

RESEARCH ARTICLE

When Digital and Physical World Combine: The Metaverse and Gamification of Violent Extremism

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From early Bulletin Board Systems adopted by neo-Nazis to the Islamic State's more recent prolific use of social media platforms, an aspect of terrorism studies that is generally agreed upon is that violent extremists are often early adopters of emerging technologies. These groups, organisations, and networks have demonstrated innovative uses of these digital spaces, harnessed for recruitment, coordination, community building, attack planning, propaganda dissemination, and other purposes. Alongside studying these phenomena, it is important to explore where future trends lie; particularly as findings and recommendations can ensure that relevant stakeholders are aware of and can begin to prepare for emerging threats. This paper considers the potential exploitation of Web 3.0, specifically the metaverse, by violent extremists and explores conceivable opportunities to undertake nefarious activities within these spaces. There is a particular focus on the gamification of violent extremism in the metaverse, an issue—i.e. the gamification of violent extremism—that is causing increasing concern to terrorism practitioners more generally. Although it is difficult to predict exactly how violent extremists will utilise, exploit, and misuse the metaverse and related technologies due to the early stage of its conceptualisation and development, it is possible to develop hypotheses based on past trends and current examples demonstrating manipulation of online spaces that resemble aspects of the metaverse. In fact, aspects of the gamification of violent extremism in the metaverse may well have distinct overlaps with current threats, but simply utilise emerging technologies and take place within developing and more immersive online spaces.

Keywords: Metaverse, gamification, violent extremism, terrorism, video games, gaming

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Introduction

Violent extremists have been using media tools and technologies to further their own cause—e.g. for the spread of propaganda, recruitment, attack planning, communications strategies, etc.—for numerous decades. From the early use of murals, to newspapers, magazines, and billboards, to photocopying and distributing extremist materials, to the use of radio, film, and television, to more modern-day uses of what can be defined as the Internet, violent extremists have been particularly innovative and early adopters of technologies.¹ With the online element, there are numerous examples that exemplify this innovative adoption of technology, including the use of Bulletin Board Systems (BBSs); as indicated by the name, these were basic bulletin-board-type online spaces which people could reach through computers using dial-up connections to access various forms of information.² These mostly text-based (and basic pixel-generated pictures), hobbyist-run services played a large part in the online landscape of the 1980s and 1990s. The adoption of online technologies only increased with subsequent developments of the Internet. This includes both jihadist and far-right extremist-related forums with the emergence of Web 1.0, and the use of both mainstream and obscure social media platforms since the introduction of Web 2.0.³

An aspect that is at the forefront of thought for many stakeholders working in this field is determining where future threats lie. In this regard, there are a number of particular considerations around violent extremists' exploitation of emerging technologies and/or those aspects that have previously been overlooked. This includes how violent extremists will utilise and manipulate the decentralisation associated with the emergence of Web 3.0, or related concerns regarding the opportunities afforded to them through the expansion of the metaverse. However, research and literature in this area are still at an emergent point due to the early stages of conceptualisation and development of the metaverse, even though aspects of it already exist (as mentioned later). Connected to the metaverse, though of course standalone and distinct in its own ways, there is growing concern of late with the intersection between violent extremism and video gaming⁴, with "gamification"—i.e. "the use of game design elements in non-game contexts"⁵—being one of these intersections. Gamification has been present and had a disconcerting influence on numerous recent real-world attacks, including Christchurch, Halle, and Buffalo⁶. This paper discusses a range of these aforementioned aspects, but has a particular focus on the gamification of violent extremism in the metaverse; thought to be (at the time of writing), one of the first pieces, if not the first piece, of literature to consider this particular problem.

There are, however, various considerations that need to be mentioned at this early juncture. First, although this paper mentions both jihadist and far-right examples throughout, there is a particular focus on the latter. This is primarily due, at least anecdotally, to the predominant use of gamification emanating from the far-right. However, it is critical to not underestimate others' use of the concept and its implementation in or with emerging technologies.⁷ Second, it is also important to emphasise that the metaverse is, as will be discussed throughout the paper, an emerging technology, one that is debated both definitionally and conceptually. Thus, aspects of the analysis will naturally be speculative. Saying that, however, the analysis is based on current appropriate examples of violent extremism, and aspects and technologies that

resemble, according to relevant experts in the field, the metaverse or what it may come to look like. In this regard, although new technologies afford new types of threats, it is important to remember that other threats will have distinct similarities to current and past ones though simply use new technologies to achieve their goals and take place within developing and more immersive online spaces.

Nevertheless, this paper is structured as follows. The first and following section provides a brief introduction, overview, and conceptualisation of the metaverse, outlining its potential uses. The section thereafter considers how violent extremists could exploit the metaverse more generally. The conversations thus far provide a foundation for the following section which considers the potential for the gamification of violent extremism in the metaverse, providing an exploration of particular examples relating to this threat. As part of this, the paper more generally explores the intersection between video gaming, violent extremism, and the metaverse. A short conclusion follows which discusses where future research should focus.

The Metaverse

The term “metaverse” was thought to be conceived by sci-fi author Neal Stephenson in his 1992 novel, *Snow Crash*, which sees the chief protagonist socialise, shop, and defeat enemies through their avatar. However, the concept predates this and was popularised within William Gibson’s 1984 novel, *Neuromancer*.⁸ Almost 40 years later, there are several companies, such as Facebook (which has renamed to Meta), that appear to vehemently believe the metaverse represents the future of our online experiences⁹, demonstrated by committing extremely large resources to developing the concept (though at the time of writing there have been numerous redundancies at Meta, an issue affecting the tech sector more widely). Many other tech companies—small, large, and everything in-between—are also investing early in the metaverse and contributing to building the infrastructure, including Microsoft, Apple, and Google, with various non-tech companies such as Nike also starting to consider and map out their presence in this space. Although it is difficult to predict concisely, demonstrated by the wide range of figures presented, many believe that the global metaverse market will be in the hundreds of billions of dollars within the next decade, and that “by 2026, 25% of people will spend at least an hour daily in the metaverse...”¹⁰

What, though, is the metaverse? The metaverse is challenging to define and conceptualise due to it being in the very early stages of development. It is this complexity and ambiguity that makes it difficult to precisely predict what the concept will come to resemble. Unsurprisingly, there is disagreement about what the metaverse will look like or what it will represent. This is “because the term doesn’t really refer to any one specific type of technology, but rather a broad (and often speculative) shift in how we interact with technology.”¹¹ Some have described it—or at least a potentially prominent aspect of it—as being “a 3D version of the Internet and computing at large...[and] always being within a computer and inside the Internet.”¹² What can also reasonably be determined is the metaverse is proposed to be a vast network of virtual environments in which extremely large numbers of people can interact with one another.¹³ It is thought servers will be able to host potentially thousands or even millions in the future, where

people can intermingle in the same space or spaces. It is predicted to “provide users immense autonomy in terms of personal expression and creativity in a permissionless and decentralized digital space.”¹⁴ In its simplest understanding, the metaverse is thought to develop into “a shared virtual space that is interactive, immersive and hyperrealistic.”¹⁵

