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Events in the Metaverse

Introduction

The term “metaverse”, which is a combination of the prefix “meta”, used to imply transcending, with the word “universe” (Lee et al., 2021) was first utilised within the science fiction novel *Snow Crash* (Stephenson, 1992) to describe a world where digital representations of the self - known as Avatars - interact within a realistic three-dimensional (3D) virtual environment for the purposes of communication, entertainment, and research (Bardzell et al., 2006; Gursoy et al., 2022). Although *Snow Crash* is acknowledged as containing the first use of the metaverse noun, the notion of the world described by Stephenson (1992) has recently entered common consciousness because of the rebranding of the social network Facebook as “Meta,” (Kim, 2021).

Organisations such as Meta and Microsoft have presented versions of a metaverse that include both social and professional experiences, involving avatars within virtual worlds, accessed through the use of virtual reality (VR), augmented reality (AR) and mixed reality (XR) technologies (Kemec, 2022; Ball, 2021). The ubiquitous nature of these organisations and their associated technologies creates the potential for the metaverse to be viewed as a singular destination, where the reality of physical and virtual worlds are seamlessly combined (Barrera and Shah, 2023), within an environment operated and owned by multi-national corporations. This notion of the metaverse can also be seen to be reflective of that described within the science fiction short story, *Machine Stops* - written by Foster in 1909, where a large and complex global machine provides all of humanity’s wants, needs and desires including access to music, entertainment, and social interaction (Gursoy et al., 2022).

Foster’s (1909) vision of the future, echoes contemporary concerns that the market dominance of global technology companies could result in power imbalances and hidden costs impacting upon the development of the metaverse (Jungherr and Schlarb, 2022). Also, this dystopian view of the potential metaverse highlights that there are and will be several challenges that need to be addressed as the technology develops. Specifically, concerns have been raised in relation to the provision of inadequate governance, the potential for breaches in data security, opportunities for un-regulated gambling, fraudulent activity, in the form of money laundering and wash trading as well as the abuse of marginalised and vulnerable groups, observed as incidents of racism and paedophilia (Boellstorff, 2015; Jamison and Glavish, 2022; Annison, 2022; Li et al., 2021; Merre, 2022). In relation to the latter, it has been highlighted that within metaverse environments users are experiencing increasing levels of exposure to offensive and undesirable behaviour including harassment and the sexualisation of avatar interactions; with incidents of racism, bullying, the presentation of graphic sexual content, threats of violence and the grooming of minors occurring frequently (CCDH, 2022, Jamison and Glavish, 2022).

Due to concerns relating to safety and/or security there will be those who are reticent to engage in the metaverse (Dwivedi et al., 2022). However, as with the acceptance of the internet, there will also be early adopters, who have identified opportunities and want to explore the benefits of the technology; also, similarly to the development of the internet there are and will be entities that contribute more than others to the development of the metaverse (Terry and Skee, 2022). Therefore, it can be seen that the adoption of metaverse technologies is nascent (Wiles, 2022); and consequently, the companies who currently provide spaces or platforms where users can interact should be best placed to drive development and encourage the adoption of this technology. This will include organisations which hold dominant positions within society such as Alphabet/Google, Amazon, Apple, Meta, and Microsoft, as well as companies such as Epic who provide game engines, which facilitate the creation of virtual and digitally augmented environments (Jungherr and Schlarb, 2022). In addition, existing popular commercial metaverse platforms, such as The Sandbox, Decentraland, Mozilla Hubs, Facebook Horizon and VRChat provide opportunities for interaction (Li et al., 2021).

In addition to these extended reality platforms, applications such as Zoom, Google Meet and Microsoft Teams have been highlighted as tools used facilitate interactions, as have numerous virtual event platforms, designed to provide digital event experiences, such as VFairs, Hopin, Hubilo and Cvent (Yung et al., 2022; G2, 2023). Although this 'platform revolution' has been praised by economists due the potential financial benefits provided (Jungherr and Schlarb, 2022), the proliferation of platforms available could be a barrier to engagement, as event professionals may be uncertain about which solution would provide the desired experience for attendees.

In attempting to define what the metaverse will become, it is important to note that the metaverse is not a singular destination that has been created by or can be claimed a minority of multi-national corporations (Terry and Skee, 2022); neither is it a more immersive version of current internet technologies (Ball, 2022). It is stated that the metaverse will supersede the present-day online experiences (Herrman and Browning, 2021), extending beyond the microcosm of social platforms, online games and virtual worlds, currently accessed via online platforms, to become a collective of persistent, 3D digital destinations (Hern, 2022), where numerous virtual worlds are synthesized together (Gursoy et al., 2022). The individual environments will be differentiated by purpose and aesthetic style as well as by their approaches to governance, privacy, and data regulation; they will utilise differing payment systems and require interchangeable currency transactions for the purpose of purchasing of digital goods. Once established, participants will be able to seamlessly traverse this parallel reality, jumping between different locations using a single verifiable ID, whilst manifesting as digital representations of themselves, for the purposes of communication, work, and leisure (Ristband, 2022).

