

Expert insight

on the metaverse

The rules of the game – Jurisdiction in the metaverse

Cross-border disputes are complicated enough in the real world: determining which rules take priority and which courts can exercise jurisdiction requires a navigation of myriad international conventions and arcane national law. The prospect of those disputes arising in a virtual, borderless world, occupied by users from across the globe has the potential to bring a whole new level of complexity – one which current legal frameworks may be ill-equipped to resolve. Which laws will apply? Whose courts will have jurisdiction to hear any dispute? And how do we resolve any conflict between competing legal systems?

While the concept of the metaverse may be new, this isn't the first time a technological development has prompted these sorts of questions. The same was asked when the internet was first introduced, and with it the formation of legal relationships moving into the virtual world. Just as then, there's no reason to suggest that the introduction of the metaverse means we are bound to enter an entirely new legal landscape complete with "meta-laws" and "meta-courts". The law has proved itself particularly nimble when encountering the brave new world of technology.

Ultimately, the only way to know if current laws will be able coherently to map onto the metaverse is to consider the types of interactions that will take place upon the platform.

In (virtual) reality, what is the nature of the legal relationships being formed, and is there reason to think that existing legal concepts are not well positioned to govern them?

First, there's the relationship between the platform provider and its user. Analytically, would entering the metaverse be all that different from logging into existing social media platforms? After all, the metaverse is, like other platforms, an environment created and controlled by the provider of the platform and populated by fellow users. And, perhaps crucially, to gain entry, you will have to agree to the platform's terms of service. There will no doubt be a great deal of argument about how permissive these terms of service should be – we're talking about one provider potentially being the gatekeeper for an entire world in virtual form – but the question of resolving disputes between platform and user will be relatively straightforward: it will be whatever is stated in the terms of service. If you don't like the terms of service, don't enter.

Second, there's the relationship between those setting up their virtual 'stalls' and the users, with whom they seek to transact. These are the virtual shops, concert halls, and sports arenas. Take, for example, a purchase made in the metaverse from a virtual shop – is this situation so outside the realms of what our laws currently encounter that we need to go back to the drawing board? Or, in fact, is it broadly similar to how we transact online at the moment? Online shops will have their terms and conditions setting out the governing law and jurisdiction should any problems arise, and the user transacts on those terms. Companies will have to be careful to ensure that their choice of law and jurisdiction clauses leave no room for doubt and be alert to the applicability of local laws which may intervene in such areas for example on the grounds of consumer protection. And by "local" we mean the place in which the user is physically located: it's easy to get carried away with the idea that a metaverse user has no physical location such that current norms of international law have no application. Again, given the wealth of laws and conventions governing jurisdiction and choice of law, it's hard to see states abandoning all of this in favour of an entirely new system simply because someone is virtually (but not physically) located somewhere else.

So far, so (relatively) straightforward. A third category, however, becomes more problematic.



What about relationships between users in the metaverse?

Contractual relationships give rise to fewer difficulties: parties will be at liberty to choose the terms under which they contract. There may be problems of evidence and enforceability should any dispute arise (potentially meaning that the platform will have to become engaged) but otherwise the problems should not be beyond the capabilities of existing legal frameworks. Self-determination of jurisdiction should be encouraged.

If no agreement is reached as to the terms of a contract between the users, or a dispute arises that has nothing to do with contract law, problems begin to emerge. Suppose, for example, a user is defamed in the metaverse. What country's defamation laws apply? Where has the damage occurred? Suppose that defamation mutates into harassment. Is it criminal? According to whose law? To whom should the potential victim turn? The answer cannot be that these situations can all be dealt with by the platform's terms of service, demanding that people comply or else are removed from the platform. "meta-justice" enforced by "meta-police" is not the answer.

Instead, a choice will have to be made. Either a whole new set of international laws and conventions will have to be created to govern these new situations, something that would require unprecedented levels of international consensus (leave aside an appetite to engage in these questions in the first place). Or "metatorts" and "meta-crimes" will need to be analysed in similar terms to how the law currently addresses online activity – we do not have conceptual difficulties dealing with harassment and defamation in the online world. Yes, existing legal concepts of "nationality and "territory" might at times be an awkward fit with the language and ideas underpinning the metaverse, but if the alternative is years of international deliberation during which a wild west is allowed to develop, it's likely that many would prefer to stick with what they know.

It is a feature of emerging technologies that legislators are continually having to play catch-up to ensure that adequate legal protections are place. This is right and proper. The law cannot – and should not – seek to outrun the pace of technological advance. To do so would have a chilling and stifling impact on the progress of technology. Critically, however, it is incumbent on lawyers and legislators to ensure that the delta between technology innovation and the relevant applicable legal regime does not grow too wide.

This requires early engagement with nascent technologies – such as the metaverse – to understand and frame the legal questions in a transparent and correct manner. In this regard, the recent project of the UK Law Commission, *"Digital assets: which law, which court?"* is an important and welcomed part of the debate. It also calls for a dexterity of legal thought and reasoning to allow existing legal concepts to evolve to support the development of new technologies for wider, societal benefit.

Cross-border disputes have always posed tricky questions of jurisdiction. Whilst the metaverse has the potential to be a game changer, we should not overcomplicate the jurisdictional rules of the game.





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The gambling sector is constantly evolving with more variety and options for customers than ever before. Entain has revolutionised the UK racing scene by introducing an immersive virtual reality experience which allows customers to go head-to-head with other virtual riders. SlotsMillion allows customers the choice to enter a VR casino using a headset or experience a lobby on their computer that resembles a 3D video game. Operators have invested huge sums of money to ensure that they are ready to launch their products in the metaverse.

Operators are constantly looking for new ways to entice customers and provide experiences that separate them from the rest of the market. However, in a world where the

Gambling Act 2005 dates back to before crypto currency, blockchain and virtual reality existed, we must ask ourselves: are we ready to gamble in the metaverse?

The metaverse is still a developing technology; the most widely accepted definition of the metaverse is a "virtualreality space in which users can interact with a computer-generated environment and other users"1.

While many operators have begun to invest in the metaverse, questions remain as to how individuals will gamble in this new space. Unlike traditional online casinos in which customers play games on their phone or over a screen, the metaverse attempts to replicate the full casino experience. Customers can walk through a casino and experience a digital representation of the environment using a

unique avatar. It is expected that customer's will be able to control their avatar's behaviour in a similar way to how they conduct themselves in the real world. By engaging and interacting with other avatars, customers will be able to monitor the body language and facial experience of their opponents when sat at poker table, for example. Avatars will become the customers of tomorrow.

It is likely that, instead of using fiat currency, metaverse casinos will seek to accept cryptocurrency as payment for gambling as a means of engaging with an audience that has already adopted, or will adopt, blockchain-powered technologies as the 'new normal'. A metaverse casino requires a participant to convert their fiat currency into one of the crypto currencies accepted in the metaverse and deposit funds using a crypto wallet. So, unless you already own a lot of cryptocurrency, players will need to use a crypto exchange to purchase cryptocurrency before they are able to play. We expect operators in the metaverse to conduct themselves in

Litecoin.

How gambling in the metaverse will ultimately be regulated is yet to be determined, primarily due to the wider unknowns surrounding the metaverse. Key considerations are how operators identify customers entering the metaverse and how regulators will get comfortable with the source of funds used to gamble in the metaverse.

happen?

Definition of 'metaverse' from the Oxford Advanced Learner's Dictionarv



different ways; some will provide winnings in NFTs, while others will provide winnings in the cryptocurrency that they decide to use, for example Bitcoin, Ethereum or

We need to understand how gambling in the metaverse will be regulated before operators can open their doors to customers in the metaverse. So, what needs to be answered before this can

Financial regulation & the use of crypto assets

The interplay between crypto assets and financial regulation is a highly complex and rapidly evolving area. As set out above, it is widely regarded that gambling in the metaverse will occur via the exchange of crypto assets as payment for opportunities to gamble. The Great Britain Gambling Commission ("Commission") has released guidance² on the use of blockchain technology and crypto assets in gambling and what is needed if operators wish to use this as a means to deliver gambling products.

