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## Assembly and Expression in Extended Reality: Transposing Human Rights Across Realities

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**Abstract:** Freedoms of assembly and expression are increasingly recognized in virtual spaces. This paper explores them in the context of immersive extended reality (IXR). We outline possible risks and benefits of IXR to the freedoms of assembly and expression, arguing that with increased embodiment comes increased responsibility to ensure human rights are upheld because those rights become closer to their physical equivalents. To clarify the level of responsibility platforms have in immersive contexts, we offer a novel interpretation of the ideas behind the public function and fair procedure doctrines that incorporates the level of embodiment of a given platform to determine the extent to which freedoms of assembly and expression are implicated.

**Keywords:** augmented reality, content moderation, extended reality, freedom of assembly, freedom of expression, metaverse, platform governance, virtual reality

## 1. Introduction

Extended reality (XR) technology is on the rise in industrial and consumer applications.<sup>1</sup> Typically defined as including virtual reality (VR), augmented reality (AR), and mixed reality (MR), XR is becoming more widespread as a variety of new devices enter the market, including from some of the world's largest technology companies. While XR technologies have been in development since the 1980s,<sup>2</sup> their increased use justifies a fuller analysis of their impacts, both positive and negative. XR presents new opportunities for new, different, and better experiences across many sectors, including education, healthcare, and entertainment.<sup>3</sup> However, with new technologies come new risks, including to human rights. By further blurring the hazy line between the physical and virtual, XR creates a more embodied 'onlife'<sup>4</sup> with no clear delimitation between the two spheres. This implicated numerous human rights, including safety and privacy<sup>5</sup> and—as we focus on in this paper—freedoms of assembly and expression. Because of the increased similarities of experience to the physical world, there is a heightened, though not novel, responsibility for platforms to uphold human rights. This article discusses the risks and benefits of XR to assembly and expression, then proposes a novel conception of embodiment and human rights to help elucidate how to protect human rights when using XR technologies.

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<sup>1</sup> Thomas Alsop, 'Consumer and Enterprise VR Revenue Worldwide 2026' (*Statista*, 3 July 2023) <<https://www.statista.com/statistics/1221522/virtual-reality-market-size-worldwide/>> accessed 25 February 2023.

<sup>2</sup> Emmie Hine, 'Virtual Reality, Cyberspace, and Embodiment: A Historical Debate with Contemporary Resonance' (2 February 2024) <<https://papers.ssrn.com/abstract=4714432>> accessed 26 February 2024.

<sup>3</sup> Luciano Floridi, 'Metaverse: A Matter of Experience' (2022) 35 *Philosophy & Technology* 73.

<sup>4</sup> Luciano Floridi (ed), 'The Onlife Manifesto', *The Onlife Manifesto: Being Human in a Hyperconnected Era* (Springer International Publishing 2015) <[https://doi.org/10.1007/978-3-319-04093-6\\_2](https://doi.org/10.1007/978-3-319-04093-6_2)> accessed 27 February 2022.

<sup>5</sup> Emmie Hine and others, 'Safety and Privacy in Immersive Extended Reality: An Analysis and Policy Recommendations' (27 September 2023) <<https://papers.ssrn.com/abstract=4585963>> accessed 7 November 2023.

In this article, we focus on ‘immersive extended reality’ (IXR),<sup>6</sup> which includes XR applications where the user’s visual field is wholly mediated by a device. Other sensory experiences, such as audio and haptics, may accompany this. This includes ‘immersive’ VR and AR applications but excludes non-immersive applications, such as smartphone AR. IXR experiences are of special moral significance because their increased realism and immersiveness create similar psychological and physiological responses as experiences in the physical world, indicated both by academic studies of VR and AR<sup>7</sup> and reports of trauma in victims of sexual harassment and assault in VR.<sup>8</sup> The realism of IXR also increases the likelihood of it being used to augment or replace events in the physical world, such as concerts held in VR spaces<sup>9</sup> and AR enhancing gaming experiences in the physical world.<sup>10</sup> As the technology advances, it is likely that its cross-cutting use in the physical and virtual spheres will intensify. In 2022, the first ‘metaverse’ protest was held in the Decentraland virtual world protesting consumerism outside the Samsung virtual headquarters,<sup>11</sup> and activists have

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<sup>6</sup> *ibid.*

<sup>7</sup> Shih-Ching Yeh and others, ‘Effects of Virtual Reality and Augmented Reality on Induced Anxiety’ (2018) 26 IEEE Transactions on Neural Systems and Rehabilitation Engineering 1345; Daniel Eckhoff and others, ‘Psychophysical Effects of Experiencing Burning Hands in Augmented Reality’ in Patrick Bourdot and others (eds), *Virtual Reality and Augmented Reality* (Springer International Publishing 2020); Marieke AG Martens and others, ‘It Feels Real: Physiological Responses to a Stressful Virtual Reality Environment and Its Impact on Working Memory’ (2019) 33 Journal of Psychopharmacology (Oxford, England) 1264; Mel Slater and Maria V Sanchez-Vives, ‘Enhancing Our Lives with Immersive Virtual Reality’ (2016) 3 Frontiers in Robotics and AI <<https://www.frontiersin.org/articles/10.3389/frobt.2016.00074>> accessed 12 April 2024.

<sup>8</sup> Theo Farrant, ‘UK Police Launch First Investigation into Virtual Rape in Metaverse’ (*euronews*, 4 January 2024) <<https://www.euronews.com/next/2024/01/04/british-police-launch-first-investigation-into-virtual-rape-in-metaverse>> accessed 12 April 2024.

<sup>9</sup> Ngozi Nwanji, ‘Virtual-Reality Concerts Could Redefine the Live-Music Experience — but It’ll Take More Time’ (*Business Insider*, 13 March 2024) <<https://www.businessinsider.com/extended-reality-meta-quest-vr-music-artist-concerts-2024-3>> accessed 16 April 2024.

<sup>10</sup> Colleen Signorelli, ‘Augmenting Our Reality: The (Un)Official Strategy Guide to Providing First Amendment Protection for Players and Designers of Location-Based Augmented Reality Video Games Notes’ (2018) 92 St. John’s Law Review 943.

<sup>11</sup> Kelly Garrity, ‘Activists Tackle the Metaverse’ (*POLITICO*, 29 November 2022) <<https://www.politico.com/newsletters/digital-future-daily/2022/11/29/activists-tackle-the-metaverse-00071166>> accessed 12 April 2024; Louise Macaraniag, ‘The Voices Defining Web3: Is There a First Amendment Right to Assemble in the Metaverse?’ (*The Daily Dot*, 4 May 2022) <<https://www.dailydot.com/debug/digital-protest-metaverse/>> accessed 12 April 2024.

made banned books available on proto-metaverse platform Minecraft.<sup>12</sup> While this would seem to indicate that these technologies can help enable free assembly and expression, they also create obstacles and risks. Because of the immersion, presence, and interactivity<sup>13</sup> that makes VR experiences more like those in the physical world, human rights can be exercised more like they can in the physical world, and this, plus the potential for AR to interweave into the physical world, means that the possible impact on people from their restriction or abuse is correspondingly greater, in turn creating greater responsibilities for platforms to protect these rights.<sup>14</sup>

Our analysis is informed by the idea that IXR is a fundamentally mediated reality.<sup>15</sup> In particular, devices, hardware manufacturers, and platform companies stand between individuals and their experiences of IXR. As a result, these factors define the technological and platform affordances that impact people's IXR experiences. They also define who can access IXR, potentially creating a new digital divide both by erecting cost barriers and by making others unable or unwilling to use it because of unmet accessibility needs or negative experiences. While private companies exert control over freedom of expression on their platforms and contribute to 'new-school' speech regulation,<sup>16</sup> in IXR, they influence a broader range of rights, similar to how governments have power over rights—and thus a responsibility to protect them—in the physical world. Businesses have a responsibility to uphold human rights, recognized by the UN Guiding Principles on Business and Human Rights<sup>17</sup>

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<sup>12</sup> 'The Uncensored Library – Reporters without Borders' <<https://www.uncensoredlibrary.com/>> accessed 12 April 2024.

<sup>13</sup> Joschka Mütterlein, 'The Three Pillars of Virtual Reality? Investigating the Roles of Immersion, Presence, and Interactivity', *Proceedings of the 51st Hawaii International Conference on System Sciences* (2018) <<http://hdl.handle.net/10125/50061>> accessed 2 March 2024.

<sup>14</sup> We primarily address commercial applications of IXR, but governments are increasingly adopting IXR for different purposes, giving them the responsibility to uphold human rights within their country's national contexts as well.

<sup>15</sup> Emmie Hine, 'Extended Reality Is a Fundamentally Mediated Reality', *A Metaverse for the Good* (2024) <<https://doi.org/10.5281/zenodo.10993751>>.

<sup>16</sup> Jack M Balkin, 'Old School/New School Speech Regulation' (2014) 127 Harvard Law Review 2296.

<sup>17</sup> United Nations Human Rights Office of the High Commissioner, 'Guiding Principles on Business and Human Rights' <[https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr\\_en.pdf](https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr_en.pdf)> accessed 18 June 2021.

(henceforth the Guiding Principles, also often called the Ruggie Principles), but it lacks an enforcement mechanism. Additionally, when it comes to IXR, platforms not only have negative obligations to avoid infringing on human rights, but are involved in positively promoting them by designing the affordances of devices and platforms that impact what kinds of assembly and expression are possible and permissible, raising questions of legitimacy around human rights governance. Through a semi-systematic literature review (with methodology available in the Appendix), this article outlines a new idea for how businesses, governments, and civil society groups can conceptualize private-sector responsibilities for upholding human rights in IXR.

