INSTITUTE FOR ETHICS AND EMERGING TECHNOLOGIES

UMASS BOSTON APPLIED ETHICS CENTER

The Democratic Metaverse

Building an Extended Reality Safe for Citizens, Workers and Consumers

2023

WHITE PAPER ON THE METAVERSE

AUTHORS
Alec Stubbs, UMass Boston Applied Ethics Center
James Hughes, IEET & UMass Boston
Nir Eisikovits, UMass Boston Applied Ethics Center

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Institute for Ethics and Emerging Technologies
info@ieet.org
35 Harbor Point Blvd, #404
Boston, MA 02125-3242
USA

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Steven Umbrello, IEET

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ABOUT THE IEET & AEC

This white paper has been drafted by the Institute for Ethics and Emerging Technologies in cooperation with the Applied Ethics Center at UMass Boston

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EXECUTIVE SUMMARY

We are likely to have immersive virtual reality and ubiquitous augmented reality in the coming decades. At least some people will use extended reality or "the metaverse" to work, play and shop. In order to achieve the best possible versions of this virtual future, however, we will need to learn from three decades of regulating the Internet. The new virtual world cannot consist of walled corporate fiefdoms ruled only by profit-maximization. The interests of workers, consumers and citizens in virtuality require proactive legislation and oversight.

This white paper first addresses the central question the metaverse poses, whether virtual life is inherently more alienating and less authentic than face-to-face life experiences. This question is both a philosophical question about the nature of the good life and an empirical question about the accumulating evidence about the impacts of the digital on subjective well-being.

We then address six areas of metaverse regulation:

1. Universal Access to the Metaverse
2. Interoperability of Property and Personal Identity
3. Protecting Virtual Consumers' Privacy and Autonomy
4. Virtual Harassment and Crime
5. Applying Employment Law to Virtual Work
6. Democratizing Metaverse Governance

WHAT IS THE METAVERSE SUPPOSED TO BE?

The simplest way to understand the Metaverse is that it will be a future in which we can see and interact with things that aren't physically present. "Augmented reality" is when we can interact with virtual people and things as if they were present in the physical spaces we are in. The brief Pokemon Go experiment in 2016 was an example of augmented reality, with people looking through their phones for Pokemon characters that were virtually present in real spaces. The "Metaverse" usually refers to entering a complete, shared virtual environment, as in computer games. Augmented reality is likely to have different applications and technologies than those of virtual worlds, such as the ability to see an overlay of medical scans on patients' bodies during surgery. But because the two technologies overlap and are likely to blend in practice in the future, some refer to both as part of "extended reality." In this essay we will focus on the implementation of complete virtual worlds, or the "Metaverse," since the questions they raise are broader. But many of the questions will also apply to augmented reality applications.

In *Framework for the Metaverse* [1] Matthew Bell defines the full Metaverse vision as

"a massively scaled and interoperable network of real-time rendered 3D virtual worlds which can be experienced synchronously and persistently by an effectively unlimited number of users with an individual sense of presence, and with continuity of data, such as identity, history, entitlements, objects, communications, and payments."

> The "Metaverse" usually refers to entering a complete, shared virtual environment.

Bell outlines the technological innovations that are required to realize this full vision, from headsets, virtual environments, and high-bandwidth communications to industry standards and payment systems. We will return to some of these requirements, such as ways of tracking the identity of people and objects between virtual spaces. For now, we are going to assume that many of the technical challenges are well on their way to being solved. Instead we will address two key questions: should we embrace this Metaverse future at all, and what kind of regulations are required to enable the least dystopian version of a Metaverse. In particular we have focused on the impacts of the Metaverse on the future of work and the need to protect consumers and workers.

THE METAVERSE BEYOND DYSTOPIA AND HYPE

Facebook's rebranding as Meta, and their goal of creating a dominant position in virtual reality, has inspired a new round of debate about the desirability of work and entertainment in virtual environments. Expectations that virtual reality will become popular have been circulating for thirty years, inspired by impressive progress in gaming platforms. But industry veterans, having watched the rise and decline of VR platforms like Second Life and augmented reality technologies like Google Glass, vary widely from those who expect rapid expansion of virtuality to those who believe we are far from widespread adoption.