Events in the Metaverse

The feelings of disconnection and isolation experienced during the global COVID-19 pandemic, due to the imposed travel restrictions, lockdowns, and social distancing requirements, accelerated the collective imagination around the creation of alternate realities, where individuals could interact and share experiences (Gursoy et al., 2022). These shared experiences occurred within virtual worlds where participants were able to view live performances, sometimes in significant numbers (Snider, 2021). A notable example of this type of shared, virtual experience was Travis Scott's Astronomical event within Fortnite (23rd April 2020), which was watched by 12.3 million concurrent viewers (Arrigo, 2020). This event was created as a prelude to the live Astro World concert, (5th November 2021). The online concert involved players coming together to watch songs performed by a giant, stylized avatar from a virtual stage with psychedelic lighting and effects. During the event, participants could move freely within the virtual world, although they were affected by realistic constraints such as changes in environment and gravity. Significantly, participants at the online event could not engage in combat (which is an essential element of Fortnite: Battle Royale), whereas during the live Astro World event, attended by nearly fifty thousand people, a crowd surge occurred, resulting in hundreds of injuries and ten deaths (Elshiekh, 2022; Jungherr and Schlarb, 2022).

As evidenced by events such as Astronomical and the first-of-its-kind performance by DJ Marshmello in 2019, that attracted 10.7 million players, it can be seen that Fortnite's provider, Epic Games, has found a format that attracts both players and non-Fortnite users to a virtual world to be part of a shared experience. In addition, it has been reported that these events also generate significant revenue streams for the artist and event sponsors. For example, it is estimated that Ariana Grande received in excess of \$20 million in profits from the three-day Fortnite Rift Tour event, and that Travis Scott's avatar wearing Air Jordan shoes during the ten-minute Astronomical concert generated \$518,000 million dollars in brand awareness for Nike (Babajide, 2021; Nishijima, 2021).

It is also stated that virtual events are not as expensive as touring concerts, due to lower production costs and while live event tours depend on selling venue tickets to make a profit, the lack of a physical location within virtual events means that in-game performances can generate revenue through the sale of virtual merchandise often as Non Fungible Tokens (NFTs) in the form of skins, digital fashion items or wearables, which can be worn by the users avatar within the virtual world; adding to the revenue-making opportunities for the artist. With reference to the example of the Astronomical event, although figures are not available, it

is suggested that based upon a traditional revenue share model, Travis Scott could have received a minimum of \$2.5 million from virtual merchandise sales (Cirisano, 2020; Snider, 2021).

In addition to Fortnite other gaming platforms have hosted music events, including the popular platforms, Minecraft and Roblox (Cirisano, 2020). These titles are often associated with being popular with younger audiences, as data shows that two-thirds of all young people in the USA aged between 9 and 12 years old used Roblox in 2020, (Lyles, 2020); similarly, research undertaken in Australia about young people's use of Minecraft highlighted that 68% of children aged 9 to 12, used the platform (Mavoa and Carter, 2018). Regardless of their popularity with younger age groups, these platforms have a wide-ranging user-base with Roblox, amassing 210 million monthly active users and Minecraft, reaching the slightly lower figure of 178 million monthly active users in 2021 (Active Player, 2023a; Active Player, 2023b; Snider, 2021). Epic Games highly immersive game Fortnite eclipses these with an average monthly user count of over 230 million (Active Player, 2023c), and is regularly used to host events (such as concerts) within its metaverse setting. The popularity of proto-metaverse environments suggests that future virtual event audiences are already inhabitants within these spaces, which could enable event organisers to engage with an existing community of digital natives. The utilisation of gaming platforms provides event practitioners with an opportunity to engage with new/different audiences; for example, the utilisation of the online platforms Roblox and Minecraft by the Wimbledon Tennis and The Hundred Cricket tournaments in 2022 (Sutcliffe 2022; Srivastava, 2022) suggests that there is consumer desire for activities within this type of centralized virtual world as they provide an opportunity to access and bring together consumers as well exploring economic opportunities associated with online communities (Hackl et al., 2022). Although this type of platform has a large and a growing number of global users, inhabiting various digital worlds, it is stated that they restrained from achieving widespread adoption, beyond their core community of users, due to the constraints of their localized functionality and technology (Dwivedi, et al., 2022). In addition, the impression Minecraft and Roblox as merely expansive playgrounds for users to explore is critiqued, as within these platforms not only can users play, interact, and socialise with others they can also generate their own content and potentially generate revenue from this activity. Although this may be seen as a benefit, it is stated that it raises concerns about the exploitation of users by large corporations who seek to commodify and commercialise user generated content, as seen with social media, where user content, created for likes and comments from others to generate financial gain (Evans, et al., 2022). Despite these concerns, the engagement and economic potential demonstrated by these platforms, as evidenced by revenue and user data, explains why many see this type of environment as the future of the metaverse. In addition, it is stated the 'seamless, playful engagement in virtual or augmented digitally connected environments' (Jung Herr and Schlarb, 2022:6), represent the future of online experiences, which is desired by consumers and therefore event practitioners should currently be examining interactive online gaming closely in order to determine what the future of events in the metaverse could be.

