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The real ethical problem with metaverses

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Many philosophers hold that the human risks associated with the development and use of metaverses arise primarily from their status—they are unreal in ways that make the experiences within them meaningless and thereby less prudentially valuable. This purported unreality is not merely a result of the virtual or intangible nature of metaverses. Rather, it arises from the idea that, regardless of the experiences, interactions, and affordances of metaverses, what we do in these spaces is somehow different and impoverished compared to what we do in the physical world. Those who think this believe that our behavior and interactions within metaverses are inferior to our behaviors and interactions in the physical world in a way that confers less value on the lives of those engaging regularly within metaverses. Some commentators worry that repeated exposure to these impoverished virtual experiences will somehow dehumanize us or make us worse at offline interactions, and certainly reduce the amount of time we have for more meaningful real-world pursuits. If true, this would be a serious concern for metaverse-evangelists and users. However, in this article we will argue that it is not so— in fact, metaverses are morally relevantly similar to the physical world, and capable of providing most of the experiences and interactions we find in the physical world – whether positive or negative. However, metaverses are not without risks. We claim that the real ethical problem with metaverses arises, in their current instantiation, from the risks involved in their development as commercial enterprises, locking users into particular infrastructures and placing power over the continuation or termination of the metaverse in the hands of a corporate entity that has goals and motivations independent of those of the users of the metaverse.

KEYWORDS

metaverse, ethics, virtual reality, corporate social responsibility (CSR), public utilities, experience machine

Introduction

Many philosophers hold that the human risks associated with the development and use of even the most realistic metaverses arise primarily from their status—metaverses are unreal in ways that make the experiences within them a meaningless and thereby less prudentially valuable (Shea, 2017). This purported unreality is not merely a result of the virtual or intangible nature of metaverses. Rather, it arises from the idea that, regardless of the experiences, interactions, and affordances of metaverses, what we do in these spaces is somehow different and impoverished compared to what we do in the physical world. Those who think this believe that our behavior and interactions within metaverses are inferior to our behaviors and interactions in the physical world in a way that confers less value on the lives of those engaging regularly within metaverses.

Some commentators worry that repeated exposure to these impoverished virtual experiences will somehow dehumanize us or make us worse at offline interactions, and certainly reduce the amount of time we have for more meaningful real-world pursuits (Brey, 1998; Lavoie et al., 2021; Kaimara et al., 2022). If true, this would be a serious concern for metaverse-evangelists and users. However, in this article we will argue that it is not so—in fact, metaverses are morally relevantly similar to the physical world, and capable of providing most of the experiences and interactions we find in the physical world—whether positive or negative.

However, metaverses are not without risks. We claim that the most pressing ethical problem with metaverses arises, in their current instantiation, from the risks involved in their development as commercial enterprises, locking users into particular infrastructures and placing power over the continuation or termination of the metaverse in the hands of a corporate entity that has goals and motivations independent of those of the users of the metaverse.

In this paper, we hope to highlight what we take to be the most concerning issue that development of metaverses will generate. First, we give some background on metaverses and lay out the criteria that we expect will categorize a successful yet problematic metaverse. Second, we discuss and reject the salience of the “unreality” problem philosophers tend to have with metaverses. Third, we explain why corporate, and especially private monopoly control of metaverses poses the most salient ethical problem for metaverses. Finally, we suggest some ways to mitigate or prevent the risks posed by private monopolistic control of a persistent, ubiquitous, and general metaverse.

Metaverses

The origin of the concept metaverse is Stephenson’s (1992) novel *Snow Crash*, in which he envisaged the physical world (particularly the USA where the novel was set) as a dystopian mess, from which people attempted to escape via connecting to the “metaverse,” a three-dimensional virtual environment where people could live lives wildly dissimilar to their physical condition. The core of Stephenson’s idea remains in modern applications of the term, although it has been used and appropriated in many contexts in the decades since, and is now commonly used as a catch-all term for virtual worlds with aspirations to be immersive replacements for activities in physical reality.

The most wellfunded current metaverse project is Meta’s Horizon system (meta.com/horizon-worlds). Despite being unimaginably expensive (Reality labs reported a 3.67 Billion US dollar quarterly operating loss in October 2022), it is yet to deliver a popular interface (Vanian, 2023). Nevertheless, Meta’s Horizon system seems the most likely of the current projects to capture widespread interest, not least because Meta CEO, Mark Zuckerberg, seems to be significantly more committed than the other players in this space (Lee, 2023). Assuming that Meta succeeds in developing a virtual environment—a metaverse¹—in which lots of people actually want to spend time, we argue that the

most significant ethical issue would be the corporate ownership of the space. The relevant question is whether it is morally appropriate for a for-profit entity to have absolute control over the continuation of a living space, with all the rights of exclusion and governance that such control entails.

