Dentro del Metaverso: Desafíos Éticos y Legales
Into the Metaverse: Navigating the Ethical and Legal Frontier

Juan Camilo Pazos Alfonso [1], Ana Luisa Mendoza Barrera [2]

[1] *Magíster en didáctica digital, Universidad Sergio Arboleda, Santa Marta, Colombia,* https://orcid.org/0009-0005-8135-3442, juan.pazos@usa.edu.co
[2] *Estudiante de Psicología, Universidad Sergio Arboleda, Santa Marta, Colombia*

Resumen
El metaverso, concebido como un vasto universo digital que combina tecnologías inmersivas e interacción social, está pasando rápidamente de ser un concepto especulativo a una realidad emergente. Aunque sus promotores destacan su potencial para transformar la comunicación, el comercio y la educación, también plantea desafíos éticos y legales críticos que requieren reflexión urgente. Este artículo examina cinco áreas clave de preocupación: la privacidad de datos y la vigilancia, los derechos de propiedad intelectual, la identidad digital y el anonimato, la gobernanza y regulación, y las desigualdades sociales. Se analizan ejemplos de plataformas como Horizon Worlds de Meta, Decentraland y Roblox, que ilustran tanto las promesas como los riesgos de estos entornos virtuales. La recopilación de datos biométricos y conductuales genera riesgos de privacidad sin precedentes. Las disputas sobre la propiedad de contenidos y activos virtuales desafían los marcos legales existentes. El anonimato permite la autoexpresión, pero también puede fomentar conductas dañinas y el fraude. Las estructuras de gobernanza oscilan entre el control corporativo y los modelos descentralizados, cada uno con ventajas y limitaciones. Finalmente, el acceso desigual a dispositivos y conectividad puede profundizar la brecha social. Este artículo subraya la necesidad de políticas proactivas, diseño ético y participación ciudadana para que el metaverso evolucione de forma inclusiva y respetuosa de los derechos.

Palabras clave: Metaverse, privacidad de datos, identidad digital, gobernanza virtual, desigualdad social

Abstract
The metaverse, envisioned as an expansive digital universe blending immersive technologies and social interaction, is rapidly transitioning from speculative concept to emerging reality. While proponents highlight its potential to revolutionize communication, commerce, and education, the metaverse also raises critical ethical and legal challenges that demand urgent reflection. This article explores five key areas of concern: data privacy and surveillance, intellectual property rights, digital identity and anonymity, governance and regulation, and social inequalities. We examine how platforms like Meta's Horizon Worlds, Decentraland, and Roblox illustrate both the promise and pitfalls of these virtual environments. The collection of vast biometric and behavioral data creates unprecedented privacy risks. Ownership disputes over user-generated content and virtual assets challenge existing intellectual property frameworks. Anonymity can empower self-expression but also embolden harmful behavior and fraud. Governance structures oscillate between corporate control and decentralized models, each with trade-offs. Finally, unequal access to devices

and broadband may deepen social divides. By critically reflecting on these issues, this article underscores the necessity for proactive policies, ethical design practices, and broad public engagement to ensure that the metaverse evolves in ways that protect users' rights and promote inclusion. The metaverse will shape the future of digital life—and its societal impact will depend on choices we make today.

Keywords: Metaverse, data privacy, digital identity, virtual governance, social inequality

Introduction

The metaverse, a shared, immersive virtual space where people interact through digital avatars, has rapidly shifted from science fiction to tech industry buzzword. Companies like Meta (formerly Facebook), game platforms, and startups are pouring billions into creating these interconnected 3D worlds. They envision a future where we might attend meetings as holograms, shop in virtual malls, or hang out with friends on a digital beachfront. The metaverse promises to blend the convenience of the internet with the richness of face-to-face interaction in ways that feel almost real. It's touted as the next big evolution of the internet, and its growing relevance in business and popular culture has many excited about new possibilities.