Futurists and technologists have not fared well trying to predict the ways information and communication technologies will get adopted or how they will change our behavior and culture. There are exceptions, such as Arthur C. Clarke's prediction of geosynchronous satellites. Often predictions assume that technology will be adopted and impact the world more rapidly than it actually is, while missing the myriad derivative impacts when it is in fact adopted. Marconi thought the telegraph would end war by knitting the world together, but it also allowed rapid coordination of armies. Radio didn't end live music, and became the main way music was promoted. No one imagined radio's future role in demagogic political mobilization. Television did not eliminate radio or end literacy, and no one predicted reality television shows or television personalities becoming the President. As with previous communication technologies and the Internet, we are likely not yet capable of imagining all uses and problems that virtuality will present, especially as augmented reality becomes more seamlessly integrated.

Likewise, contrary to dystopian predictions, we seem capable of adapting the use of communication technologies so that they do not dominate and distort our lives. Radio found a niche in specific times and places in our lives, like housework or driving, and for specific kinds of content. Some never watch television and some watch quite a bit. Likewise it is unlikely that everyone will want to do everything in virtual reality. Just as it's hard to watch TV while doing the dishes, wearing a VR headset makes it impossible to do anything else, even more so than watching television.

One piece of speculative fiction that stands out for its prescience is the 1909 novella by E.M. Forster *The Machine Stops* (Forster, 1909). In the future E.M. Forster describes, we all live in underground apartments in isolation, communicating through video screens and ruled by "The Machine," an omnipotent artificial intelligence. People devote themselves to making short educational videos while The Machine slowly grinds to a halt. When it does stop, most humans die, unable to live without its protection.

The Machine Stops reflects the perennial anxiety that virtual experiences will supplant "real" experiences, alienating us from nature and one another. This anxiety can be seen today in the debate over the impacts of social media on human connection and mental health. Now that we've had three years of Zoom conferencing in quarantine, and growing concerns about algorithmic tyranny, the story feels eerily familiar. There is compelling evidence for a rise in mental illness and loss of focus linked to young people's use of social media. Facebook's metaverse could lead to "further abdication of the problems of the 'real' world as distracted users allow corporations to reach deeper into their personal lives. It could likewise give birth to new forms of exploitation as people's data and even likeness can be appropriated for purposes they would find near impossible to fully understand or control" (Virgilio, 2022).

Yet, *The Machine Stops* also suggests what Forster missed, such as the work-life balance offered by remote work or the virtual communities that complement face-to-face communities. We need to figure out how to navigate a future that will certainly include ever more powerful communications which will neither be as utopian as their merchants promise, or as dystopian as Forster and his successors worried they would be.

Between hype and dystopia, we ask instead, what would a liberatory version of this technology be as it is adopted? Are physical experiences intrinsically more valuable than virtual ones? What can we learn from recent attempts to regulate communication technology to steer towards the best possible uses? What are the social and political conditions that actually create the dysfunctions often misattributed to technology? What technological design principles would bring more of the good and less of the bad from this new technology?

What would a liberatory version of this technology be as it is adopted?

AUTHENTICITY: IS VIRTUAL LIFE AS VALUABLE AS "REAL LIFE"?

For many experiences, such as physical intimacy, virtual technology is still too crude to provide more than a faint echo. But the last few years have shown that even crude virtual meetings are as good, and in some ways better, than face-to-face. On Zoom, and presumably in VR, you always know the speaker's name, and you can turn off your camera if you want to eat lunch. On inspection, most of the complaints about the inadequacy or inauthenticity of the metaverse mask unexamined assumptions that "real" experiences are more valuable than electronically mediated experiences.