Regardless of the potential of this technology, it is proposed that the delivery of events within virtual spaces is an activity that currently occurs beyond the spectrum of many Events Management professionals. This may be because the technology is yet to achieve maturity or that when the industry was forced to pivot to virtual, in-person event planners felt lost (Borelli, 2022) and/or that the pivot was seen as a temporary measure, only required until the return of in-person events, which are regarded as being superior to virtual experiences. In support of this view, research has shown that the diminishing necessity for virtual socialisation, due the pandemic associated restrictions easing, has resulted in a reduction in the delivery of virtual events; similarly, visitor levels are now exceeding pre-pandemic levels in certain conference destinations (Bizzabo, 2022; Marks, 2023). Furthermore, the sudden pivot to online events caused by the pandemic, and the more recent developments in the metaverse, is resulting in a digital skills gap within the event industry, inhibiting many event professionals from developing high quality virtual or hybrid events (Brown, 2021), or from being able to envisage creating events in the metaverse. Despite the return of in-person events it is argued that there is a significant need for events management professionals to understand the ramifications of the current *Meta Tech-Rush*, so that they are able to determine how immersive technologies, widely adopted during the global pandemic, can continue to be used effectively as well as exploring how the numerous and popular virtual platforms can be adopted to provide meaningful event experiences for attendees.

Locating Metaverse Events within a framework of virtuality, location, immersion, and motivation

To facilitate an understanding about the integration of metaverse events, within a continuum of real-world and virtual experiences a three-dimensional framework of immersive event experiences (Figure 1) has been conceptualised. The contents of the framework have been adapted from the social presence-virtuality of environment-location (SPEL) cube proposed by Yung et al., (2022), the framework for creating metaverse experiences developed by Gursoy et al., (2022) and the three-dimensional taxonomy of Mixed-Reality experiences created by Skarbez et al., (2021).

Figure 1: A framework of immersive event experiences

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Adapted from Yunget.al, (2002); Gursoy et.al, (2022) and Skarbez et.al, (2021)

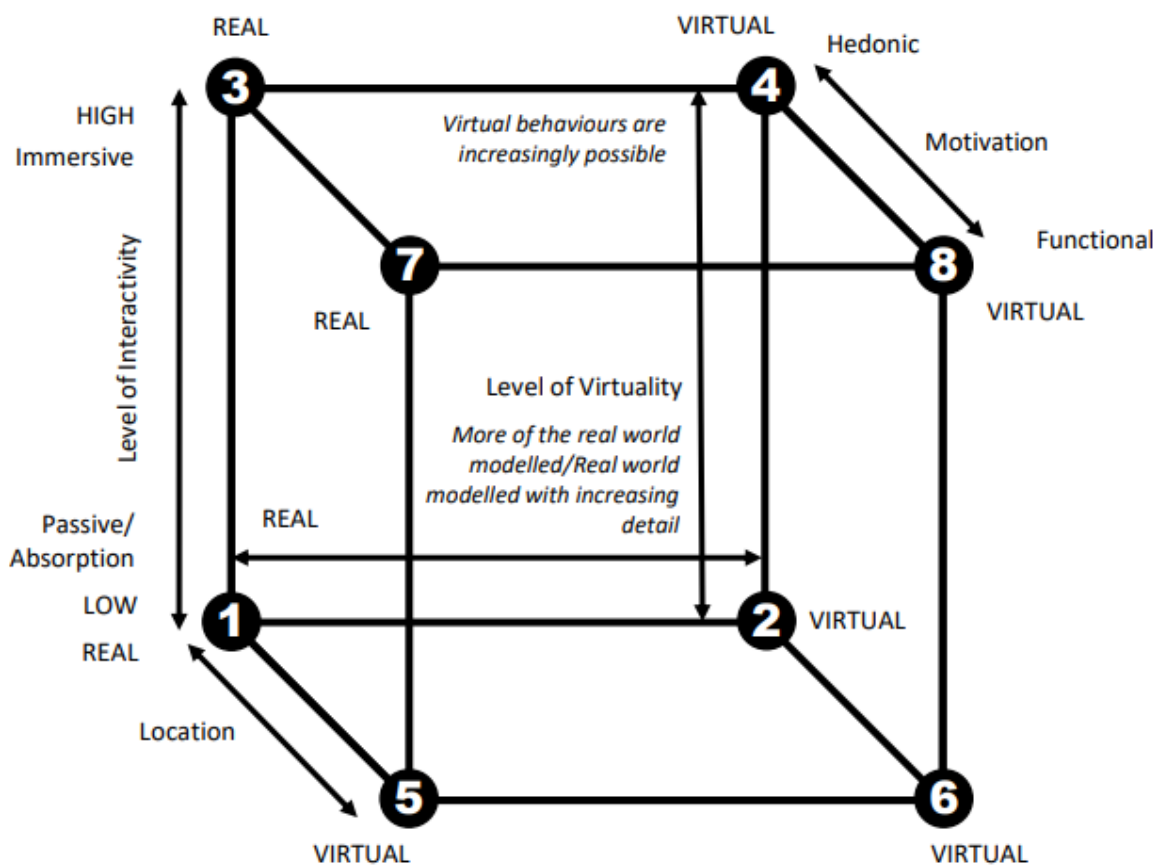


Figure 1: A framework of immersive event experiences

Within the framework of immersive event experiences five paths are included, as shown in Figure 2, which represent a continuum of attendee attitudes, event location, the degree of immersion and the level of virtuality of experience.