Yet alongside the excitement lies a crucial question: What kind of world will the metaverse be? As we rush to build these digital realms, we must also confront the ethical and legal challenges they bring. (Mystakidis, 2022). Just as the early internet raised issues about privacy, safety, and rights, the metaverse amplifies those concerns, often in new and unexpected ways. How will our personal data be protected when everything from our facial expressions to our virtual possessions can be tracked? Who owns the things we create or buy in a virtual world? Can we truly be "ourselves" online, and what happens if someone abuses that freedom? And ultimately, who polices a universe that isn't physically anywhere? These questions have moved from hypothetical to urgent as the metaverse edges closer to mainstream use. Avatars share a virtual meeting space with digital media displays. As platforms envision people working, learning, and socializing in the metaverse, concerns grow about how this brave new digital frontier will handle privacy, rights, and equality. (Kim et al., 2023).

In this article, we will critically explore the key ethical and legal issues emerging in the metaverse. From data privacy and intellectual property to identity, governance, and inequality, each topic shines light on the promises and pitfalls of our virtual future. (Eltanbouly et al., 2025) By examining real-world platforms and scenarios already taking shape, we can better understand the stakes and begin to imagine how to address these challenges before they scale up. The goal is to demystify the metaverse's risks in an accessible way for anyone curious about technology's impact on society.

Ethical and Legal Challenges in the Metaverse

Privacy is one of the most pressing concerns in the metaverse. In a fully immersive world, the amount of data collected about users could be unprecedented. Today's virtual reality (VR) and augmented reality (AR) devices can track not just what we click or where we go, but

how we move our bodies, where we direct our gaze, and even our facial expressions and vocal inflections. (Lam et al., 2022). All of these personal details become data points. For example, a VR headset's sensors might monitor your head and hand motions to render your avatar's movements. Future metaverse applications could capture even more sensitive information, like measuring your heart rate or analyzing your voice for emotion. This intimate data can paint a remarkably detailed picture of your interests, habits, and state of mind. Who gets to collect and use this information?

In current social media, data about our clicks and likes is often harvested to target ads. In the metaverse, with biometric and behavioral data on the table, the potential for surveillance expands dramatically. A platform could know that your avatar paused in front of a virtual store window and stared at a luxury watch, or that your speech patterns sound anxious during certain interactions. This opens the door to hyper-targeted advertising and manipulation. Even more troubling, sensitive insights could be inferred, imagine a system deducing your mood, health conditions, or deepest fears from your in-world behavior. If companies or bad actors surveil users across virtual spaces, the loss of privacy could far exceed today's tracking on websites. Without strong safeguards, users might have to trade enormous amounts of personal data for the privilege of participating in these new worlds. (Scorzin, 2023).

There is also the question of consent and transparency. Metaverse platforms need clear policies on data usage: Will users know when they are being recorded or observed? In some early examples, Meta's Horizon Worlds was reported to keep a constant buffer recording of the last few minutes of activity for safety purposes, and moderators can "teleport" into a scene invisibly to observe behavior. These measures are meant to catch harassment or rule-breaking, but they also mean users are never sure if someone is virtually looking over their shoulder. Striking the right balance between safety and privacy will be a major challenge. Regulators are already watching closely, data protection laws (like the EU's GDPR) apply to the metaverse but enforcing them is complex when data flows across global, virtual environments. Questions of surveillance also extend beyond companies: could governments or other entities monitor public virtual spaces? As we navigate through metaverse worlds, it's unclear how much of our activity is truly private. Ensuring that people retain control over their personal data in these settings will be essential to building trust in the metaverse. (Guan & Morris, 2022)

Intellectual Property Rights

The metaverse is often described as a playground for creativity: users can design virtual clothing, build entire worlds, or mint unique items as digital collectibles. But this creativity brings a tangle of intellectual property (IP) issues. In virtual worlds, the line between original content and copy can blur easily. Imagine you spend hours crafting a beautiful 3D artwork or a custom avatar skin. Do you automatically own that creation in a legal sense? In traditional terms, copyright would grant creators rights over their original works. Many platforms do grant users ownership of what they create, but the enforcement of those rights is tricky. If another user halfway around the world duplicates your design without permission,

what then? The global, instantaneous nature of the metaverse makes it hard to police such infringement. (Smits & Borghuis, 2022).