This article considers assembly and expression as distinct but complementary rights. In the Western democratic context, the two have separate histories but are co-constitutive.<sup>18</sup> Verbal and symbolic expression often occurs *within* or *during* assemblies, but assemblies can be expressive actions in and of themselves by conveying a message about a group and a cause, even if no words are spoken. This was displayed in the 2024 Russian presidential election when the late dissident Alexei Navalny called for Russians to show up at polls and cast their ballots at noon on the final day of voting.<sup>19</sup> Even without explicit protest in the form of speech, placards, or other actions, the participants still conveyed a message of solidarity and implicit protest.

In analyzing the possible risks and opportunities for human rights, we use the Universal Declaration of Human Rights (UDHR) as a baseline definition of freedoms of assembly and expression. This is intended to make our analysis applicable across legal and political regimes, rather than situating it in any one specific legal system. The UDHR rights form the ‘universally desirable’

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<sup>18</sup> Michael Hamilton, ‘The Meaning and Scope of “Assembly” in International Human Rights Law’ (2020) 69 *International & Comparative Law Quarterly* 521; Orsolya Salát, *The Right to Freedom of Assembly: A Comparative Study* (Bloomsbury Publishing 2015) 5–7; *ibid* 10–19.

<sup>19</sup> Guy Faulconbridge and Andrew Osborn, ‘Thousands of Russians Join Navalny-Inspired “noon against Putin” Election Protest’ *Reuters* (17 March 2024) <<https://www.reuters.com/world/europe/noon-against-putin-thousands-russians-turn-out-fulfil-navalnys-last-wish-2024-03-17/>> accessed 12 April 2024.

traits in our ethical pluralist stance,<sup>20</sup> which holds that within those universal traits, there is room for interpretation across cultural and legal contexts. While China has objected to the UDHR as a Western neo-colonialist construct,<sup>21</sup> it voted in favor of it and, in fact, played a large role in shaping its provisions,<sup>22</sup> as did countries in Latin America.<sup>23</sup> Though a necessarily imperfect standard, as an international document adopted by the UN and its 193 Member States, it is a sensible yardstick with considerable legitimacy. Nonetheless, we should note that our analysis is inevitably informed by our positionality as researchers from Western liberal democratic contexts.

The remainder of the article proceeds as follows. Section 2 lays out the risks and benefits to freedom of assembly; Section 3 does the same for freedom of expression. Section 4 discusses the implications identified in the previous sections for the responsibility of businesses providing XR products and platforms to uphold human rights; Section 5 concludes.

## **2. Risks and benefits to the freedom of assembly**

The UDHR states that ‘[e]veryone has the right to freedom of peaceful assembly and association. No one may be compelled to belong to an association’<sup>24</sup> (Art. 20). In the context of the International Covenant on Civil and Political Rights (ICCPR), the UN has recognized that the right

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<sup>20</sup> Charles Ess, ‘Ethical Pluralism and Global Information Ethics’ (2006) 8 *Ethics and Information Technology* 215.

<sup>21</sup> Jun Zhao, ‘China and the Uneasy Case for Universal Human Rights’ (2015) 37 *Human Rights Quarterly* 29.

<sup>22</sup> *ibid*; Pierre-Etienne Will, ‘The Chinese Contribution to the Universal Declaration of Human Rights, 1947-48’.

<sup>23</sup> Mary Ann Glendon, ‘The Forgotten Crucible: The Latin American Influence on the Universal Human Rights Idea’ (2003) 16 *Harvard Human Rights Journal* 27; Liliana Obregon, ‘The Universal Declaration of Human Rights and Latin America’ (2009) 24 *Maryland Journal of International Law* 94.

<sup>24</sup> United Nations General Assembly, ‘Universal Declaration of Human Rights’ <<https://www.un.org/en/about-us/universal-declaration-of-human-rights>> accessed 27 February 2022.

to assembly extends to private and public spaces, as well as online,<sup>25</sup> meaning it also applies in IXR.

Based on sources from the literature review, we consider how IXR could be used to reshape the *time*, *place*, and *manner* of assembly, including in public and private spaces both physical and digital.<sup>26</sup>

These three fundamentals are often the locus of state restrictions on the right of individuals to assemble.<sup>27</sup> Rather than attempting to elucidate every possible type of assembly, using this level of abstraction<sup>28</sup> helps foreground benefits and impacts, focusing on the embodied aspects of assembly rather than expressive content, which will be covered in Section 3. While some jurisdictions primarily protect expressive assemblies and consider public and private assemblies differently, in this paper, we adopt the definition from Salát's book *The Freedom of Assembly: A Comparative Study*, which takes a wider view of assembly as 'contemporaneous common presence of at least two persons in a common space,'<sup>29</sup> in keeping with our jurisdiction-agnostic approach. Our analysis will first assess the logic of restrictions in the physical world, then identify possible benefits to virtual and, if applicable, physical assembly, followed by possible risks, in each of the three aspects examined.

### 2.1. Impacts on time

Restrictions on the timing of assemblies vary by jurisdiction, but motivations include protecting the sanctity of special days, preserving public order (such as by restricting the frequency of disruptive

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<sup>25</sup> United Nations Human Rights Committee, 'General Comment No. 37 (2020) on the Right of Peaceful Assembly (Article 21)' <<https://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=6QkG1d%2FPPRiCAqhKb7yhsrdB0H115979OVGGB%2BWPAXj3%2Bho0P51AAHSqSubYW2%2FRxcFiagfuwxycuvi40wJfdPLI9%2FeceDWBX%2Fij2tgqDXgdjqx8wTKKbIoySyDPtsMO>> accessed 3 April 2024.

<sup>26</sup> Salát (n 18); Norman L Stamps, 'Freedom of Assembly' (1942) 11 University of Kansas City Law Review 187; Hamilton (n 18).

<sup>27</sup> Salát (n 18) 1.

<sup>28</sup> Luciano Floridi, 'The Method of Levels of Abstraction' (2008) 18 Minds and Machines 303.

<sup>29</sup> Salát (n 18) 7.

assemblies), and suppressing dissent around sensitive events (such as elections<sup>30</sup>).<sup>31</sup> These are less relevant for fully virtual assemblies, as the atmosphere of the physical-world holidays and events meant to be protected by these restrictions need not be factors in IXR. In fact, IXR could enhance freedoms of assembly and expression by allowing for assemblies during forbidden times in a way that amplifies a group's message in a way that would not be possible due to physical world restrictions (e.g., if the assembly is about the holiday itself). Additionally, fully virtual IXR assemblies allow for spontaneous assemblies ranging from gatherings with friends to protests because no travel time is involved. This can be accomplished via VR avatar assemblies or with AR projections of people and messages.

VR and AR devices also offer intriguing possibilities for *post facto* engagement with both physical and virtual assemblies by 'recording' them for later participation, as with a Minneapolis-St. Paul Black Lives Matter protest.<sup>32</sup> This can facilitate research and education, creating a participatory historical record that could enhance understanding of assemblies and their dynamics.

However, these potential benefits are far from assured, owing to the mediating role of XR platforms, which can arbitrarily and illegitimately restrict the timing of assemblies, whether through onerous permitting or notification regimes, or simply by encoding restrictions on how many avatars can be in proximity to each other. They could also prohibit specific assemblies from forming at any time through arbitrary moderation enforcement if, for instance, there was a cause the platform disapproved of or saw as too controversial. Many kinds of assembly are controversial, but in

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<sup>30</sup> Emma Burrows, Dasha Litvinova and Jim Heintz, 'Putin Extends Rule in Preordained Russian Election after Harshest Crackdown since Soviet Era' (*Los Angeles Times*, 18 March 2024) <<https://www.latimes.com/world-nation/story/2024-03-18/putin-extends-rule-in-preordained-russian-election-after-harshest-crackdown-since-soviet-era>> accessed 19 April 2024.

<sup>31</sup> Salát (n 18) 194–199.

<sup>32</sup> 'Behind the Scenes of "IN PROTEST"' with Alton Glass and Adam Davis-McGee' <<https://www.oculus.com/blog/behind-the-scenes-of-in-protest-with-alton-glass-and-adam-davis-mcgee/>> accessed 19 April 2024.

‘content-neutral’ regimes, governments cannot prohibit assemblies based on their content.<sup>33</sup> Thus, sometimes assemblies that might be offensive to the general public are permitted by law to go ahead, such as the Nazi march planned in Skokie, Illinois in 1978.<sup>34</sup> This runs contrary to the terms of service of many platform companies, which often ban groups that center around white supremacist topics; Reddit banned thousands of subreddits for promoting hate speech,<sup>35</sup> while Facebook also bans similar groups.<sup>36</sup> While we accept that traditional social media platforms can legitimately restrict expression,<sup>37</sup> in the embodied context, there is often greater tension between human rights and the goals of content moderation, which will be further explored in Section 4.

## 2.2. *Impacts on place*

The reasons for restricting restrictions in specific places are more varied than those for time. Some are similar, such as upholding public order and the sanctity of specific spaces, but there are also additional restrictions on where assembly can occur, such as to protect privacy, public property rights, or the ‘managerial function’ of government.<sup>38</sup> The degree to which this logic translates into IXR depends on the function of virtual spaces. For instance, if city services are provided in a specific VR space or ‘office,’ as Seoul plans to do through ‘Metaverse Seoul,’<sup>39</sup> or if platform administrative

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<sup>33</sup> Salát (n 18) 59–69.

<sup>34</sup> *National Socialist Party of America v Skokie* (1977) 432 US 43 (Supreme Court).

<sup>35</sup> worstnerd, ‘Understanding Hate on Reddit, and the Impact of Our New Policy’ <[www.reddit.com/r/redditsecurity/comments/idclo1/understanding\\_hate\\_on\\_reddit\\_and\\_the\\_impact\\_of/](https://www.reddit.com/r/redditsecurity/comments/idclo1/understanding_hate_on_reddit_and_the_impact_of/)> accessed 19 April 2024.

<sup>36</sup> ‘Hate Speech’ (*Meta Transparency Center*) <<https://transparency.meta.com/policies/community-standards/hate-speech/>> accessed 19 April 2024.