Some cite the "Experience Machine" chapter of Robert Nozick's 1974 book *Anarchy, State, and Utopia* as one of the first modern objections to people plugging into Matrix-like machines that provide experiences indistinguishable from real life. Nozick felt that most people's gut rejection of simulated experiences reflected moral intuitions about what an authentic life with authentic accomplishments should be, intuitions that would not be satisfied by the simple hedonism of simulations. His chapter is not a rejection of all virtual experience, merely of substituting the virtual completely for the "real."

Notice that we have not said one should never plug into such a machine, even temporarily. It might teach you things, or transform you in a way beneficial for your actual life later. It also might give pleasures that would be quite acceptable in limited doses. This is all quite different from spending the rest of your life on the machine; the internal contents of that life would be unconnected to actuality. (Nozick, 1974)

In his 2022 book *Reality+: Virtual Worlds and the Problems of Philosophy* David Chalmers tackles this Nozickian complaint about the inauthenticity of virtuality directly. Chalmers argues that virtual experiences are as real as physical experiences, and are not intrinsically alienating.

"In principle we can lead meaningful lives inside metaverse-style virtual worlds. These worlds needn't be illusions, hallucinations, or fictions. Our time in them needn't be escapism. People already lead complex and meaningful lives in virtual worlds such as Second Life, and VR will make this commonplace" [2]

Before the telegraph people organized businesses and governments, and developed friendships and love affairs, through letters. Since the advent of radio millions have participated virtually in sporting events they could not physically attend. Surely we can imagine people using much higher bandwidth forms of communication in similarly meaningful ways. Sometimes the focus on the "real" can leave real people out. Consider the benefits of virtual reality for the aged and disabled, as portrayed in the Black Mirror episode "San Junipero." Virtuality, especially when combined with brain-machine interfaces, will allow many to participate in experiences they would not otherwise be able to access [3].

Evidence is already accumulating that virtual experiences can be as meaningful and impactful as face-to-face experiences. During Covid hundreds of millions of people began working from home, and most studies find that few want to return to the office full-time. A mid-2022 survey by Gallup found that only 6% of American workers in "remote-capable" jobs want to return working full-time in the office, while a third would prefer to work from home full-time [4]. Many American workers are prepared to accept lower wages in order to work from home, and many remote and hybrid workers would seek new remote jobs if required to return to the office full-time [5]. Telemedical consultations have dramatically increased, and both doctors and patients have generally found virtual doctor visits convenient and effective. While very few people want a purely online romantic relationship, young people in the industrialized world are increasingly meeting partners through dating apps (more than half of heterosexual couples in the US) [6], and communicate with their partners constantly through their phones. Regardless of the false starts of various virtual reality platforms the virtualization of life and work is certain to grow.

Virtual experiences can be as meaningful and impactful as face-to-face experiences

METAVERSE AS A DISTRACTION

The worry that the arts will distract us from the real goes back at least to Plato in the Western philosophical tradition. In this tradition people in virtuality are staring at shadows on the wall instead of leaving their caves. Ironically the most influential depictions of virtual worlds in contemporary fiction, such as Ray Bradbury's *Fahrenheit 451,* William Gibson's *Neuromancer,* Neal Stephenson's *Snow Crash*, and Ernest Cline's *Ready Player One*, all depict virtual worlds as an opium of the masses in dystopian, corporate-dominated societies; a use of the arts to warn of the dangers of the arts. Virtuality may be the next stage of "amusing ourselves to death" as Neal Postman warned.

According to Shoshana Zuboff, and many others, we are now in an "surveillance capitalist" "attention economy," in which every firm is attempting to hijack our dopamine system. Some have raised concerns that the metaverse will not only be more immersive, offering more ways to generate dopamine addiction, but will also be able to gather many more biometric data points on how successfully we are being addicted. These issues have long been of concern in China, South Korea and Japan, leading to addiction treatments and rehabilitation clinics for gaming addicts. In 2021 China adopted a policy restricting minors to play no more than three hours of games per week, and only within 8-9pm on weekends and holidays [7].