The first path represents the spectrum of attitudes that influence an attendee’s desire to engage with the event. It is stated that individuals seeking to fulfil hedonic motives undertake experiences for enjoyment and pleasure, whereas individuals with utilitarian motives seek to satisfy functional needs, by participating in the event (Gursoy et al., 2022). It is proposed that this is an important consideration, as an understanding of what factors motivate visitors to attend specific events is a pre-requisite for effective event planning (Könecke and Kwiatkowski, 2016); in particular, an understanding of event attendees hedonic and utilitarian

components of attitude has been suggested as being beneficial in gaining an appreciation of people's motives (Gursoy et al., 2006).

Previous research undertaken by Lee et al., (2022) and Park and Yoon (2009) indicated that an awareness of event attendees' motives, values and attitudes makes it possible to identify what customers want from an experience and that, this practice of motivation-based segmentation, facilitates the development of specific marketing and communications strategies in order to encourage positive consumer attitudes towards an event. However, it is acknowledged that different event typologies are more strongly associated with different attitudes; for example, a study by Gursoy et al., (2006) indicated that for festival attendees' hedonic values appear to have a more dominant influence than utilitarian values. Interestingly, research by Perez-Montegudo and Curras-Perez (2022) also showed that, as for live events, there are differences in the motivations of online event attendees, suggesting that segmentation is as necessary for online events as it has been established to be for live/in-person events.

The second path relates to the variety of ways in which technology can augment the location of the event experience. As within the SPEL Cube (Yung et al., 2022), the framework of immersive event experiences, location is regarded as a dichotomy, embodying the true reality of physical locations and the continuum of digitally modified/enhanced locations. Yung et al., (2022) state that location is a critical consideration for events practitioners due to the legacy of the global COVID-19 pandemic and the associated increase in remote working and virtual co-location facilitated by advances in mediated organizational communication, involving participants coming together for the purpose of an event, whilst being based in different locations. However, challenges of delivering and participating in events using this technology have been acknowledged, particularly when considering the future of virtual events in a post-pandemic world. For example, attendees may be unwilling to participate due to concerns relating to security breaches or the possibility of harassment and for event organisers virtual/hybrid events provide challenges relating to the quality of the speaker, the content of the presentation and operational considerations relating to the time zones in which audiences live and requirements for translation (Pakarinen and Hoods, 2018). Similarly, a study by Standaert et al., (2021) found that for events that were longer in duration, more capabilities are required to keep participants focused. It is proposed that the requirement to keep participants focused has resulted in the rapid development of numerous virtual event platforms, which have been designed to enhance hybrid/virtual event experiences by engaging participants through the use of interactive elements such as webcasting, opportunities to ask questions, participation in live polls and group chat as well as the promotion of networking opportunities (G2, 2023). Similarly to events that take place in virtual environments, digital solutions are also used in order to enhance event experience of events that take place in within real, physical locations; typically this is via mobile devices which are used to prepare and process, document and communicate information about the event via online platforms before, during and after participation; this may occur through the use of social media or via mobile event apps, provided by organisers so attendees can access event content from any device (Danielsen and Kjus, 2019).

The third path is concerned with the degree of interactivity and immersion, within the event experience, which can range from passive absorption to interactive immersion. In passive experiences, participants absorb event content, whereas in immersive experiences, participants actively interact with(in) the event environment (Gursoy et al., 2022). In an attempt to acknowledge the relationship between of the level of immersion with(in) the event experience and the level of virtuality of the environment, it is proposed that immersion should not only relate to interactive actions of the participant or 'what happens when a participant carries out a particular act' but should also include consideration for the 'physical properties of the system' (Slater, 2009: 3551) and the extent to which the system facilitates a more immersive experience. The ability of virtual environments to create immersive experiences is often associated with video games; this is an important analogy as it is stated that when an individual becomes immersed in activity, they stop thinking about the technology and the tools (Madigan, 2020), suggesting that creating immersive virtual event experiences could help to reduce the impact of the perceived barriers associated with the technology used to access the experience.

The fourth path represents the Reality-Virtuality Continuum that ranges from the true reality of real-world environment to a digitally curated virtual environment, where participants interact with(in) a computer-generated world in real-time (Milgram and Kishino, 1994).

This continuum integrates a range of technological solutions, where the real and virtual environments are combined to differing extents, (Yung et al., 2022); including AR, VR and XR.