At present, the anonymity surrounding cryptocurrency has proved problematic with operators who are unable to provide adequate source of funds in relation to crypto assets. As such, cryptocurrency carries a higher risk of money laundering and terrorist financing risks for gambling operators by virtue of the fact that it is more likely to be exploited by criminals and money launderers. In order to keep crime out of gambling, it is the responsibility of the operator to understand the source of all funds that come into its business including all crypto assets.

Regulators and legislators are not known for their speed in adapting to new and emerging technologies. Unfortunately, at

this stage there are more questions than answers. The Commission's guidance recognises the interest from stakeholders over the use of crypto-assets; however, it acknowledges various challenges that arise from accepting crypto assets directly, such as (i) how fluctuations compared to fiat currency will be dealt with (this is likely to affect important thresholds, such as responsible gambling tools and AML triggers); (ii) how customer funds will be treated in the event of insolvency (one only needs to open the financial sections of the paper to read about the recent FTX scandal and it is likely that this will make regulators even more nervous about embracing crypto as an accepted payment method for use in connection with gambling); and (iii) what information has been provided to consumers to ensure they are aware of the risks associated with using crypto-assets as a payment method.

Until crypto assets become a regulated currency recognised by the Commission, licensed operators will struggle to use this currency in the metaverse.

Consumer protection

The legal challenges around the metaverse and how consumers are protected start as soon as the software is developed and released into the metaverse. If the software developers

have no control over the virtual environment, then who will take responsibility for illegal activity in the metaverse? How will customers be protected from illegal activities, such as theft and identity fraud and how will marketing material be communicated to customers in this virtual world?

Additionally, as with traditional online gambling, any gambling operator who provides gambling products in the metaverse will need to ensure that they have appropriate measures in place to identify and act when customers exhibit harm. When gambling went online, gambling operators faced new challenges about how they could monitor signs of gambling-related harm which required careful consideration given they could no longer assess the behaviour of a customer gambling in-person. Gambling in the metaverse will present similar new challenges which will need to be addressed prior to customers actively participating in gambling in the metaverse.

Operators need to pay particular attention to their terms and conditions and marketing communications to ensure customers are protected and that all relevant material has been carefully communicated to them prior to entry into the metaverse. There are also some novel issues that have not been resolved, such

as managing consumer refund rights in relation to crypto assets. How will existing customers of an operator be informed of the new gambling world that occurs in the metaverse?

Child protection

Child protection is an increasingly important topic, with various territories recently introducing new child protection laws. These will be highly relevant in the metaverse where anonymity is more prominent, resulting in the potential of easier accessibility to children participating in gambling related activities. The gambling sector must protect children, young persons and other vulnerable persons from being harmed or exploited. Until there is guaranteed protection of these individuals, we will never be ready to gamble in the metaverse.

The question still remains; are we ready to gamble in the metaverse?



² Blockchain technology and crypto-assets:



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Data protection & the metaverse

I have no doubt many of you feel the UK GDPR comes up constantly. Appointing a new supplier? Article 28 of the UK GDPR. Transferring data to the US? Chapter V of the UK **GDPR** and a Transfer Impact Assessment. Updating your T&Cs? Don't forget about your privacy policy. Sitting around feeling content? You never know when a data breach might strike!

While it's true that the UK GDPR has a wide scope affecting many businesses, there are many scenarios where it doesn't apply. Let's look at some real-world examples.

I need to purchase a new t-shirt – I make my way to a retail store, browse various items, speak to the shop assistant and try on a couple of t-shirts. I also try on a colourful, loose-weave jumper I secretly want but fear I can't pull off. My reservations on said jumper were correct so I wonder up to the counter, purchase a new t-shirt with cash and leave.

Putting aside the issue of CCTV, this entire situation was a UK GDPR-free experience. There was no processing of

my personal data, as nothing was captured digitally.

Similarly, a discussion about the weekend in the kitchen at work is a UK GDPR-free experience.

But now let's talk about the metaverse

People sometimes ask me to what degree data protection will apply in the metaverse and my most casual response tends to be "IT WILL APPLY TO EVERYTHING!".

The metaverse at its crudest, is permitting people to live out their lives, or aspects of their lives, in a digital world. This means everything that's happening is happening digitally - and if it relates to an identifiable person, it will be considered processing, which is the trigger for UK GDPR to apply. Let's look again at the examples given above.

In the metaverse I decide to purchase a new 't-shirt' for my avatar. I pop to my friendly metaverse retail store, look at various items of 'clothing' and try some on. I go for the natty loose-weave 'jumper' this time, as my digital persona is cooler and bolder than I am. I purchase the 't-shirt' and 'jumper' for my avatar with some 'metaverse-coins', and I leave. Everything that happened here has been recorded: the items I looked at and tried on, the route I took and the purchases I made. And there will have been more: the time I

arrived, how long I took, what I was 'wearing' etc. Everything that related to an identifiable individual (my avatar connected to my metaverse account), would have been recorded as it would be considered processing.

Similarly, in the work-place kitchen example, everything discussed will be processed: who was there, what time the conversation took place, who said what, and much more will be processed.

I say all of this not to scare you or warn people off the metaverse. Technology enriches our lives in many ways. But there are numerous significant data protection aspects to consider when thinking about setting up a metaverse (or even setting up in a metaverse) - such as privacy notices, lawful bases, specified purposes, retention, processors, data transfers, security, DPIAs and LIAs.

The good news is that that these issues are unlikely to be insurmountable and considering them earlier will make life a lot easier than trying to retroactively become UK GDPR-compliant - some may have bad memories of doing just that in Spring 2018.

It's also likely that we'll have more guidance from the ICO on how the metaverse interacts with UK GDPR - both say they aim to ensure that data protection keeps up with new technology.





For now, the key message to take away is that data protection absolutely will apply in the metaverse - in fact even more there than it does in our existing world

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As virtual and physical worlds become increasingly linked, the concept of the metaverse brings exciting new opportunities for businesses to connect and engage with customers. While we're yet to see what a fully-formed, single metaverse will look like, we can already find aspects of the metaverse in some of the latest blockchain-based video games digital economies and identities, decentralised governance, and virtual collectibles such as NFTs are all features we expect to see in the metaverse.

Mass adoption will, in part, be reliant on this virtual environment offering the same protections to consumers as they are afforded in the physical world. However, the application of existing and upcoming regulation in the metaverse won't always be straightforward. In this article, we focus on some of the potential challenges within consumer

protection and advertising law that businesses looking to operate in the metaverse should bear in mind.

The regulators and their powers

The regulators for consumer protection and advertising law in the UK (the CMA and ASA respectively) have already made clear that the metaverse is on their radar. Whilst both regulators appear keen to support this next stage of digital innovation, consumers' interests will be their priority.

An adverse ruling from the ASA can cause significant damage to a business's reputation. Amongst other sanctions, the ASA can place its own paid-search ads online to point out an advertiser's noncompliance and, where advertisers persistently breach the rules, refer cases to Trading Standards as a legal backstop.

UK consumer law already carries several sanctions for breach (in addition to the inevitable reputational consequences) but under the now-accelerated consumer law reforms in the UK,¹ the CMA will be able to take direct enforcement action for breaches of consumer law, including the ability to impose fines of up to 10% of

global turnover. The risk of this significant financial sanction will see businesses placing greater emphasis on their compliance with consumer law, and doing so in the metaverse will bring additional challenges.

Recognising ads in the metaverse

Advertising in the metaverse has the potential to take on many forms due to the interactive nature of this virtual world. As an unfamiliar territory to many, it may not always be easy to identify what is and what isn't an ad. The metaverse presents various ways for companies to advertise their brands, from ad placements on virtual billboards to sponsored experiences designed by brands within third party games or events in the metaverse. Brands can advertise on virtual products or even on avatars themselves. However, in the UK, marketing communications must be obviously identifiable as such. Brands must be careful not to blur the lines between advertising and entertainment or educational content. Sponsored experiences where brands have partnered with third party events or games in the metaverse could fall foul of this rule, as the sponsored nature of the event or game may not always be made clear. Brands

to identify.