The metaverse represents a vision which is the setting for numerous online activities, including gaming, play, studying, shopping, working, socialising¹⁶, worship¹⁷, and even watching sports and presumably buying virtual merchandise within virtual stadiums.¹⁸ Many of these activities will be undertaken through the adoption of existing (and developing) augmented (AR), virtual (VR), and mixed-reality technologies (MR), making the metaverse a “persistent, synchronous, and live experience...providing an extremely social atmosphere as it bridges the physical and digital divide.”¹⁹ Here, AR is “a combination of synthetic and physical reality in which users can move in a real-world improved by virtual data that allow them to have extra information, useful for carrying out complex tasks...”, MR, “where the environment in which people move is a combination of the real and the virtual...”, and VR, “in which users enter a completely virtual dimension by using an avatar, through which they can experience an alternative life in a dimension that reproduces, replaces, and enhances the real world.”²⁰

Although the metaverse is still at its very early stages of conceptualisation and development, there are aspects and elements that already exist. These include the hosting of Metaverse Fashion Week in Decentraland in 2022, live concerts in various online spaces (including Fortnite) which have attracted audiences in the millions²¹, various VR social media platforms like VRChat and AltspaceVR, virtual workspaces like Immersed²², and the ability to purchase virtual real estate through companies like Sandbox.²³ Public services have even started to explore the potential opportunities offered through presence in these spaces, including cities like Seoul providing access to many of its public services through the metaverse²⁴, and organisations like INTERPOL launching a global police service in the metaverse.²⁵ Further, through the use of VR headsets, for example, users can already access a range of online virtual domains that include Meta’s Horizon Worlds, Decentraland, and OverTheReality.²⁶ These wide-ranging examples have led some to argue that “limits are non-existent in the metaverse.”²⁷

Although there are multiple opportunities to access experiences in virtual, augmented, and extended realities, there are some issues present such as a lack of a single portal for access.²⁸ Resultantly, some argue that insinuating one of these activities constitutes the metaverse is similar to stating that “Google is ‘the Internet.’”²⁹ This has led to the outlining of a number of different elements that the metaverse needs to encompass to be labelled as such, including: “realism” (or “presence”³⁰), i.e. the notion or feeling of actually being in a virtual space with others, enabling “people to become emotionally immersed in the virtual world”³¹; “ubiquity”, i.e. the ability to access virtual spaces through all devices using one virtual identity³²; “interoperability”, i.e. being able to travel seamlessly between different virtual spaces and, critically, being able to bring with you the same virtual assets, including your avatar(s), clothes, cars, currencies, etc., as well as your identity (some believe this is vital for the metaverse to work³³, though others question the extent of how quickly this can be developed due to technological and legal difficulties³⁴); “standardization”, i.e. “interoperability of platforms and services across the metaverse”³⁵; and “scalability”, i.e. “having the network architecture deliver sufficient power

to enable massive numbers of users to occupy the metaverse without compromising the efficiency of the system and the experience of the users.”³⁶ These considerations have led some to reflect upon whether single games or platforms should be referred to as the “metaverse” and a collection of metaverses referred to as a “multiverse of metaverses.”³⁷

The Metaverse and Violent Extremism

As with most, if not all, emerging technologies, alongside the vast range of positive aspects and opportunities, the metaverse can be exploited by iniquitous actors and can bring new and emerging threats and risks. As the idea and actuality of the metaverse develops, a pressing concern is public safety. With consideration of the risks posed by violent extremist-related issues, there is already concern amongst some researchers that “its evolution promises new ways for extremists to exert influence through fear, threat, and coercion...[thus] there is potential for the metaverse to become a new domain for terrorist activity.”³⁸ This is emphasised through the introduction of what might resemble a borderless society, particularly if the intended seamless objective of the metaverse is achieved. The lack of physical presence required to undertake acts of violent extremism within immersive environments in different locations is accentuated here. There is, however, very little written about this and the intersection between violent extremism and the metaverse more generally, particularly when it comes to academic literature; an issue that is expected due to the very early nature of the threat. Saying that, the issue is starting to generate some traction, though in the very early stages.

In a blog released at the beginning of 2022, researchers at least begin to outline ways in which the metaverse can be exploited by violent extremists.³⁹ The first of these is recruitment, which the authors argue can be enhanced through the use of artificial intelligence, and other metaverse-related features. In this regard, prominent violent extremists and recruiters can address their followers, and potential recruits, in new and innovative ways. They will, as the authors outline, “be able to sit on a virtual park bench with any number of potential followers and entice them with visions of the future...meet with would-be followers in a virtual rose garden or lecture hall.” Thus, the “emerging metaverse affords extremist leaders a new ability to forge and maintain virtual ideological and social communities and powerful, difficult-to-disrupt ways of expanding their ranks and spheres of influence.”⁴⁰ Second, labelled as “coordination”, the metaverse could offer preparation for action in the physical world through training and familiarity within the digital world. This can be undertaken within the comfort of their own personal spaces, like home. Here, “the metaverse offers new ways to coordinate, plan and execute acts of destruction across a diffuse membership.”⁴¹

As argued within a report released by EUROPOL⁴², with “virtual environments becoming more realistic, this may provide an increasingly useful environment for training, both in generally available applications and in specifically (re-)created environments and scenarios. As an increasingly accurate and complete digital twin⁴³ of reality becomes available, this may provide real-time information on planned targets. At some point, this may even allow for military reconnaissance and planning to be carried out within the metaverse.” The third and final consideration is the potential afforded by the metaverse for new targets. The authors argue

that just as physical structures—buildings, bridges, etc.—can be attacked in the real world, the same can occur in the virtual world. This can be in the form, for example, of “swastikas on synagogues, disruptions of real-life activities like banking, shopping and work, and the spoiling of public events.”⁴⁴ These types of incidents could “take a psychological toll and result in real-world harm.”⁴⁵ Finally, in addition to these three considerations, amongst others, it can be also reasonably argued that the metaverse can be used for propaganda, linking to the recruitment aspect above (and of course adding radicalisation to this), and for the financing of terrorism through the exchange of cryptocurrencies and NFTs (non-fungible tokens) within this space (often utilising anonymity), similar to the concerns associated with gaming more widely.⁴⁶

Video Gaming, Violent Extremism, and the Metaverse

Although the metaverse is envisaged to be far more expansive than video gaming alone, it is difficult to not at some point consider intersections between the two; where gaming is widely thought to form an important part of the metaverse and a dominant force in its future. There are already a number of examples of gaming which arguably demonstrate core elements of the metaverse⁴⁷. These include “massively multiplayer virtual reality games such as World of Warcraft, Rec Room or Horizon Worlds, where participants use avatars to interact with each other and manipulate their environment,”⁴⁸ or Second Life, “a simulation game that lets users experience virtual reality in which their avatar could shop, eat, shower, and do everything they would in real life.”⁴⁹ As early as 2003 when it was first launched, Second Life was “often referred to as an early example for its replication of all aspects of life.”⁵⁰ More recent examples of gaming are considered to be even closer representations of the metaverse (or at least envisions of it), including Roblox and Minecraft.

