Risk in Context Podcast

Episode 34

Understanding the metaverse and its potential risks

Trevor Smith:

Hello, I'm Trevor Smith, senior vice president and casualty leader of Marsh's Sharing Economy and Mobility Group.

Welcome to *Risk in Context*, our podcast featuring conversations with Marsh colleagues, risk professionals, and others intended to help you better understand and think creatively about your key risks and build effective strategies to retain or insure them.

Since it became mainstream, the internet has introduced an ever-growing set of opportunities — and also new risks — as companies and individuals connect in new ways virtually.

And now that connectivity we've all become accustomed to is taking a new leap with the emergence of the metaverse, a term that we're hearing more and more. The metaverse was addressed in this year's *Global Risks Report* produced by the World Economic Forum with support from Marsh McLennan.

In this episode of *Risk in Context*, I'm joined by two of our colleagues from Marsh McLennan Advantage: Ben Hoster, who leads the transformative technologies agenda for Marsh McLennan Advantage Insights team and Jaymin Kim, director of commercial strategy for tech, cyber, and digital. We'll discuss the fast growth of the metaverse, and the opportunities that it presents for companies investing in this space, and the risks they need to be prepared to address.

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Trevor Smith:

Ben, Jaymin, welcome.

We're hearing more about the metaverse and seeing companies invest in this space. So, Ben, before we dive in deeper, what do we mean when we reference or talk about the metaverse?

Ben Hoster:

Thanks for kicking us off, Trevor. I appreciate it.

Yeah, I think the metaverse has a lot of names. I've heard digital reality, virtual environment, mixed reality, omniverse, multiverse. One of my personal favorites, magicverse. Some of the terms, like AR [artificial reality], VR [virtual reality], crypto, non-fungible token or NFT, digital twin — they're really less a description of the entire world and more a description of the enabling facet or technology that helps build the metaverse.

Some of the descriptions are fitting, some are just parts of a whole, others, at least right now, are purely aspirational.

To answer your question, how do I define the metaverse? I think of it as a seamless, immersive extension of our life, work, and play. The word presence gets thrown around a lot. It's being held up as one of the defining characteristics of this virtual experience. I think of it as the difference between watching a sporting event or a concert from your TV at home and actually feeling like you were present on the sidelines or in the auditorium.

That feeling of presence is what really sets the metaverse apart from today's digital experiences that we're all calibrated to. And it also makes the metaverse

a very lucrative opportunity for those that have the foresight to capitalize on it.

And before we go too much farther, Trevor, I just want to level set on a few important terms or technologies.

The first is blockchain, which is a digital record-keeping system where once recorded, data is immutable. That's been a very popular word lately. But really, it just means it cannot be modified or deleted. So, ownership can be ascribed and products you buy in the metaverse can truly be yours. And while there are ways to conceal ownership, there are also ways to expose it. And so, once the information is there, it's there to be found. And that part of what enables a true sense of ownership for digital goods is a key enabler of the metaverse commerce system that will eventually take hold. So, what is this ownership vehicle and how does it really work?

You'll also hear the words non-fungible token or NFTs, and these are all based upon blockchain technology. They're interchangeable units of data that are stored on that blockchain. So, each NFT has a unique identification code that can't be modified without exception, and each NFT is immutable and can only be owned by one owner at a time.

So, we can use these NFTs to mark and prove that your digital art or this creation that you have in the metaverse is yours and yours alone. We can also use NFTs to mark digital assets like virtual clothes so that the avatar that you're using to self-express yourself in the virtual world is truly yours, fitted with your garments and the look that you want.

Also, related to blockchain technology, and I've mentioned it a little bit earlier, cryptocurrencies. So, these can be used to execute financial transactions in the metaverse. Of course, there are ways to do this with traditional fiat currencies. But I expect that as we move into more and more virtual realities, these cryptocurrencies or digital currencies are always going to play an important role.

So, that's just to level set us a little bit on what the metaverse is and is not. Trevor, hopefully, that addresses your question.