The virtual influencer

When it comes to influencers in the metaverse, it should be made clear who is in control of the avatar representing that influencer. Brands may create their own avatars to promote their products and services, partner with famous digital or "non-human" influencers such as Lil Miquela (who has now appeared in ads for several major fashion labels) or collaborate with the avatars of popular human influencers. These possibilities are all likely to further blur the boundaries between what is and isn't a marketing communication, and also present a risk of misleading advertising. Advertisers must be careful not to give the impression that their products have been endorsed by another without their permission.

For influencers working with brands in the metaverse, it may be difficult to make this disclosure prominently on the relevant interface or avatar. For example, if an influencer's avatar hosts a virtual event where they have received compensation to wear a brand's virtual clothing or promote a brand's content, the influencer

¹ At the time of writing, anticipated to be brought into force during the course of 2023.



should consider how they can make disclosures sufficiently prominent for users

would need to find a way to make this known to users in that space. Unlike labelling of ads on social media, there is no obvious space for such disclosure. Influencers will likely need to show that they've made a significant effort to make their audience aware of a commercial collaboration. Both brands and influencers will need to explore how they can adequately label their advertisements in the metaverse to avoid an unfavourable ruling from the ASA.

Consumer terms and conditions in the metaverse

Businesses providing goods, digital content, and services to their customers in the metaverse will need to adopt the same consumer law principles as they do in the physical world, including establishing a fair and transparent set of contractual terms and conditions. Whilst this is more easily achievable in a centralised metaverse, where a central authority governs a controlled space, decentralised metaverses present a much greater challenge.

Contract terms relating to the sale of virtual assets may be unclear within a decentralised metaverse or may become disconnected from the accompanying asset, where there are multiple metaverses with limited interoperability between them. To ensure that contract terms are properly incorporated into an enforceable contract under English consumer law, they must (among other things) be adequately brought to the

consumer's attention. Failing this, terms can be deemed unincorporated and therefore unenforceable. Businesses may therefore need to consider a metaversefriendly mechanism which follows a virtual asset, requiring customers to certify that they have read and accepted the terms of sale before purchase.

Terms can also be deemed unenforceable where they are not sufficiently transparent, i.e., written in plain and intelligible language. Virtual assets within the metaverse such as NFTs should therefore be accompanied by a natural language contract - a smart contract alone, setting out the terms in code, would be highly unlikely to meet the standard of transparency required under consumer law.

Interoperability and liability

In the context of the metaverse, businesses should tread carefully when making claims about their products, digital content and services, particularly where use of that product, content or service requires interaction with other elements within the metaverse or other external metaverses.

UK law implies a number of terms into contracts of sale to consumers, including that the relevant goods/digital content/services will be of satisfactory quality, fit for purpose, and compliant with any description provided. Where these implied terms are not satisfied, the consumer has statutory rights and remedies including (depending on the

context) the right to a repair, replacement, or a price reduction. Businesses should consider what they can realistically deliver in a decentralised metaverse, which will operate mostly outside of its control.

An undoubtedly larger challenge, specific to the metaverse, will be in establishing who carries liability - does fault lie with the business selling the product, content or service, the creator of the metaverse, or third party that developed the product, content or service? Does liability shift from one party to another during the lifecycle of a transaction (or chain of transactions) in the metaverse and, if so, when and how does this shift take place? Businesses should think about how they can mitigate their liability by putting in place appropriate contractual limitations on liability within their consumer terms, whilst noting that limitations of liability in business-toconsumer contracts must be very carefully navigated in order to be fair.

Conclusion

world.





Whilst the metaverse brings a multitude of commercial opportunities, for businesses to really adapt to life in the metaverse and bring consumers with them it's essential they consider how current and future law will impact their ability to operate successfully and fairly in this new virtual





Music in the Metaverse

Not many artists can say that 27 million people watched their gig, but Travis Scott can claim that total for his 2020 gig in Fortnite. In the same year, Lil Nas X beat that count by another 6 million for his gig on Roblox. Bloomberg Intelligence has predicted that the metaverse could be an \$800 billion market by 2024. These numbers have helped to send the music industry into a frenzy of speculation about the future of music in the metaverse.

The potential revenue seems vast –how can that be realised?

The answer must lie in adapting the existing music licensing systems to be as flexible and efficient as possible. That's no simple task, since the use of any music track requires a licence from at least two separate copyright owners, and often three or four (and that doesn't include performers' rights). The copyright in the recording will be owned by either a record label or (increasingly these days) by the artist themselves. The copyright in the underlying musical composition will be owned or controlled by one, two and sometimes up to four or five different music publishers, depending on the number of individuals involved in writing the song, and those music publishers will license their rights via a series of collective rights management organisations. The licensing structures are there, but they will need to adapt intelligently to harvest the potential value the metaverse offers.

Of course, there is no one 'metaverse', at least not yet. There are many platforms offering different types of interactive worlds, all of which could be described as 'a' metaverse. The dream is that interoperability will one day enable your avatar (and your credit) to move seamlessly from one world to another, however incongruous your Minecraft avatar may look on your PS5. But from the music industry's perspective the current individual platform market makes the licensing conundrum that much easier. since the burning question for the music industry, and indeed for all copyright owners whose IP is used in the metaverse, is: Who to license? In a virtual world where players, uploaders, platforms, content owners, sponsors and advertisers will come together to create a complex minestrone of experience, who should bear the burden of the required music licences? If all elements appear on one platform operated by a single company, such as Meta or Roblox, the answer is relatively easy: that company is the licensee. That view is endorsed by Article 17 of the DSM Copyright Directive. But as the metaverse develops as some hope it will, the answer becomes less clear.

In terms of copyright law, adaptation may also be required

There will inevitably be communication to the public in the metaverse, and unless the activity is live (and not recorded) there will also be reproduction. Both are the subject of established music licensing regimes in all major jurisdictions. The issue, as noted above, is who is doing the communicating (and for that matter, the reproduction)? Article 17 now requires that under EU law the platform is liable for the communication to the public of useruploaded content, but not for content uploaded on a commercial basis, or where the activity generates significant revenues. So in the case of an online gig, is the artist responsible for the music copyright licences rather than the platform?

Difficulties may also arise on the subject of synchronisation, a term which does not appear in any copyright statute but which describes a key source of revenue for the music industry.

Synchronisation, roughly speaking, is the act of synchronising audio with video, and many musical experiences in the metaverse will involve synchronisation. The question is how that synchronisation will be effectively and efficiently licensed since the present system mostly involves case-by-case negotiation.

The music industry is already getting into the game.

Warner Music Group has acquired a digital property on the Sandbox platform that serves as both a music theme park and concert venue. Roblox has partnered with Sony Music. Universal has entered a collaboration with Genies, a company that creates virtual avatars for artists. The newest recording agreements under which labels sign their artists now give the labels the exclusive metaverse rights, hence their metaverse moves.

For older artists whose recording contracts may not include such rights, and for artists out of contract, the possibilities are tantalising. Having appeared at Decentraland's Metaverse Music Festival in 2021, the artist deadmau5 said "Web3 will revolutionise the way that artists and fans connect. It's the future where they will have complete control over their creations and their vision. We can connect directly with fans without any middle men." Quite how that revenue will flow to artists is a question yet to be determined, and we suspect that many different models will emerge. Tickets and experiences can be sold as NFTs, artist can sell virtual merchandise, and of course sponsorship is often an option for the bigger names. The terms of all of these will be the subject of much negotiation.

In the meantime, platforms and DSPs providing gateways into virtual worlds should be ready to welcome music in all its forms through their portals, and the terms of doing so can be worked out with willingness on both sides.



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Real estate in digital universes - ground beneath your feet or code in

The sale and purchase of virtual plots of land has skyrocketed. Over US\$2 billion was spent in 2022 alone on the acquisition of space on metaverse platforms such as Sandbox, Otherside and Decentraland. Studies anticipate that this expenditure will double or even triple over the next 3-5 years.