Major brands are already nervous about how their trademarks and products appear in virtual space. We've seen real-world lawsuits when digital artists or companies create virtual items that riff on famous brands – for instance, a high-fashion company suing over unauthorized NFT versions of its handbags being sold, or sneaker brands battling over virtual shoes. These cases are testing how far existing IP law extends into the realm of downloadable skins and virtual goods. The metaverse marketplaces complicate things further: virtual real estate, clothing, and collectibles can be bought and sold, sometimes for significant money. If someone "steals" a design or sells a counterfeit virtual product, it's not always clear what legal jurisdiction applies or how to resolve the dispute. Is it the law of the country where the victim lives, where the perpetrator lives, or simply the terms-of-service of the platform? (Kalyvaki, 2023).

Intellectual property rights also become an issue for the platforms themselves. Who owns the user-generated content populating these worlds? Many platforms claim a broad license to anything created on their service, which users might not realize. Content creators could find that the art, music, or interactive games they bring into a virtual world are locked there or even commercially exploited by the platform. There's a tension between encouraging an open creative culture and protecting creators' rights. We may need new frameworks (or updates to old laws) that clarify ownership of digital assets and provide mechanisms to protect those rights across the metaverse. Otherwise, disputes over virtual property could discourage people from investing their time and talent into these environments. (Ali & Khan, 2021).

Digital Identity and Anonymity

In the metaverse, you can be anyone or anything – a realistic avatar resembling your real self, a fantastical creature, or a completely anonymous persona. This flexibility is part of the appeal: it allows for creative self-expression and the freedom to explore different identities. Digital identity in virtual worlds is fluid and self-crafted. However, this raises significant ethical questions about authenticity, accountability, and personal psychology. On one hand, anonymity (or pseudonymity) can be empowering. People who face bias or danger in real life may choose to hide their true identity online, for example, an activist under an oppressive regime or someone exploring their gender identity might interact more freely behind the safety of an avatar. The metaverse could offer a space where individuals are judged by their ideas and behavior rather than by real-world stereotypes. Privacy of identity can thus protect users and encourage open participation. (Nakayama & Sumi, 2024).

On the other hand, anonymity can also embolden harmful behavior. If a person's avatar name isn't tied to their real name, they may feel less accountable for what they do. We've already seen in online gaming and social media that some users, shielded by anonymity, engage in harassment, hate speech, or fraud. The metaverse might amplify this problem due to its immersive nature, harassment in VR can feel very immediate and personal, as if someone is right next to you yelling or invading your personal space. For example, there have been

reports of avatar harassment in early metaverse platforms (like strangers groping or bullying others' avatars), which can be traumatic even if it's "only virtual." If the harassers are using throwaway identities, how do we hold them responsible?

There's also the challenge of identity verification when needed. Certain metaverse spaces might be age-restricted or meant for a trusted community. But verifying who is behind an avatar without undermining anonymity is tough. If everyone is effectively wearing a digital mask, bad actors could impersonate others or lie about who they are. Scams might involve someone posing as a different avatar to steal virtual goods or real money. And consider the possibility of deepfakes and hacked avatars: a malicious user could clone your avatar's appearance or voice and go around causing trouble under your name. This blend of anonymity and identity deception will force platforms to devise clever ways to establish trust. Some ideas include optional verified avatars (like a badge to indicate the platform has confirmed your real identity privately) or decentralized identity systems where you control proofs of who you are. Striking a balance is key. We want people to enjoy freedom and creativity in representing themselves digitally. At the same time, we need a culture and systems that discourage toxic behavior and crime. How much anonymity is too much? The answer isn't obvious. Societies may have to debate new norms: for instance, should serious offenses in the metaverse (like virtual stalking or defrauding someone of a valuable NFT) be punishable in the real world? And if so, how to unmask the culprit in a way that respects due process? The link between our physical and digital identities will be a central ethical tightrope as we move deeper into these virtual spaces. (Wang et al., 2021)

Examples from Today's Metaverse Platforms

To understand how ethical and legal challenges take shape in practice, let's explore several real-world platforms often seen as early metaverse examples. Each highlights different aspects of balancing innovation with user protection.