Trevor Smith:

Great, very much so. And how does one access it?

Ben Hoster:

Yeah, great, great question. And a normal extension there, right?

So, this is where technology comes into play. Today, we've grown quite accustomed to accessing the digital world through our computer screens, tablets, and cell phones. That presence that I just mentioned is what really flips the script on these traditional access points. So, access in the metaverse will be granted by wearables. Augmented reality, virtual reality headsets, will help make it feel real and truly immersive and create that sense of presence. Haptics and different types of physical feedback sensors can also provide your body with sensory feedback based on interactions in the metaverse, increasing that immersive experience.

I think the global market for AR, VR, mixed reality, headsets and tools is [expected](#) to hit $300 billion by 2024.

And just an extension of that, interactions in the metaverse don't necessarily need to happen just between human beings either. Natural language processing and advanced AI [artificial intelligence] algorithms like GPT-3, and the soon-to-be-released GPT-4, can write sophisticated narratives that can barely be even discerned as being nonhuman-generated.

So, your physical self can be depicted by an avatar and can be uniquely customized to represent your virtual self. And you can actually interact in 3D virtual spaces and look at holograms or unique digital art and more. It's a very different mechanism than just picking your phone out of your pocket and scrolling through a few news stories. This really pulls you into that world, and it changes the experience very much from what we live today.

Trevor Smith:

You mentioned almost this new world that's being created here. How long has this world been around? And why are we talking about it now?

Ben Hoster:

Right, right. So, it's interesting. Some folks have traced back the early days of the metaverse to some science fiction novel that was written in the early '90s. That's the first person I think that brought the whole thing together. And then, you've seen some other pop culture, movies,

and games even that have picked up various themes about the metaverse since then.

But I think where science fiction starts to become reality is that technologies are really catching up and catching up fast. So, artificial intelligence, machine learning, augmented reality, virtual reality, extended reality — all of these are now coming to a place where they can truly create this world and bring you into it.

And I think another point as well, the pandemic has changed the way that we think about and connect to our world. Younger generations are increasingly placing value on their digital selves. Something like one in three Gen Z today believe their online identity is their most authentic self. And that's compared to Gen Xers like myself, where it's only one in 10.

So, as the consumer adoption, consumer lens of this, starts to catch up and the technology enables it, you're also starting to see confidence from more sophisticated investors and retail firms. Several are making multimillion dollar, even billion-dollar, investments in the space.

And so, I think the wave of change is clearly there. And frankly, it's moving faster than I expected. Some are even expecting the market will reach around $800 billion by 2024.

Trevor Smith:

Great, thank you.

Ben, you mentioned investing. Some of the biggest brands in the world are investing in the metaverse. Jaymin, what types of industries are investing in the metaverse, and what current needs does it address?

Jaymin Kim:

Thanks, Trevor. And thanks, Ben, for telling us about what the metaverse represents and what it doesn't represent.

As Ben mentioned, the metaverse literally refers to an emerging new way of life and conducting business. And one of the key points to note is that information technology brought us a world where we interact with digital experiences via the internet, but using primarily two-dimensional computer and mobile screens.

And today, we're looking at an emerging three-dimensional, as Ben said, seamlessly integrated experience between the digital and physical realms. And when I talk about investments that companies are making in the space, the shift from the two-dimensional to three-dimensional experience marks a pretty fundamental shift between incrementally advancing our life as we know it with the internet, versus propelling our lives into this three-dimensional immersive experience in the metaverse.

So, with the emergence of the metaverse, we're seeing many different industries investing already. There's a whole bunch of early movers, and I'm going to break it down into basically five layers in terms of how we see the metaverse emerging. But we're also seeing the rise of new types of sectors emerge and new kinds of industries being built.

When we think about the metaverse, we see companies investing in the identity authentication space. We have to think about digital identity: Who are we in avatar/hologram form in the metaverse? And how do we ensure that someone doesn't pretend to be who we are, and make sure that our identity remains intact?