It is very difficult to anticipate and navigate the legal challenges of investing in, owning and developing virtual land. The basic idea of the 'metaverse' itself is still in its infancy and there's limited cohesion over what the term even means beyond the basic concept of 'virtual' worlds or augmented environments in which people can interact.

Can the process of purchasing space in such a volatile and novel market realistically have anything in common with the purchase of real-world space, or the practice of real-world property law? Will the same basic principles and documentation soon apply, or will such transactions evolve in an entirely novel way? What jurisdictional expertise will be relevant?

The similarities

The real world is finite and controlled by the laws of supply and demand. Similarly most virtual worlds have been (or are being) set up so that the amount of land in it is finite and the laws of supply and demand can take effect.

The principle of 'location-location' also applies. Putting aside the fact that a user can usually travel instantly to any part of a metaverse at any time, the more popular the particular space within the metaverse, the higher the demand will be and the greater value that virtual land will be able to generate. Earlier this year a private buyer paid over US\$450,000 to acquire a plot of land next to rap artist, Snoop Dogg's virtual house in The Sandbox. Similar transactions of prime digital real estate will surely follow.

The differences

First and foremost, the metaverse market is undoubtedly tumultuous. A purchase of space in a metaverse, at any value, is banking on both mass adoption of the metaverse itself as well as the relevant platform where the virtual land is located. That is by no means certain.

Also, whilst most metaverses are finite, there is nothing stopping site owners from expanding their platforms indefinitely, or from anyone else from building a competing virtual world. It's difficult to imagine a platform owner not simply coding more space if they've successfully sold all the 'land' they originally created. While this may be good news for site owners, the potential for unlimited supply will quickly unbalance the principle of 'supply and demand', which should otherwise drive-up prices for subsequent purchasers.

In addition, differing visions and direction for the metaverse may present a novel obstacle. What if parallel competing metaverses are ultimately never fully interconnected, but are stand-alone and isolated digital spaces? A fragmented metaverse is likely to be a less compelling proposition for users and will impact interest, value and utility.

How does it work for now?

NFTs - non-fungible tokens - are central to how virtual land 'ownership' currently works. An NFT is a digital asset which is uniquely identifiable within the technological framework in which it exists. Unlike other tokens, NFTs are not interchangeable (fungible) with each other. If an NFT is linked to a digital asset, such as art or media, it can be used to evidence the transfer of the underlying digital asset from an initial minter to subsequent holders of the NFT. Virtual land transactions have been made possible by linking the right to control and (partially) modify virtual spaces in the metaverse to an NFT.

Perhaps most relevant for a virtual land NFT holder will be the status of the legal rights linked to its NFT and whether the NFT actually provides any sort of ownership rights to the underlying virtual plot of land itself or the buildings thereon. Arguably, the rights linked to the plot of virtual land will only be rights to control and use the land in a particular way (such as by developing a building on it), not necessarily ownership rights to that plot itself.

an impact?

The conflation of property law terminology for 'real' and 'digital' space can be confusing, but users are ultimately purchasing an NFT (or NFTs) with rights in respect of a virtual landnot land itself. Real estate laws do not currently apply to the sale and purchase of such assets and it's difficult to imagine that changing in any material way. Contract law will likely be relevant, as the terms and conditions of the relevant platform will be key. Trust law may also play a role, depending on whether a relevant NFT for a particular digital world is held directly by the user or by the metaverse platform on their behalf. Some limited real estate law may ultimately work its way into sale and purchase contracts but this is by no means certain.

Above all else, it should be kept in mind that, unlike physical real estate, virtual land depends wholly on the platform owner for its continued existence. Users must therefore understand that ownership of a virtual land NFT brings far more risk than ownership of real estate in the physical world which is permanent, finite and controlled by long established laws. Metaverse real estate is the wild digital west and carries great risk as well as great potential rewards.



Will real estate laws start to have

Partner



Decentralised autonomous organisations (DAOs) in the metaverse

Decentralised autonomous organisations (DAOs) will proliferate as an organisational model for the non-centralised digital economy, particularly in its focal point – the metaverse.

Of the thousands of DAOs (or entities incorporating DAO concepts) exist today, most are in DeFi,1 hardly any are in the UK,2 and enormous value has already flowed through, been created, used and sometimes lost by DAOs as the vehicle of choice for Web3-native proponents. Significant questions arise for the role played by English law and the common law more broadly on shaping the use and recognition of DAOs in furthering the metaverse, which if left unanswered could see the UK left behind as a jurisdiction that encourages blockchain-related investment and innovation.

What is a DAO why do they matter for the metaverse?

DAOs are a revolutionary decentralised approach to organisational structure whose establishment, rules and functions (to varying extents) are coded on blockchain systems, smart contract or other software-based protocols.³ DAO tokenholders may participate in decision-making and gain access to exclusive services or tradable on-chain virtual assets depending on the rights granted by the token.

DAOs are often contrasted with traditional organisations (think private companies, partnerships or co-operatives) that function privately, have less transparency and deliberately centralised governance structures.

The following two characteristics distinguish DAOs from traditional organisations:

• Decentralised. A DAO is not controlled by a single individual or group, but instead operates based on the 'democratic' collective decisions of its members using a set of rules encoded into smart contracts on the blockchain protocol governing the DAO. A DAO is rarely fully decentralised or autonomous. Rather, DAOs exist on a spectrum, with some decentralising or autonomising only a few components or limiting its application to control a single purpose entity or a single fund. Decision-making within DAOs typically remains highly concentrated amongst governance tokenholders.⁴ Completely autonomising a sophisticated

entity's entire operations also dramatically increases the technical complexity required to achieve full decentralisation or automation, as well as opening further the scope for exploits or mischief.

Autonomous. A DAO's activities, functions and decisions can operate without needing human intervention; if the predefined conditions are met, the smart contract will immutably execute a particular action deterministically. This is possible because the rules that govern the DAO are encoded into smart contracts on a blockchain, and the DAO can automatically execute these rules without the potential for human error (or, importantly, human discretion).

DAOs are already important in the context of crypto-token (cryptocurrency) and decentralised finance protocols, as crypto project proponents also adopt a decentralised approach to its governance structures. DAOs can also be used to govern many communities that have been and are planned to be set up in the metaverse, including social structures or organisations involving multiple participants set up for investment purposes, such as to invest in or trade crypto-tokens and non-fungible tokens (NFTs), as well as fundraising or charitable purposes. Many widely-used blockchain software protocols also have a DAO structure governing developing, modifying and maintaining open-source software infrastructure for its underlying blockchain systems or decentralised We expect to see these structures used more broadly in the metaverse, and even adopted by particular metaverses as their own governance structure if anything as the ultimate advertisement for being truly Web3-native.

What are some challenges to implementing DAOs for the metaverse?

Implementing a DAO in the metaverse presents a number of challenges and uncertainties stemming both from the nature of DAOs themselves and also from the metaverse environment within which they operate. Its revolutionary and nascent nature also present significant challenges and opportunities to regulators seeking to enhance market trust, improve market operation through encouraging innovation, and prevent harm from occurring. Prospective DAO proponents and participants must give consideration to these issues to ensure the success and sustainability of any DAO.