Roblox
Roblox offers a user-generated ecosystem where mostly young players design and explore games and interactive spaces. It showcases the creative and entrepreneurial potential of virtual worlds, but also reflects the difficulty of protecting vulnerable users. Ongoing concerns involve content moderation, ensuring safety for minors, and managing how much personal data is collected. While tools and policies are in place to increase security, fully safeguarding an open and viral environment remains an ongoing challenge.

Meta's Horizon Worlds
This VR social space, launched by a major social media company, was designed for shared interaction through avatars in immersive environments. Yet it quickly revealed issues around harassment, privacy, and central control. For example, features had to be added to prevent unwanted avatar behavior, demonstrating that basic social norms weren't fully anticipated. Questions about data collection for safety or commercial use quickly came into focus. The platform's centralized model raises broader concerns about who governs virtual spaces, who profits, and how regulations might apply.

Decentraland
Decentraland illustrates a decentralized metaverse powered by blockchain. Users own virtual land as NFTs and participate in community governance. It presents a prototype of digital ownership and creative autonomy, but also shows challenges: speculative land pricing, unequal participation in governance, and unclear paths for resolving disputes when no single entity is responsible. Additionally, policing intellectual property and ensuring creator rights remain complex in a loosely regulated, decentralized context.

Nifty Island
A newer addition to the metaverse landscape, Nifty Island allows users to build and host their own islands, integrate NFTs, and create games—with creator rewards built into its economy. It demonstrates how blockchain-driven virtual worlds can empower user creativity and monetization. However, it also brings forward ethical and legal questions around usability, ownership, equality, and safe community interaction. As a community-driven, web3-based platform, it illustrates both the promise of digital creator economies and the need to anticipate challenges like moderation, access, and platform governance early on.

Future Perspectives: Navigating What Lies Ahead

As we look to the future of the metaverse, we find ourselves at a crossroads. The decisions made in the next few years, by companies building the technology, by policymakers writing regulations, and by us as users shaping norms, will likely determine whether the metaverse becomes a utopia, a dystopia, or something in between. It's a bit like the early days of the internet all over again, but this time with even more immersive stakes. Let's imagine a couple of broad scenarios and reflect on how we might address the challenges we've discussed:

In an optimistic scenario, the metaverse could evolve into an open, vibrant space much like the World Wide Web, where no single entity dominates. International bodies and tech consortiums might establish standards for interoperability, meaning your avatar and digital goods can move between different virtual worlds just as easily as you can switch web browsers today. This would prevent a few big companies from locking everyone into their own silos. Privacy-enhancing technologies could be baked in from the start: for instance, more development of privacy-by-design tools that allow you to be in VR while keeping sensitive data (like biometric readings) only on your device or transmitting it in encrypted form so that even platform owners can't snoop on it. Regulators could enforce transparency, requiring that companies clearly inform users of what data is collected and give meaningful opt-outs. We might also see data trusts or personal AI assistants that manage your info across the metaverse, ensuring you "own" your data footprint. On the legal side, governments might update intellectual property laws to explicitly cover virtual creations and NFTs, giving creators more confidence that their work is protected. (Das et al., 2022).

There could be new treaties clarifying jurisdiction for crimes in cyberspace, so a person abused or defrauded in a virtual world isn't left in legal limbo. And crucially, an optimistic future tries to bridge the digital divide: maybe public-private partnerships subsidize VR

equipment for schools and underserved communities, and global initiatives expand internet access so more people can join these virtual communities. The metaverse's development could be guided by principles of accessibility (designing for people of all abilities), diversity (content that reflects many cultures and languages), and fairness (algorithms that don't unduly bias or exploit users). If done right, the metaverse a decade from now might be a place where you truly feel safe, creatively fulfilled, and socially connected, a positive extension of our reality rather than an escape from a troubled world.