However, although there are various positive economic, health, social, and psychological benefits of gaming⁵¹, the intersection between video gaming and violent extremism is an issue that is becoming of increasing concern within policy, security, counter-terrorism, and academic circles.⁵² These anxieties have been quite general in nature, but also specifically in relation to those games mentioned above that represent elements of the metaverse. Research on Minecraft, for example, has found instances of hate speech, amongst other issues.⁵³ Further, as outlined in a report published by EUROPOL, games like Roblox, for instance, can be used to create a virtual Caliphate or White supremacist state, where “[m]embers of such places could live their virtual lives according to rules that may contradict fundamental laws and values of the society they live in in the physical world.”⁵⁴ These spaces could provide opportunities for recruitment for acts of violent extremism in other virtual worlds or even in the real/physical world.⁵⁵ In some cases these fears have even been realised, with the construction of Nazi gas chambers in Roblox as one example.⁵⁶ Furthermore, these concerns become particularly pertinent when considering the merging and overlapping of other gaming-related aspects, such as using cryptocurrencies within gaming to purchase items and the potential use of NFTs by (violent) extremists⁵⁷, as mentioned above in relation to the metaverse.

Considering the intersection between video gaming and violent extremism more broadly, although research is at a nascent stage, there have been attempts to outline a framework

that demonstrates this, or at least begins to set out its parameters. One such framework was developed by the European Commission's Radicalisation Awareness Network and consisted of six "types of video game strategies related to extremist activity."⁵⁸ This includes the: "production of bespoke games"; "modding mainstream games"; "in-game chat"; "gaming-adjacent communications platforms"; "gaming cultural references"; and "gamification". It is the final aspect, i.e. gamification, that the remainder of this paper specifically focuses on.

The Gamification of Violent Extremism in the Metaverse

Gamification was originally developed to address challenges in business, and at its very core refers to "the use of game design elements in non-game contexts."⁵⁹ The implementation of gamified approaches aims to facilitate some sort of behaviour change⁶⁰, and harness the "motivational potential of video games"⁶¹, something that can lead to customers and users solidifying their identification and commitment to particular organisations and brands. It is considered to be a motivating force as it provides competition, an element of fun, positive reinforcement as rewards are offered (in the form of points, for example), and a social aspect where people have opportunities to connect with friends and others. Motivation here, as discussed by Lakhani and Wiedlitzka⁶², can be thought of as both intrinsic and extrinsic, with the former relating to the undertaking of activities for personal satisfaction, and latter referring to "motivation external to the behavior...and is usually derived from the outcomes of the behavior, such as rewards, punishments, or social pressure."⁶³ As outlined in numerous studies⁶⁴, this often assumes the form of points, badges, and leaderboards (PBLs); something "that give consumers information about their achievements, progress and high scores."⁶⁵ This has prompted numerous sectors to implement gamification into their strategies, including finance, education, government, health, news, entertainment, marketing and advertising, public engagement, and environmental protection, amongst others.⁶⁶

Of late, as gamification becomes of increasing interest, there is at the same time increasing concern within academic and policy circles regarding its intersection with violent extremism.⁶⁷ Within this particular context, the concept of gamification can broadly be thought of as either "top-down" or "bottom-up"⁶⁸, or "organisational" and "organic". In terms of the former, it "refers to the strategic use of gamification by extremist organisations, such as the use of apps which offer points for undertaking various tasks, in order to recruit, disseminate propaganda, or encourage engagement and commitment, for example."⁶⁹ Bottom-up gamification, on the other hand, emerges organically with small groups of individuals within online communities.⁷⁰ As the metaverse is still in the relatively early stages of development and only some very limited aspects of it are currently being used by the public, predicting what gamification will look like within this context is not absolute and in many regards speculative, as mentioned earlier. However, considering recent examples of gamification (not necessarily within a metaverse-type context) might prove a useful starting point. These examples are discussed alongside possible scenarios pertaining to the gamification of violent extremism in the metaverse. The first of these relates to attacks within immersive spaces, potentially using virtual reality (or similar) technologies, and the second explores utilising augmented reality technologies.

Points, Objectives, and Achievements within Immersive Spaces

It is predicted that the metaverse will be, as outlined earlier, the setting for a plethora of activities which include gaming, play, studying, shopping, working, socialising, worship, and even watching sports. As with the physical (or real) world, attacks in the metaverse could take place within any of these settings and could include various assaults on people (or more so their avatars) or virtual infrastructure. With the latter, there is the possibility that online places of worship, as one example, can be vandalised, such as violent extremists daubing virtual graffiti like swastikas on a synagogue or mosque in the metaverse. Places people shop, or virtual property, could also be destroyed by violent extremists in targeted attacks against particular communities, of course dependent on the strength of online security or how vulnerable systems are to attacks by hackers. Frequent verbal assaults could occur within these immersive spaces against particular targets or communities, something that could even be recorded by the perpetrators and shared across networks to encourage others to partake in similar types of activities or sent to other potential victims as a form of ridicule or for intimidation purposes. It is critically important to outline that “[a]lthough these incidents happen in a virtual world, they can feel very ‘real’ and ‘violating’ to the person involved.”⁷¹ The targeting of children is also a possibility within these spaces, something that may not feel as “serious” to the perpetrator as it is being undertaken in a virtual realm, rather than the physical one. There are already concerns, as reported by the Center for Countering Digital Hate, that in some metaverse-related apps, children are being confronted with abuse, harassment, bullying, racism, and pornographic content.⁷² There are also serious concerns regarding the online sexual exploitation of children within the metaverse.⁷³ These attacks not only have psychological implications for those who witness or are the victims of these attacks, but there are wider implications for businesses too, where “the method of attacking virtual targets may help violent extremists achieve their objective of creating widespread fear and psychological harm in the real world, even putting business owners at risk of financial loss.”⁷⁴

Another aspect that remains unclear with how people will engage and immerse within the metaverse relates to their avatar, and whether this avatar could be subject to physical assaults. Much of this could depend on various factors including how secure systems are from hackers and where in the metaverse they happen to be (presumably different developers will have different layers of security that will not be uniform). Theoretically at least, there could be “physical” attacks on avatars. There should not be the assumption that avatars and virtual representations online are necessarily protected, something that has already become clear through various incidents including reports of a female avatar being virtually gang-raped in the metaverse.⁷⁵ What is important to note here are the offline harms connected to the online, demonstrated by the victim outlining that “the incident felt like it had happened in real life due to the technological advances of simulation.”⁷⁶

How, though, does this intersect with gamification? Of course, the examples discussed above could and do take place in the physical world and may well happen regardless of gamification in the virtual world, though there needs to be consideration whether the gamification of these types of attacks could have some implication on motivation and behavioural change. This could be linked to the PBL aspect of gamification discussed earlier. Although engaging in acts of hate

and/or violent extremism, and motivation more generally, are complex considerations where gamification alone is likely not enough to galvanise people to engage in nefarious acts⁷⁷, the use of PBLs have been linked to, as discussed previously, “extrinsic motivation”⁷⁸, i.e. “motivation external to the behavior...and is usually derived from the outcomes of the behavior, such as rewards, punishments, or social pressure.”⁷⁹ It can be reasonably hypothesised that these types of attacks could be undertaken within the metaverse, or a combination of both online and offline (i.e. actions in the virtual and real world), where a points system is set up to reward nefarious activities. A cursory glance across gamified attacks in the physical world over the last few years demonstrates the increasing popularity of implementing these types of strategies.