We should also note that Meta’s goal at this stage is not to produce a social metaverse (although presumably that will follow, if they can successfully generate a workspace-metaverse). Horizon is focused on collaboration and meeting spaces, rather than social ones. Users can interact with each other, and have customizable avatars and so on, but these are incidental.

Somewhat paradoxically, the concerns we raise here are only a problem if the system works. For now, persistent virtual reality spaces are simply not good enough to in fact provide experiences and interactions akin to what we have in the physical world (currently available platforms do not have the capacity to offer a full suite of sensory experiences, let alone to replicate such sensory environments as are found in the physical world), nor are they widely enough used that their loss would be significantly harmful to the ongoing wellbeing of either individuals or the community—peak concurrent users for the most successful (non-VR) platforms such as *Fortnite* are in the low millions, while VR platforms such as *VRChat* have much lower uptake, in the tens of thousands ([Steamdb.info](https://steamdb.info), 2023). But as these spaces continue to develop, it is reasonable to expect both that the capacity and uptake of these space will increase, and it is plausible that their use will become ubiquitous, much as the use of Facebook has been.

We can already see the potential for such popularity, through the interactive structure of some non-metaversal virtual environments that already exist. Virtual concerts, such as those hosted by the popular online game, *Fortnite*, already bridge much of the gap between the physical world and virtual worlds, despite occurring without the benefits of the VR immersion that proposed metaverses anticipate relying on. If we have any sort of recurrence of the COVID pandemic (or any similar global pandemic), then these concerts may well be joined by virtual travel or virtual learning, each of which can trivially benefit from the more immersive nature of VR rather than mere digital delivery (for a review, see Kavanagh et al., 2017).

Such projections about the future of metaverses necessarily rely on continued advancements in technology, but the risks we are discussing here are risks associated with a fully-fledged metaverse, so it is worth outlining such a thing before continuing.

Sherman and Craig (2003) suggest that virtual realities are immersive and interactive virtual worlds that provide sensory feedback. A metaverse requires all these features and more. In particular, the type of metaverse that would trigger the concerns raised here, and the potential solutions we discuss, would be ubiquitous and unitary—widespread uptake would coalesce around a particular instantiation of the metaverse. It must also be general purpose, an “all-in-one” solution to the development or creation of a virtual environment, such that people utilize the metaverse in

¹ Stephenson (1992) in his novel *Snow Crash*, and his formulation provided the blueprint on which all modern attempts at creating a metaverse have built. So to restrict through corporate means use of the term to a single company would be problematic.

¹ Terminologically, we hope that Meta does not succeed in co-opting the term ‘metaverse’ exclusively for their products. The term originated with

question both as a hub from which they explore various activities, and as a means through which to engage in those activities. It provides, in other words, a third or liminal space, in which existence for no particular purpose occurs (Belk, 2023). This is the difference between a public park (where people go to do whatever takes their fancy) and a golf course (where people go for the particular activity, golfing), or in virtual spaces, between a game-world (where you go to play that game) and a metaverse (where you go to do whatever takes your fancy).

There is not yet a widely accepted definition of what constitutes a metaverse (Chang et al., 2023). For a metaverse to afford the types of experiences we are considering—the degree of immersion and connection which would enable it to, if ended, cause non-trivial harms to those users embedded within the system, it would have to be persistent, ubiquitous, and general. We claim that all of these features are necessary because, if metaverses do not have these features, then there are no particularly new issues being generated. We already have evidence of the social value of more traditional immersive virtual worlds, via studies of massively multiplayer online roleplaying games (MMORPGs/MMOs) over the past 20+ years (Jones et al., 2014; Halbrook et al., 2019; Johannes et al., 2021). Further, there is reason to believe that people do in fact suffer from ongoing loss as a result of the termination of their digital lives within these worlds (Powers, 2003; Wolfendale, 2007; Ryland, 2019). We also think the new issues generated by metaverses would be much more problematic if there were one corporate-owned dominant metaverse, a private monopoly. What we mean by persistence, ubiquity, generality, and private monopoly is explained below.

Persistence

Extant MMOs, while persistent in one sense (the world exists whether or not any given player is participating in it at any given time), are not persistent in all the relevant senses. For example, MMOs deal with the possibility of permanent changes to the worldstate in a variety of different ways, but one of the main approaches is instancing, which effectively separates actions within particular areas of the world from continuity within the wider experience of the game. So, a group of friends can fight their way through a war-torn city, before emerging into a peaceful version of the same city and going shopping. Similarly, character death is not (usually) persistent within these spaces. It may be better characterized as something other than death—unconsciousness or similar, as it is usually a temporary inconvenience rather than a significant issue. A persistent metaverse, by contrast, would not be instanced in this way. Changes to (at least the base) worldstate would be present for all users and would persist over time (Ball, 2022). This would be a significant aspect of the “reality” of these spaces.