On the other hand, communication technologies are also the principal way we discover the (real or imagined) problems of the world and join with others to address them. Neo-fascists may be discovering one another around the world through the Internet, but lynch mobs were able to find one another face-to-face. Greta Thunberg and David Attenborough have inspired climate action in millions they never met, while actually meeting a polar bear is unlikely to be much more inspiring of climate action. In short, while we should be on guard for a super-charged form of dopamine highjacking, for most people virtuality will be just another way to discover and engage with the "real world."

> For most people virtuality will be just another way to discover and engage with the "real world."

CORPORATE CONTROL AND AUTHORITARIANISM

Since the first scribes inked tax ledgers for kings, the rich and powerful have always attempted to monopolize control of communication technologies. Each new communication technology has also been an opportunity to democratize social power. The printing press and spread of literacy led to the Protestant Reformation and the spread of Enlightenment ideas. Some countries have addressed corporate control of communication technologies by creating public radio and television, such as the BBC in the UK and public broadcasting in the United States. All countries regulate broadcast media, from anti-libel and anti-trust laws to authoritarian censorship policies. Illiberal leaders have openly consolidated control of the media in the hands of pro-regime oligarchs.

Today the European Union is the global leader in regulating the Internet, setting standards on how to protect privacy and penalize monopolistic practices. In 2004 the European Union fined Microsoft $800 million for anti-competitive practices. In 2017 the European Commission fined Google $5 billion in 2018 for violating antitrust regulations in search and shopping, such as by making the Chrome browser and Google search the defaults in the Android operating system. In 2018 the European Commission implemented the General Data Protection Regulation requiring protection of personal data, opt-in for cookies, and the right to be forgotten. In 2022 the EU proposed broad new regulations on artificial intelligence and algorithms, fined Facebook/Meta $400 million for privacy violations, and warned Elon Musk that gutting Twitter's moderation infrastructure could be illegal.

> the Metaverse will be required to be open and "interoperable.

The EU also adopted the Digital Services Act (DSA) and Digital Markets Act (DMA) in 2022. The DSA is focused on protecting users' privacy, ensuring the transparency of advertising and penalizing poor moderation of misinformation, harassment and illegal content. The DMA is focused on ensuring competition on "core platform services," including online search engines, social networking services, app stores, messaging services, virtual assistants, web browsers, and operating systems. We will note below how EU regulators are already planning to address ethical issues in the Metaverse with these tools. But one central focus stands out: the Metaverse will be required to be open and "interoperable." "Private metaverses should develop based on interoperable standards and no single private player should hold the key to the public square or set its terms and conditions. Innovators and technologies should be allowed to thrive unhindered" (EU commissioner Theirry Breton, 2022). Facebook/Meta and other virtual content creators will not be allowed to create closed gardens that require users to use different technologies to participate in entirely separate virtual spaces. Just as we would not accept that Gmail users could only email other Gmail users, an interoperable Metaverse will require universal standards for the movement of persons and objects across platforms.

While European regulations will likely have a large influence on platforms in the liberal democratic world, many parts of the global Internet are under authoritarian control. In 2022 the Chinese Communist Party, for instance, cracked down on gaming, banned cryptocurrencies, restricted the exploitation of personal data (at least by tech firms), limited the amount of time minors can play games, and encouraged technologists to work in productive industries instead of social media and entertainment. Inevitably the Chinese metaverse will be subject to anti-pornography laws and political censorship, and focused on industrial use more than entertainment. Nonetheless, within this restrictive environment, the Chinese tech conglomerates also see a future in VR, and Alibaba, Tencent, Netease and ByteDance are all developing VR and AR technologies and platforms. Just as Chinese citizens play a constant cat-and-mouse game with censors to spread dissident messages on Weibo, the Metaverses under authoritarian regimes are likely to be a terrain of democratic contestation.

STEPS TO ENSURING A FLOURISHING METAVERSE

UNIVERSAL ACCESS TO THE METAVERSE

Currently few can afford a headset that costs as much as a small car. Fortunately very little of material consequence is happening in virtual spaces or augmented reality at the moment. For the truly consequential applications in the military or medicine, the employer provides the hardware and pays the licensing. In the future however, if more education and work take place in virtuality, we will face the same issues of a "digital divide" that have cropped up since the rise of the Internet. In 2021, for instance, the United States set aside $65 billion to expand broadband infrastructure in underserved areas. In a virtual future schools and libraries may want to provide free glasses or headsets just as they now provide access to computers.