<sup>37</sup> Notwithstanding laws in Florida and Texas that effectively forestall content moderation, currently under review by the US Supreme Court (see John Kruzel and Andrew Chung, ‘US Supreme Court Torn over Florida, Texas Laws Regulating Social Media Companies’ *Reuters* (26 February 2024) <<https://www.reuters.com/legal/us-supreme-court-weigh-florida-texas-laws-constraining-social-media-companies-2024-02-26/>> accessed 29 April 2024).

<sup>38</sup> Salát (n 18) 255–282.

<sup>39</sup> Seoul Metropolitan Government, ‘Official Release of Metaverse Seoul’ (*Seoul Metropolitan Government*, 25 January 2023) <<https://english.seoul.go.kr/official-release-of-metaverse-seoul/>> accessed 27 April 2024; ‘Metaverse Seoul’ <<https://metaverseseoul.kr/user/>> accessed 27 April 2024.

functions take place in defined spaces, similar arguments for restricting assembly nearby may apply, although platform affordances could make assemblies less disruptive. However, this raises questions about the legitimacy of both the restrictions and the entity issuing them. Not all countries restrict assembly around government buildings, so if governments attempt to do so in IXR, they will potentially be applying more restrictive assembly standards to people who are not physically located in their jurisdiction. While states can apply their laws to anyone, citizen or not, *physically* within their borders, the virtual and transnational nature of IXR raises jurisdiction and thus legitimacy questions.

Other physical world logic may translate into virtual IXR assemblies. Safety concerns could still apply, not necessarily out of concern for bodily harm, but to prevent people from being verbally or emotionally harassed. Platforms may also have an interest in restricting assembly around private virtual property or significant spaces. However, some of this could be mitigated by the affordances of IXR, which could keep people from interacting with an assembly through, for example, avatar invisibility or teleportation, or by blocking it out altogether.

When looking at virtual assemblies themselves, there are clear benefits regarding place. Similar to time, there is no need to travel for a virtual gathering, meaning that individuals and groups from across the world who otherwise would not be able to assemble can participate in a more embodied way. Beyond increasing the number of assemblies a person can participate in, IXR assemblies could have environmental benefits by obviating the need for travel. It also increases accessibility, lowering the cost of participation for all and decreasing barriers to access for individuals with physical disabilities (provided XR equipment is accessible, which is not a given<sup>40</sup>). For demonstrations and other expressive public assemblies, organizers could leverage mediation by

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<sup>40</sup> Kristen French, 'First They Got Sick, Then They Moved Into a Virtual Utopia' [2017] *Wired* <<https://www.wired.com/2017/02/first-they-got-sick-then-they-moved-into-a-virtual-utopia/>> accessed 29 January 2023.

crafting the surrounding environment to promote the message of the assembly. This could be done with AR in physical assemblies to augment, for example, a speaker's talk. AR could also guide people or enhance communication in mass gatherings.

However, like time, place is vulnerable to platform interference. Platforms could encode arbitrary place restrictions in VR settings or interfere with the appearance of surroundings for different users. This is also a risk in physical, AR-enabled gatherings. Additionally, some jurisdictions have objected to people assembling to play AR games and moved to prevent such assemblies (a form of restriction that was ruled to be unconstitutional in the US<sup>41</sup>). Existing IXR platforms may have to deal with similar attempted restrictions.

### *2.3. Impacts on manner*

The 'manner' of assembly can refer to the use of symbolic expression, noise pollution, and aesthetic harm,<sup>42</sup> but will be expanded here to cover the general means and character of assembly.

Restrictions aim to mitigate the impacts of these factors on other people, but the way they translate into IXR varies. In virtual assemblies, no physical destruction is possible, which may be a benefit for other people who use the platform—depending on the rules of the world, any 'destruction' could be instantly repaired—but a drawback for, say, protestors, who may want to leave a physical footprint as a marker of their group action. Similarly, other people in a VR environment could potentially block out the sight or sound of an assembly, which would render a protest, rally, or individual speaking to a crowd irrelevant. Symbolic expression could still cause offense to others who opt to see it (or are unable to opt not to see it, if the platform does not allow for blocking of this kind), but

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<sup>41</sup> Signorelli (n 10).

<sup>42</sup> Salât (n 18) 200.

the use of masks to conceal identity is largely moot.<sup>43</sup> Virtual avatars can be changed at will, concealing identity from other participants and bystanders, but platforms can link avatars to accounts and possibly physical-world identities, meaning there may only be limited privacy possible at virtual assemblies.

Despite these potential drawbacks, IXR seems to be opening new possibilities for assembly. For instance, a demonstration was held in *Horizon Worlds* in 2023 to protest what participants perceived as Meta prioritizing its own events over those of the creator community.<sup>44</sup> Notably, one user claimed this was the first protest he had ever been to out of fear for his safety in the physical world, indicating that VR may be able to increase participation in political assemblies.<sup>45</sup>

There are also potential transformative effects for physical assemblies. AR could provide a new avenue for dynamic symbolic expression projected onto other participants' AR devices without the need to bring the physical symbols—whether on placards, uniforms, or other forms—to an assembly. This speaks to other ways AR could enhance assembly, from private gatherings of friends to public mass gatherings, whether by aiding navigation,<sup>46</sup> recording,<sup>47</sup> or overlaying information about one's surroundings.<sup>48</sup> Organizers or law enforcement equipped with AR image recognition devices could also identify weapons and banned or protected symbols.

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<sup>43</sup> *ibid* 227.

<sup>44</sup> TheRodParticle, 'The First Protest in Metaverse History! Creators Protest in Horizon World Because of Meta's Prioritization of It's Own Events over Creators.' <[www.reddit.com/r/HorizonWorlds/comments/10k6i4d/the\\_first\\_protest\\_in\\_metaverse\\_history\\_creators/](https://www.reddit.com/r/HorizonWorlds/comments/10k6i4d/the_first_protest_in_metaverse_history_creators/)> accessed 26 January 2023.

<sup>45</sup> *ibid*.

<sup>46</sup> *Google Glass: Navigation* (Directed by Phandroid, 2013) <<https://www.youtube.com/watch?v=IZdkIVS53Uw>> accessed 19 April 2024.

<sup>47</sup> *Introducing Apple Vision Pro* (Directed by Apple, 2023) <<https://www.youtube.com/watch?v=TX9qSaGXFyg>> accessed 19 April 2024.

<sup>48</sup> Wes Davis, 'Meta's AI for Ray-Ban Smart Glasses Can Identify Objects and Translate Languages' (*The Verge*, 12 December 2023) <<https://www.theverge.com/2023/12/12/23998780/ray-ban-smart-glasses-hey-meta-multimodal-ai-features>> accessed 19 April 2024.

However, this creates privacy concerns through the extension of AR image recognition to facial recognition. While footage of protests has been analyzed after the fact to identify and target individual protestors,<sup>49</sup> law enforcement doing live facial recognition could lead to the real-time targeting of protestors. This risk to human rights is what led the EU to ban real-time biometric identification for law enforcement in *physical* spaces in the new AI Act,<sup>50</sup> but it is still permitted in many other jurisdictions. Virtual spaces could also facilitate similar biometric recognition, which would not be banned under the AI Act or in other jurisdictions. This constant observation and corresponding threat of interference may create a chilling effect<sup>51</sup> that makes people less likely to participate in virtual protests, especially considering the extensive data trail left in IXR that could be obtained by law enforcement via court order. Although the *physical* impact of preventing an avatar from participating in a virtual protest would be less than detaining a person, the psychological impact on the individual and social impact on the protest may be similar. However, this depends on whether virtual protests are as effective as physical ones. Virtual protests could turn into a new form of ‘clicktivism,’ a coin termed to describe the act of clicking a button to sign an online petition,<sup>52</sup> which raised concerns that it would supplant physical activism.<sup>53</sup> Although the true impact of clicktivism on activism is debated,<sup>54</sup> virtual protests could potentially supplant physical world activism as a less politically effective alternative. While real people committing their time to an assembly would seem to preserve the essence of what makes an assembly consequential, platform

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<sup>49</sup> Darren Loucaides, ‘How Governments Are Using Facial Recognition to Crack down on Protesters’ (*Rest of World*, 27 March 2024) <<https://restofworld.org/2024/facial-recognition-government-protest-surveillance/>> accessed 19 April 2024.

<sup>50</sup> European Parliament legislative resolution of 13 March 2024 on the proposal for a regulation of the European Parliament and of the Council on laying down harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union Legislative Acts (COM(2021)0206 – C9-0146/2021 – 2021/0106(COD)) 9\_TA.

<sup>51</sup> Hine and others (n 5).

<sup>52</sup> Max Halupka, ‘Clicktivism: A Systematic Heuristic’ (2014) 6 Policy & Internet 115.

<sup>53</sup> Evgeny Morozov, ‘The Brave New World of Slacktivism’ (*Foreign Policy*, 22 April 2024) <<https://foreignpolicy.com/2009/05/19/the-brave-new-world-of-slacktivism/>> accessed 19 April 2024.

<sup>54</sup> Halupka (n 52).

and avatar mediation means that people could feasibly send an avatar to attend without being present themselves, similar to how Google is integrating an AI-powered ‘attend for me’ function into its product suite.<sup>55</sup> Furthermore, some assemblies are dependent on bodily presence in a physical space, such as the series of pro-Palestinian encampments established at universities across the globe in the spring of 2024.<sup>56</sup> Their message is tied to the physicality of the encampments and protestors and would thus be less effective in a virtual setting. While virtual assemblies offer the opportunity to overcome practical obstacles of time and place, as well as state restrictions on the same, their ephemeral footprint and lower barrier to entry imply that virtual protests and other forms of public expressive assembly may be more accessible yet less effective.