¹ DeFi accounts for 83% of all DAO treasury value and 33% of all DAOs by count: Forbes, The State of DAOS and what that can mean for ² Law Commission of England and Wales, Decentralised Autonomous Organisations,

IBM – Smart contracts (https://www.ibm.com/uk-en/topics/smart-contracts) ⁴ This raises guestions around whether this contradicts true decentralisation principles



Several key issues to implementing DAO in the metaverse include:

- Clear and concise governance rules. Due to a DAO being decentralised and autonomous, it is important for the DAO to have transparent rules and guidelines to ensure its proper and efficient function. This critically includes rules for voting on proposals, decision-making, managing the DAO's assets and resources, complaints handling and dispute resolution procedures. These processes must ensure that all members have the same opportunity to participate. Such rules must be straightforward and concise particularly to the extent that any of them are managed on-chain by smart contracts.
- Effective and efficient communication between members. A centralised entity typically is responsible for messages between the organisation and its members or stakeholders. As a DAO is decentralised, its members must be able to easily communicate and collaborate with each other to make decisions, execute plans and give effect to its governance rules. This often involves specialised communication and collaboration tools, such as dedicated chat rooms, forums, and real time voting platforms. The rules of the particular metaverse within which the DAO operates will also impose requirements on how communication occurs between holders. These platforms are also critical for DAO leaders to communicate effectively with members and work towards its goals and objectives.
- Legal recognition. While the metaverse is, conceptually, a jurisdictionallyagnostic virtual world, the recognition of DAOs and the rights or obligations afforded to its members will still very much be affected by (real world) legal principles. A DAO is not currently recognised as a legal entity in the UK, so it cannot own assets, enter into contracts or provide its members with liability protection.⁵ This is a significant impediment to realising the potential of DAObased organisations. Some other jurisdictions recognise DAOs structured as limited liability companies (LLCs) as a form of "legal wrapper", where the LLC is liable for contractual and legal obligations and its members have limited liability
- protection,⁶ while other jurisdictions offer corporate vehicles whose concepts are more aligned with the ethos of a DAO.⁷ While various jurisdictions are considering how laws and regulations treat DAOs,8 it is also unclear which law would apply to particular metaverses, let alone to DAOs that operate within them.

• Shortcomings with lex cryptographica. There are already examples of DAO code being exploited by adverse actors in a manner arguably permitted by the underlying DLT code.⁹ English common law does not recognise a general fiduciary or tortious duty of care owed by software developers to users,¹⁰ and finding one even where software developers could implement software patches to address an exploit in the blockchain code to enable a cryptoasset owner to retain lost cryptoassets seems unlikely.¹¹ The rules for participating in a metaverse could also stipulate rules for DAOs to ensure against harms and provide remedies to its communities in a manner that upholds the values of that metaverse, enforced by mechanisms such as requiring the underlying code to be open source, publicly available, subject to audit and meet minimum quality standards, and mitigate the risk to tokenholders of potential harm.¹²

Its increasing use and prominence as metaverse adoption expands will bring forward critical discussions regarding the legal status of DAOs, liability carried by its participants, and the role played by the law to shape the rules and regulations applying to them. Providing legal certainty to DAOs in the UK will support its adoption as a blockchaindriven decentralised approach to organisations and further the UK's ambition to become a global hub for metaverse-related crypto investment.¹³



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⁹ In 2016, over \$60m of Ether was siphoned from a DAO called "The DAO" by exploiting the logic of its underlying smart contract. The "attacker" infamously posted an open letter (albeit its authenticity is disputed) to The DAO's members and the Ethereum community defending their actions, saying that they legally used a legitimate feature of the smart contract that anyone could have exploited. ¹⁰ Tulip Trading Limited v Bitcoin Association for BSV [2022] EWHC 2 (Ch).

⁵ In the UK, a DAO is likely treated as a general partnership.

⁶ Vermont recognises a "Blockchain-based" LLC whose governance may be partially or fully decentralised: Vermont Legislature (https://legislature.vermont.gov/statutes/section/11/025/04173). Wyoming recognises algorithmically managed DAOs as LLCs, regulating aspects such as majority decision-making, quorum, disclosure requirements, minimum requirements for regulations in bylaws and the appointment of a registered agent: Wyoming Legislature (https://www.wyoleg.gov/Legislation/2021/SF0038). See, for example, the foundation company structure in the Cayman Islands offering separate legal personhood and limited liability while also

retaining features of a trust.

⁸ See, for example, the Law Commission of England and Wales public call for evidence on decentralised autonomous organisations:

¹¹ The Tulip case (ibid) is on appeal

¹² See, for example, Rule 4 of the DAO Model Law: ¹³ The UK government announced its plans in April 2022 to position the UK as a global hub for cryptoasset technology and investment: Press

release (https://www.gov.uk/government/news/government-sets-out-plan-to-make-uk-a-global-cryptoasset-technology-hub).

Peer-to-peer platforms in the metaverse

The metaverse offers new experiences and services that will enable users to interact more quickly, seamlessly, and at a lower cost. Decentralisation will be a key focus to enable interoperability and scalability in this virtual world. The experiences and services in the metaverse will also need to reflect this decentralised approach.

Peer-to-peer (P2P) systems backed by distributed ledger technology (DLT) can provide a solution to this challenge in many ways. As excitement grows around Web 3.0, we can expect that decentralisation will be a pervasive feature of the metaverse. DLT-based P2P platforms will allow buyers and sellers to interact directly without the need for a central authority, could provide a decentralised approach to transactions in the metaverse and present a truly Web3-native community building, experience-sharing platform. This could mean that anything from social media networks to virtual marketplaces and even payment services could be available on P2P platforms.

Web2 to Web3 P2P

One of the most well-known examples of a Web2 P2P network is Napster, the filesharing platform that let users share and download music files. While Napster was incredibly disruptive, it was eventually shut down by regulators for failing to protect the legal rights of content creators.

Since then, the P2P framework has been used for various purposes, including the decentralised virtual currency Bitcoin. Bitcoin added a new dimension to the P2P model by using blockchain technology to underpin transactions and transfer value. By creating an unchangeable record of transactions, blockchain technology made P2P networks more secure and removed the need for third-party intermediaries in the payments world.

The applications of P2P blockchain technology have continued to evolve, being used in finance, gaming, real estate, and even ride-sharing. In the metaverse, P2P blockchain applications would enable even more opportunities for decentralisation.

Disruptive opportunities as well as challenges

Applying P2P to Web3 brings with it several opportunities:

- 1. **Content**. Traditional platforms that use a centralised approach to content sharing often struggle with high storage costs, but P2P networks are more cost-effective.¹ Distributed ledger technology (DLT), the technology that blockchain is based on, gives P2P networks a truly decentralised backend and can provide an alternative approach to content storage.² A DLT-backed P2P content platform can allow users to host content locally across the network instead of relying on a central server, reducing the storage burden and improving efficiency. Users can also be rewarded for hosting content, further incentivising the P2P model.³ In a single metaverse world with a large number of users creating, consuming, and sharing content, P2P content platforms could offer many of the benefits that will be essential for the success of such platforms in the vast metaverse
- 2. Sharing economy. DLT-based P2P platforms could enable people to directly rent out their assets, such as cars or houses, without the need for a central authority to facilitate the transaction. This could be extended to completely digital assets that exist in particular metaverses. This would lead to lower fees

vards members of the network for providing other users with access to the media on their co



WS, for example, provides data storage for Netflix, Disney+, HBO Max, Discovery+ and Hulu

The Aioz Network rewards users for hosting streamable content, which is then delivered to other users from local hosts rather than a cer r. Chainflix also provides an example of a platform that encourages users to assist with hosting content in return for a reward, in this can earn Chainflix coins.

and more efficient use of resources without profits being retained by a centralised authority.

- 3. Interactive entertainment. P2P networks could allow for the creation of decentralised virtual worlds, where users have greater control over their ingame assets and can directly interact with other players without the need for a central server. This will create more immersive and interactive gaming experiences, engaged communities and token economics opportunities that can be ported between games entirely within the user's control.
- Music. P2P networks allow musicians to connect directly with their fan 4. community and distribute their music directly without needing a central ownership or licensing authority. DLT-based P2P networks could also be used to secure and authenticate music ownership, access rights and facilitate royalty streams managed immutably on-chain.⁴
- 5. Social media. By allowing users to directly connect with each other and share content without the need for a central authority, P2P social media platforms could provide a more decentralised and privacy-friendly alternative to traditional social media networks.⁵ This gives users greater control over their data and a more equitable distribution of value within the social media ecosystem. Additionally, the immutable nature of P2P networks, enabled by blockchain technology, could improve the authenticity of content shared on social media. Actions on a P2P social media platform would be fully traceable on the blockchain, making it harder for users to spread false information or engage in other forms of malicious behaviour.