For those certain that the Metaverse will be opium for the alienated masses, trapped in poverty, the idea of ensuring the poor have headsets will sound nefarious. The policy goal will only make sense if there is broad recognition that unequal access to virtual spaces limits equal opportunity, and not just the ability to be entertained.

ENSURING INTEROPERABILITY OF PROPERTY AND PERSONAL IDENTITY

Imagine a world in which, in order to mail a box of apples to a friend you would both have to be paid-up customers of FedEx. Or you could mail apples to someone outside of FedEx, but they would have to transform into oranges. These are the kinds of issues interoperability standards in the Metaverse will attempt to solve. Will we be able to fly our avatars and virtual spaceships from the Google virtual space into the Amazon space?

Some argue that imposing interoperability standards on corporate virtual worlds will impair innovation, and that people can opt into interoperable worlds if they choose to. Unfortunately the recent experience with the Mastodon alternative to Twitter and its underlying Fediverse standards illustrates the need for universal standards. While Twitter users can only follow others on Twitter, the Fediverse allows people to follow others on platforms with very different rules. Despite the popularization of the Fediverse concept, Mastodon has been unable to compete against the market dominance of Twitter.

Some believe that blockchain-based identity systems are the key to interoperability of users, currency and objects in virtual spaces. While the collapse of cryptocurrencies and the market for NFT art made the topic toxic, a carefully regulated "Web 3.0" could be the ideal basis for a Metaverse. Neal Stephenson is backing a decentralized, blockchain-based metaverse project called "Three Metaverse," outlined in a white paper [8] from the company Lamina1.

To develop interoperability standards, using blockchain or something else, regulators can work with the various consortia of gaming and tech firms that are also working on standards. One large alliance of major corporate players is the Metaverse Standards Forum [9] which "provides a venue for cooperation between standards organizations and companies to foster the development of interoperability standards for an open and inclusive metaverse, and accelerate their development and deployment through pragmatic, action-based projects." Started by major players like Meta, Nvidia, Ikea, Adobe and the World Wide Web Consortium, the Metaverse Standards Forum now includes 1800 organizations. Another industry group is the Open Metaverse Alliance (https://www.oma3.org) "a collaboration of Web3 metaverse platform creators. Our goal is to ensure virtual land, digital assets, ideas, and services are highly interoperable between platforms and transparent to all communities." Other groups working on Metaverse interoperability standards include the Khronos Group, World Wide Web Consortium (W3C), Oasis Consortium, Open Geospatial Consortium, OpenAR Cloud, and Spatial Web Foundation. Microsoft, Facebook/Meta, Valve, HTC and Qualcomm have already made their devices compliant with the OpenXR standard proposed by the Khronos Group in 2017.

Policies to ensure the interoperability of persons and things in virtual worlds will also have to contend with the issues of "net neutrality." Firms could technically allow the use of other platforms' avatars and objects while effectively discouraging their use by throttling their access. Yet again the metaverse will see the same regulatory debates that have raged over communication and entertainment platforms for decades.

PROTECTING VIRTUAL CONSUMERS' PRIVACY AND AUTONOMY

The Internet brought with it many new concerns about consumer privacy and autonomy, from data leaks to hyper-personalized marketing. Shoshana Zuboff characterizes the Big Tech business model as "surveillance capitalism." Again European regulators have been the most proactive in setting standards for ensuring data privacy and protecting consumers from AI-targeted advertising. European regulators are obliging Facebook/Meta and Instagram to stop requiring users to consent to personalized advertising in their terms of service, and instead ask consumers to opt into tracking and advertising. This reform is likely to be imposed on all Big Tech platforms, and Google already plans to phase out the use of tracking cookies used by advertisers by 2024.