The possibility of physical violence is why the right to assembly was not legally recognized outside the US (where it was linked to the right to petition) until the mid-19<sup>th</sup> century.<sup>57</sup> Even today, only ‘peaceful’ assembly is protected, and many time, place, and manner restrictions aim to reduce the possibility of violence.<sup>58</sup> Virtual assembly, which reduces the possibility of physical violence, may eventually cause us to reconceptualize assembly or see it evolve into something else altogether, just as it grew out of the right to petition. Physical assembly may be affected by IXR technologies but will still retain its essential character. Incorporating XR technologies into physical assemblies can

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<sup>55</sup> ‘Duet AI for Google Workspace Now Generally Available’ (*Google Workspace Blog*) <<https://workspace.google.com/blog/product-announcements/duet-ai-in-workspace-now-available>> accessed 19 April 2024.

<sup>56</sup> Cailey Gleeson, ‘Pro-Palestinian Campus Protests Are Happening Around The Globe—Following Encampments At Columbia And UCLA’ (*Forbes*, 7 May 2024) <<https://www.forbes.com/sites/caileygleeson/2024/05/03/pro-palestine-campus-protests-are-happening-around-the-globe-following-encampments-at-columbia-and-ucla/>> accessed 13 May 2024.

<sup>57</sup> Salát (n 18) 11.

<sup>58</sup> This standard is sometimes but not always applied to freedom of expression, although it is more difficult to determine its scope. For instance, incitements to violence are not protected in most jurisdictions. However, hate speech is criminalized in the EU but protected by the First Amendment in the US (Sionaidh Douglas-Scott, ‘The Hatefulness of Protected Speech: A Comparison of the American and European Approaches’ (1998) 7 *William & Mary Bill of Rights Journal* 305; Nina Peršak, ‘Criminalising Hate Crime and Hate Speech at EU Level: Extending the List of Eurocrimes Under Article 83(1) TFEU’ (2022) 33 *Criminal Law Forum* 85.).

help augment the experience for participants, but also create concerns about biometric observation by law enforcement and interference by platforms. While virtual assembly is not precisely the same as physical assembly, the similarities—as well as the potential for IXR-enabled physical assembly—require protection, especially considering the UN’s acknowledgment that online assembly is deserving of protection. In the next section, we will discuss the implications of XR for freedom of expression.

### 3. Risks and benefits to the freedom of expression

Freedom of expression is a complex and nuanced subject. The UDHR states that ‘[e]veryone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers’ (Art. 19).<sup>59</sup> The phrase ‘through any media and regardless of frontiers’ would seemingly include IXR within the scope of the right; indeed, the UN interprets it to include ‘electronic and internet-based modes of expression,’<sup>60</sup> but what qualifies as protected speech—including online and possibly in IXR—varies from jurisdiction to jurisdiction.<sup>61</sup> Based on sources from the literature review, we categorize expression as ‘commercial,’ ‘political,’ and ‘other,’ which includes both ‘controversial’ and ‘non-controversial’ expression.<sup>62</sup> While in some cases there may be overlap with freedom of assembly, this section focuses on the purpose and content of expression, which also

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<sup>59</sup> United Nations General Assembly (n 24).

<sup>60</sup> United Nations Human Rights Committee, ‘General Comment No. 34, Article 19, Freedoms of Opinion and Expression’ 34 <<https://digitallibrary.un.org/record/715606>> accessed 11 April 2024.

<sup>61</sup> Roya Bagheri, ‘Virtual Reality: The Real Life Consequences’ (2016) 17 UC Davis Business Law Journal 101.

<sup>62</sup> Eric Barendt, *Freedom of Speech* (Oxford University Press 2007) <<https://academic-oup-com.kuleuven.e-bronnen.be/book/1532>> accessed 16 March 2024; TM Jr Scanlon, ‘Freedom of Expression and Categories of Expression’ (1978) 40 University of Pittsburgh Law Review 519; David E Guinn, ‘Philosophy and Theory of Freedom of Expression’ (17 September 2005) <<https://papers.ssrn.com/abstract=801344>> accessed 29 March 2024; Vincenzo Zeno-Zencovich, *Freedom of Expression: A Critical and Comparative Analysis* (Routledge-Cavendish 2008).

covers the expressive content of assemblies while separating it from the modality of assembly discussed in the previous section. We will again first look at potential benefits, then risks.

### 3.1. Impacts on commercial expression

VR and AR are already being used in commercial expression in a variety of contexts. AR is used in non-immersive contexts to bring static physical advertisements to life and to showcase advertiser content through filters,<sup>63</sup> like Snapchat's Sponsored Lenses.<sup>64</sup> AR has also been combined with e-commerce to show potential customers how an IKEA product would fit in their home or a Nike shoe look on their feet.<sup>65</sup> These non-immersive examples provide precedent for immersive AR advertising applications, which would make them even more immersive and potentially involuntary.

VR advertising also takes several forms, including those similar to the physical world (e.g., virtual billboards<sup>66</sup>), immersive equivalents to traditional web advertising (e.g., video pre-roll ads<sup>67</sup>), and branded experiences or events (e.g., immersive franchise experiences, virtual product placements, and virtual spokespeople<sup>68</sup>). The sale of virtual goods can also be construed as

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<sup>63</sup> Brittan Heller and Avi Bar-Zeev, 'The Problems with Immersive Advertising: In AR/VR, Nobody Knows You Are an Ad' (2021) 1 Journal of Online Trust and Safety <<https://tsjournal.org/index.php/jots/article/view/21>> accessed 26 March 2023.

<sup>64</sup> 'Sponsored Lenses Overview' (*Business Help Center*) <[https://businesshelp.snapchat.com/s/article/lenses?language=en\\_US](https://businesshelp.snapchat.com/s/article/lenses?language=en_US)> accessed 16 April 2024.

<sup>65</sup> Heller and Bar-Zeev (n 63); 'Nike Is Using Augmented Reality to Drive Experiential Retail in Its Stores' (*Future Stores* 2024) <<https://futurestores.wbresearch.com/blog/nike-using-augmented-reality-drive-experiential-retail-stores>> accessed 19 April 2024; Ayda Ayoubi, 'IKEA Launches Augmented Reality Application' (*Architect*, 21 September 2017) <<https://www.architectmagazine.com/technology/ikea-launches-augmented-reality-application>> accessed 16 April 2024.

<sup>66</sup> Ralf Schmälzle and others, 'The VR Billboard Paradigm: Using VR and Eye-Tracking to Examine the Exposure-Reception-Retention Link in Realistic Communication Environments' (bioRxiv, 6 June 2023) <<https://www.biorxiv.org/content/10.1101/2023.06.03.543559v1>> accessed 19 April 2024.

<sup>67</sup> 'Is Virtual Reality the Next Frontier for Video Serving and Pre Roll Advertising?' (*Oculus Video Platform*, 11 November 2014) <<https://oculu.com/is-virtual-reality-the-next-frontier-for-video-serving-and-pre-roll-advertising/>> accessed 19 April 2024.

<sup>68</sup> Heller and Bar-Zeev (n 63); Louis Rosenberg, 'Deception vs Authenticity: Why the Metaverse Will Change Marketing Forever' (*VentureBeat*, 21 August 2022) <<https://venturebeat.com/ai/deception-vs-authenticity-why-the-metaverse-will-change-marketing-forever/>> accessed 2 December 2022.

advertisements for a brand's physical goods, exemplified by luxury brands' sale of non-fungible tokens (NFTs) during the 'Web 3.0' boom.<sup>69</sup>

However, these technologies could compromise individuals' autonomy by becoming overly coercive and nudging. Immersive, mediated contexts make advertising disclosure, required in many jurisdictions, extremely difficult: how does a platform notify an individual that a person or avatar near them only appears to be wearing a branded shirt because that brand paid for it?<sup>70</sup> These scenarios raise questions about the nonconsensual distortion of reality, both virtual and physical, and the possible infringement on individual freedom of expression if their bodies and property are used in effect as advertising canvases. Other risks of IXR advertising include misleading experience marketing (where the virtual representation of a product or experience is doctored), inducing artificial emotions, targeting consumers in a vulnerable state, and emotional manipulation through hyper-personalization.<sup>71</sup> Many of these risks implicate consumer protection and unfair commercial practices legislation that vary by jurisdiction. While these advertising practices could be construed as permitting corporate freedom of expression, they could infringe on individual autonomy and decisional privacy,<sup>72</sup> and (along with other manipulative techniques) be thought of as a violation of the freedom to 'hold opinions without interference' as mentioned in Article 19 of the UDHR.<sup>73</sup>

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<sup>69</sup> Jackie Berardo, 'Gucci, Louis Vuitton, And Dior Bring "Quiet Luxury" To Crypto In 2024' (*Forbes*, 1 March 2024) <<https://www.forbes.com/sites/digital-assets/2024/03/01/gucci-louis-vuitton-and-dior-bring-quiet-luxury-to-crypto-in-2024/>> accessed 19 April 2024.

<sup>70</sup> Rosenberg (n 68).

<sup>71</sup> Abraham Hani Mhaidli and Florian Schaub, 'Identifying Manipulative Advertising Techniques in XR Through Scenario Construction', *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (Association for Computing Machinery 2021) <<https://dl.acm.org/doi/10.1145/3411764.3445253>> accessed 23 July 2023.

<sup>72</sup> Rosenberg (n 68); Hine and others (n 5); Joseph O'Hagan and others, 'Augmenting People, Places & Media: The Societal Harms Posed by Everyday Augmented Reality, and the Case for Perceptual Human Rights', *Proceedings of the 22nd International Conference on Mobile and Ubiquitous Multimedia* (Association for Computing Machinery 2023) <<https://dl.acm.org/doi/10.1145/3626705.3627782>> accessed 20 February 2024.

<sup>73</sup> United Nations General Assembly (n 24).