One example of this is the “Punish a Muslim Day” leaflets produced and distributed across the United Kingdom in 2018 by White supremacist, David Parnham.⁸⁰ Parnham was later sentenced to twelve and a half years in prison.⁸¹ The flyer stated that on 03 April 2018, people partaking in certain actions would be rewarded with a points-based system.⁸² These included: “Verbally abuse a Muslim” (10 points); “Pull the head-scarf off a Muslim ‘woman’” (25 points); “Throw acid in the face of a Muslim” (50 points); “Beat up a Muslim” (100 points); “Torture a Muslim using electrocution, skinning, use of a rack” (250 points); “Butcher a Muslim using gun, knife, vehicle or otherwise” (500 points); “Burn or bomb a mosque” (1,000 points); and “Nuke Mecca” (2,500 points). Another incident that holds similarities to the “Punish a Muslim Day” example was the 2019 attack in Halle, Germany. The perpetrator, Stephan Balliet, murdered two people after failing to gain access to a synagogue in an attempt to conduct a massacre.⁸³ In his manifesto released online, Balliet outlined a range of “objectives” and “achievements” that he intended to “unlock”⁸⁴. These had numerous overlaps with the types of objectives and achievements found in countless video games, though within his own example these objectives and achievements were shrouded in violent extremism.⁸⁵ In this regard, as part of the gamified attack, “[p]oints would be scored, he explained, for killing Jews, Muslims, Christians, blacks, children and communists, as well as through the use of different means, including 3D-printed guns, grenades, swords, a nail-bomb, and his ‘secret weapon,’ which likely referred to his car. The gunman was doubtless hoping future attackers would tally up his ‘high score’—and eventually try to beat it.”⁸⁶

Augmented-Reality Attacks

Prior to discussing augmented-reality-type attacks that can be gamified, it is important to outline an example that provides the foundation for this. In 2019, 28-year-old Australian national Brenton Tarrant, a self-described “ethno-nationalist” and “eco-fascist”, murdered fifty-one Muslim worshippers and attempted to kill forty more primarily at the Al Noor Mosque and Linwood Islamic Centre in Christchurch, New Zealand. It has been labelled as “one of the worst mass shootings in New Zealand’s history and its deadliest ever terrorist attack.”⁸⁷ The Christchurch Attack has dominated the limited, though evolving and expanding, literature on the gamification of violent extremism, and for that matter also the non-academic discourse in this area. It has been widely argued that the perpetrator, purposefully or otherwise, gamified his attack, or at least “included several gamified elements within his assault.”⁸⁸ In this regard, wider empirical research has focussed on the Christchurch Attack and determined that there are various overt and subtle indicators of gamification found across different elements of the assault, including the perpetrator’s 74-page manifesto, livestream video, and original post on

8chan along with the 749 replies posted by other 8chan users before the thread was taken down.⁸⁹

The video element of the attack is particularly interesting within this context as it was filmed using a GoPro camera mounted onto the assailant's helmet, which in turn was connected to his mobile phone and livestreamed to his Facebook page. It has been argued "that his attack had distinct features of video games and in many respects, at times, felt like a video game. The livestreaming of the attack, for example, had distinct parallels with popular 'Let's Play' videos where audiences watch people play video games live (or as a recording afterwards),"⁹⁰ "giving the viewers the illusion of watching footage from a first-person shooter game (FPS)."⁹¹ The FPS gaming genre, i.e. playing a video game through the eyes of the character or avatar, is one of the most popular genres and used as a style in renowned global gaming franchises including Halo, Call of Duty, and the cult classic Castle Wolfenstein. There were also wider gaming contexts witnessed throughout the livestreaming, including during the attacker's journey between the first and second location. Throughout this drive, there were distinct parallels with the popular gaming franchise Grand Theft Auto (GTA), which "included his actual driving, where he reached speeds of 130 kilometres in a fifty kilometre per hour zone, driving erratically...[and] as with most GTA games, the assailant used his weapon, in this case a second shotgun, to fire out of his car at pedestrians near the first mosque. Similarly, he also attempted, unsuccessfully, to shoot the drivers of two cars he passed on the road."⁹²

Considering this within the context of this paper, there could conceivably be Christchurch-style attacks in the metaverse at a place of virtual worship or shopping centre, or personally against people in the online realm, all of course depending on how vulnerable the systems are to infiltrators. However, what is particularly interesting to consider in this regard is how virtual and real worlds could overlap, which with extended reality (an umbrella term that covers VR, AR, and MR) could have some implication on people's actions in the physical world.⁹³ As argued in wider literature, "[t]he decentralized and open nature of the metaverse, as well as its convergence through Internet technologies and Extended Reality (XR), will provide extremists with malevolent, creative ways to conduct their activities without the constraints and limitations of centralized platforms that limit their autonomy."⁹⁴ Considering this, there is the risk that AR (or even MR for that matter) can be used during a terrorist attack that is being livestreamed on a social media or gaming platform, for example. It has been argued that AR can be key for the metaverse to really reach its true potential.⁹⁵ Thus, a "metaverse centred on augmented reality wouldn't be a completely new digital world—it would intersect with our real world."⁹⁶ Wearing an augmented reality headset or glasses, or smaller devices as the technology develops, perpetrators could use "targets" or a virtual gun "scope" on the screen, as is regularly demonstrated in video games.

Further, as an aspect of the Christchurch Attack concerned the "high score" or "body count" of the perpetrators from the perspective of target or receptive audiences, using this as a yardstick to measure the "success" of subsequent similar attacks⁹⁷, assailants using these types of technologies could incorporate live-score counters on the screen which increase with every person they kill, once again connecting to the PBL considerations above and, linked to this, extrinsic motivation.⁹⁸ In fact, after the Christchurch Attack, New Zealand White supremacist

Philip Neville Arps asked a friend to add a “kill count” to the perpetrator’s original video, where a screenshot was discovered on the friend’s phone “overlaid with text that read ‘Call of Duty Mosque NZ edition’”⁹⁹; a reference to the popular global video game franchise. In terms of live action, this technology has already been developed (and is continually developing) and has been available for public use for numerous years, with games like *Father.io* providing people with the opportunity to use their mobile phones to engage in real life massive multiplayer first-person shooters using augmented reality in any physical location they wish.