These regulations will be extended to the Metaverse where the risks are the same in kind, but amplified by the volume of data about our preferences and behavior that will be collected. Every gesture and glance can be used to profile the consumer, and this personalization tied to interoperable identity may be an attractive feature for many users. If existing digital platforms are the guide, being intensively data-mined and advertised to will be the default mode for being in virtual space, with more privacy and freedom from advertisement as a higher tier option for a fee. Creating standards that allow consumers to opt in to the degree of tracking they desire will be a major regulatory challenge.

Louis Rosenberg (2022) proposes three “immersive rights” that need to be protected in the metaverse: (1) the right to experiential authenticity, (2) the right to emotional privacy, and (3) the right to behavioral privacy. The right to experiential authenticity is proposed in regards to the subtlety of manipulation that will be possible in augmented and virtual reality. Every aspect of an experience - sight, sound, information - could be adjusted in real-time to nudge participant behavior towards a purchase or a vote. Rosenberg proposes that rules are needed to explicitly identify commercial interventions, just as paid ads are flagged in Google search or social media. Likewise, with sensors pointed at our faces, monitoring our voice, and with petabytes of data on our behavior, our digital systems will know us better than we know ourselves. We are likely to find much to appreciate about this intimate familiarity. But Rosenberg suggests that we will also need to place limits on what kinds of information can be used for this profiling, how we are predictively modeled, and how those models are used.

our digital systems will know us better than we know ourselves

MONITORING AND PUNISHING VIRTUAL HARASSMENT AND CRIME

We are still only beginning to grapple with how to protect users from virtual crimes. In many gaming environments the possibility of being murdered is part of the attraction, while being harassed or stolen from is not. Women’s avatars are routinely groped and assaulted, and hate speech is common. Cryptocurrency theft and fraudulent sales of NFTs (the sale of rights to an image which the seller did not own the copyright for) have revealed the weakness of virtual property law. It is even unclear what identity theft would constitute in a virtual space. Would we be able to use the name and likeness of another person for our avatar?

Platform creators have been grappling with these issues for decades, and regulators are certain to require monitoring of and penalties for online harassment and crime. Meta, for instance, is proposing mandatory distances be maintained between in-world avatars to prevent virtual groping and assault. The Oasis Consortium has proposed a set of safety standards for Metaverse firms to adopt, including when to contact law enforcement [10], which the gaming platforms Roblox and Riot Games, and the dating platform Grindr, have signed on to.

Lucy Sparrow [11] has reviewed some of the options that game companies have used to control the harassment of players, including crowdsourcing monitoring, moderation and punishments from game players, and the hiring of community managers as ombudsmen and enforcers. She notes the efforts of a coalition of game companies, the Fair Play Alliance, are promoting a voluntary framework for reporting and penalizing harassment. But she also notes that community monitoring jobs are stressful, under-trained and underpaid. Using artificial intelligence to monitor speech and behavior may be part of the answer. Automated detection of hate speech has advanced rapidly [12], but are still prone to over or under-detection.

EMPOWERING VIRTUAL WORKERS

In Cory Doctorow's 2010 novel *For the Win* young people in China and India are working as "gold miners," doing repetitive tasks in gaming platforms to earn game credits for wealthy game players. They are recruited by an online labor union, the IWWWW (Industrial Workers of the World Wide Web) or "Webblies," and use their global connections to build solidarity among online workers across borders. Doctorow's novel is a radical version of a common narrative about how communications platforms will not only be another tool for worker exploitation, but also a means to worker resistance. Unfortunately, with the decline of labor unions across the industrialized world and the rise of gig platforms, we've seen more intensification of exploitation and not much evidence of new online methods of collective bargaining.

Perhaps the ubiquity of Zoom meetings, work from home and the "Great Resignation" since Covid will be a turning point in labor militancy. If so, work in virtual environments may be the next frontier for labor organizing as Doctorow's novel suggested. Having virtual avatars working together in a virtual office is central to Meta's vision of the metaverse. Meta's Horizon Workrooms environment integrates with calendars, conferencing, documents, and project management.