The fifth and final path also relates to the level of virtuality, however, this axis represents the level to which an event environment is world-aware, or the extent to which the virtual environment possesses characteristics which are present within real environment (Skarbez et al., 2021). Within this framework, this notion of the level of virtuality not only considers the characteristics of the environment but also the extent to which the representation, behaviours and actions of the participant are similar to those observed in the real-world. One extreme of this continuum would be unrealistic virtual environments, where it is possible to remove the barriers of realistic time and space so that behaviours are not constrained by limitations such as gravity, enabling users to experience things that cannot happen in the real world (Papagiannidis and Bourlakis, 2010). The different levels within this continuum allows for augmentation through the inclusion of virtual elements based on reality and for the creation of worlds which conform with the laws of reality (Skarbez et al., 2021).

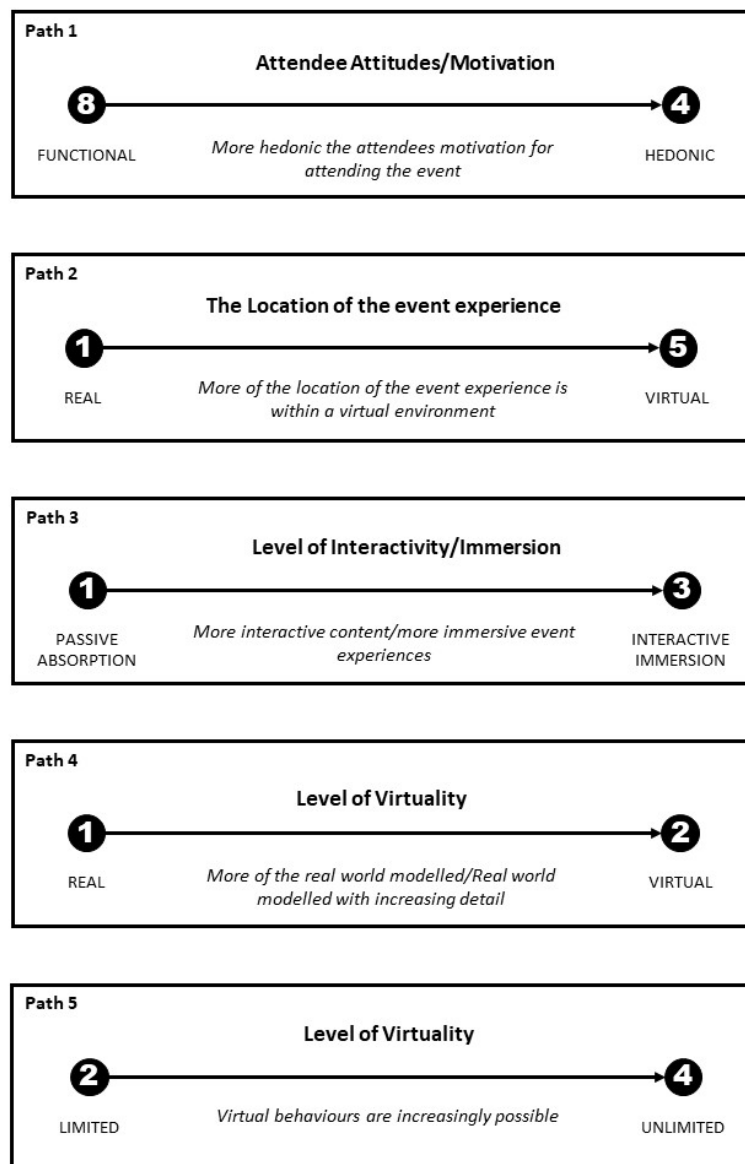


Figure 2: Paths of attitudes, location, immersion, and virtuality

Case study: Ristband and Miro Shot: Delivering a Hybrid Event at the SXSW Music Festival (written by Ristband CEO and Cofounder Anne McKinnon and Ristband COO & frontman of Miro Shot Roman Rappak)

This case study is about understanding how hybrid event production works, it will outline aspects of regular, IRL (In Real Life) events production skills that are directly transferable or have parallels. In addition to this, it will describe the new skills and working practices that will perhaps be unfamiliar to those trained in the traditional real-world events industry. First off, a lot of what you already do in live event management is directly transferable, so don't be scared!

The principles behind an event that uses immersive tech or metaverse/virtual worlds are the same as any event (again you don't need to relearn anything). An event, whether live or virtual, needs to be engaging. You need to think about the audience's journey, make sure they are safe, that the quality of the sound, security and production in general are as high as possible. There are also news skills and approaches that apply to a hybrid event, and these are also tried and tested, as they have their roots in the gaming industry, so have been refined for the last 40 years. Most importantly, this space is evolving, so there are no right or wrong ways of doing things, you can jump in and help define this exciting new era.

This particular case study will focus on Miro Shot and Ristband's hybrid event that took place simultaneously in the real world and in Ristband's metaverse platform during South by South-West Music Festival (SXSW) 2022. Now, let's take a look at each of the parties involved.