It is also highly plausible that immersive environments—ones that are accurate geographically and architecturally—can be used as training aids for real-world attacks. As Elson et al.¹⁰⁰ explain, “[w]ith sufficient reconnaissance and information gathering, extremist leaders could create virtual environments with representations of any physical building, which would allow them to walk members through routes leading to key objectives. Members could learn viable and efficient paths, coordinate alternative routes if some are blocked, and establish multiple contingency plans if surprises arise.” Further, augmented reality objects, including virtual arrows, can be used to help guide violent extremists in the physical world and to identify marked targets. After the attack has taken place, the perpetrator could utilise the technology to determine escape routes that pose the lowest risk of being apprehended, something that can be practiced in different scenarios within the metaverse prior to the actual real-world attack. Globally, this approach has been adopted by various militaries “which consider virtual training to be effective and efficient, both economically and in terms of containing operational risks.”¹⁰¹ Further questions need to be asked whether there is the potential for escape routes to be updated—to avoid roadblocks or updates about the movement of law enforcement for instance—in real time by supporters who have access to additional information (e.g., live media reporting or social media updates by the public close to the scene of attack, etc.).

Thinking more broadly beyond gamification though still connected and important to mention, elements of the metaverse and video gaming more generally can be used for training purposes, including “the possibility to learn to use weaponry, as in the case of *Second Life*.”¹⁰² Aspects of this can be demonstrated in previous examples, including the 2011 Oslo attacker, Anders Breivik, who reportedly “gamified elements of his attack and was a keen gamer himself, where it is thought that he trained for his assault using popular FPS [First-Person Shooter] franchise, *Call of Duty*.”¹⁰³ He often even imagined himself as an avatar.¹⁰⁴ Thus, the metaverse has the potential to provide different types of functions in this regard, “where people could practice by playing games in virtual 3D spaces that are constructed to resemble one of their targets.”¹⁰⁵ The potential of having “practice runs” within these types of digital environments will only strengthen and lead to better organised, coordinated, and impactful attacks.

Conclusion

This article has sought to provide a foundation for a new and under-researched area of study, one that concerns emerging technology that has the potential to meaningfully change many people’s everyday lives. In this regard, with consideration that at the time of writing there is still uncertainty about how the metaverse will develop (as discussed in depth earlier), the

metaverse can be thought of as a “network of always-on synthetic environments, parallel to and integrated with the physical world. In it, users, through their avatars, can interact with each other and with digital objects and move from one virtual environment to another, experiencing heterogeneous activities in real time, as in a sort of alternative life, parallel to the physical one.”¹⁰⁶ As alluded to earlier in this paper, there are naturally, in a similar way to video gaming¹⁰⁷, numerous positive economic, health, social, and psychological benefits that come with the metaverse for individuals and communities. For example, the metaverse could be used to perform virtual therapy and remote surgeries for the healthcare sector. It can add much depth to online learning and education, something that can reach people in poorer communities and developing countries. More widely, the US Army is already exploring using the metaverse for training soldiers.¹⁰⁸ Also, as mentioned at the fore of this paper, INTERPOL has launched the first global police metaverse, which offers immersive training courses to law enforcement across the globe. Numerous law enforcement agencies are also using or exploring the use of virtual reality and immersive environments for counter-terrorism-related training.

There is, unfortunately, the potential for the metaverse to be used for nefarious activities, often through “malevolent creativity”¹⁰⁹, which “stresses a dark side to creativity, asserting that certain groups use creativity to fulfil their aims towards conducting acts that have intentionally harmful consequences for another group.”¹¹⁰ One particular way this could manifest is through the intersection between violent extremism and the metaverse, a consideration that (although vast) can include aspects such as recruitment, coordination, selection of new targets¹¹¹, radicalisation, attack planning, funding terrorism, etc. This article has drilled down on one particular element of this, namely the gamification of violent extremism in the metaverse and provided the foundation for thinking in this area, but also outlined a number of potential scenarios in which this can play out in the future. Although the importance of gamification within the metaverse should not be underestimated, at the same time it needs to be reiterated that engaging in acts of hate and/or violent extremism, and motivation more generally, are complex considerations where gamification alone is likely not enough to galvanise people to engage in violent acts.¹¹²

Reflecting upon this, and the intersection between violent extremism and the metaverse more broadly (topics that are at the very early stages of development), it is important to outline a number of more general considerations for future research; where future research is critical to ensure that relevant stakeholders are aware of and can begin to prepare for emerging threats. For example, there needs to be consideration about how harm manifests in the metaverse and how this differs (and of course overlaps) with other online spaces. What does this mean in terms of both physical and psychological harm? As well as the psychological harm online activity can have in the physical world, there needs to be the consideration of how emerging technology can be used to inflict physical harm, e.g. through the improvement of immersion of experiences using “new interfaces like haptics, interaction and feedback through sensory suits or even neural links.”¹¹³ Another consideration is how recruitment and radicalisation might take place in the metaverse. There are, however, points of caution here. For one, there should be an avoidance of stigmatisation, where the conflation of technologies and risk to radicalisation can be unhelpful. As seen in wider work, radicalisation is a complex phenomenon that needs to be considered holistically, where “it is not analytically useful to dichotomize between an

online and offline domain.”¹¹⁴ More broadly, of course, considerations around how artificial intelligence can overlap with the issues raised in this paper need to be explored.

Further and finally, although aspects of the metaverse will be new and unknown, ones that need different types of solutions, this does not mean that historical examples of violent extremism cannot be useful to help determine where threats may emerge from and what targets could be. Naturally, aspects of this will be new threats and targets, though others will be well-known targets, the core difference being the use of emerging technology to attack them or representations of them within online or immersive spaces — e.g. virtual places of worship. This is critical to consider, particularly when it comes to considerations around preventing and countering violent extremism, as previous ideas, approaches, and tools will be useful. It is likely that the metaverse will play an increasingly important role in people’s lives, and as this develops, so will violent extremists’ adoption and use of this technology. It is clear that much work needs to be dedicated to better understand this phenomenon at an early stage; this paper has sought to instigate this conversation and provide some foundation for this.