### 3.2. *Impacts on political expression*

IXR may offer new ways to engage in political campaigns. For instance, Indian Prime Minister Narendra Modi has appeared in physical places as a hologram;<sup>74</sup> a similar strategy could be employed in VR or with AR devices. Furthermore, AR could augment political speeches or debates, and VR could allow for immersive attendance from afar. As mentioned above, government-owned IXR platforms could also serve as places for government services and thus may be places where political expression is restricted. IXR may also be a place where government employee expression is restricted, such as how the UK requires civil servants to remain politically impartial,<sup>75</sup> which would restrict their ability to participate in political expression in IXR.

As discussed above, IXR can facilitate physical protests and create new modalities of virtual protest that could promote political expression, although it may also create a new form of ‘clicktivism’ that decreases the efficacy of virtual political expression. Furthermore, political expression in IXR is also subject to the whims of the mediating platform, which could restrict specific individuals, media outlets, or movements; social media platforms have already been accused of targeting critical newspapers.<sup>76</sup> Platforms have a commercial incentive to disallow specific forms of speech to remain palatable to their userbase. This is why, even though hate speech is not illegal in many jurisdictions (including the US), many platforms nonetheless ban it. However, there are often discrepancies between what is allowed on a platform and local laws, such as *lèse-majesté* (offense

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<sup>74</sup> Chris Welch, ‘Indian Politician Morphs into Hologram to Reach Millions of Voters’ (*The Verge*, 7 May 2014) <<https://www.theverge.com/2014/5/7/5691714/indian-politician-uses-holograms-to-reach-voters>> accessed 19 April 2024.

<sup>75</sup> ‘The Civil Service Code’ (*GOV.UK*) <<https://www.gov.uk/government/publications/civil-service-code/the-civil-service-code>> accessed 28 April 2024.

<sup>76</sup> Allison Morrow, ‘Meta Is Accused of Censoring a Non-Profit Newspaper and an Independent Journalist Who Criticized the Company’ (*CNN*, 5 April 2024) <<https://www.cnn.com/2024/04/05/tech/meta-nonprofit-newspaper-independent-journalist-alleged-censorship/index.html>> accessed 6 April 2024.

against the state or head of state, illegal in parts of Southeast Asia<sup>77</sup> and Europe<sup>78</sup>) or LGBTQ+ expression (criminalized in various forms in Russia, Uganda, and multiple other countries<sup>79</sup>). While content can be restricted on country-specific versions of social media platforms, the international nature of modern VR platforms makes localized content restrictions more difficult.<sup>80</sup> This may lead to states pressuring IXR platforms to remove otherwise permissible content on threat of restriction or banning, which they may accede to in order to preserve their market share.<sup>81</sup> This threatens not only individual freedom of expression, but also the right to ‘receive and impart information and ideas.’ If content is restricted more widely than is legally necessary, then both the expressor and those rendered unable to access their ideas suffer.

Whatever decisions platforms make about what expression is permissible can trigger further political expression by users that leverages the platform itself, as seen in the aforementioned *Horizon Worlds* protest that was protesting Meta’s own policies. If IXR platforms end up being community-governed, a possibility we discuss more in Section 4, political participation may become normalized and widespread as in the physical world, rather than one-off events.

### 3.3. *Impacts on other expression*

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<sup>77</sup> Samantha Holmes, ‘Blog: How Lèse-Majesté Laws Are Eroding Free Speech in Southeast Asia’ (*ARTICLE 19*, 19 August 2022) <<https://www.article19.org/resources/lese-majeste-laws-eroding-free-speech-southeast-asia/>> accessed 19 April 2024.

<sup>78</sup> Antonia Zimmerman, ‘European Countries Where Insulting the Head of State Can Land You in Prison’ (*POLITICO*, 25 March 2021) <<https://www.politico.eu/article/european-countries-where-insulting-head-of-state-can-land-prison-belgium-denmark-france-germany/>> accessed 19 April 2024.

<sup>79</sup> Jamie Wareham, ‘New Maps Show Where It’s Illegal To Be LGBTQ In 2023’ (*Forbes*, 7 April 2023) <<https://www.forbes.com/sites/jamiewareham/2023/04/07/new-maps-show-where-its-illegal-to-be-lgbtq-in-2023/>> accessed 19 April 2024; Emmie Hine, ‘Content Moderation in the Metaverse Could Be a New Frontier to Attack Freedom of Expression’ (2023) 36 *Philosophy & Technology* 43.

<sup>80</sup> Hine, ‘Content Moderation in the Metaverse Could Be a New Frontier to Attack Freedom of Expression’ (n 79); Mateus De Oliveira Fornasier, ‘Freedom of Expression and the Metaverse: On the Importance of Content Creation for the Emergence of a Complex Environment’ (2024) 10 *Revista de Investigações Constitucionais* e236.

<sup>81</sup> Hine, ‘Content Moderation in the Metaverse Could Be a New Frontier to Attack Freedom of Expression’ (n 79).

Other forms of expression include what here we dub ‘controversial expression,’ which is often *not* protected by different countries’ interpretations of freedom of expression, and expression that is non-commercial and not explicitly political, which *is* protected to various degrees in different jurisdictions.

### *3.3.1. Controversial expression*

Cases under the umbrella of ‘controversial expression’ involve unprotected expression in jurisdictions that otherwise protect expression from interference, such that it can be regulated by the state even in relatively unrestrictive regimes. Thus, although there is overlap with political expression, there is less agreement on its permissiveness. Some of this expression is criminalized in some or many jurisdictions; much of it is prohibited on existing online platforms. Controversial expression can be categorized based on normative coherence and legislative thresholds. Some expression is universally agreed to be illegal (such as child sexual abuse material (CSAM)), while other lacks such agreement (such as Holocaust denial). Within these, some issues have strong substantive convergence in legislation—either near-universal criminalization or agreement on how other countries should regulate it—while others lack such agreement;<sup>82</sup> see Table 1: Matrix of controversial expression regulation, adapted from the Cross-Border Content Moderation Toolkit.

*Table 1: Matrix of controversial expression regulation, adapted from the Cross-Border Content Moderation Toolkit<sup>83</sup>*

|  | <b>Universal agreement on<br/>illegality</b> | <b>No universal agreement on<br/>illegality</b> |
|--|----------------------------------------------|-------------------------------------------------|
|  |                                              |                                                 |

<sup>82</sup> Internet & Jurisdiction Policy Network, ‘Toolkit Cross-Border Content Moderation’ <<https://www.internetjurisdiction.net/uploads/pdfs/Internet-Jurisdiction-Policy-Network-21-104-Toolkit-Cross-border-Content-Moderation-2021.pdf>> accessed 16 May 2023.

<sup>83</sup> *ibid.*

|                                                       |            |                   |
|-------------------------------------------------------|------------|-------------------|
| <b>Agreement on threshold/legislative criteria</b>    | CSAM       | Holocaust denial  |
| <b>No agreement on threshold/legislative criteria</b> | Defamation | LGBTQ+ expression |

Hate speech and targeted harassment based on identity signals are already a widespread problem in IXR, specifically on social VR platforms.<sup>84</sup> At the root is the nature of IXR as a mediated platform. The online disinhibition effect,<sup>85</sup> which sees people behave worse online when they are anonymous, and the ‘just a game’ mentality,<sup>86</sup> where people dismiss harmful impacts in virtual environments, together facilitate harassment. Countering this form of harassment is difficult, even allowing for the possibility of automated content moderation, because in IXR, content moderation is actually *conduct* moderation, which is inherently more challenging than moderating content. Platforms can train machine learning (ML) models to detect images of nudity, violence, terroristic speech, or other prohibited content, and images are cross-checked against databases of known CSAM and copyrighted images.<sup>87</sup> While some IXR content, such as AR overlays, is well-defined enough for technical measures to potentially be effective, other forms of content are more difficult. Consider, for example, the ‘Qniverse’, created by *Buzzfeed* journalists as an experiment in Meta’s *Horizon Worlds*

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<sup>84</sup> Hine and others (n 5); Hine, ‘Virtual Reality, Cyberspace, and Embodiment’ (n 2); Lindsay Blackwell and others, ‘Harassment in Social Virtual Reality: Challenges for Platform Governance’ (2019) 3 Proceedings of the ACM on Human-Computer Interaction 100:1.

<sup>85</sup> John Suler, ‘The Online Disinhibition Effect’ (2004) 7 Cyberpsychology & Behavior: The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society 321.

<sup>86</sup> Katherine Angel Cross, ‘Ethics for Cyborgs: On Real Harassment in an “Unreal” Place’ (2014) 8 Loading... The Journal of the Canadian Game Studies Association  
<<https://journals.sfu.ca/loading/index.php/loading/article/view/140>> accessed 2 April 2024.

<sup>87</sup> Internet & Jurisdiction Policy Network (n 82).

social VR platform.<sup>88</sup> This virtual world was festooned with conspiratorial phrases and soundtracked to conspiracy theorist Alex Jones, who (along with his company *InfoWars*'s pages) had previously been banned from Facebook.<sup>89</sup> This seemed to go against Meta's Terms of Service, but despite reporting the virtual world to Meta twice, no action was taken. The platform was likely relying primarily on human moderation, perhaps because training an ML model to detect VR worlds that violate content standards is too difficult, especially considering the importance of context and the potential for parody or satire. Still, even human moderators can have difficulty accounting for these, and human moderation is more difficult to scale. These limitations are especially pronounced when dealing with live conduct, which faces the technical issues of live streaming combined with the social issues of interactive, immersive social platforms. Existing live interaction platforms already struggle with harm prevention. Live audio platform Clubhouse relies mostly on individual reporting and volunteer moderators, resulting in a system that prioritizes post-facto remedies.<sup>90</sup> While some platforms and companies are working on technical solutions for audio<sup>91</sup> and video monitoring,<sup>92</sup> these do not solve the social problems like the online disinhibition effect that encourage antisocial behavior in IXR.

Beyond antisocial behavior like that seen in the physical world, IXR also creates a new avenue for harassment and defamation through avatar deepfakes. Rather than creating a fake image

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<sup>88</sup> Emily Baker-White, 'Meta Wouldn't Tell Us How It Enforces Its Rules In VR, So We Ran A Test To Find Out' *Buzzfeed News* (11 February 2022) <<https://www.buzzfeednews.com/article/emilybakerwhite/meta-facebook-horizon-vr-content-rules-test>> accessed 26 January 2023.