We're also seeing an emergence of companies investing in the actual material creation of what the metaverse is made up of. This is everything from companies investing in 5G technology and edge computing to reduce latency, to things like spatial data and 3D reconstruction to literally create the fabric of the metaverse that we'll experience, as well as companies investing in the underlying infrastructure tech, like semiconductors and graphic processing units.

Then there's another category of companies that are investing in the AR and VR tech space as well as haptic wearables. This is the part where Ben talked about how we're going to be interacting with the metaverse on a daily basis.

Another set of companies are thinking about how this new metaverse, or metaverses, will be governed. And some are investing deeply into the decentralized infrastructure space.

Finally, but not least, there is a whole emergence of companies investing in how we transact with buying and selling in the metaverse. So, companies looking into creating digital currencies such as crypto and

stablecoins, looking at crypto wallets as well as decentralized exchanges and decentralized finance.

There's a whole emergence of companies looking at how we build our people network, how we buy products and services, and how they enable experiences for the consumer. Think how we have been working in COVID-19, but in three-dimensional form.

Many companies are beginning to enhance our productivity by investing in technologies required for us to work with hologram forms of our colleagues in the metaverse. Others are creating digital assets, like non-fungible token-based art and online marketplaces, to sell and resell such digital assets.

And still, others are giving rise to immersive entertainment platforms. So, gaming but with three-dimensional experiences, for instance. Or being able to eat with your family, spread apart around the world at the virtual dining table within your family home that you built in the metaverse.

So, there was an explosion of companies that are investing in creating and delivering what consumers need and want. Some of the early industry movers include entertainment, gaming, and retail industries to help deliver these net new experiences that are possible in this three-dimensional immersive world.

There's NFT marketplaces that are emerging to facilitate metaverse commerce and facilitate buying and selling digital assets like NFT art.

And still, other early industry movers include the financial services, exploring everything from DeFi to stablecoins and crypto, the healthcare sector that's using AR and VR tech as well as artificial intelligence to improve the speed and precision in which we deliver medical training and education to real-time surgical procedures.

The automobile sector is also a recently emerging sector investing in the metaverse using AR tech to let drivers, for instance, control their vehicles remotely using 5G or satellite internet connections, or to deliver GPS services in an immersive three-dimensional way.

As I mentioned earlier, we're seeing a convergence of new industries form. Just last year, a company in the high fashion industry and a company in the gaming industry partnered to create both digital and physical

items that people can buy and experiences that merge high fashion and gaming artifacts delivered in both digital gaming spaces and in the physical world life.

We're likely to see new industries continue to emerge in the metaverse. And an analogy I like to draw is with the internet. In the 1980s, we saw the ushering in of a whole new set of industries that would have seemed seemingly science fiction only a handful of decades ago. And yet, today, we see the concepts of e-commerce and digital supply chain risk. These things feel pretty normal to us. And so, in a similar way, today, we're seeing the emergence of new opportunities and risks that may have seemed like science fiction so far in our generations but are quickly, and will quickly, become normalized for future generations and likely for our own as well.

Trevor Smith:

Great, thank you.

Ben, anything to add there?

Ben Hoster:

Jaymin ended on something that I've been thinking about quite a lot. And just to connect a couple of dots between what she was talking about. We talked about Internet 1.0, or the advent of the information age and how rapidly it progressed. And earlier, when she was talking, Jaymin also mentioned this notion of decentralization. And I think one of the things that I've seen that's coming together in a fascinating way is like we've had these waves of transformation. We had the Internet 1.0 and the information superhighway, and then we started going into this more platform-oriented social network, Internet 2.0. And now, you hear Internet 3.0 and metaverse and all these things get munged together. And really, what Jaymin said around this notion of centralization and decentralization is I think one of the key differentiators of how this all works. So, when we create this virtual or digital trust using blockchains across our cryptocurrencies, across our NFTs, it becomes possible to truly own things. And theoretically, no one owner controls everything. So, it's truly a decentralized system. I think time will tell whether or not it truly is this promise of decentralization. I think that there will still be certain hubs, if you will, that control or manage a lot of the blockchain capabilities. But I think that's a key point that Jaymin made. I just wanted to reiterate that or reinforce it.