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Endnotes

- 1 Ryan Scrivens and Maura Conway, 'The Roles of "old" and "New" Media Tools and Technologies in the Facilitation of Violent Extremism and Terrorism', in *The Human Factor of Cybercrime*, ed. Rutger Leukfeldt and Thomas J. Holt, 1st ed. (Routledge, 2019), 286–309, <https://doi.org/10.4324/9780429460593>.
- 2 Maura Conway, Ryan Scrivens, and Logan Macnair, 'Right-Wing Extremists' Persistent Online Presence History and Contemporary Trends' (International Centre for Counter-Terrorism, 2019), <https://doi.org/10.2307/res-rep19623>.
- 3 Scrivens and Conway, 'The Roles of "old" and "New" Media Tools and Technologies in the Facilitation of Violent Extremism and Terrorism'.
- 4 Suraj Lakhani, 'Video Gaming and (Violent) Extremism: an Exploration of the Current Landscape, Trends, and Threats' (Radicalisation Awareness Network (Policy Support), European Commission, 2021).
- 5 Sebastian Deterding, Dan Dixon, Rilla Khaled, and Lennart Nacke, 'From Game Design Elements to Gamefulness: Defining "Gamification"', in *MindTrek'11* (MindTrek'11, Tampere, Finland, 2011), 9–15, 11.
- 6 Suraj Lakhani, Jessica White, and Claudia Wallner, 'The Gamification of (Violent) Extremism: An Exploration of Emerging Trends, Future Threat Scenarios, and Potential P/CVE Solutions' (Radicalisation Awareness Network (Policy Support), European Commission, 2022); Suraj Lakhani and Susann Wiedlitzka, "'Press F to Pay Respects": An Empirical Exploration of the Mechanics of Gamification in Relation to the Christchurch Attack', *Terrorism and Political Violence*, 31 May 2022, 1–18, <https://doi.org/10.1080/09546553.2022.2064746>.
- 7 Lakhani, White, and Wallner, 'The Gamification of (Violent) Extremism: An Exploration of Emerging Trends, Future Threat Scenarios, and Potential P/CVE Solutions'.
- 8 Rabindra Ratan and Yiming Lei, 'What Is the Metaverse? 2 Media and Information Experts Explain', *The Conversation* (blog), 29 October 2021, <https://theconversation.com/what-is-the-metaverse-2-media-and-information-experts-explain-165731>.
- 9 Eric Ravenscraft, 'What Is the Metaverse, Exactly?: Everything You Never Wanted to Know about the Future of Talking about the Future', *Wired*, 25 April 2022, <https://www.wired.com/story/what-is-the-metaverse/>; Ratan and Lei, 'What Is the Metaverse? 2 Media and Information Experts Explain'.
- 10 European Parliament, 'Metaverse: Opportunities, Risks and Policy Implications' (European Parliament, 2022), [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733557/EPRS_BRI\(2022\)733557_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733557/EPRS_BRI(2022)733557_EN.pdf), 2.
- 11 Ravenscraft, 'What Is the Metaverse, Exactly? Everything You Never Wanted to Know about the Future of Talking about the Future'.
- 12 Shamani Joshi, 'What Is the Metaverse? An Explanation for People Who Don't Get It', *Vice*, 15 March 2022, <https://www.vice.com/en/article/93bmyv/what-is-the-metaverse-internet-technology-vr>.
- 13 Ratan and Lei, 'What Is the Metaverse? 2 Media and Information Experts Explain'.
- 14 Aman Bajwa, 'Malevolent Creativity & the Metaverse: How the Immersive Properties of the Metaverse May Facilitate the Spread of a Mass Shooter's Culture', *The Journal of Intelligence, Conflict, and Warfare* 5, no. 1 (2022): 32–52, <https://doi.org/10.21810/jicw.v5i2.5038>, 34.
- 15 Joshi, 'What Is the Metaverse? An Explanation for People Who Don't Get It'.
- 16 Ratan and Lei, 'What Is the Metaverse? 2 Media and Information Experts Explain'; Ravenscraft, 'What Is the Metaverse, Exactly?: Everything You Never Wanted to Know about the Future of Talking about the Future'.
- 17 Joel S. Elson, Austin C. Doctor, and Sam Hunter, 'The Metaverse Offers a Future Full of Potential – for Terrorists and Extremists, Too', *VOX-Pol* (blog), 2 February 2022, <https://www.voxpol.eu/the-metaverse-offers-a-future-full-of-potential-for-terrorists-and-extremists-too/>.
- 18 Adrian Ma, 'What Is the Metaverse, and What Can We Do There?', *The Conversation* (blog), 23 May 2022, <https://theconversation.com/what-is-the-metaverse-and-what-can-we-do-there-179200>.
- 19 Bajwa, 'Malevolent Creativity & the Metaverse: How the Immersive Properties of the Metaverse May Facilitate the Spread of a Mass Shooter's Culture', 36.
- 20 Sara Senno, 'The Metaverse, an Opportunity for Society or Terrorism?', *AMIStaDeS - Fai Amicizia Con Il Sapere* (blog), 26 April 2022, <https://en.amistades.info/post/metaverse-an-opportunity-for-society-or-terrorism>.
- 21 European Parliament, 'Metaverse: Opportunities, Risks and Policy Implications'.
- 22 Ratan and Lei, 'What Is the Metaverse? 2 Media and Information Experts Explain'.
- 23 Joshi, 'What Is the Metaverse? An Explanation for People Who Don't Get It'.