> work in virtual environments may be the next frontier for labor organizing

Some issues with virtual work will be familiar. Human resources departments will have to monitor virtual workplace harassment. Virtual work environments will be subject to employers' digital surveillance and productivity algorithms just as Amazon warehouse workers or FedEx drivers currently are. People who work from home often feel they do not have the same opportunities for advancement as workers in offices, and this is likely to also be true for virtual work. While labor laws are generally bounded by geography, the Internet has created globally distributed workforces, which would also be true of virtual work. Which labor laws apply?

Other issues already seen when workers use filters or backgrounds in Zoom meetings, will be even more acute in virtual workplaces. For instance, employers may try to extend policies on workers' appearance and behavior to their avatars. Why shouldn't workers be able to choose different genders and ethnicities in virtual work than they have in the flesh? Many workers currently use colorful settings for their Zoom backgrounds. With considerably more flexibility in choosing and decorating virtual workspaces firms may try to establish rules that meetings have to be in virtual rooms and not on the plains of Mars. Currently workers in different time zones or with different work schedules can communicate asynchronously, with the occasionally inconvenient Zoom meeting in the middle of the night. Virtual workspaces might increase the expectation that workers show up to work at the same time.

Some worry that virtual work will perpetuate the blurring of work-life boundaries that became an issue with email, cell phones, and Zoom [13]. While remote work improves job satisfaction for many, research suggests that without commutes and water-cooler breaks it also leads to more time spent working [14]. Just as workers and work teams can be pitted against one another to meet productivity goals, one way that work might be intensified in virtual spaces is by gamification. The European AI Act has already banned comprehensive "social credit" systems like those in China that seek to combine ubiquitous surveillance and gamification to control citizen behavior.

DEMOCRATIZING METAVERSE GOVERNANCE AND OWNERSHIP

Should the participants in virtual worlds have any say in how they are governed? Many gaming and social media firms hire community managers to act as ombudsmen for complaints, adjudicate disputes, and penalize or ban users. Moderators and community managers are only accountable to the firm, not to the players, and can generally ban players without any recourse to appeal.

Social media has struggled with similar issues. In the wake of the post-2016 scandals over the use of Facebook and Twitter to spread politically motivated disinformation, many Big Tech firms convened outside panels to adjudicate their moderation policies. Facebook and Twitter's lax moderation of hate speech has been implicated in many incidents of communal violence around the world, where thousands of human moderators are needed to understand hundreds of languages to keep up with the volume.

> gaming worlds have generated ideas for participatory governance that could be applied in a broader metaverse

However some gaming worlds have generated ideas for participatory governance that could be applied in a broader metaverse. For instance, the League of Legends game world has experimented with allowing players to review the reported abuses of other players and vote on their punishments. As with jury duty in the real world, this kind of work is time-consuming and subject to bias, which is why we have paid, full-time judges.

Whether conducted by employees of firms or with community participation however, the regulation of speech in email lists, social media or the metaverse raises important questions about free speech. If commercially owned platforms are the new public square, should they be allowed to set their own policies or be subject to freedom of speech? This issue was central in the wake of restrictions imposed by Facebook, Twitter and Youtube on the spread of Covid misinformation and insurrectionist propaganda in 2021.

Elon Musk even suggested that his $40 billion impulse purchase of Twitter was motivated by his desire to protect free speech on the platform, although his behavior as owner suggests that the only free speech he wants to protect is that of banned far right activists.

As has been true since the invention of the printing press, the private ownership of the means of communication is inescapably in conflict with freedom of speech. One way to establish more of a balance in a metaverse is to require participatory governance mechanisms in privately owned worlds. A second path would be to establish cooperatively owned virtual spaces. The Confederation of Democratic Simulators (CDS) [15], founded in 2004, is a community-operated by and for its citizens. Land ownership in the CDS means citizenship, with the right to vote, run for office, and have a say in the direction and projects of the regions. Cooperative ownership and management of virtual worlds would also allow the democratization of the design of the worlds, which can have profound implications. For instance should virtual worlds have isolated tiers for different languages and cultures, or different social classes, or should all participants be able to interact?