Jaymin Kim:

Yeah, that's a really interesting point, Ben. And I think it's worth talking about the two terms — Web 3.0 and metaverse — because what we see today is that Web 3.0 and metaverse are sometimes used interchangeably. But as you point out, they're separate things.

And so, the way I think about it is, the Web 3.0 term refers to a potential next iteration of the internet as we know it, which some called Web 2.0. And recently, there's a lot of discussion happening around what Web 3.0 could be. And there tends to be three characteristics associated with it.

- The first: Is the internet built on open-source software?
- The second is that: Is the internet run on a trustless network?
- And the third is that: Is the internet made permissionless for all users and suppliers to partake in?

And so, this concept of Web 3.0 is often associated with shifting ownership of our data and control of our data from companies to more individual users. And I think there is a tendency to conflate the terms Web 3.0 and the metaverse because they're both concepts of what we anticipate happening in the future based on underlying information technology as we know it today.

But in reality, the metaverse can exist with or without Web 3.0. You can imagine a future where our lives have become a seamless integration of physical and digital, while companies continue to own digital data for the most part, or it could be an iteration where individual users own more of their digital data.

And so, it remains an open question. And as we see many companies and startups, but also creators and individuals within the creator economy, race to create their own versions of shaping the metaverse, it's going to be fascinating to see the types of immersive worlds that we can live, work, and play in. And also, to see which kinds of immersive worlds will tend to become the more predominant ones that people want to work, live, and play in.

Trevor Smith:

Great, thank you.

As we think about the metaverse, some of the opportunities, some of the risks, whether it be industry specific, Jaymin, whether it's financial institutions, financial services, or healthcare, what are some of those risks and opportunities that you see that the metaverse brings to companies?

Jaymin Kim:

That's a great question. To answer your question, Trevor, I'm going to talk a bit about some examples that we're seeing particular to the healthcare space.

Taking a step back, though, a lot of the new technologies and the new possibilities that the metaverse can bring us, are still in a very nascent phase. So, we're only just starting to see some use cases emerge across these handful of early mover industries.

That being said, within each of these industries, from financial services and automobile, to healthcare and retail, we're seeing huge potential to deliver better, faster, and more convenient experiences to the end user.

So, within the healthcare industry, for instance, we're seeing, I would say, a handful of different use cases emerge, specifically leveraging augmented reality and virtual reality technology. So, augmented reality refers to experiences where our physical world is enhanced with digital overlays, whereas virtual reality refers to 3D, completely digital experiences. And AR and VR tech have been, VR in particular, have been used in the healthcare sector for several years now.

We're now seeing the emergence of AR tech being used increasingly and being explored as a new frontier of what's possible. But in the healthcare space, I'd say there's about five different use cases that we're seeing.

The first is around medical training and education, where we're seeing the use of AR and VR tech to create 3D 360-degree views of the inner workings of the human body and to replicate real-life surgical procedures to train and educate medical students, like training for blood clot removals, for instance, all the while reducing training costs.

This technology has actually been in use for several years. But really exciting is now, in the second-use case I'm going to speak to, we're seeing the use of AR tech in real-life surgical procedures. So, just last year, a surgeon used an AR headset to project images of his patient's internal anatomy in a spinal fusion surgery

procedure. And one of the surgeons who were involved in this procedure described the AR tech as being like a GPS for the spine.

And another case last year, surgeons used AR tech to remove a cancerous tumor. These are net new use cases where we're seeing AR tech help surgeons do what they can with their patients more effectively, more efficiently, and successfully.

You can also expect that surgical teams might use AR tech to prepare for procedures, simulating scenarios ahead of time so that they can be better equipped to serve their patients in real time.