<sup>89</sup> Oliver Darcy, 'Louis Farrakhan, Alex Jones and Other "Dangerous" Voices Banned by Facebook and Instagram' (*CNN Business*, 2 May 2019) <<https://www.cnn.com/2019/05/02/tech/facebook-ban-louis-farrakhan-infowars-alex-jones-milo-laura-loomer/index.html>> accessed 19 April 2024.

<sup>90</sup> 'On Community Moderation' (*Clubhouse Blog*, 2 October 2020) <<https://blog.clubhouse.com/on-community-moderation/>> accessed 19 April 2024.

<sup>91</sup> 'Yubo Scales Real-Time Audio Moderation Technology across Four Major International Markets' (*Yubo*) <<https://www.yubo.live/newsroom/yubo-scales-real-time-audio-moderation-technology-across>> accessed 19 April 2024.

<sup>92</sup> 'Live Streaming Moderation' (*VerifyMyContent*) <<https://verifymycontent.com/live-streaming>> accessed 19 April 2024.

or video of an individual, a realistic full-body avatar could be created to show an individual in explicit or compromising situations.<sup>93</sup> 98% of existing deepfake videos are pornographic, and 99% of those are of women;<sup>94</sup> deepfake avatar content will likely be similarly targeted. Additionally, several sources from the literature review reference the use of IXR for child sexual exploitation<sup>95</sup> and the creation of child sexual abuse material (CSAM).<sup>96</sup> This falls under the category of expression that is widely banned and widely accepted as not deserving of protection, as does speech inciting terrorism, which one source argues should not be prohibited in VR video games.<sup>97</sup> However, due to its immersive and embodied nature, IXR could be a tool for not just ‘terroristic speech’ but terroristic planning and training<sup>98</sup> and thus must be considered differently from traditional video games and social media. Along with CSAM, detecting this content often carries the legal duty for platforms to report it to national authorities.

As a result of these difficulties, controversial expression may proliferate in IXR. While some may claim that it is their right to engage in such expression, most jurisdictions agree that things like CSAM are not only not protectable expression, but are illegal because of the harm that they cause. Still other forms of expression, such as hate speech, may be protected by the state, but banned by most online platforms because they make the online platform a worse place to be. Were platforms to allow unfettered freedom of expression on IXR platforms, they would be dangerous places for

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<sup>93</sup> Jason Zenor, ‘Sins of the Flesh? Obscenity Law in the Era of Virtual Reality’ (2014) 19 Communication Law and Policy 563.

<sup>94</sup> ‘2023 State Of Deepfakes: Realities, Threats, And Impact’ <<https://www.homesecurityheroes.com/state-of-deepfakes/#key-findings>> accessed 19 April 2024.

<sup>95</sup> Justine Wagner, ‘Immersive Virtual Reality: Minnesota Legislature’s Opportunity to Protect Children from Sexual Exploitation by Enacting a Well-Defined Criminal Statute’ (2019) 46 Mitchell Hamline Law Review 407.

<sup>96</sup> Lillian Esposito, ‘Sexual Ageplay in Virtual Reality: Practicing Free Speech Or Producing Child Pornography Part II: Sex & Gender in the Twenty-First Century: Notes’ (2018) 40 Cardozo Law Review 1913.

<sup>97</sup> Robert Hupf, ‘Step into the Game: Assessing the Interactive Nature of Virtual Reality Video Games through the Context of Terroristic Speech’ (2014) 19 Virginia Journal of Law & Technology 602.

<sup>98</sup> Hine and others (n 5).

the vulnerable groups who are often the targets of controversial expression. Thus, even when we accept the protection of this kind of expression in the physical world, we need not accept it in a virtual world. Unlike assemblies, which are restricted in part for fear of physical harm and damage, expression can be harmful regardless of venue, creating compelling reasons to restrict it and thus more implicit legitimacy for platforms to make that trade-off. As a result, while IXR may have fewer justifiable restrictions on assembly, it may have more on expression.

### 3.3.2. *Non-controversial expression*

IXR opens up new modalities and opportunities for visual art, performance art, and storytelling.<sup>99</sup> Artists have used IXR to virtually display art in public spaces, augment existing art, and create immersive galleries.<sup>100</sup> Musicians including Doja Cat,<sup>101</sup> Imagine Dragons,<sup>102</sup> and Blackpink<sup>103</sup> have already held concerts in VR, using them as an opportunity to provide exclusive experiences to fans and create different concert experiences than would be possible in the physical world. This ‘embodied spectatorship’ immersive performances facilitate is hailed as a new way to ‘explore spaces between intimacy and distance, between different modes of perception, between the actual and the

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<sup>99</sup> Fornasier (n 80). We separate artistic expression from political expression while acknowledging that at least some artistic endeavors are political and that there is some debate about whether art is inherently political (see Muddasir Ramzan, “‘Making up Stories Is an Inherently Political Act’: Mohsin Hamid in Conversation” (2023) 59 *Journal of Postcolonial Writing* 113.).

<sup>100</sup> Zach Mortice, ‘Augmented Reality Art Makes the Entire World a Canvas’ (*Autodesk*, 21 January 2022) <<https://www.autodesk.com/design-make/articles/augmented-reality-art>> accessed 16 April 2024; Lee Down, ‘Virtual Reality and the Future of Art Exhibitions’ (*AAA*, 13 May 2023) <<https://artsartistsartwork.com/virtual-reality-and-the-future-of-art-exhibitions/>> accessed 16 April 2024; Manuel Charr, ‘How Museums Are Using Augmented Reality’ (*MuseumNext*, 1 February 2024) <<https://www.museumnext.com/article/how-museums-are-using-augmented-reality/>> accessed 16 April 2024.

<sup>101</sup> ‘Experience Doja Cat’s Concert in VR’ (*Meta*, 9 January 2024) <<https://about.fb.com/news/2024/01/doja-cat-vr-concert/>> accessed 16 April 2024.

<sup>102</sup> ‘Live Concert: Imagine Dragons’ (*Meta Quest*) <<https://www.oculus.com/experiences/event/1606699232705927/>> accessed 16 April 2024.

<sup>103</sup> Nwanji (n 9).

virtual,<sup>104</sup> offering artists new ways to express themselves and create their work, and audiences a new way to experience it.<sup>105</sup>

Because of its intimacy and immersiveness, IXR performance art begins to bleed into storytelling, but there are more specific storytelling efforts at both the macro and micro levels. IXR has been used to promote tourism and cultural experiences, telling historical tales and the stories of groups of people.<sup>106</sup> VR has often been hailed as an ‘empathy machine’<sup>107</sup> that allows individuals to ‘walk in someone else’s shoes’ through immersive storytelling, but experimental evidence for its efficacy over that of other media is limited,<sup>108</sup> and it has been suggested that VR ‘automates’ racial empathy by outsourcing ‘labor of compassion’ and trafficking in new forms of identity tourism.<sup>109</sup> Still, IXR is unique in that it enables high levels of representational, participatory, affective, and narrative immersion, which makes it an effective storytelling tool and perhaps one that *can* create empathy, albeit when designed with similar levels of care and thoughtfulness as empathy-inspiring traditional media,<sup>110</sup> offering new opportunities for creatives to present their stories to the public.

While IXR offers new opportunities for artists to express their artistic visions and connect with their audiences, it also creates potential obstacles to freedom of expression, especially regarding

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<sup>104</sup> Harry Robert Wilson, ‘New Ways of Seeing, Feeling, Being: Intimate Encounters in Virtual Reality Performance’ (2020) 16 *International Journal of Performance Arts and Digital Media* 114.

<sup>105</sup> Sophy Smith, ‘Dance Performance and Virtual Reality: An Investigation of Current Practice and a Suggested Tool for Analysis’ (2018) 14 *International Journal of Performance Arts and Digital Media* 199.

<sup>106</sup> Julia Beck, Mattia Rainoldi and Roman Egger, ‘Virtual Reality in Tourism: A State-of-the-Art Review’ (2019) 74 *Tourism Review* 586.

<sup>107</sup> *How Virtual Reality Can Create the Ultimate Empathy Machine* (2015) <[https://www.ted.com/talks/chris\\_milk\\_how\\_virtual\\_reality\\_can\\_create\\_the\\_ultimate\\_empathy\\_machine](https://www.ted.com/talks/chris_milk_how_virtual_reality_can_create_the_ultimate_empathy_machine)> accessed 16 April 2024.

<sup>108</sup> Carles Sora-Domenjó, ‘Disrupting the “Empathy Machine”: The Power and Perils of Virtual Reality in Addressing Social Issues’ (2022) 13 *Frontiers in Psychology* <<https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2022.814565/full>> accessed 16 April 2024.

<sup>109</sup> Lisa Nakamura, ‘Feeling Good about Feeling Bad: Virtuous Virtual Reality and the Automation of Racial Empathy’ (2020) 19 *Journal of Visual Culture* 47.

<sup>110</sup> Magdalena Balcerak Jackson and Brendan Balcerak Jackson, ‘Immersive Experience and Virtual Reality’ (2024) 37 *Philosophy & Technology* 19.

individual self-expression. IXR can enhance self-expression by allowing people to selectively convey information about their identities and adapt their appearance to specific contexts through AR filters and VR avatars.<sup>111</sup> The mediating platform company decides what avatar customizations are possible and thus who can express their identities in IXR.<sup>112</sup> As previously discussed, hate speech and harassment are rife on IXR platforms, which chills people's willingness to embody avatars that represent their true identities.<sup>113</sup> As a result, even when technologically possible, not everyone is able to express themselves with equal levels of protection, meaning that some are able to more fully exercise their freedom of expression. This line of reasoning is similar to the one around state actors discussed above, but on this level deals with user behavior and platform culture rather than government beliefs and priorities.