Of course, we must consider the pessimistic scenario too. In a dystopian turn, the metaverse might become dominated by a few large corporations that treat it as their private fiefdom. Imagine if one company controlled your universal avatar identity and could banish you from virtual society with a click, a frightening concentration of power. Without proper guardrails, we could see pervasive surveillance: every movement and emotion tracked to sell you things or perhaps scored in some kind of social credit system. Advertisers and scammers might exploit the immersive nature to influence people in ways we can't fully anticipate (like product placement so subtle you literally don't see it, or NPCs, non-player characters – that are actually bots pushing propaganda in social hangouts). In such a future, data breaches of avatar systems could leak not just your personal info but recordings of your virtual activities, even private moments, posing huge risks to reputation and security. Legal systems might lag behind as they often do, resulting in Wild West conditions in many virtual spaces where platform EULAs (End-User License Agreements) are the only "law." If those EULAs favor the company (which they usually do), users might have very limited rights – perhaps anything you create in-world can be taken or deleted at the company's whim, or disputes are settled in forced arbitration rather than open court. Social inequality could worsen if premium experiences cost money; the wealthy might enjoy ultra-realistic simulations on expensive hardware while others get a subpar, laggy version of the metaverse. And if a large part of work and education moves into VR, those who can't access it might face new economic hardships, like being unable to attend the best virtual schools or remote jobs. In the worst case, the metaverse could mirror the problems of the real world and add new ones: echo chambers where people only mingle with like-minded avatars, intensifying polarization; or psychological effects from spending too much time in a virtual world that leaves some feeling disconnected from reality. (Purwanto, 2024).

The future will probably land somewhere between these extremes. The outcome depends on actions starting now. How might we address these challenges? A few avenues are already in motion. Policymakers are convening experts to forecast metaverse impacts and update regulations – for example, drafting rules about age verification, or clarifying that existing laws (like anti-fraud, harassment, or IP laws) do apply to virtual activities. We might see new "digital citizen" rights defined for virtual environments, covering things like the right to privacy, the right to ownership of one's digital goods, and even the right to fair treatment by algorithms (no unjustified bans or manipulative AI behavior). At the same time, technology will play a role in solutions: advanced moderation AI might help catch abuse in real time (though it must be carefully managed to avoid overreach or bias). Techniques like blockchain verification could give users more control over identity and assets, as mentioned, so you're not wholly dependent on a platform's goodwill. There's also a growing community of

ethicists and researchers working directly with VR/AR developers to instill ethics from the design phase — for instance, privacy by default settings, or creating codes of conduct and training programs to encourage empathetic behavior among early adopters (in hopes that a respectful culture becomes the norm).

Education will be crucial: just as we teach kids today about internet safety, tomorrow's digital literacy curricula might include "metaverse manners" and how to recognize virtual scams or protect one's data in immersive settings. Users who are informed and vigilant can mitigate some risks on their own. For example, people might choose platforms that are known for respecting user rights, creating a market pressure for ethical design (much like some users now gravitate to messaging apps with better encryption).

We should also be prepared for completely new challenges. For instance, what if someone "dies" in a metaverse sense, say a platform shuts down and with it a person's extensive virtual life and purchases? Do they have any rights to restitution? Or what about mental health: could intense immersion cause new forms of addiction or psychological issues, and whose responsibility is that to manage? As these questions arise, society will have to adapt. Perhaps we'll see the emergence of metaverse ombudsmen or counselors, professionals who help people navigate disputes or emotional difficulties related to virtual life.

Conclusion

The metaverse represents a thrilling frontier where the boundaries of the physical and digital blur. It holds immense promise – for entertainment, connection, commerce, and creativity – but it also forces us to confront profound ethical and legal dilemmas. In this exploration, we discussed how data privacy might be threatened by expansive tracking in immersive worlds, how intellectual property needs rethinking when "copy-paste" can apply to virtual houses or fashion, how identity can be liberating yet dangerous when everyone wears a mask, how governance could range from corporate dictatorship to community democracy, and how inequality might either be reduced by global access or exacerbated by digital exclusion. These challenges are not insurmountable, but they do require proactive effort from many directions.

Perhaps the key takeaway is that the metaverse will be what we collectively make of it. It's easy to be swept up in the novelty of walking around in a boundless digital playground. But every feature coded into these platforms, every rule written (or not written), and every behavior we normalize sets the tone for the emerging virtual society. Will our future virtual selves look back and say that we learned from the missteps of the early internet – or that we stumbled into the same pitfalls with even higher stakes?