Ristband: The Music Metaverse

Ristband is an award-winning metaverse platform that hosts real-time hybrid events, combining the excitement of a live event with the power and reach of digital social experiences (Mac/PC/Mobile). The company works with artists, influencers, and brands to create immersive and gamified experiences for global audiences and has worked with some of the largest entertainment companies in the world. The start-up was born from indie electronic artist Miro Shot's live XR concerts encapsulating how we consume media today, and how technology can bring us closer together, exploring the themes of data, technology, gaming, and online culture as a modern narrative of this digital era.

Miro Shot: The Artist

Born from a collective of coders, musicians, graphic designers, and filmmakers, London's Miro Shot are a band that have been pushing the limits of what a band can be since their inception in 2017. By using the advancements in virtual reality technology, the band has developed a new and ground-breaking live show for fans, blending realities in a new type of live music experience. Alongside their standard concerts, the band also offers a unique type of experience called *SIMULACRA* – a bold and dynamic performance showcasing where music is going, not where it has been. The performance is intentionally intimate in size so the band can deliver their live, multisensory VR experience, controlling the scent and temperature of the room during the performance. Seated and donning their VR headsets, the audience initially sees digital versions of the band; from there they are taken through various landscapes, blending virtual and augmented realities along the way (see images 1 & 2).



Image 1 – Audience wearing VR headsets for Miro Shot’s XR concert, SXSW, 2022 (Source: Miro Shot)

The Live Mixed Reality (XR) Concert

In the real world, Miro Shot’s XR concert was performed at a venue in downtown Austin, Texas (USA) as a part of the official 2022 South by Southwest (SXSW) festival programming. A performance unlike anything the average concert goer has ever experienced before, Miro Shot’s live VR concert *SIMULACRA* is a collective experience between artist and attendee. Using a custom-built immersive app and VR headset (image 1), the audience is transported between the live concert and the metaverse where the band performs alongside virtual worlds (image 2). The band's performance itself is augmented by haptics, custom scent, and lighting, all of which enable the audience to hear, feel, and see music in a new digital reality. The production also features AI, NFTs, and generative art, offering a window into the future where live performance, technology, and gaming intersect. Within a 100- person capacity theatre, the band was able to reach over 1.2K attendees in the real world by performing 2 shows per hour, for 6 hours, in sessions of 100 people per seating. Each performance lasted approximately ten minutes. The punchy short sets delivered emotive vocals soundtracked by synth pop melodies and shoegaze-esque guitars.



Image 2 – Audience VR view of Miro Shot’s XR concert, SXSW, 2022 (Source: Miro Shot)

At the same time in the virtual world, thousands of attendees were able to be a part of the event in Ristband’s metaverse platform, logging on via Mac or PC. The team hid an unreleased track by Miro Shot in a custom virtual world, made especially for the SXSW Music Festival showcase. Attendees logging into Ristband had ten minutes to explore the venue and surrounding area to find the track. If they found it, posted it on social media, and tagged the band, they received a code to download Miro Shot’s track on Bandcamp. Only those who completed the quest would have access to the unreleased track (i.e. embedding gamification to aid the immersiveness of the event experience). This design was specifically intended to act as an extension of the live event, rather than to try to duplicate, or copy it. Those who attended in the real world were also motivated to explore Miro Shot’s experience in Ristband to unlock exclusive content, and those who attended in Ristband were similarly motivated to attend the one-of-a-kind experience in the real world.

Pre- Production

Roman Rappak, Cofounder and Chief Creative Director of Ristband - also frontman of Miro Shot- commented “I run my band like a start-up and my start-up like a band”. This means that a great deal of the work done in Ristband is informed by how the live music industry operates, and the ritual of the way audiences attend a concert in the real world. On the other hand, Ristband is also informed by game design - as the format of real-world events doesn’t necessarily work in a virtual interactive world. For example, that experience of getting together with your friends and dancing with hundreds to thousands of people at a live concert cannot possibly be replicated by having people gather with their avatars in a virtual world and pressing spacebar to jump or dance while an artist plays a track. This activity doesn’t replicate the immersive, live event experience; in this instance participants are passive, and the experience is more similar to watching a performance on YouTube. So, how can you combine the best parts of how live events work with the power and reach of digital social experiences? Experiences must be live, and they must be active- the audience needs to have a purpose they can fulfil or a role they can play as a part of their experience. This is where game design mechanics come into play, and a few new elements in the pre-production checklist (Table 1).

Table 1: Pre- Production Checklist

Live	Metaverse & Live XR Concert
Concept	Concept planning & development timelines- ensure the creative team and development team are aligned on a concept that is feasible

Event planning	<p>Metaverse When will the digital doors open and close? How many people can be accommodated?</p> <p>Organise show time(s), with a sensitivity towards different time zones for global accessibility.</p> <p>Live XR Concert XR How long will each performance last? How will the audience know when to come for their show time? What will be the flow of people in/out every 20 to 45 min?</p>
Budgeting	Don't limit ideas by budget at first, but then scale them up or down to be realistic about what is feasible given the budget available and the expected return from any booking fees, sponsorships or merch/ asset sales.
Roles/ responsibilities	Create a list of all the tasks that need to be completed, and the timeline. Assign tasks to the responsible party, to make sure all areas are covered and there is a clear line of reporting/ accountability.