In a 2022 paper, "Foundations for a Grassroots Democratic Metaverse" [16], Shapiro and Talmon argue that a blockchain-based identity system could be the basis for not only democratic control of the metaverse, participants in "decentralized autonomous organizations" (DAOs) as citizens, but also for democratic ownership with participants as shareholders. A unique blockchain-verified identity would be key to preventing bots from participating and ensuring one-man-one-vote. They propose that the architectures of the metaverse governance system ensure that "members are equal as proposers, discussants, negotiators, coalition-builders, and voters, addressing elections, legislation, and budgeting within a uniform framework, to facilitate egalitarian and effective democratic governance."

Likewise, since unequal wealth deforms democracy, the system could restrict metaverse ownership to one share per citizen, or place limits on the number of shares individuals can own. Taking cooperative ownership of these platforms, the participants can also give themselves the profits generated through their participation, such as dividend checks from advertising revenue. If our economy is increasingly composed of surveillance capitalism then getting compensated for the digital profits we make for others will be increasingly important.

In addition to ensuring freer speech in privately owned spaces and setting up cooperatively owned and managed spaces, a third path would be to establish publicly owned virtual spaces with "a repository of high-quality, free, open-access virtual assets that users could use to build and maintain their own publicly hosted virtual worlds and experiences." These spaces would be the virtual equivalent of public housing and public parks, or the publicly-owned workshops imagined by Andre Gorz in *Farewell to the Working Class*. As with every technology built on public investments, and benefiting from public oversight, there is a strong moral case for requiring virtual reality firms to contribute to a virtual commons.

CONCLUDING: A GOOD ENOUGH METAVERSE

The hype generated by Facebook's massive, and now regretted, investment in virtual reality has largely died down. But the gradual virtualization of work and leisure, a process that began with written communication and has advanced with every communication technology, appears inevitable. While every advance in communication technologies has brought with it lamentations about what was being lost, as David Chalmers argues, things that happen in the virtual are also part of "the real," with the same capacity to entertain or enrage, liberate or oppress. In this paper we have attempted to steer between techno-hype and techno-skepticism to ask what regulatory structures can be adopted to ensure that whatever virtual worlds we create are as free and equal as possible.

Thus far the European Union has been most proactive in addressing the regulatory issues of emerging communication technologies, and we expect the "Brussels effect" to be beneficial in metaverse regulation around the world. But we have focused on six areas of regulatory action that need attention in metaverse regulation:

01

Digital Divides

States should overcome "digital divides," and ensure that all citizens have access to the high-speed connectivity that participation in virtuality will require.

02

Competition & Anti-Trust

States should aggressively prosecute anticompetitive practices and enforce antitrust law in emerging communication and information technologies, as the European regulators have been doing. In virtuality this will mean requiring the interoperability of digital identity and property between virtual environments

03

Privacy & Autonomy

As is also already underway in European regulation, the privacy and autonomy of participants in virtual worlds needs to be protected. Participants should be able to opt out of tracking and algorithmic persuasion by corporations or state agencies. Participants may also have a claim to compensation for profits made from their behavior.

04

Violence & Theft

Although virtual worlds present some novel challenges in defining harassment and crime, participants should be protected from unwanted virtual violence and theft.

05

Workers' Rights

Workers in virtual spaces have new challenges and opportunities for organizing and collective action. Virtual workers' rights to fair compensation and collective bargaining should be protected.

06

Ownership & Governance

A more democratic metaverse not only will require the protection of rights in virtual spaces, but also the democratization of ownership and governance. Requiring that participants can participate in moderation is a first step. But cooperatively owned and managed spaces could be laboratories for democracy, and the creation of a publicly-owned virtual commons may be as important as public ownership of roads and parks.

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CONTACT

IEET
35 Harbor Point Blvd, #404
Boston, MA 02125-3242
USA

info@ieet.org
+1-617-287-5420