The conversation between technology and society is ongoing. As you put on a VR headset or create an avatar, it's worth asking yourself: What kind of world do I want this to be? The metaverse brings philosophical questions to life: how we value privacy, how we define ownership, and how we treat one another when we're freed from physical constraints. Answering these questions will be an ongoing journey. One thing is certain: keeping the human at the center of this technological evolution (our rights, our well-being, our dignity)

will be essential. The metaverse may be virtual, but its impact on our lives will be very real. As we stand on the cusp of this new era, we carry both excitement and responsibility. A final thought to consider is this hopeful challenge: Can we build a metaverse that reflects the best of humanity rather than the worst? The answer lies in the choices we begin making today.

References

Ali, N., & Khan, K. I. (2021). Legal framework for compulsory licensing: a solution to the conflict of intellectual property rights and intellectual monopoly. International Journal of Public Law and Policy, 7(2), 122-133. https://doi.org/10.1504/IJPLAP.2021.115930

Das, D., Bose, P., Ruaro, N., Kruegel, C., & Vigna, G. (2022, November). Understanding security issues in the NFT ecosystem. In Proceedings of the 2022 ACM SIGSAC Conference on Computer and Communications Security (pp. 667-681). https://doi.org/10.1145/3548606.3559342

Eltanbouly, S., Halabi, O., & Qadir, J. (2025). Avatar privacy challenges in the metaverse: A comprehensive review and future directions. International Journal of Human–Computer Interaction, 41(4), 1967-1984. https://doi.org/10.1080/10447318.2024.2374091

Guan, J., & Morris, A. (2022, November). Extended-XRI body interfaces for hyper-connected metaverse environments. In 2022 IEEE Games, Entertainment, Media Conference (GEM) (pp. 1-6). IEEE.

Kalyvaki, M. (2023). Navigating the metaverse business and legal challenges: Intellectual property, privacy, and jurisdiction. Journal of Metaverse, 3(1), 87-92. 10.57019/jmv.1238344

Kim, D. Y., Lee, H. K., & Chung, K. (2023). Avatar-mediated experience in the metaverse: The impact of avatar realism on user-avatar relationship. Journal of Retailing and Consumer Services, 73, 103382. https://doi.org/10.1016/j.jretconser.2023.103382

Lam, K. Y., Yang, L., Alhilal, A., Lee, L. H., Tyson, G., & Hui, P. (2022, December). Human-avatar interaction in metaverse: Framework for full-body interaction. In Proceedings of the 4th ACM International Conference on Multimedia in Asia (pp. 1-7). https://doi.org/10.1145/3551626.3564936

Mystakidis, S. (2022). Metaverse. Encyclopedia, 2(1), 486-497.

Nakayama, Y., & Sumi, K. (2024, July). The Impact of Anonymity on Communication in the Metaverse. In 2024 IEEE 48th Annual Computers, Software, and Applications Conference (COMPSAC) (pp. 2095-2100). IEEE.

Purwanto, H. (2024). Analisa End User License Agreement (EULA) Sebagai Bentuk Perjanjian Baku Dalam Aplikasi WON by BWS: Analysis of End User License Agreement (EULA) As a Standard Agreement in WON by BWS Application. Jurnal Globalisasi Hukum, 1(1), 143-154. https://doi.org/10.25105/jgh.v1i1.19849

Scorzin, P. C. (2023). AI Body Images and the Meta-Human: On the Rise of AI-generated Avatars for Mixed Realities and the Metaverse. DOI: 10.1453/1614-0885-1-2023-15470

Smits, J., & Borghuis, T. (2022). Generative AI and intellectual property rights. In Law and artificial intelligence: Regulating AI and applying AI in legal practice (pp. 323-344). The Hague: TMC Asser Press. https://doi.org/10.1007/978-94-6265-523-2_17

Wang, Q., Li, R., Wang, Q., & Chen, S. (2021). Non-fungible token (NFT): Overview, evaluation, opportunities and challenges. arXiv preprint arXiv:2105.07447.