Logistics	<p>Metaverse Instructions for the audience (how do they participate pre-event, at the event, and post-event)</p> <p>Live XR Concert Have information on the ticketing page what the experience will be like to ensure the audience's expectations are in line with the production that will take place</p>
Venue specs	<p>Metaverse Create a list of the metaverse platform's capabilities to understand what's possible, and any gaps that may require additional customisation or development</p> <p>Live XR Concert XR Create an extended tech spec for the XR show, including equipment such as swivel chairs for a seated audience, fans, smoke machines and projectors- according to the specifications of your production.</p>
Artist show tech specs	Create a list of any requirements specific to an artist or creator that will need to be considered in the design or development of the virtual experience
Logistics (audience flow)	Plan out the user journey- make sure that in practice, the experience is engaging and compelling, and active rather than passive.
Equipment rental	Do you require any additional hardware or software for the event (e.g. VR headsets, haptic suits, etc)? Does your team have everything they need?
Travel/ accommodation	Sometimes a live crew will be required to set up any interactivity between the physical event and the virtual one like motion capture or projections of the digital world for real time engagement between physical and digital attendees.
Marketing and social media strategy	<p>Metaverse Ensure people know the event is taking place virtually too, and that this is an events-based experience rather than a persistent digital experience (generates hype)</p> <p>Live XR Concert</p>

	Talk about the making of and show snippets (without spoilers) of what the experience is like so the audience understands what the show is
Rehearsals	<p>Test what you're doing! Play, test, learn, iterate- this is a new format so experiment ahead of time your friends/ colleagues to try early-on to ensure that things work as smoothly as possible</p> <p>Debugging: similar to how a rehearsal works in the real world to make sure everything is working and sounds great, the same is needed for the virtual world and XR concert in a debugging phase. Pushing technology to new limitations means that unexpected things will happen which will need additional developer attention to correct before the big day. Plan this debugging and polishing phase into the timeline</p>

Table 2: The XR Concert with Miro Shot has just a few more steps in addition to a traditional live concert:

Concept design with creative team and developers	What story do you want to tell and how will you tell it with XR?
User journey	<ul style="list-style-type: none"> • What will the audience experience: draw out a storyboard and collaborate with the development team to ensure the creative vision is feasible in the timeline and with the budget available • Is the show interactive (answer 'why VR') • How do you onboard the audience, keeping in mind that many may be first-time users so having an usherer or helper to assist the day of is important • How will the audience know when the show is over (this is a new format so indicating to the audience when they should clap is actually key! i.e. the artist says "thank you everyone"- now they know it's their cue to clap
VR headsets	<p>Partnerships can take months to establish, so start early on this one to speak with headset providers or the booker to have clarity on who's responsible for the VR headsets</p> <p>Coordinate shipping/ storage/ transportation of the VR headsets (keep in mind that hardware can be sensitive to temperature and other environmental considerations such as dampness.</p>

Event Day

This is it, everything you've been working towards. Whether it's the real-world event, or the virtual one, you might feel terrified and excited at the same time. Don't worry, if you've done all the pre-production steps- especially rehearsal and play-testing/debugging, you'll be ready for this.

Table 3: Event-Day Checklist

Live	Metaverse & Live XR Concert
Pre-show team brief	Debrief the team, any folks being onboarded for event day to support the experience need to be briefed on what their role is and who their team lead is.
Load-in	<p>Metaverse</p> <p>Doors open (soft launch)- even before event time make sure digital doors are open in case there's any delay</p>

	<p>Live XR Concert Give yourself a bit more time to set up any unique requirements like the projector, fans (wind haptics for flying scenes) or a local network for the VR experience.</p>
Soundcheck	Testing- make sure you go through the full experience one more time to make sure everything is running smoothly
Security	<p>Metaverse Moderation tools and ushers will have this role in the metaverse. They act as security to ensure that no one is harassed during the event, and any unwelcome behaviour can be blocked or kicked-out, just like in the real world.</p>
Streaming	<p>Metaverse In the same way you might broadcast a live event, have someone stream the virtual event across as many platforms as possible such as YouTube, Twitch, Instagram Live or TikTok.</p>
Photography/ Filming	Capture loads of high resolution screenshots and take videos to share on social media post-event, or with press.

Post- Production

In the case of Ristband, a metaverse platform built on the Unreal Engine, anything that can be done in a game can be made in Ristband. Take advantage of the possibilities here to design an exciting and novel experience for virtual attendees that isn't possible in the real world.