Ubiquity

The second requirement for a metaverse to trigger our concerns is ubiquity. Again, the contrast with existing immersive virtual

environments is important here. At their peaks, MMOs have had millions of active users. But they have always been competitive with one another, and even millions of users is but a fraction of the people who regularly and persistently use the internet. The level of ubiquity that is concerning to us is akin to the market penetration of the leading social media platforms. Concurrent and regular users of these online social spaces (such as Facebook, Reddit, and TikTok) far outnumber users of MMOs. These, however, are not immersive in the same way as MMOs, so are distinct in that respect. That is, social media is not engaged in world-building, and doesn't allow people to act within its space in the way even MMOs do. So while one might say they “lost themselves” in TikTok for hours, they weren't doing something like they would have been in an MMO, rather merely observing. Social media is something you observe, not something you engage in.

Generality

A persistent, ubiquitous metaverse must also be appropriately general. That is, people must be able to do everything they want to do online (within the limits of the law), through the medium of the metaverse. This could occur via it acting as a hub, from which users can seamlessly portal to particular events. Doing so would require integration between the various environments available.

Private monopoly

Barring radical legislative change to meaningfully break large technology companies, it is quite possible that a market with a few competing metaverses becomes increasingly monopolistic. In the same way that a private company, Alphabet, monopolized search with Google, we expect a major private technology company to leverage its existing wealth, data, and customer base to monopolize the metaverse market. As with other monopolies, a metaverse with a monopoly adds substantially to the risks users face due to power imbalance between buyer and seller (Li and Qi, 2022). If metaverse users cannot “vote with their feet” and switch supplier, then the owner of the metaverse has little incentive to consider the interests of those users. We use *private* monopoly here to distinguish privately owned monopolies from other kinds, such as government owned monopolies. As discussed below, some of the issues become even more problematic when the entity that owns the dominant metaverse does not have users' wellbeing as its main goal.

The goods associated with a successful metaverse

If and when a metaverse is developed that achieves a critical mass of social uptake, it has the potential to generate a range of uncontroversially positive outcomes for users. Many of these outcomes will be familiar to those who have studied the benefits of other forms of online interaction (see Valkenburg and Peter, 2009)—they include the development and facilitation of more and better social connections (Pendry and Salvatore, 2015); the

ability to teach and learn more flexibly (Kavanagh et al., 2017); a less discriminatory environment for those with certain disabilities (Duplaga and Szulc, 2019; Peterson-Besse et al., 2019); new mediums through which to explore creativity (Baía Reis and Ashmore, 2022; Simpson, 2023); and alternative modes of work (Munn, 2021). While these are already afforded by the internet at large, metaverses offer the potential to be more veridical than the contemporary internet—or indeed less bound by the constraints of our physical reality.

While the internet allows the geographically isolated, and those with niche hobbies, to connect with others who share their interests and passions, this connection is not immersive in the way that physical contact is—while connecting with others online the user both knows and feels that they are not actually physically collocated. There is a salient difference between talking about knitting with someone, and knitting with someone. A metaverse offers the possibility of the latter, even if there is no one who knits anywhere physically proximate to you. Perhaps more importantly (as we can already knit while on a videocall), the metaverse offers those who have lost the physical capability to knit, but who greatly desire to knit with others, the opportunity to virtually knit, while choosing whether to disclose to their co-knitters the physical veracity of their knitting. While knitting is a trivial example, there are many such activities which are dependent on local communities, and which need not be once metaverses are established.

In much the same way, the internet has enabled remote teaching and learning, but a metaverse would enhance the opportunities offered to both replicate the benefits of in-person learning and mitigate against the risks of online learning. Avatars whose state of awareness tracks that of their user, would enable teachers to more accurately gauge the attentiveness of their audience (Hasenbein et al., 2022), while the opportunities for safer engagement with practical learning in a metaverse could conceivably overcome both the risk and expense profiles that make hands-on learning untenable in the physical world (Hilfert and König, 2016). The same affordances that would enable improved teaching and learning experiences would clearly improve the lives of those living with a range of disabilities (Wilson et al., 1997). The experience of a range of physical activities could be replicated within a metaverse, thereby enabling such activities for those who currently do not have such options.

Finally, the development of the metaverse as a medium for engagement would enable both new avenues of leisurely pursuit, and new avenues of employment. Much as influencer or Twitch streamer are career paths that didn't exist prior to the development of the internet, virtual tour guide or explorer may be an option if a metaverse develops in the right manner (Bec et al., 2021; Talwar et al., 2022).

Metaverses are real (enough)

Following Shea (2017), we take the claim that metaverse experiences are much less valuable than reality-based experiences to be the main problem philosophers in general see with the development and use of metaverses. Robert Nozick's (1974) experience machine thought experiment asks why people are not inclined to choose a very pleasurable life in a virtual reality

over their current hedonically mediocre life. Nozick answers his own question by claiming a close connection to reality gives our experiences value. According to Nozick, we (rightly) want to *really* interact with other people and *really* achieve our goals (Nozick, 1989), and that choosing the virtual reality life would be a kind of suicide. Nozick's experience machine thought experiment was hugely influential, especially in how philosophers came to view the value of virtual experiences (Weijers, 2011; Weijers and Schouten, 2013). Because Nozick's virtual reality machine was experientially indistinguishable from reality for the user, it created a widespread view among philosophers that even the most immersive virtual realities and metaverses would provide impoverished environments for living compared to the real world (Shea, 2017).