- 24 European Union Agency for Law Enforcement Cooperation., *Policing in the Metaverse: What Law Enforcement Needs to Know: An Observatory Report from the Europol Innovation Lab*. (LU: Publications Office, 2022), <https://data.europa.eu/doi/10.2813/81062>.
- 25 INTERPOL, 'INTERPOL Launches First Global Police Metaverse', INTERPOL, 20 October 2022, <https://www.interpol.int/en/News-and-Events/News/2022/INTERPOL-launches-first-global-police-Metaverse>.
- 26 Ibid.
- 27 Rob LeDonne, "'Limits Are Non-Existent in the Metaverse!' Video Game Concerts Become Big Business', *The Guardian*, 7 August 2021, <https://www.theguardian.com/music/2021/aug/07/no-limits-in-the-metaverse-video-game-concerts-big-business>.
- 28 Joshi, 'What Is the Metaverse? An Explanation for People Who Don't Get It.'
- 29 Ravenscraft, 'What Is the Metaverse, Exactly? Everything You Never Wanted to Know about the Future of Talking about the Future.'
- 30 Ma, 'What Is the Metaverse, and What Can We Do There?'
- 31 European Parliament, 'Metaverse: Opportunities, Risks and Policy Implications', 2.
- 32 Ibid.
- 33 Joshi, 'What Is the Metaverse? An Explanation for People Who Don't Get It.'
- 34 Ahmed Ragab and Clara Péron, 'Gaming and the Metaverse: The Alarming Rise of Online Sexual Exploitation and Abuse of Children within the New Digital Frontier' (Bracket Foundation, 2022); João Marinotti, 'Can You Truly Own Anything in the Metaverse? A Law Professor Explains How Blockchains and NFTs Don't Protect Virtual Property', *The Conversation* (blog), 21 April 2022, <https://theconversation.com/can-you-truly-own-anything-in-the-metaverse-a-law-professor-explains-how-blockchains-and-nfts-dont-protect-virtual-property-179067>.
- 35 Ratan and Lei, 'What Is the Metaverse? 2 Media and Information Experts Explain.'
- 36 European Parliament, 'Metaverse: Opportunities, Risks and Policy Implications', 2.
- 37 Ravenscraft, 'What Is the Metaverse, Exactly? Everything You Never Wanted to Know about the Future of Talking about the Future.'
- 38 Elson, Doctor, and Hunter, 'The Metaverse Offers a Future Full of Potential – for Terrorists and Extremists, Too.'
- 39 Ibid.
- 40 Ibid.
- 41 Ibid.
- 42 European Union Agency for Law Enforcement Cooperation., *Policing in the Metaverse*, 19.
- 43 For a description of the term 'digital twin' see: Lik-Hang Lee et al., 'All One Needs to Know about Metaverse: A Complete Survey on Technological Singularity, Virtual Ecosystem, and Research Agenda', *arXiv*, 2021, 1–66; Yogesh K. Dwivedi et al., 'Metaverse beyond the Hype: Multidisciplinary Perspectives on Emerging Challenges, Opportunities, and Agenda for Research, Practice and Policy', *International Journal of Information Management* 66 (2022): 1–55, <https://doi.org/10.1016/j.ijinfomgt.2022.102542>.
- 44 Elson, Doctor, and Hunter, 'The Metaverse Offers a Future Full of Potential – for Terrorists and Extremists, Too.'
- 45 Ibid.
- 46 EU Counter-Terrorism Coordinator, 'Online Gaming in the Context of the Fight against Terrorism' (Council of the European Union, 2020), <https://data.consilium.europa.eu/doc/document/ST-9066-2020-INIT/en/pdf>.
- 47 Elson, Doctor, and Hunter, 'The Metaverse Offers a Future Full of Potential – for Terrorists and Extremists, Too.'
- 48 Ma, 'What Is the Metaverse, and What Can We Do There?'
- 49 Joshi, 'What Is the Metaverse? An Explanation for People Who Don't Get It.'
- 50 European Union Agency for Law Enforcement Cooperation., *Policing in the Metaverse*, 9.
- 51 ADL, 'Free to Play? Hate, Harassment and Positive Social Experiences in Online Games' (Anti-Defamation League, 2019), <https://www.adl.org/sites/default/files/pdfs/2022-12/Free%20to%20Play%2007242019.pdf>; Karen Schrier, 'Designing Ourselves: Identity, Bias, Empathy, and Game Design' (Anti-Defamation League, 2019), <https://www.adl.org/sites/default/files/pdfs/2022-05/designing-ourselves-identity-bias-empathy-game-design-shrier.pdf>.
- 52 Lakhani, 'Video Gaming and (Violent) Extremism: An Exploration of the Current Landscape, Trends, and Threats'; RAN, "'Extremists' Use of Video Gaming – Strategies and Narratives' (Radicalisation Awareness Network

(Policy Support), European Commission, 2020); EU Counter-Terrorism Coordinator, 'Online Gaming in the Context of the Fight against Terrorism'; RAN, 'Digital Challenges', Spotlight (Radicalisation Awareness Network (Practitioners), European Commission, 2021).

53 Rachel Kowert, Austin Botelho, and Alex Newhouse, 'Breaking the Blocks of Hate: A Case Study of Minecraft Servers' (Anti-Defamation League, 2022), https://www.adl.org/sites/default/files/pdfs/2022-07/ADL_CTS_Minecraft%20Content%20Moderation%20Report_072622_v2.pdf.

54 European Union Agency for Law Enforcement Cooperation., *Policing in the Metaverse*, 19.

55 Ibid.

56 Ibid.

57 EU Counter-Terrorism Coordinator, 'Online Gaming in the Context of the Fight against Terrorism'.

58 RAN, "'Extremists" Use of Video Gaming – Strategies and Narratives', 2.

59 Deterding et al., 'From Game Design Elements to Gamefulness: Defining "Gamification"', 11.

60 Linda Schlegel, 'Jumanji Extremism? How Games and Gamification Could Facilitate Radicalization Processes', *Journal for Deradicalization* 23 (2020): 1–44.

61 Michael Sailer, Jan U. Hense, Sarah K. Mayr, and Heinz Mandl, 'How Gamification Motivates: An Experimental Study of the Effects of Specific Game Design Elements on Psychological Need Satisfaction', *Computers in Human Behavior* 69 (April 2017): 371–80, <https://doi.org/10.1016/j.chb.2016.12.033>, 372. *{\i}Computers in Human Behavior* 69 (April 2017

62 Lakhani and Wiedlitzka, "'Press F to Pay Respects"".

63 Robert Mitchell, Lisa Schuster, and Hyun Seung Jin, 'Gamification and the Impact of Extrinsic Motivation on Needs Satisfaction: Making Work Fun?' *Journal of Business Research* 106 (January 2020): 323–30, <https://doi.org/10.1016/j.jbusres.2018.11.022>, 324. *{\i}Journal of Business Research* 106 (January 2020

64 Ibid.; Sailer et al., 'How Gamification Motivates'; Tae Wan Kim and Kevin Werbach, 'More than Just a Game: Ethical Issues in Gamification', *Ethics and Information Technology* 18, no. 2 (June 2016): 157–73, <https://doi.org/10.1007/s10676-016-9401-5>.

65 Jenny V. Bittner and Jeffrey Shipper, 'Motivational Effects and Age Differences of Gamification in Product Advertising', *Journal of Consumer Marketing* 31, no. 5 (11 August 2014): 391–400, <https://doi.org/10.1108/JCM-04-2014-0945>, 391.

66 Deterding et al., 'From Game Design Elements to Gamefulness: Defining "Gamification"'; Sailer et al., 'How Gamification Motivates'; Juho Hamari and Jonna Koivisto, "'Working out for Likes": An Empirical Study on Social Influence in Exercise Gamification', *Computers in Human Behavior* 50 (September 2015): 333–347, <https://doi.org/10.1016/j.chb.2015.04.018>.

67 Lakhani and Wiedlitzka, "'Press F to Pay Respects""; Lakhani, White, and Wallner, 'The Gamification of (Violent) Extremism: An Exploration of Emerging Trends, Future Threat Scenarios, and Potential P/CVE Solutions'.

68 Linda Schlegel, 'The Role of Gamification in Radicalization Processes' (Modus|zad, 2021), <https://modus-zad.de/wp-content/uploads/2021/01/modus-working-paper-12021.pdf>.

69 Lakhani and Wiedlitzka, "'Press F to Pay Respects"", 2.

70 Schlegel, 'The Role of Gamification in Radicalization Processes'.

71 European Parliament, 'Metaverse: Opportunities, Risks and Policy Implications', 6.

72 Centre for Countering Digital Hate, 'Facebook's Metaverse: One Incident of Abuse and Harassment Every 7 Minutes', Centre for Countering Digital Hate, 30 December 2021, <https://counterhate.com/research/facebooks-metaverse/>.