Table 4: Post-Production Checklist

Live and XR Concert	Metaverse
After-party/ meet and greet	<p>Have artist meet-and-greets that wouldn't usually be possible at scale or host an experience where attendees can interact with the mechanics of the show to learn about virtual production themselves.</p> <p>Plan exciting quests or games with special rewards or unlockable content that is only available for those attending online.</p>
Call to action/ sales	<p>Just as fans may walk by the merch & memorabilia stand in the real world, fans attending remotely may want to similarly have the opportunity to pick up some digital merch or assets created especially for the event.</p> <p>Have a clear call to action such as directing attendees to the merch stand, an art gallery, or towards the artists social media or next show dates where virtual attendees can purchase a ticket to the real-world tour.</p>
Data capture & analytics	<p>How many people attended? How long did they stay? What geographic region did they come from? What parts of the experience did they interact with the most? How did they feel about it all (what were they posting on social media)?</p> <p>There is a lot of data that can be captured during the virtual event that is valuable to an artist and their team. For example, understanding where attendees are coming from around the world could inform a future real-world tour based on an emerging fan base in a geographic region that the artist wouldn't have explored otherwise.</p>
Assessment	What worked? What didn't? What would you like to change if you had the opportunity to do it all over again? In the same way a band or production team would discuss a show in

	the real world, the same is key for the virtual team to evolve what the show is and can be.
Social media & marketing	Has all the content been captured from the event? Post it! This is an amazing opportunity to show appreciation for attendees, build hype for the next event, and generate awareness for what your team is working on.

Summary of the Ristband and Miro Shot case study

At its core the purpose of a hybrid event is to create a simultaneous digital replica within what is called a 'game engine' (think a 3D world builder). Important to note that by its very nature, these events are created to exist alongside your real-world event, never to replace it. It should be to the live concert the same thing that the BBC coverage of Glastonbury is- an extension.

The advantages here of a hybrid event in virtual worlds are:

- Increased reach
- Not restrictions to geography
- New business revenue streams
- Sustainability (no travel or extra lights/transport)
- Access for those with disabilities
- A much more meaningful and engaging experience than passively watching a TV broadcast or 2D internet stream

As a final note for your first event in the metaverse and/or your first mixed reality hybrid event, start small, then scale. This is a new and exciting space where everyone is discovering the medium. Take all the learnings from your first event to make the next one an even greater success.

Conclusions

The technological legacy of the global COVID-19 pandemic combined with the multi-decade history of engagement within virtual platforms, and the potential this creates for reaching and monetising communities, helps to explain why ideas of the metaverse have recently shifted from science fiction to the forefront of consciousness (Ball, 2022; Dwivedi et al., 2022; Gursoy et al., 2022). The metaverse offers the potential to create event experiences that appeal to vast numbers of people, which are principally constrained by the imagination of those creating the experiences rather than the technology used to create them (Ball, 2022). Despite the opportunities that this technology provides for events management professionals, there will be those who are reticent to engage in the development of the metaverse; this may be due to perceptions about the dominance of large corporations, such as Alphabet/Google, Amazon, Apple, Meta and Microsoft and the opportunities that they may be afforded to exploit the platform(s) and their users for financial gain (Evans et al., 2022). In addition, the proliferation of platforms available could be a barrier to engagement, as event professionals may be uncertain about which solution can best provide an experience which is valued in the same way as an in-person event. It has also been identified that event organisers face challenges in identifying high quality speakers who can deliver appropriate, high-quality content/presentations, within this type of environment as well as attracting attendees that may be reticent to engage due to concerns relating to safety and/or security (Dwivedi et al., 2022). Furthermore, the evolving digital skills gaps within the event industry will also need to be addressed to enable event professionals to create engaging and immersive virtual, hybrid or meta event experiences.

Despite these challenges it is proposed that 'seamless, playful engagement in virtual or augmented digitally connected environments' (Jungherr and Schlarb, 2022: 6), represent the future of online experiences, as this is the type of experience desired by consumers; suggesting that event practitioners should currently be examining interactive online gaming platforms, such as Fortnite, Roblox and Minecraft to determine what the future of events in the metaverse could be. This view is supported by user and revenue data from events such as Astronomical and the performances of DJ Marshmello and Ariana Grande, which demonstrate that events within virtual environments have the potential to attract large numbers of users who want to be part of a shared online experience.

Although the adoption of metaverse technologies is nascent (Gartner, 2023) and despite the acknowledgement that the metaverse will supersede the microcosm of social platforms, online games, and virtual worlds, currently utilised, there will be events professionals that have identified opportunities and who want to explore the potential benefits of engaging audiences within virtual environments. To facilitate and support the engagement of events management professionals' engagement in metaverse events a three-dimensional framework of event experiences has been conceptualised. The integration of similar models produced by Yung et al., (2022), Gursoy et al., (2022) and Skarbez et al., (2021), is deliberate as it is contended that the variables included on the different paths will enable event professionals to determine the whether the attitudes/motivations of the intended audience and the associated level of immersion required to fulfil the attendees needs and wants, from the event experience, requires the use of technology in order to locate the event in a more immersive, virtual environment. Finally, it is also proposed that by including metaverse technologies within a continuum, which also includes the real-world, it consolidates the notion that events in the metaverse will not replace the in-person events; but provide an opportunity to utilise the possibilities of the technology to create unimaginable event experiences for attendees.

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