The final topic we will discuss related to IXR and expression is another risk that may be an opportunity. With the introduction of new technologies has often come a panic about how it will change standards of social interaction in the physical world. At the root of this fear are uncertainties around evolving self-expression. When commentators suggest that a man in an Apple Vision Pro ad must not be a good father because he is wearing a headset to take photos of his children, they are saying that his self-expression does not match the expected self-expression of an active father.<sup>114</sup> However, as our perceptions of people wearing smartwatches and headphones in public changed (from 'rude' to normalized), so too may our perceptions of people wearing IXR devices in public.<sup>115</sup>

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<sup>111</sup> O'Hagan and others (n 72).

<sup>112</sup> Hine, 'Virtual Reality, Cyberspace, and Embodiment' (n 2).

<sup>113</sup> *ibid*; Kelsea Schulenberg and others, "'Creepy Towards My Avatar Body, Creepy Towards My Body': How Women Experience and Manage Harassment Risks in Social Virtual Reality' (2023) 7 Proceedings of the ACM on Human-Computer Interaction 236:1.

<sup>114</sup> Nilay Patel, 'I Wore the Apple Vision Pro. It's the Best Headset Demo Ever.' (*The Verge*, 6 June 2023) <<https://www.theverge.com/2023/6/5/23750003/apple-vision-pro-hands-on-the-best-headset-demo-ever>> accessed 19 April 2024.

<sup>115</sup> Hine, 'Extended Reality Is a Fundamentally Mediated Reality' (n 15).

While this may not appear to be an extremely pressing concern, the idea that IXR may change standards of self-expression and thus who is able to express what and where is one that should be taken seriously.

#### 4. Discussion

As the UN itself acknowledges, we do not leave our human rights at the virtual door. However, the precise extent to which IXR presents truly novel concerns about freedoms of assembly and expression is difficult to ascertain. While freedoms of assembly and expression should be acknowledged in virtual environments, including in IXR, allowing unfettered expression in IXR will cause disparate impacts for vulnerable communities and threaten the usability and commercial viability of IXR platforms. However, any restriction on fundamental rights is, understandably, a weighty topic. While some restrictions are accepted in some online spaces, like traditional social media platforms, they pose increased concerns in IXR. Just as safety and privacy are of greater concern in IXR than on social media because of its immersiveness and interactivity,<sup>116</sup> IXR provides a more dynamic way to exercise freedoms of assembly and expression, and so restricting them correspondingly restricts those opportunities.

While we do not abandon our human rights in the virtual sphere, there is no easy way to determine how they may apply. As discussed above, the level of embodiment of a virtual experience is crucial to the amount of impact it has on a person and their expressive rights. However, the fact remains that IXR platforms, like most other internet platforms, are owned and operated by private companies, not the government. Although platform companies are theoretically bound by the

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<sup>116</sup> Hine and others (n 5).

Guiding Principles to respect human rights, the lack of clarity around IXR and the absence of enforcement mechanisms makes this an imperfect mechanism. Furthermore, granting such control over human rights to private companies in immersive contexts raises major questions of legitimacy because of the potentially heightened impacts on individuals. In this section, we argue for a novel conception of human rights in the virtual domain that considers the level of virtual embodiment together with a version of the public function and fair procedure doctrines derived from US caselaw, then consider possible alternative governance models.

The public function doctrine is a subset of state action doctrine that holds that private actors are responsible for upholding constitutional rights if they play the role of a state actor. It was initially developed in *Marsh v. Alabama*,<sup>117</sup> a case decided by the US Supreme Court that held that a privately owned company town had to uphold free speech rights because the company took on the functions of a state and thus had a corresponding responsibility to uphold constitutional rights, as the government would if the town was not privately owned.<sup>118</sup> While the public function doctrine has had a mixed record in its application to the Internet in the US (with *Cyber Promotions v. America Online*<sup>119</sup> ruling that AOL's operation of email servers did not count as a public function), we are not arguing about the law in any particular jurisdiction.<sup>120</sup> Rather, we are arguing that the ideas behind this doctrine can inform how we think about human rights online. Thus, although the idea originates

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<sup>117</sup> *Marsh v Alabama* (114AD) 326 US 501 (Supreme Court); William A Diamond, 'State Action and the Public Function Doctrine: Are There Really Public Functions?' (1979) 13 University of Richmond Law Review.

<sup>118</sup> There is a second possible reading of *Marsh*: that the application of a facially neutral law in a way that cuts off one's access to a private town is state action, but it has more often been interpreted to be about private actors taking on state functions, which we adopt here (see Molly Shaffer Van Houweling, 'Sidewalks, Sewers and State Action in Cyberspace' (June 2000) <<https://cyber.harvard.edu/is02/readings/stateaction-shaffer-van-houweling.html>> accessed 18 April 2024.).

<sup>119</sup> *Cyber Promotions, Inc v American Online, Inc* (1996) 948 F Supp 436 (Dist Court).

<sup>120</sup> Even within the US, the doctrine has been applied differently by different states; in California, the owners of shopping malls cannot restrict expression like soliciting petition signatures (Shaffer Van Houweling (n 118); *PruneYard Shopping Center v Robins* (1980) 447 US 74 (Supreme Court).

in US case law, our conceptual discussion is independent of any specific judicial ruling in any particular jurisdiction.

While it is often claimed that social media is the ‘new town square,’ it has not been legally recognized as such. Traditional social media, while an important method of communication in the modern era, is not embodied. While a full ban from all social media by the state may violate one’s right to freedom of expression (as found by the US Supreme Court<sup>121</sup>) it is generally accepted that individual platforms have the right to moderate their platforms as they see fit, including banning users that misuse the platform, but also an obligation to remove and report illegal content. However, IXR is a set of immersive media, and thus the metaphor of the ‘town square’ is much more apt in that it can be an immersive space where one can declaim to a group of others and express themselves in more and different ways than in non-immersive virtual spaces.<sup>122</sup> If IXR platforms begin suppressing specific forms of assembly or expression, that would be a more severe restriction on those rights than banning a social media group or removing a post. Taken to their logical conclusion, moderation methods like using the affordances of code to disperse an assembly to silence a speaker would be equivalent to using state force to control those rights. In VR, these actions could be much more embodied, causing emotional harm in addition to having the intended effects of halting assembly or expression.

It should be noted that there are different levels of embodiment within IXR. When using AR, one is only partly embodied in the virtual sphere, while VR causes a fuller embodiment. This creates a corresponding difference in the level to which platforms must consider human rights. Removing an AR filter may restrict assembly—especially if part of an app used by protestors to

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<sup>121</sup> *Packingham v North Carolina* (2017) 137 S Ct 1730 (Supreme Court).

<sup>122</sup> The metaphor is not exact, as IXR is not ubiquitously accessible, nor is there a single dominating platform, but the analogy to the physical world remains apt.

guide participants—but would not be an insurmountable obstacle. However, preventing people from gathering at all in VR would create an impassable barrier to gathering (a prior restraint in some jurisdictions) and should be treated with more scrutiny. In both scenarios, individuals are (also) still fully embodied in the physical world, and the state still has a responsibility to uphold their human rights, so in the case of the AR-enabled protest, if people still manage to gather despite the lack of AR guidance, the state should not arbitrarily disperse them.

The addition of embodiment to the public function doctrine implies a greater responsibility on behalf of IXR platforms to provide fair procedure to individuals before restricting their rights of assembly or expression. We address this by incorporating the idea of fair procedure into our framework. The doctrine of fair procedure (also called ‘natural justice’ in some jurisdictions<sup>123</sup>) requires some private actors to provide rudimentary due process when taking significant actions like expelling members.<sup>124</sup> This thus provides individuals with a layer of private protection—the company must provide a fair process before taking drastic action and allow for appeal and redress, as specified in the Guiding Principles—but also public protection, as the state can compel the private actor to act when it does not adhere to the procedure. Platform appeal, redress mechanisms, and civil or criminal liability can support fair procedure. To expand on the above examples, removing an AR filter would probably be best appealed to the platform, but like a government attempting to suppress a protest, an action that forecloses an assembly may have to be addressed by the courts.

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<sup>123</sup> ‘Procedural Fairness’ (1 June 2022) <<https://www.jcu.edu.au/students/feedback-and-complaints/procedural-fairness>> accessed 19 April 2024.

<sup>124</sup> DS Diaz and MY Ty, ‘Termination of a Physician Contract: Fair Procedure under *Potvin v. Metropolitan Life*’ (2000) 13 *Managed Care Interface* 77; *Potvin v Metropolitan Life Ins Co* (2000) 997 P 2d 1153 (Supreme Court).

While IXR platforms will still face difficult jurisdictional questions as long as different countries have different standards for freedom of speech, this model provides a guide for how to approach content moderation, user protection, and other issues that impact human rights in virtual contexts. It allows for platforms to moderate conduct and content to keep their platforms safe for a diverse userbase, while recognizing the importance of these platforms to modern life and communication and the impact that embodied virtual experiences have on our well-being. This is a novel approach with philosophical implications for embodiment and human rights that will be explored in a subsequent paper. Other IXR governance solutions have been proposed, so here we discuss two and their inadequacies.

One alternative proposed solution for the problem of legitimacy of rights governance in IXR is publicly owned virtual worlds (or ‘metaverses’) administered by governments, from the city<sup>125</sup> to the national<sup>126</sup> level. This would obligate the jurisdiction to uphold rights according to its laws and interpretations. Because of different interpretations of rights across countries, this could lead to a network of IXR platforms with different standards for assembly and expression. This would be particularly noticeable in VR, where national metaverses would result in assembly and expression standards changing rapidly as users travel between platforms. While national governments could make the same arbitrary restrictive decisions this article discussed related to platform companies, they ostensibly should have more accountability through national and international judiciaries and thus could be a more legitimate form of IXR governance.