P2P networks however also give rise to a number of challenges:

1. Enforcement and the absence of a central authority. In traditional centralised networks, a central authority is responsible for enforcing rules and regulations, and can be held accountable for any failures to comply with these rules. In a P2P network, there is no central authority, which makes it more difficult to regulate illegal activities or enforce terms and conditions. This can create legal challenges and may make it harder for P2P networks to gain the

cquired by Spotify in 2017, MediaChain issues on-chain unique IDs for each piece of music content and provides m acts, allowing artists to handle their royalties directly

trust of users. There may also be issues with data protection and IP enforcement, given the immutable nature of P2P networks. For P2P platforms with non-centralised networks, it could be possible to address liability and create a coherent set of terms and conditions by imposing rules on protocols that would regulate activity on the blockchain. However, it remains to be seen how this would work in practice on the scale that would be needed in a fully decentralised metaverse.

2. Privacy and immutability. Because transactions on a blockchain are transparent and publicly accessible, it may be possible for third parties to track and trace the activities of users on a P2P network. This could potentially compromise the privacy of individuals, particularly if sensitive personal or financial information is involved. The immutable nature of blockchain technology, which is a key feature of P2P networks, can also create challenges. For example, in the context of data protection, the right to erasure is incompatible with a system that makes it impossible to alter information on the blockchain. In IP enforcement, the unalterable nature of P2P networks can create significant hurdles when content is used without the permission of the rights holder.

Web3 P2P networks have the potential to disrupt many industries by providing a decentralised alternative to traditional centralised platforms that aligns with the decentralised digital ethos of the metaverse. P2P networks will play a key role in realising the communities and experiences promised by the metaverse, while at the same time offering a means for providers to share products and services with consumers (and each other) at lower costs, greater efficiency, and demonstrating a more equitable distribution of value.



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⁵ Aether is a decentralised P2P platform for self-governing communities, similar to Reddit. It provides a network where every user can see what they have received from the network, what algorithm is used to calculate their feed and the integrity of user's posts is guaranteed by cryptographic proofs of work, meaning that nobody else can alter content without the user's knowledge.



With Bloomberg estimating that the metaverse could soon be a \$800 billion market, it is no surprise that the sports industry is beginning to offer sports fans the ability to own content and attend live events from the comfort of their own home. Some of the activations of sports organisations in the metaverse are worth looking into in a bit more detail to better understand the legal, regulatory and compliance issues to keep an eye on.

Digital Stadiums

Premier League champions Manchester City, and its owner City Football Group Limited, have been embracing the potential of the metaverse, signing a threeyear deal with Sony Corporation to recreate the Etihad Stadium in the metaverse and develop new forms of interactive virtual reality content. The partnership will "

", including the skeletaltracking systems developed by its subsidiary Hawk-Eye Innovations, to engage fans around the world. Across the pond, in collaboration with Major League Baseball, the Atlanta Braves opened a digital version of their stadium with the launch of the Digital Truist Park. The interactive ballpark is the first of its kind across North American sports franchises and allows fans to ' in the digital world.

Merchandise

NFT start-up, Fancurve, is developing relationships with football clubs and players to create unique digital designs for fans to wear with their avatar in the metaverse. The start-up raised in early 2022, with investment from former German international footballers André Schürrle and Mario Götze. Fancurve now has agreements in place with and Spanish football club, with the aim of creating unique designs to rival the feeling of buying a replica kit.

Gaming

LaLiga to allow StadioPlus to exploit LaLiga's IP in the Decentraland metaverse. The agreement is designed to "reach out to new generations and boost interaction with fans around the world' by giving fans the opportunity to purchase LaLiga-themed land parcels within the Decentraland metaverse.

As is evident from the examples above, the majority of sporting organisations will either have already entered the metaverse or are considering doing so in the near future. However, before doing so, all brands/organisations need to be aware of the legal, regulatory and compliance risks involved.

Data protection

The metaverse is not limited, or governed, by one specific data protection regime. In fact, many data protection and privacy regimes will be applicable to a metaverse concurrently.

Another consideration is navigating the data transfer restrictions imposed by data

Further practical complexities arise when we consider the rights of data subjects under data protection legislation. How exactly will controllers comply with data subject access requests, considering data would be processed in a decentralised environment, with potentially multiple 'controllers' in the data chain?

Do your due diligence

For sports brands/organisations, this shouldn't differ significantly from the usual due diligence before entering into any commercial partnership. Clubs and governing bodies should bear in mind that the commercial exploitation of the metaverse is still in its relative infancy which naturally makes the financial and legal risks of a partnership more difficult to assess. As part of their due diligence, any sporting organisation should put in place a plan to respond to any PR backlash from its fans once the partnership is announced.



protection laws. What exactly will constitute a transfer in the metaverse? Would this assessment be made with reference to the user's location who controls the avatar in the metaverse, or rather the avatar's location? Or both?

IP

Sports organisations need a robust process in place to protect their IP before entering the metaverse. has set a precedent by filing trademark applications relating to retail store services for virtual goods (class 35), entertainment services (class 35), online non-downloadable virtual goods and NFTs (class 42) and financial services, including digital tokens (class 36). We only have to turn to the recent dispute to see the issues the metaverse presents to brands. Nonetheless, a robust IP strategy (including how its IP rights in clothing and avatars of sports players may be licensed) is key, especially if sports organisations / brands want to capitalise on the online presence the metaverse offers.

Advertising

Earlier this year, a <u>Serie A match</u> between AC Milan and ACF Fiorentina was live streamed in the Nemesis metaverse where fans purchased tickets in the form of an NFT. Much like the traditional live sports sector, advertising will be a major source of revenue in the virtual world.

The Advertising Standards Authority is beginning to issue specific guidance on the regulation of advertising in the metaverse but the key principles with all advertising will continue to apply. Marketing material must be obviously identifiable as such and not designed to materially mislead (or be likely to do so).

Ofcom has already announced that regulation of the metaverse will fall within the remit of the Online Safety Bill, which aims to restrict the sharing of harmful content on the internet. How effective this will be in the metaverse is yet to be seen, but sport brands should nonetheless be aware of their obligations, as well as consequences for non-compliance, under the proposed Online Safety Bill.

Key takeaway

While it's clear that the metaverse is rapidly becoming a key part of sports organisations' commercial strategies, all parties should enter into these partnerships well versed on the potential pitfalls and should ensure they keep up to date on the ever-changing UK regulatory landscape.



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The metaverse is coming, and telecom providers have the chance to get ahead of the game by investing in the highspeed, low-latency connectivity that it requires.

What role will telecoms operators play with the metaverse?

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Cloud infrastructure and connectivity are key enablers of the metaverse. Nobody likes waiting for things to load. This will be even more noticeable in real time, content-heavy, virtual reality metaverse experiences. Metaverse use cases require end-to-end low-latency, high bandwidth connectivity to proximally located edge compute resources.

At the beginning of the Covid-19 pandemic, operators reported a significant increase in network traffic overnight as entire workforces transitioned to entirely working from home. Operators had to quickly deploy additional resources to meet the demands of increased video conferencing, streaming, file syncing and remote desktop working.¹

Widespread adoption of immersive metaverse experiences, coupled with billions of people in developing countries connecting for the first time (not to mention the billions of internet-connected machines sending messages autonomously), will herald a never-before-seen step-change in traffic patterns and demands on telecom operators.

It's up to providers to give end users the power to reach the metaverse. By focusing on areas like edge cloud, cyber security, and AI, providers can become key players in the metaverse ecosystem and secure their future in the process.²

Connectivity capacity key to unlocking metaverse experiences

Metaverse-capable infrastructure and connectivity will require significant upgrades to existing network capabilities and infrastructure, including high-speed, lowlatency connectivity and powerful computing resources. This may require significant investment and coordination among multiple stakeholders, including telecom providers, tech companies, and government bodies. Ensuring widespread adoption and penetration of metaverse-capable infrastructure and connectivity to allow everyone to access the metaverse requires overcoming longstanding challenges such as rural coverage and user adoption.