A variety of reasons have been given for why reality is a better space for experiences than a virtual world. Some underestimate the capabilities of future metaverses. For example, Borgmann (1999) doubts that a virtual reality could be as immersive as the real world, while also worrying that virtual realities might cause us to question the veridicality of the real world. Other reasons for the lesser value of virtual experiences would still apply to the kinds of advanced metaverses we outlined above. For example, Dreyfus (2001) argues that we are never fully present in even highly immersive virtual realities, so our experiences in them will always be impoverished. And Shea (2017) argues that meaningful projects can only be pursued in reality.

Regardless of the reason why metaverse experiences are impoverished compared to reality-based experiences, that they are impoverished and take our time away from more meaningful and prudentially valuable experiences in reality is why philosophers worry about the development and use of metaverses (Brey, 1998). By spending time in an impoverished environment, a person would be worse off themselves and, because of their lack of impact on reality, the real world may become a less vibrant and lonelier place (Brey, 2008).

We do not agree with these strong claims about the impoverished nature of the virtual compared to the real. One important mistake we see many of these philosophers making is holding on to a firm distinction between the real and the virtual. Despite the orthodoxy, at least since Plato there have always been philosophers ready to question the veridicality and moral importance of what is commonly referred to as the real world. Baudrillard (1995) argued that technology we use externally, like virtual reality, and internally, like cybernetics will make it practically impossible to tell the difference between the real and simulated. Zhai (1998) argues that new and emerging technologies, like haptic and teleoperation devices, dissolve the distinction between real and virtual in *principle*.

Without commenting on whether the distinction between real and virtual completely collapses, we certainly agree with Baudrillard (1995) and Zhai (1998) that technological advances make the virtual increasingly similar to the real. Chalmers (2017), argues that virtual objects are real, via an argument for "virtual digitalism"—that virtual objects are "real digital objects." He then argues that life in virtual worlds has value in the same way that life in non-virtual worlds does. For our purposes, we are most interested in whether the things that are good for us depend on them being real instead of virtual. Or, put another way, we are focused on whether the valuable aspects of being in the real world

can also be found in an advanced virtual reality. Gooskens (2010), for example, argues that actions in virtual reality are not themselves real, but the desires they reflect are, so virtual actions are still morally important.

Against Dreyfus's (2001) view that metaverses will not be as immersive as reality, we point to the continual progression of technology and the countless hours people spend in fairly low-tech virtual realities already. Future metaverses will be able to offer a wider range of more vivid sensations more accessibly. Physically disabled people can experience soaking in the view from Mount Everest (Forcehimes and Semrau, 2016). They could also experience the arduous trek up (without the danger) if they also wanted a sense of achievement. They would probably skip the trek down, though, preferring to teleport to a beachside spa to relax after their endeavor. Future metaverses can also provide environments that are hyperreal—more vivid than our experiences in the real world (Ferebee, 2022). Even a current 3D movie set underwater, *Avatar: The Way of Water*, provides hyperreal experiences to watchers that would not be able to see so clearly when diving in the real world. But perhaps the strongest reason for metaverses being more immersive than reality comes from Baudrillard's (1995) description of hyperreality that includes our ability and perhaps AI's ability to continuously create completely new and wildly different realities—the possibilities are endless, far greater in scope, depth, and vividness than those offered in the real world when users can alter the structure of reality and laws of physics (Owen, 2022).

The main in principle worry philosophers have about even the most immersive metaverses, according to Brey (1998) and Shea (2017), is that unreal experiences are not as meaningful as real-world experiences. This is purportedly the reason why virtual experiences are less valuable than real experiences and why people choose not to connect to Nozick's experience machine (Nozick, 1974; Shea, 2017). Recall that Borgmann (1999) worries that metaverses may make people question the veridicality of the real world. Against philosophical orthodoxy, several philosophers have done this, proposing the reversed experience machine thought experiment, and then testing it (Kolber, 1994; De Brigard, 2010; Weijers, 2013, 2014). Kolber (1994), asks us to imagine that we discover we are already in an experience and have the option to return to reality, knowing only that it will be much less pleasant than our current life (to match the reality vs. happiness trade-off in Nozick's original). As suspected by Kolber (1994) and Weijers (2013), and empirically supported by De Brigard (2010), most people would prefer to stay in an experience machine if they could erase their knowledge that it was a virtual life. Several survey experiments seem to show that people choose their current life over an unknown life (De Brigard, 2010; Weijers, 2014) even when their current life is in a virtual reality. These results do not mean that reality has no value to people, just that most people value happiness and continuing their current (even virtual) life more.

