technology studies), (ii) algorithms as sociohistorical political artifacts involved with the historical datafication of race through the lens of decolonial theory, (iii) the public sector as a key factor in developing, shaping and deploying discriminatory algorithmic technologies.

Algorithmic discrimination was until very recently an obscure technical concept relegated to the margins of science and technology studies. Narrowly defined as the systematic production of unfair and biased outcomes by automated and semiautomated decision systems, has sadly become a recurrent and unresolved problem affecting millions. Governments around the world are turning their eyes to the BigTech promises of technical solutions for complex and structural problems. India is setting up the Aadhaar system: a massive stack or platform of state surveillance technologies, that is capturing biometric identification of its entire population. This system will be the main gate to public and private services, ranging from identification to payment, merchant, and employment services. The European Union is investing heavily in its digital border wall, with projects such as ROBORDER aiming at developing “a fully functional autonomous border surveillance system with unmanned mobile robots”. Let alone the predictive tools and surveillance biometric technologies already deployed in refugee and migrant camps. Spain and other European countries have been using automated risk assessment tools to evaluate the potential threat of radicalizing entire communities,

with a questioned rate of success and a massive list of false positives. Australia has infamously used algorithmic technologies to prevent fraud, leading to massive welfare surveillance scandals affecting hundreds of thousands and disproportionately affecting aboriginal and racialized populations. The United States, for its part, has been spearheading a digital dystopia where private corporations are coding the conditions of algorithmic oppression of its most discriminated populations, African Americans, and Latins. On January 15, 2021, the Dutch government resigned over a scandal involving 26.000 families overwhelmingly racialized and poor, wrongly accused of by an algorithmic tool named SyRI tax. What started as a local episode of data mismanagement, turned out to be the first case in history where a government fell as the consequence of an automated decision system. And it surely won't be the last.

Despite its importance, we are just starting to understand how these data-centric technologies operate, reshape our societies, and have a social impact. So far, we know that algorithmic technologies are inscribed in wider sociotechnical systems. That is, they encompass the people who designed and operated the system, the users, the data sets, the computational networks connecting the elements, the institutional architecture where they are inscribed, and the wider socio-political structure where they are built. These systems are indeed non-neutral, but political artifacts. We know that they can be profoundly biased, and even more, racist. We are also becoming aware that algorithmic discrimination is not a glitch, but a feature serving a system of inequality. A system of domination standing on centuries of legalized, technified, quantified, datafied, and routinized production of discriminatory racial lines.

Notwithstanding, its tremendous academic, political, and social importance only a handful of works have started analyzing the sociohistorical architecture of algorithmic discrimination. Most of these works are focused on Anglo-Saxon contexts, with an emphasis on the private sector, while none of them has been systematic, transhistorical, and comparative. In other words, the European Union lacks comprehensive empirical sociohistorical research analyzing its discriminatory algorithmic architecture. Thus, previous research has failed to: (i) empirically demonstrate; (ii) explain the connections between historical forms of statistical governance with contemporary expressions of algorithmic discrimination; and (iii) provide the theoretical and empirical tools necessary to understand and tackle, the role of the public sector in producing discriminatory algorithmic technologies.

8. Conclusions

The future of technological advancements -as life itself- is uncertain. The times are incredible. Nevertheless, we are now conscious of some of the negative outcomes of unrestricted technological development. The most obvious is the environmental damage that oil-based technology caused; however, we have reached a widespread state of consciousness that lets us understand that our development comes with a price. We aimed to approach one of the most misunderstood digital technologies, the metaverse.

It seems like the metaverse launch by BigTech companies and the headset associated with it has produced the idea that the metaverse has reached a final version, ready to be open to the great public. In our opinion, the metaverse is still in a very early stage, at least from the socio-legal standpoint. The development of the metaverse; as well as its

chances of success depend on the success of its institutionalization. The institutionalization of the metaverse does not need to pass over the current legal system, quite the contrary. The irruption of new technologies is more than a challenge, an opportunity, an opportunity to rethink our institutions, prove them, change them (if necessary), and create new ones.

The legal system will face challenges that will reflect on people's lives, society, and our paradigms. The particularity of the world we inhabit is that we must follow laws of the physics and give ourselves a legal system to provide for better human interactions. That is not the case in the metaverse. Inside the metaverse we will not have to follow the rules of nature, we will be able to design an institutional order that provides better social connections. The institutional approach to the design of the metaverse should address issues such as property, governance, sovereignty, jurisdiction, human rights, and sustainability. As history shows that law has been chasing technological advancements, we are on the verge of an era where technification will allow a wider number of lawyers to access the understanding of technology, particularly the digital. The relationship that lawyers and legal institutions are experiencing with digital era advancements is changing them forever. The change has been subtle, almost imperceptible, but durable. The use of information technologies, particularly after the COVID-19 pandemic irruption, has changed the way the law is perceived, taught, practiced, and designed.

Soon enough the legal practice will be introduced in large-scale phenomena. Hiring consultants and practitioners through digital platforms, with whom there will be minimal interaction, and the once-relevant fame and good name of the lawyer will translate into stars and comments on the different platforms. The chatbots and Large Language Models will change the workforce, some jobs will end up disappearing, others changing and many more being created. The legal efforts -so far- have focused on the protection of personal data and the privacy of the public users of the different information technologies belonging to Web 2.0. In Web 3.0, governments and international entities could lose control over the data market, online economy, and crime both inside and outside a computational system that will go beyond computers.

The algorithmic resolution of misbehavior and the platformization of society, particularly of labor, are some of the challenges that new technologies bring to our lives. Algorithmic discrimination is a recurrent and unresolved problem affecting millions, and governments around the world are turning to BigTech for technical solutions for complex and structural problems. The European Union lacks comprehensive empirical sociohistorical research analyzing its discriminatory algorithmic architecture, and previous research has failed to provide the theoretical and empirical tools necessary to understand and tackle the role of the public sector in producing discriminatory algorithmic technologies.

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