A third use case in the healthcare space is around teleproctorship and telementoring, where medical professionals like surgeons remotely proctor their colleagues who are delivering highly technical procedures for the first time and would benefit from the assistance of a colleague who has more experience in that procedure.

And typically, we've seen the use of live streaming videos used to do this. But there were obviously challenges with representing two-dimensional views of the operative microscope, especially in operations that run along for many long hours.

And so, where AR tech can help is by delivering a more rich and more detailed three-dimensional representation of the operating room in real time and with reduced latency, the time it takes to transmit data, which can effectively help assisting and lead surgeons in the operating room, who are actually in different physical locations, experience the operating room and procedure as though they were exactly in the same place.

A fourth use case, was patient care delivery. And we saw the need for this in the COVID-19 pandemic, where we saw more patient care being delivered through online communication tools. But again, delivering that patient care through two-dimensional mobile and computer screens doesn't feel quite as though we're right there in the patient room. So, with the advent of AR technology and three-dimensional spaces that emerge with the metaverse, for example, psychologists and patients can be in the same immersive room, completely simulating the inpatient experience without leaving the comforts of their homes or offices. We can see the same thing with other kinds of patient delivery.

This also has significant implications for expanding access to healthcare services for remote and underserved areas. So long as there is informational technology infrastructure in place, we will be able to expand the number of people who can gain access to much-needed healthcare services without having to be in the same physical location as the healthcare practitioners and providers.

And, a final use case I'll speak to you is around designing the actual operating room. So, this is an example where we're leveraging three-dimensional immersive technology to then improve our physical spaces, using AR and VR tech to help visualize operating room needs in order to optimally specify what the design of that operating room needs to look like. And we're seeing recently emerging cases of this use case.

But of course, with any kinds of opportunities, there is going to be net new risks and liabilities. I would say that we're still in the very early days of seeing the potential of leveraging metaverse related technology to improve the lives of consumers, citizens, and all end users.

A couple of risks and liabilities that we might be able to imagine in hypothetical situations touch on cyberattacks. The emergence of the metaverse means we're living our lives increasingly in immersive digital and physical worlds. This means that there's increased opportunities for malicious actors to take advantage of extended attack surfaces and leverage more entry points to create ransomware attacks and data breaches.

In the healthcare space during COVID-19, we saw a lot of cyberattacks on hospitals and medical institutions. If in today's world, where we see a very interconnected world but through two-dimensional spaces being attacked to the extent where an entire healthcare organization's IT network can be crippled for almost a month, what are the implications for the types of cyberattacks we might see in a three-dimensional immersive world, where actual surgical operations and procedures are dependent on using sophisticated AR, VR technology and informational technology in order to deliver actual patient care?

Another kind of risk and liability that we might want to proactively think about touches on potential design defects in AR, VR tech. So, for instance, if surgeons in the operating procedures are reliant on the AR headset

to accurately project images of the inner workings of a human body, but for whatever reason, due to a design defect in the AR technology, the surgeon receives incorrect information that has material implications for the surgery, who would be responsible? And what if because of that error and information delivered to the surgeon, the operation goes really wrong? Would that be an instance of medical malpractice or will the responsibility lie with the company that produced the AR or VR technology?

Again, we're in very nascent phases of seeing the emergence of these new kinds of metaverse-related technologies and their use cases where they can benefit us. I think with time, we'll have emerging use cases where we're going to have to think very concretely and very carefully about how we, not only leverage the potential of these technologies to do good, but also ensure that we're proactively thinking through and mitigating against potential risks and liabilities that will necessarily come with the new opportunities that these technologies present to us.

Trevor Smith:

Great, thank you very much. I can always picture myself a bit as a patient, one of the other ways to identify as a consumer.

Ben, any other industries, retail or others, that you have thoughts about on the opportunities or new risks that they present?

Ben Hoster:

Definitely, Trevor, and thanks for prompting me.