There are some differences in the above thought experiments and a metaverse. The experience machine is described as a virtual reality, not a fully fledged metaverse. And, if we do enter a metaverse in real life, we don't forget about reality. Do these differences affect whether time spent in a metaverse can be meaningful? Should we plug in to a metaverse when we know it is not the real world? Despite Nozick (1974, p. 43) instructing readers to forget about their relationships, Weijers (2014, p. 520)

and Löhr (2019) both found that some participants still refused to enter the machine because they didn't want to leave their loved ones behind. Presumably, this helps explain why most of De Brigard's (2010) participants preferred to stay in their virtual reality—to stay with their virtual loved ones. In the persistent, ubiquitous, and general metaverses we described, though, losing relationships is not an issue. Metaverses will be places to explore new hyperreal experiences with loved ones or potentially meet and fall in love with new people. So, the worries Brey (1998) and Shea (2017) noted about virtual realities encouraging meaningless virtual relationships over meaningful real relationships are unfounded, at least as far as the metaverses we've described here go.

Another potential issue worth noting is the worry expressed by Shea (2017) that projects undertaken in a metaverse are not as meaningful as projects undertaken in reality. While this may be true of an experience machine that doesn't allow for user autonomy, it is not true of the metaverses we envisage. When users become agents of Baudrillard's (1995) hyperreality in a persistent, ubiquitous, and general metaverse, they can create something truly new that could have profound effects on millions of other people. Even in a contemporary virtual world, such as a Minecraft server, hundreds of users can team up to recreate a fantasy world from *Star Wars* or *Harry Potter*, and then explore it together and show it off to other fans of the fantasy world. Imagine what a team of people supported by AI could achieve in a metaverse—works of art beyond our current imagination. So, again, in a persistent, ubiquitous, and general metaverse, many meaningful activities could be pursued, including some that would not be possible in the real world. We can develop our character, our relationships, and major projects that impact humanity itself.

The real problem with metaverses

Even though the supposed unreality of metaverses is not a serious problem for their use or development, metaverses are not without risks. In our view, the most pressing ethical problem with metaverses is their status as relatively unregulated commercial enterprises. We appear on track to develop a metaverse that is persistent, ubiquitous, general, and quite likely monopolistic. If this prediction bears out, users will be effectively locked into a particular infrastructure that is controlled a corporate entity that has motivations independent of the goals of users. As such, the users will be constantly at risk of losing a hugely important part of their lives.

Users of a privately owned metaverse are potentially locked-in to that system and that software (or hardware!), meaning that they are vulnerable to changes made by the owning company, having no easy option for transferring their meta-lives out of that environment. When this happens in game spaces, we tend to think that it is sad but ultimately not morally concerning—yes, it is a miserable experience to have a virtual world that you have invested thousands of hours into, disappear. But it was, after all, “only a game.” However, if this were to happen in a well-realised metaverse, the consequences could conceivably be much more serious. A metaverse is not “just a game,” it is an environment in which games can exist, alongside work, socialization, and the other facets of a rich and fulfilling life. As such, its end would be much more

morally salient than the instances we have had to date of virtual worlds being shut down (such closure is frequent, see [Pitcher, 2014](#)). Of course, this concern is magnified if the metaverse has a monopoly or uses anti-competitive practices that prevent effective cross-platform data transfer.

This consideration also points to a secondary risk associated with private control of a metaverse (or, more particularly, private control over whichever metaverse becomes dominant), namely concentration of power and control in the hands of that particular corporate entity. To the extent that the metaverse becomes a public utility (an essential component of the continuation of “normal” existence for a citizen of the relevant society), the profit motive underlying the provision of the metaverse as a service becomes worrisome. Given the likely ubiquity and generality of the dominant metaverse, it would likely act similarly to other “big tech” platforms and consolidate its own power by being host and patron to all the best creators and therefore the best services. We may also worry that user creations within such a metaverse would be controlled by the company rather than being owned by the users—essentially making the labor of users within the environment the property of the environment-provider rather than the creator. As [Li and Qi \(2022\)](#) argue, the corporate interests behind the dominant metaverse would leverage their power over users and financing ability over other service providers to solidify a hierarchical power structure with the metaverse-owning corporate interests at the very top and the users at the bottom. All of this suggests that we are headed toward a problematic model for the governance of the metaverse. So we should strive to avoid a private ownership model. However, it may still be the case that the metaverse market ends up being an example of a natural monopoly (like Highlander or the internet—there is only one!), which would make it even more important to ensure neutrality in operation, in much the same way as net neutrality protects the basic structure of the internet, in order to protect the interests of users in the metaverse.