73 Ragab and Péron, 'Gaming and the Metaverse: The Alarming Rise of Online Sexual Exploitation and Abuse of Children within the New Digital Frontier'.

74 Bajwa, 'Malevolent Creativity & the Metaverse: How the Immersive Properties of the Metaverse May Facilitate the Spread of a Mass Shooter's Culture', 43.

75 Carter Sherman, 'Woman Says She Was "Virtually Gang-Raped" in Facebook's Metaverse', *Vice*, 1 February 2022, <https://www.vice.com/en/article/3abpg3/woman-says-she-was-virtually-gang-raped-in-facebooks-metaverse>.

76 Maya Oppenheim, 'Woman Reveals "Nightmare" of Being "Gang Raped" in Virtual Reality', *Independent*, 3 February 2022, <https://www.independent.co.uk/news/uk/home-news/metaverse-gang-rape-virtual-world-b2005959.html>.

- 77 Lakhani and Wiedlitzka, “Press F to Pay Respects”; Schlegel, ‘The Role of Gamification in Radicalization Processes’.
- 78 Mitchell, Schuster, and Jin, ‘Gamification and the Impact of Extrinsic Motivation on Needs Satisfaction’; Sailer et al., ‘How Gamification Motivates’; Kim and Werbach, ‘More than Just a Game’.
- 79 Mitchell, Schuster, and Jin, ‘Gamification and the Impact of Extrinsic Motivation on Needs Satisfaction’, 324.
- 80 Lakhani, White, and Wallner, ‘The Gamification of (Violent) Extremism: An Exploration of Emerging Trends, Future Threat Scenarios, and Potential P/CVE Solutions’.
- 81 Lizzie Dearden, ‘White Supremacist behind “Punish a Muslim Day” Jailed for 12 Years’, *Independent*, 3 September 2019, <https://www.independent.co.uk/news/uk/crime/david-parham-court-punish-muslim-day-sentence-white-supremacist-trial-a9090186.html>.
- 82 Cristina Maza, ‘Punish a Muslim Day’ Game Spreads Across U.K. in Letters Urging People to Burn Mosques and Rip Off Hijabs’, *Newsweek*, 3 December 2018, <https://www.newsweek.com/punish-muslim-game-spreads-across-uk-letters-urging-people-burn-mosques-and-841020>.
- 83 Daniel Koehler, ‘The Halle, Germany, Synagogue Attack and the Evolution of the Far-Right Terror Threat’, *CTC Sentinel* 12, no. 11 (2019): 14–20.
- 84 Lakhani, White, and Wallner, ‘The Gamification of (Violent) Extremism: An Exploration of Emerging Trends, Future Threat Scenarios, and Potential P/CVE Solutions’; Lakhani and Wiedlitzka, “Press F to Pay Respects”.
- 85 Lakhani and Wiedlitzka, “Press F to Pay Respects”.
- 86 Bruce Hoffman and Jacob Ware, ‘The Challenges of Effective Counterterrorism Intelligence in the 2020s’, *Lawfare* (blog), 21 June 2020, <https://www.lawfareblog.com/challenges-effective-counterterrorism-intelligence-2020s>.
- 87 Lakhani and Wiedlitzka, “Press F to Pay Respects”, 1.
- 88 Lakhani, White, and Wallner, ‘The Gamification of (Violent) Extremism: An Exploration of Emerging Trends, Future Threat Scenarios, and Potential P/CVE Solutions’, 11.
- 89 Lakhani and Wiedlitzka, “Press F to Pay Respects”.
- 90 *Ibid.*, 8.
- 91 Linda Schlegel, ‘Points, Rankings & Raiding the Sorcerer’s Dungeon: Top-down and Bottom-up Gamification of Radicalisation and Extremist Violence’, *GNET* (blog), accessed 25 March 2021, <https://gnet-research.org/2020/02/17/points-rankings-raiding-the-sorcerers-dungeon-top-down-and-bottom-up-gamification-of-radicalization-and-extremist-violence/>.
- 92 Lakhani and Wiedlitzka, “Press F to Pay Respects”, 8.
- 93 European Union Agency for Law Enforcement Cooperation., *Policing in the Metaverse*.
- 94 Bajwa, ‘Malevolent Creativity & the Metaverse: How the Immersive Properties of the Metaverse May Facilitate the Spread of a Mass Shooter’s Culture’, 43.
- 95 Ma, ‘What Is the Metaverse, and What Can We Do There?’
- 96 *Ibid.*
- 97 Lakhani and Wiedlitzka, “Press F to Pay Respects”.
- 98 Lakhani, White, and Wallner, ‘The Gamification of (Violent) Extremism: An Exploration of Emerging Trends, Future Threat Scenarios, and Potential P/CVE Solutions’, 14.
- 99 Graham Macklin, “Praise the Saints”, in *A Transnational History of Right-Wing Terrorism*, by Johannes Dalfinger and Moritz Florin, 1st ed. (London: Routledge, 2022), 215–40, <https://doi.org/10.4324/9781003105251-16>, 218.
- 100 Elson, Doctor, and Hunter, ‘The Metaverse Offers a Future Full of Potential – for Terrorists and Extremists, Too’.
- 101 Senno, ‘The Metaverse, an Opportunity for Society or Terrorism?’
- 102 *Ibid.*
- 103 Lakhani and Wiedlitzka, “Press F to Pay Respects”, 11.
- 104 Schlegel, ‘The Role of Gamification in Radicalization Processes’.
- 105 Lakhani, White, and Wallner, ‘The Gamification of (Violent) Extremism: An Exploration of Emerging Trends, Future Threat Scenarios, and Potential P/CVE Solutions’, 14.
- 106 Senno, ‘The Metaverse, an Opportunity for Society or Terrorism?’

- 107 Lakhani, 'Video Gaming and (Violent) Extremism: An Exploration of the Current Landscape, Trends, and Threats'.
- 108 European Parliament, 'Metaverse: Opportunities, Risks and Policy Implications'.
- 109 Elson, Doctor, and Hunter, 'The Metaverse Offers a Future Full of Potential – for Terrorists and Extremists, Too'.
- 110 Bajwa, 'Malevolent Creativity & the Metaverse: How the Immersive Properties of the Metaverse May Facilitate the Spread of a Mass Shooter's Culture', 43.
- 111 Elson, Doctor, and Hunter, 'The Metaverse Offers a Future Full of Potential – for Terrorists and Extremists, Too'.
- 112 Lakhani and Wiedlitzka, "'Press F to Pay Respects'"; Schlegel, 'The Role of Gamification in Radicalization Processes'.
- 113 European Union Agency for Law Enforcement Cooperation., *Policing in the Metaverse*, 10.
- 114 Joe Whittaker, 'Rethinking Online Radicalization', *Perspectives on Terrorism* 16, no. 4 (2022): 27–40, 35.

About

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