While the metaverse is full of exciting media-rich use cases, the practicalities of physically delivering the metaverse to the masses deserved more attention. Everyone realises network infrastructure is crucial for connecting users, and yet it wasn't even mentioned in the Meta Connect 2022 keynote.³ Nonetheless, telecom providers are well-positioned to adapt their offerings to meet expected demand and early adopters will benefit.⁴ Examples of this are already happening, with NTT Docomo, a Japanese mobile provider, investing \$4.1bn to develop Web3 infrastructure and services based on blockchain.5

The success of the metaverse relies on fast and reliable connectivity, but current networks and infrastructure are not up to the task of enabling users everywhere to have the full experience. To overcome this, telecom providers are being called upon to upgrade their capabilities and infrastructure, with a focus being placed on providing low-latency, high-bandwidth and widely available connectivity to ensure the success of the metaverse. Early adopters stand to benefit greatly from this and can help drive demand for these novel uses of connectivity. As we move towards a world where the metaverse becomes more widespread, providers are



Telecoms and the metaverse – providing the connectivity for connection

See, for example, Implications of the COVID-19 Pandemic on the Internet Traffic - https://ieeexplore.ieee.org/document/9399711 ² EY: Seven wavs telecom operators can power the metaverse - https://www.ev.com/en_gr/telecommunications/seven-wavs-telecom

metaverse#:~text=Telecom%20operators%20stand%20to%20benefit.services%20and%20increase%20operational%20efficiency ³ Meta Connect 2022: https://tech.fb.com/ar-vr/2022/10/meta-connect-2022-keynote-recap-quest-pro/

⁴ CSPs play a key role in the metaverse in areas that were not included in the Meta Connect 2022 keynote https://www.analysysmason.com/research/content/articles/meta-connect-overview-rdmm0-rdmb0-rdcs0-rdmd0-rdvs0-rdmv0/rdmv0/?utm_term=READ%20MORE&utm_campaign=Analysys%20Mason%20Insight%3A%20Metaverse%20%7C%20Transport %20network%20spending%20%7C%20Satellite%20and%20terrestrial%20networks&utm_content=email&utm_source=Act-On+Software&utm medium=email

⁵ NTT Docomo to invest \$4bn in Web3 using mobile infrastructure: https://asia.nikkei.com/Business/Technology/NTT-Docomo-to-invest-4bn-in-Web3-using-mobile-infrastructure?utm_campaign=7am+Insights+9-Nov-2022&utm_content=7am+Insights+9-Nov-

preparing to deliver the necessary network support to make the metaverse a success.

As the excitement around the metaverse continues to grow, telecom providers are presented with a huge opportunity to future-proof their businesses by investing in the necessary infrastructure to support this immersive virtual world. Providers are well-positioned to plug the current gaps highlighted, and the metaverse offers a range of opportunities for providers to also leverage their existing expertise in other areas like edge cloud, cyber security, data analytics, and AI to become key players in the metaverse ecosystem.

What challenges do telecoms operators face serving the metaverse?

There are however a number of challenges from a telecommunications perspective to making the metaverse a widely adopted, commercially viable reality:

- Connectivity issues are broader than just for the metaverse. Ensuring all citizens have access to superfast broadband connections and can engage with the digital world is a priority for many countries around the world. The European Union and the United Kingdom have ambitious goals and targets in place for the provision of high-speed internet, with the EU aiming for 100 Mbps coverage by the end of 2025 and gigabit connectivity by 2030.⁶ The UK, meanwhile, aims to have gigabit-capable broadband reach at least 85% of homes and premises by 2025, with 99% coverage by 2030.7 Ofcom's data suggests that around 70% of UK homes already have access to gigabit broadband.⁸ Experts estimate that for the metaverse to function properly, a minimum of 300 Mbps is required, with ideally 1Gbps upload/download capacity - which is expected to grow to many times that as services and content advance.
- Making the infrastructure investment business case. There is currently a lack of widespread adoption and demand for metaverse technology9 as a driver for investing in expensive infrastructure and connectivity upgrades. This "chicken-and-egg" scenario makes it difficult for telecom operators to justify investing in the necessary infrastructure and connectivity needed for

⁶ Digital Economy and Society Index (DESI) 2022: https://digital-strategy.ec.europa.eu/en/library/digital-economy-and-society-index-desi-2022 ⁷ Project Gigabit Delivery Plan - summer update: https://www.gov.uk/government/publications/project-gigabit-delivery-plan-summer-update 2022/project-gigabit-delivery-plan-summer-update-2022#progress-towards-a-gigabit-uk

⁸ EU Publishes 2022 Broadband Connectivity Progress Study vs UK: https://www.ispreview.co.uk/index.php/2022/08/eu-publishes-2022broadband-connectivity-progress-study-vs-uk.htm

seamless metaverse experiences without first seeing more concrete evidence of the metaverse's take-up and viability.

- **Time-limited first mover advantages.** More providers entering the market offering similar services will quickly lead to increased competition and commoditisation in the market for metaverse-capable infrastructure and connectivity. This will lead to price wars, and margin erosion, making it difficult for operators to differentiate themselves and generate sufficient revenue from their metaverse-related activities. This will be particularly problematic for first movers who expend significant capital establishing initial metaverse-capable services.
- **Decentralised networks?** Some of the legal challenges that telecommunications operators may face when providing metaverse-capable infrastructure and connectivity include the lack of a central authority, which is inherent to decentralised networks.¹⁰ This could make it difficult to observe or regulate illegal behaviour or transactions. In addition, the immutable nature of blockchain-based systems could raise legal issues, such as a user's right to erasure in the context of data protection.



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⁹ Statista - Brand-related attitudes towards the metaverse among internet users in the United Kingdom and the United States as of Augus 2021: https://www.statista.com/statistics/1282492/consumer-attitudes-metaverse-brands-internet-users-uk-us/ ¹⁰ Regulating The metaverse: Can We Govern The Ungovernable?: https://www.forbes.com/sites/martinboyd/2022/05/16/regulating-the metaverse-can-we-govern-the-ungovernable/?sh=38e67a6d1961





The workplace reality of virtual reality: the risks of working in the metaverse

Water-cooler moments, casual kitchen catchups and chance hallway conversations - all ways we connect with colleagues when we are physically in the office and all things (most) of us miss when working remotely. As technology advances and our working world becomes increasingly digitised, there is a realistic possibility that we could be experiencing these types of interactions with colleagues and working in a completely virtual space in the not-toodistant future using a mix of augmented reality (AR), virtual reality (VR) and artificial intelligence (AI).

Don't just take our word for it. Mark Purdy, an experienced economist who is Managing Director of Purdy & Associates and an adviser at Frontier Economics, wrote recently in Harvard Business Review:

"The metaverse is poised to reshape the world of work in at least four major ways: new immersive forms of team collaboration; the emergence of new digital, AI-enabled colleagues; the acceleration of learning and skills acquisition through virtualization and gamified technologies; and the eventual rise of a metaverse economy with completely new enterprises and work roles. The metaverse also opens up new possibilities to rethink the office and work environment, introducing elements of adventure, spontaneity, and surprise. A virtual office doesn't have to be a drab, uniform corporate environment downtown: why not a beach location, an ocean cruise, or even another world?"

Staff, client and customer interaction in an entirely virtual workplace certainly sounds intriguing.

Sadly, we all know from experience that misbehaviour and misconduct issues can occur in even the best run businesses and there must surely be a question mark about how such issues would be dealt with if the conduct in question occurred virtually. Before we all take one giant leap for work-kind and download ourselves into a digital workspace, we should therefore perhaps sit back (a physical chair is fine) and consider the potential implications.

What sort of issues could employers face in a fully digitised workplace?

Harassment in the workplace has unfortunately been a highly topical area for some years now and there's obviously significant potential for harassment to be perpetrated in a virtual space. This could raise some tricky legal dilemmas. For example, do existing protections for harassment extend to a digital representation of an employee? What kind of harassment may be more frequent in the metaverse? Will the metaverse create new ways for employees to harass their colleagues that are impossible in the physical work environment? While we can't answer these questions with sufficient certainty (yet), a workplace metaverse could realistically be a pandora's box containing a whole host of new challenges for employers.