Many of these risks we take to be significant issues for the development of metaverses will, again, be familiar (albeit magnified) to those who have previously worked on the risks associated with the internet and virtual realities. There are a raft of privacy and security risks which follow from the persistence, ubiquity, generality and monopoly criteria we discussed above. The sheer volume of information that will need to be disclosed by users to a metaverse provider, in order to enable the metaverse to be sufficiently personalized and responsive to a particular user, makes these risks highly salient. Giving so much important information, particularly to a private company, generates vulnerabilities for the user. Some of these vulnerabilities already exist as costs associated with the internet, which we would plausibly also consider in the same way when they arise in the metaverse. Other vulnerabilities are to things which are and should be illegal, whether online or in a metaverse. Examples of the former include user profiling and targeted advertising, which a provider could use to shape the user experience of the metaverse to be maximally tempting to the particular user ([Rosenberg, 2022](#)). Examples of the latter are fraud and identity theft, each of which is made easier, the more information about a user is available to criminal actors—and a metaverse would, in principle, want a lot of this information ([Smali and de Rancourt-Raymond, 2022](#)). While these are risks of the same

kind as those associated with living online, the scale of risk is much greater in a metaverse. A ubiquitous, general, and monopolistic metaverse would also make it very difficult for people to refuse supplying these data, as the only alternative would be missing out on key parts of life that are only available in the metaverse.

The potential for monopolistic development of a metaverse opens up the risk of a walled garden structure in this space. Walled Gardens have a storied history in technological development, and it is not, generally, positive ([Paterson, 2012](#); [Animashaun, 2022](#)). The idea behind a walled garden is that one provider will make their ecosystem sufficiently appealing (and sufficiently hard to see out from, or escape from), that users are satisfied to exist within it. However, such attempts to lock users into a particular infrastructure often result in those users being isolated, abandoned or falling behind the functionality of other spaces—and when the number of users falls low enough, of having the garden be closed around them—but not before the company which ran the garden has collected as much data as possible about the desires, goals and practices of its users. If, as we argued earlier, experiences—relationships, friendships, activities and the like—which occur within metaverses, can be just as valuable as those which occur in the physical world, then these risks of isolation, exclusion and termination are more serious in metaverses than they are in other tech spaces. This follows just because the intended scope of metaverses is significantly greater than the intended scope of the walled gardens which were historically built by, for example, earlier internet service providers ([Paterson, 2012](#)), who were attempting to lock users into an ecosystem which is, by today’s standards, comically impoverished. However, if a metaverse of the kind we are concerned with becomes a walled garden, as it likely would, then the users who were operating within it will at least, if these risks are not mitigated, lose access to everything they have invested in that metaverse, including but not limited to their identity, social life and major projects as developed in that space.

A range of other possible issues unrelated to the reality of metaverses are now briefly discussed. It is unclear to us whether metaverses will generate more serious versions of these issues than already exist with various online technologies, but perhaps they will. [Anderson and Rainie \(2022\)](#) worry that the current issues with discrimination, harassment, and bullying will worsen in metaverses. In an online study of virtual reality users, [Barreda-Ángeles and Hartmann \(2022\)](#) found no evidence to support the claim that metaverses are more addictive than other online activities, but they did argue that this may not be true when metaverses become more immersive, especially through greater user feelings of embodiment. It is clear that some real-world-based jobs will be threatened by the development of metaverses, as more of what people do happens online instead of in and around cities ([Coulson et al., 2020](#)). It’s surely true that some downtown physical service jobs, like barista, may be in jeopardy, but, as [Park et al. \(2023\)](#) point out, there are several advantages of metaverses for workers, including new employment opportunities. In addition to some job displacement, there may also be significant economic disruption. As the exodus from reality to metaverses occurs, there will likely be rapid changes in the value of various industries, causing considerable economic hardship for some. Bear in mind that, as explained by [Cheng et al. \(2022\)](#), economic transactions in

metaverses will likely be completely run on a block-chain-backed non-fungible token system. And these problems may collectively have a greater impact as they feed in to a cycle of economic and political instability (Li and Qi, 2022).

The public utility model

Public Utilities provide a model for the protection of users regarding core aspects of civil infrastructure. Obvious examples are the power grids and telecommunications networks that enable our societies to function. In most places governments undertake to protect this infrastructure in a manner independent of capitalist considerations, as it is too important to be left to the market alone (Little, 2010). We agree with Mosco (2023) that metaverses, while not yet such a utility, will likely become one, particularly when many of life's core activities, such as work and socializing, begin to migrate to a dominant metaverse. If this happens, the risks of allowing the metaverse to remain in private hands would need to be mitigated by some form of governmental guarantee of their continuation should the private interests behind the metaverse attempt to shut it down.

The goal of a public utility model is to ensure that essential services remain available (both in terms of access and cost) and stable for society at large (Rahman, 2018). If we were to incorporate a (hypothetical future) metaverse into this system, we would thereby generate a means of protecting end-users against the risks we have outlined throughout this article. But doing so would itself present risk. It is difficult to develop a framework for a hypothetical future metaverse when we don't have a clear idea of what features such a system will have. For this reason, consider the following as suggestions for consideration, when faced with any metaverse which becomes persistent, ubiquitous, and general in the way we described above.