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<sup>125</sup> Ewan Thomson, ‘These 3 Cities Already Have Their Own Metaverse’ (*World Economic Forum*, 28 November 2023) <<https://www.weforum.org/agenda/2023/11/metaverse-digital-cities-urban/>> accessed 27 April 2024.

<sup>126</sup> ‘Finland Metaverse Strategy’ (*Digital Finland*) <<https://www.digitalfinland.org>> accessed 28 April 2024.

Another proposal is to regulate IXR (and the infosphere more broadly) like a commons.<sup>127</sup> Condominiums and gated communities are owned and governed by their residents, who have a say in the community governance and rules.<sup>128</sup> This is the model adopted by so-called ‘decentralized metaverses,’ which are VR worlds owned and governed by a community.<sup>129</sup> Though often intertwined with cryptocurrency and other ‘Web3.0’ topics *du jour*, the seed of the idea—descended from the community governance of Reddit and other social media platforms—could be a model for ground-up community ownership and governance in a way that could be on par with the state governed model in terms of democratic participation. In practice, though, large corporations are the entities with the resources to develop IXR technologies and platforms, meaning they will likely play a primary role in IXR governance, so determining how they can do so while respecting rights is of paramount importance. Additionally, the public and cooperatively owned models primarily deal with VR and ‘metaverse’ environments, but IXR governance goes beyond this. The embodiment and public function approach accounts for the spectrum of IXR applications, implying that the more embodied a user is on a platform, the closer those rights are to their physical equivalents, and the more responsibility a company has to uphold human rights and ensure that fair procedure is followed when restricting them.

This can apply beyond just assembly and expression to other human rights, and beyond IXR to less immersive platforms. While there is extensive debate over traditional social media content moderation, considering it from a perspective of embodiment offers an alternative way to think

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<sup>127</sup> Luciano Floridi, ‘Trump, Parler, and Regulating the Infosphere as Our Commons’ (2021) 34 *Philosophy & Technology* 1.

<sup>128</sup> Stefan R Treffers and Randy K Lippert, ‘Condominium Self-Governance? Issues, External Interests, and the Limits of Statutory Reform’ (2020) 35 *Housing Studies* 1025; Renaud Le Goix and Chris J Webster, ‘Gated Communities’ (2008) 2 *Geography Compass* 1189.

<sup>129</sup> Saeed Hamood Alsamhi and others, ‘Decentralized Metaverse: Towards a Secure, Autonomous, and Inclusive Virtual World’, *2023 International Conference on Electrical, Computer and Energy Technologies (ICECET)* (2023) <<https://ieeexplore.ieee.org/document/10389478>> accessed 28 April 2024.

about the level of responsibility that platforms have. Even traditional social media, while not immersive, is still embodied to some degree; we create online personas through profile pictures and the content we post.<sup>130</sup> Thus, social media platforms have an obligation to uphold basic levels of free assembly and speech. While this should not infringe on their ability to moderate their platforms to ensure safe and pleasant experiences for their users, it should restrict them from, for example, arbitrary news censorship.<sup>131</sup> While it is accepted that traditional social media platforms can be governed in a top-down fashion, reliance on the state will lead to inevitable jurisdictional clashes in IXR environments, so a combination of this model plus aspects of community governance may be a more desirable blend of legitimacy and consistency in immersive environments.

## 5. Conclusion

In this paper, we have discussed how the freedoms of assembly and expression translate into IXR. As recognized by the UN through the Guiding Principles, businesses have a responsibility to respect human rights and remedy violations, a crucial question considering the immersive and embodied nature of IXR that brings the rights closer to their physical equivalents. While the UN has also recognized that human rights apply online as well as offline, how this translates into human rights due diligence by corporate actors remains unclear. Though public and cooperative entities may also play a role in IXR governance, IXR development dynamics strongly favor large companies. Our framework, which considers the degree of virtual embodiment as a factor in the extent to which human rights are implicated, combined with the principles behind the state action doctrine that

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<sup>130</sup> Hine, 'Virtual Reality, Cyberspace, and Embodiment' (n 2).

<sup>131</sup> Morrow (n 76); Alys Davies, 'Twitter Reinstates Banned Journalists' Accounts' (17 December 2022) <<https://www.bbc.com/news/business-64010202>> accessed 19 April 2024.

holds companies responsible for upholding human rights if they play the part of a state actor, can help bridge the gap from human rights principles to practice.

There will always be trade-offs between different rights, and as platform embodiment grows, so too should government oversight of how platforms are upholding these rights. However, unless this oversight comes at an international level, it will subject platforms to the same jurisdictional conflicts and politicization that they currently face at a smaller scale. Additionally, when discussing human rights, questions of representation come into play. ‘Everyone has the right to take part’ in government (UDHR Art. 21),<sup>132</sup> meaning that some form of representative or cooperative governance may be required to ensure that human rights are upheld in a legitimate way.

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<sup>132</sup> United Nations General Assembly (n 24).

## Appendix: Methodology

To identify existing articles about freedoms of assembly and expression and XR, we used a semi-systematic literature review.<sup>133</sup> We searched Google Scholar in late February and early March of 2024 for the following search terms, with no date restrictions:

- (“virtual reality” OR “augmented reality” OR “mixed reality” OR “extended reality” OR metaverse) AND “freedom of assembly”
- (“virtual reality” OR “augmented reality” OR “mixed reality” OR “extended reality” OR metaverse) AND “freedom of expression”
- (“virtual reality” OR “augmented reality” OR “mixed reality” OR “extended reality” OR metaverse) AND “freedom of speech”

Our inclusion criteria were:

- Peer-reviewed paper, chapter, or conference paper
- Dealt substantially with XR and freedom of assembly or freedom of expression
- Written in English
- Full access possible

The search proceeded to theoretical saturation,<sup>134</sup> meaning that we continued the search until results were not adding any relevant information. While we started with over 15,000 results (388 for the ‘freedom of assembly’ search, 8,720 for ‘freedom of expression,’ and 6,690 for ‘freedom of speech’), only 9 papers were identified that met all inclusion criteria. Many papers discussed XR topics only

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<sup>133</sup> Geoff Wong and others, ‘RAMESES Publication Standards: Meta-Narrative Reviews’ (2013) 11 BMC Medicine 20; Hannah Snyder, ‘Literature Review as a Research Methodology: An Overview and Guidelines’ (2019) 104 Journal of Business Research 333.

<sup>134</sup> Jacqueline Low, ‘A Pragmatic Definition of the Concept of Theoretical Saturation’ (2019) 52 Sociological Focus 131.

tangentially. The papers were heavily (though not exclusively) US and First Amendment-centric, covering general freedom of expression in the ‘metaverse’,<sup>135</sup> VR,<sup>136</sup> and AR,<sup>137</sup> content moderation in XR;<sup>138</sup> terroristic content in VR video games;<sup>139</sup> obscenity<sup>140</sup> and child sexual abuse material;<sup>141</sup> and legal issues raised by location-based non-immersive AR games.<sup>142</sup> Where necessary, these were supplemented with auxiliary sources.

Assembly and expression taxonomies were assembled using 11 sources from Google Scholar in March of 2024 identified based on the following search pattern:

- “freedom of [expression/speech/assembly]” + “types of [expression/speech/assembly]”
- “freedom of [expression/speech/assembly]” + types of [expression/speech/assembly]
- “freedom of [expression/speech/assembly]” + theory

*Table 2: Search terms and number of results*

| Search Term                                     | Number of Results |
|-------------------------------------------------|-------------------|
| “freedom of assembly” + “types of assembly”     | 49                |
| “freedom of expression” + “types of expression” | 1,880             |
| “freedom of speech” + “types of speech”         | 6,700             |
| “freedom of assembly” + types of assembly       | 28,800            |
| “freedom of expression” + types of expression   | 271,000           |

<sup>135</sup> Fornasier (n 80).

<sup>136</sup> Bagheri (n 61).

<sup>137</sup> O’Hagan and others (n 72).

<sup>138</sup> Hine, ‘Content Moderation in the Metaverse Could Be a New Frontier to Attack Freedom of Expression’ (n 79).

<sup>139</sup> Hupf (n 97).

<sup>140</sup> Zenor (n 93).

<sup>141</sup> Wagner (n 95); Esposito (n 96).

<sup>142</sup> Signorelli (n 10).

|                                       |         |
|---------------------------------------|---------|
| “freedom of speech” + types of speech | 304,000 |
| “freedom of assembly” + theory        | 26,700  |
| “freedom of expression” + theory      | 284,000 |
| “freedom of speech” + theory          | 445,000 |

The number of papers returned from each search is available in Table 2: Search terms and number of results. While these search terms may not be exhaustive, they provided an overview of theoretical and taxonomizing work on the topic at hand. Inclusion criteria were:

- Peer-reviewed paper, chapter, conference paper, or book
- Provided a taxonomy or other breakdown of the right in question
- Written in English
- Full access possible

The search again proceeded to theoretical saturation. Books were considered in this search because of the existence of several books intended to provide a general overview of a specific right, which included breakdowns of the rights in question. These sources were supplemented by the UN General Comments nos. 34<sup>143</sup> and 37<sup>144</sup> on the rights to freedom of opinion and expression and the right to peaceful assembly, respectively, as these documents provide insight into global interpretations of the specific rights. While these documents specifically discuss the ICCPR, the ICCPR and UDHR are two of the three parts of the International Bill of Human Rights; the ICCPR is an implementing treaty of the UDHR and its phrasing for the relevant rights is substantially

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<sup>143</sup> United Nations Human Rights Committee (n 60).

<sup>144</sup> United Nations Human Rights Committee (n 25).

similar.<sup>145</sup> However, we rely on the UDHR because the ICCPR has not been ratified by as many countries as the UDHR has.

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<sup>145</sup> 'International Bill of Human Rights' (*OHCHR*) <<https://www.ohchr.org/en/what-are-human-rights/international-bill-human-rights>> accessed 19 April 2024.