Sexual harassment already appears rife in the virtual world. Journalists and users exploring the early metaverse have reported numerous incidents of lewd comments and unsolicited contact from other avatars (albeit these individuals were not operating in a mock virtual workplace). While technological solutions may provide some protection (for example, "virtual buffers" could be implemented to form a protective no-entry zone around employees' avatars), these measures won't be fool proof.



Employers will therefore have to consider how best to regulate employee behaviour in the metaverse

This is likely to include developing specific guidance and policies for how employees must manifest themselves and behave in the virtual workspace. One question employers may need to grapple with is whether acts that would amount to gross misconduct in the physical workplace would carry the same weight if carried out virtually.

You may think 'of course', but let's unpack that a little. Smashing a table or kicking a co-worker in a physical office would clearly be examples of gross misconduct, usually warranting summary dismissal. However, would such actions be regarded as serious and warrant the same response from employers if they took place in a digital space where there are no obvious physical consequences? Or would disconnecting in the middle of a virtual boardroom meeting equate to storming out of a conference in a real-world office? Wherever the line is drawn, employers will need to consider what expectations for employees' behaviour can be carried over from the real world to the metaverse. Whatever the position, employers should make sure that it is clearly communicated to staff and reflected in its policies and employment contracts.

Discrimination is another potentially sticky issue

UK Equality laws recognise and protect a number of characteristics, both hidden and visible. However, in a world where employees could potentially customise their skins, gender, and other physical characteristics, employees may exhibit characteristics that may not have been apparent in the physical workspace.

Transgender and transitioning employees may, for instance, choose avatars that express a gender identity which their employer may not be aware they have. On the other hand, some employees may customise their avatars to express protected characteristics that they do not actually have in the physical world. This could potentially leave the door open for claims based on less favourable treatment because of perceived protected characteristics which would likely be highly complicated and fact specific.

With these concerns in mind, would it be appropriate for an employer to require employees to erase individual characteristics and demand that they use blank avatars to help eliminate discrimination in the workplace? Surely this would be unpalatable on a long-term basis to many, particularly in workplaces where (rightly) diversity is becoming an increasingly valued commodity.

While a collision of the metaverse and workplaces raises a whole host of issues

to consider (many of which we couldn't hope to cover within this piece), the potential opportunities and benefits for employers are truly exciting and endless. For example, businesses like Hyundai, Siemens, and Adidas have already engaged start-ups to build VR training worlds for their new recruits. And realworld immersive training simulations could be significant for many employers looking to train or upskill their workers and may be particularly beneficial for employers who require highly skilled workers to carry out potentially dangerous work.

So, are we ready for an invasion of the metaverse into our daily working lives? The answer to this question is, in our view, "not yet". Rome wasn't built in a day, and, as Meta itself acknowledged, the "metaverse won't be built overnight". This is perhaps for the best, as the gradual integration of virtual reality into our workplace reality will provide employers the time needed to tweak their policies and not be blindsided by a rapid shift in workplace practices. Many of the problems posed by the metaverse are already well-known to employers, but there will no doubt be a variety of complex and nuanced issues that employers, courts and lawyers will need to get to grips within the coming years. With potentially endless ways to customise your avatar and the ability to fast travel to work from the comfort of our homes, the metaverse is an exciting prospect for employers and employees alike.







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What does the future hold for the video games industry in the race to create the Metaverse?

While there remains a healthy debate as to what the metaverse will ultimately be, there is consensus that video games such as Fortnite, Roblox, Minecraft and Second Life are currently the closest thing we have to a metaverse type experience.

Over the last two decades we have seen video games evolve from linear, single player packaged goods experiences to become connected, multi-player, digital experiences. This has in turn meant that games have become more social experiences, and closer to a metaverse experience. However, to create a true metaverse, this evolution needs to continue and games companies will need to overcome multiple challenges.

The hardware challenge

When we think metaverse, we think completely immersive digital words for us to experience and explore. To evolve current video game experiences to a true metaverse experience, games will need to utilise new hardware such as Virtual Reality (VR) headsets, Augmented Reality (AR) and other wearable technologies. These technologies are being developed, but only a handful of games companies are currently experimenting with or developing for these technologies. Whilst some games have already capitalised on the potential of these new technologies (such as the AR based game Pokemon Go), we haven't seen a critical mass of games developers embrace these technologies yet, due in part to limited take up of these technologies by gamers. For example, the public take-up of VR hardware has been lukewarm, hampered by high costs and some users feeling nauseous when using VR headsets. This is despite companies such as Meta (with its Quest VR headsets), and Sony (with its VR headsets for the PS5 console) making significant developments to address these concerns.

Video games do not currently appear to be the catalyst that will drive wider public adoption of these technologies. But if mass market adoption is driven by other catalysts, such as business adoption of VR for more immersive remote meetings

and improved remote collaboration, more games companies will undoubtedly start to develop for these technologies.

and decentralisation

Two of the key features of the metaverse will be interoperability and decentralisation. For the metaverse to be truly interoperable, common standards will need to be adopted, such as Universal Scene Description, to allow developers to create content to the same rendered standard, thereby making it possible for consumers to take an item, such as their avatar, from one metaverse experience and use it in another. Decentralisation, the taking away of control from a single entity and placing it in the hands of its community is another key tenet of the metaverse.

These are two of the most difficult challenges for any tech companies to overcome, and particularly for larger games publishers who have not historically embraced interoperability with other publishers or been in favour of relinquishing control of their games to their communities.

Despite this, some companies such as Epic are placing themselves in prime position to tackle these issues. Epic's Unreal game engine can run real time, 3D simulations with AI training capabilities, and is being widely used across the games industry (as well as other industries, such as film, defence and architecture). This provides the foundation to create a common ecosystem across multiple games with interoperable standards and a shared content library.

Whilst not touting it as a metaverse, Random Games has come close to a decentralised, interoperable platform for its community of game developers with its new franchise, the 'Unioverse'. In the Unioverse, each gamer plays as a unique sci-fi hero, purchased using NFTs, travelling through a virtual galaxy in which they visit and enjoy the different experiences created by its community of developers. Random Games describe it as a 'Roblox, but for AAA game developers', and provide Unity and Unreal SDKs and a library of assets, such as art, character models and music, for developers to use for free on the platform, allowing for interoperability between experiences. There are no rules as to the types of experiences that developers can create within the Unioverse (provided it works

with the hero characters), and game developers retain all the revenue they receive from the platform, making it one of the more decentralised platforms available today.

nes, the gateway to the metaverse

Microsoft recognises the value of video games as a gateway for consumers to enter the metaverse, publicly stating that their acquisition of the games publisher Activision Blizzard would give them "building blocks for the metaverse". Microsoft is not the only company who sees games companies as the builders of the metaverse and it is expected that this won't be the last large games company acquisition that we see for similar motivations.

When it comes to metaverse-like games, Microsoft has already acquired *Minecraft*, a game that some describe as a 'mini metaverse' with over 140 million active subscribers simultaneously engaging with the experience. It also acquired Zenimax, whose games are social experiences with communities of modders who are actively changing and growing the games, thereby giving them an individual sense of presence, immersion and personal investment in the games.

For Microsoft these games, together with its Game Pass subscription service provide it with a ready-made audience for a 'Microsoft metaverse'.

The next generation of gamers

Whilst it will take the video games industry time to overcome these challenges, it will also take time for gamers to truly embrace these new experiences. There is currently scepticism from many gamers about some of these new experiences the poor reception of NFT based games being a recent example of this.

As younger gamers grow up, this scepticism will naturally fade. The current generation of children are making friendships in the physical world in school playgrounds, and then deepening these same friendships as they jump into digital worlds, such as *Roblox*, with those same friends once they get home from school. As this generation of digital natives grow up with this hybrid way of living as part of their everyday life, they will more readily embrace the metaverse and the blurred lines between the physical and digital worlds.

There will undoubtedly be a lot of trial and error in the race to create the metaverse, but it's clear that games companies and gamers will be one of the foundations upon which this new hybrid world is built. Building the metaverse will in turn drive a lot of change in the video game industry over the next decade and those games companies that get it right have the potential to shake up the current order of things, but those that are unable or too slow to adapt to these new challenges risk falling behind.

Legal Director

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