Such a metaverse would require a regulatory framework that protected end-users, and perhaps content creators, from the termination of the system itself, while not constraining the ongoing development of the metaverse and its infrastructure. Such a framework is analogous to a regulatory system that mandates the provision of power to dwellings but does not mandate a particular means of power-production (Rahman, 2018). Any such framework would also need to be flexible enough that the private companies currently engaged in investment and development in this space are incentivised to continue doing so.

Obviously, there are many barriers to the recognition of a metaverse as a public utility. These are very similar to the barriers faced in gaining recognition of the internet as a public utility—a battle which is still in progress, despite the importance of stable and equitable internet access for individual wellbeing within a modern social context. In certain contexts the provision of broadband infrastructure has been recognized as a public good, and responsibility for it placed in the hands of the government—examples include both New Zealand (Crown Fiber Holdings Ltd) and Australia (National Broadband Network). Each of these still allows market competition for broadband service provision, but has a single national provider of the infrastructure. By contrast, many states in the USA place legal restrictions on the very existence of public broadband infrastructure (Murakami, 2022).

The Biden administration has established the Broadband Equity, Access and Deployment (BEAD) Program, but it has yet to truly get underway—and faces the challenges previously noted with state regulations.

We envisage that a public utility model for the metaverse would of necessity track with the existence of such a model for internet access. Metaverses in their current form rely on fast and stable internet so without the recognition of this background infrastructure as a public good, little could be done to protect the end users. This suggests that, initially at least, guaranteed access to the metaverse will be, as William Gibson said of the future, not very evenly distributed among the world's population.

Corporate social responsibility

The main idea of corporate social responsibility (CSR) is that companies have a responsibility to act in a way that benefits society, which exists above and beyond their economic goals (Mintzberg, 1983). As metaverses are developed, the social impacts of their uptake and widespread use suggest that CSR will be increasingly relevant as a means of constraining corporate practice. As Brey (2008, p. 381) stresses, “[t]he responsibility of developers includes giving consideration to ethical aspects in the design process and engaging in adequate communication about the technology and its effects to potential users”.

Munn and Weijers (2022) have argued for the use of a CSR model when considering the obligations companies ought to have for the continued provision of AI services to end-users. Munn and Weijers (2022) give the example of users of AI chatbots that form ongoing and significant friendships with their AI companions. Users that consider their AI companions to be good friends (or more) risk substantial harm if the company that provides the chatbot terminates the service, as doing so effectively kills a good friend of the user. The types of protection Munn and Weijers (2022) envisaged include requirements placed upon companies providing such services to clearly and appropriately communicate service interruptions and changes, as well as attempts to prevent the termination of such services and the provision of grief support services for those impacted by any potential terminations.

These concerns are only exacerbated by the much more immersive experiences that metaverses will afford to users. As Zhou (2023) argues, the combination of AI technology with a metaverse makes the resulting experiences even more immersive. Whereas users of these chatbots have a one-to-one correspondence with a chatbot that they develop over time, and many come to feel a friendship with the chatbot, users of a metaverse will be potentially exposed to such AI throughout the metaverse both incidentally and persistently. For example, storefronts in the metaverse would conceivably be staffed by AI, with persistent memory of their customers, and who would be capable of both having and remembering a range of interactions with human users of the virtual world. Rather than having one such friend, a user of the metaverse would have many, both human and AI, and most importantly may not know which are which. Future users of a discontinued metaverse may be surprised to find that they cannot track down their best friend from the metaverse in the real world, because the metaverse instantiation of the friend was the only real

version of them. While the value of friendship is well known, the value of digital friendships will be increasingly accepted (Munn and Weijers, 2022). As this example illustrates, the more time people spend in such a virtual environment, the more need there will be for design and management of these spaces that protects the stability of these relationships. And, if the metaverse is persistent, ubiquitous, general, and monopolistic, the need for CSR grows dramatically.

A CSR driven approach to this issue could involve industry led standards but that seems unlikely to work. As Mosco (2023) argues, the profit motive of powerful companies in an unregulated global metaverse market will overcome any thought regulations that help users but are costly to the private interests behind metaverse companies. Governmentally or intergovernmentally enforced CSR requirements would be more effective, although much more difficult to establish. Either way, the regulations should require companies to, for example, provide fair notice for the shutdown of virtual environments, or even compensation for doing so. The process of terminating such environments could also be regulated, with the intention of enabling users to rescue their digital lives and assets, such that they can be migrated to alternative systems. Another option would be for the software for particular virtual environments to automatically become publicly available if the services were abandoned or closed by their creators.

Perhaps we should nationalize the metaverse

Given the above considerations, leaving the metaverse within private control seems deeply problematic. Unlike the mere provision of internet services, in which competition serves (at least in principle) to drive lower prices, better customer service, and meaningful choice between sufficiently good alternatives (Van Gorp and Middleton, 2010), the provision of a metaverse doesn't immediately seem amenable to competition (given the monopolistic characteristics of the service).

Are metaverses, then, an instance of the kind of service which ought to be centralized? One option is to argue for governmental control over the metaverse, such that states control the operation and potentially the ongoing development of it. Of course, this could not be devolved onto any particular state, as much like the internet at large, a metaverse would, in order to be valuable to its users, be innately international. The benefits of some sort of public ownership or control would include greater oversight and protection for users, but such a move would bring with it an array of risks.

The first of these risks is that the provision of such a service would incur non-trivial ongoing costs, both for the infrastructure associated with the service, and for ongoing development and staffing costs. These costs, while in theory defensible, would nevertheless be difficult for states to defend, at least in the short term—while the social affordances of the metaverse are contested. Another significant risk is that governments often take it upon themselves to censor or otherwise control the flow of information online. While there are justifiable limits on freedom of expression in general, and these would carry over from the physical world to the metaverse in much the same way as they have carried over from the physical world into the online world (Bayer, 2022), the

risks of overreach are perhaps more salient in a publicly held metaverse than in a privately owned one. As such, the correct answer is probably going to be one in which all the relevant parties work collaboratively on ensuring the long-term stability of the metaverse—a joint approach between private industry, civil society and government.

Much as we might want to take responsibility for the development of metaverses out of the hands of private industry and place it under the control of those who are more likely to develop metaverses in service of the public good, this is unlikely to be possible. The profit motive is crucial to the development of metaverses in the ways envisaged by those currently pursuing it, and any indication that they would be prevented from benefitting from their own research and development in this space, would be likely to drastically curtail the development of these spaces. Several researchers and industry workers agree, suggesting that innovation in metaverses will be mainly driven by technical advances and financial opportunities, rather than any top-down process (Anderson and Rainie, 2022). Further, at least during the process of development of metaverses, the environment may be competitive enough to incentivise companies to act on the privacy and security concerns of their users in order to gain market share for their offerings. Of course, the successful metaverse will not become so simply because it is the most secure, or the most private. It must also be good at providing the metaverse-environment most desired by users. What exactly this environment will consist of is as yet unclear, making projections in this space difficult. But in general, we can be assured that whatever the particulars are, users will want a stable, high quality and user-friendly space in which to engage (Lee and Gu, 2022; Koohang et al., 2023).

There may need to be some developments in the legal frameworks surrounding online activity, if a metaverse becomes widespread. These frameworks will likely contain novel international, financial, and technical aspects inline with the affordances and risks of the developing technologies (Turdialiev, 2022; Mozumder et al., 2023). There have been some cases of virtual goods being recognized as private property in other online environments (virtual thefts, second life etc), but the standardization of this practice would enable a degree of security for end users insofar as it gave them a legal basis for ownership of the things they create in virtual spaces (Lastowka and Hunter, 2006; Patterson and Hobbs, 2010; Rumbles, 2011). Currently, many online sandboxes do not recognize the creative ownership of assets made within them, so this change would be significant. However, there have already been some moves in this direction, including the recent change made by Epic games to their revenue distribution from *Fortnite*. They now fund creators from in-game income.²

Conclusion

We have argued that the main philosophical concern about virtual realities (their unreality) are not serious concerns for metaverses that have the characteristics of persistence, ubiquity,

² <https://www.theverge.com/2023/3/22/23645633/fortnite-creator-economy-2-0-epic-games-editor-state-of-unreal-2023-gdc>

and generality. Against the philosophical orthodoxy, we argued that experiences in metaverses can be as or more prudentially valuable than real-world experiences because they can be as or more vivid, varied, and meaningful.

On our view, the real ethical problem with metaverses is how they will likely operate under corporate control, especially in the case of a private monopoly. We argued that there are certain structural features (persistence, ubiquity, and generality) that seem likely to exist in a successful implementation of a metaverse, which will make one particular set of risks—those tied to private control over the metaverse—particularly salient. Users of a successful metaverse will invest a great deal of time and resources into it, and will develop an emotional connection to the environment and their co-users. The continuation of the metaverses existence will then become a morally valuable thing in its own right, and the closure of such a metaverse would constitute a significant harm—to the community at large, and to the wellbeing of the individuals affected. If metaverses succeed, their continuation, or at least the continuity of the data associated with them and its connection to particular users, will become morally valuable.

As such, we believe that it will be necessary to develop a comprehensive governance structure for the metaverse in whichever form it finally takes. We suggest governments or other public actors provide the legal protections and support that enables users to engage with confidence in that environment, while enabling, to the extent compatible with these concerns, private companies to create and innovate in these spaces. A balance should be struck such that metaverses develop into the immersive spaces that maximize the potential of the virtual without descending into

the dangers that Neal Stephenson envisaged when first writing about the “Metaverse” in 1992.

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NM and DW contributed equally to all aspects of writing the paper.

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Conflict of interest

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