And I think also to just build a little bit on what Jaymin was saying in the healthcare space, some of those examples or concepts are certainly extensible to retail. Obviously, there's more of a commercial lens, well, at least more upfront commercial lens on the retail side. So, I'll try to focus my energy there and not belabor the points that Jaymin already made.

So, in the retail space, the thing that strikes me is this generational shift that I mentioned previously. So, as younger generations increasingly prioritize their digital selves, their digital realities, this is going to create enormous opportunities for retailers. As an example, the e-apparel or digital clothes industry can be used to customize your online avatar. Appending these digital goods with an NFT can make them truly yours and

unique, and give you this sense of ownership. So, when you know a digital good is yours and yours alone, how different is that from owning a luxury handbag in the real world? The next generation may not feel that it is that different. And many retailers are also moving to link these physical goods that we've been buying with digital analogues or goods in the metaverse. So, buying something in the real world can also give you access to some similar products in the virtual world.

And just as a benchmarking, the e-apparel market alone is expected to reach $190 billion or so by 2025**.** So, this is a huge space. And really, e-apparel is just the tip of the iceberg. Jaymin was talking some about virtual surgical procedures. The entire shopping experience can also be ported into the metaverse. So, further blurring the lines between physical and virtual, instead of going to a physical grocery store, you could just go shopping at your virtual online one and fill your shopping cart up, you can browse, make comparative decisions, and really get into grocery shopping or any shopping in a different way than you do either physically or online today. I mentioned groceries as an example. There are obvious extensions to other retail formats.

I think also, Trevor, you mentioned risks and Jaymin touched on some of the risks specific to healthcare. Some of those, particularly the cyber ones, also extend into the retail space.

But maybe just let me touch on a few that I think are nuances in the retail space that are worth considering there and in other sectors. So, think about a counterfeit handbag in the physical world or a luxury good that's being produced. Similarly, deceptive digital goods may be only differentiated by a few pixels here or there. It can also be produced in much the same way as it happens in the physical world.

So, in the end, the only thing that guarantees originality is that immutable NFT that we've been talking about all this time. And this counterfeit risk that retailers are exposed to and manage today in the physical world, obviously, leads to brand risk and the potential for brand dilution if retailers aren't able to stay ahead of the counterfeiters.

There are other challenges that exist today in the physical world that I think also are extensible. So, if consumer data isn't protected from theft, from cyber intrusion or other vehicles, if data isn't used responsibly in the ways in which it's procured or proffered, those

types of things create both cyber and reputational risk and harm if the data isn't managed responsibly.

So, I think we've touched on several different forms of risk across a few different industries now. And to some extent, these risks can be indemnified. And you'll start to see vehicles to accomplish this in both B2B, B2C, even C2C formats.

And I think like Jaymin mentioned, we're really just the [seeing] tip of the iceberg for this. Obviously, there's going to be a lot of dynamic change in volatility in the space as we define the way that things will work in the metaverse.

Trevor Smith:

Great, thank you.

Jaymin, any additional thoughts from you?

Jaymin Kim:

Yeah, I think it's worth reflecting on all of the opportunities and risks that the metaverse might bring us and how to make sense of that in terms of a quantum. Ben already touched on some market estimates, for instance, for the NFT market. Some experts today are estimating that the metaverse might be an $800 billion market by 2024, just a mere few years from now.

And that $800 billion estimate spends potential revenues from things like social media ads and gaming, AR, VR hardware, live entertainment, gaming software, services, ads. Of all these sectors. it's worth pointing out that the AR and VR sector takes more than half of the estimated market share over the next few years.

But I think these market estimates may actually even be conservative. And the reason why is because the market size and opportunities that we're seeing with the emergence, the nascent emergence today, of the metaverse is a moving target still. We're seeing the likes of NFT art sell for close to $70 million. We're also seeing digital real estate selling for north of $4 million. These are really large sums of money that are being moved in markets whose potentials aren't yet defined today.

So, the way I think about it is to use an analogy: In the physical world, earth, there's few, if any, lands left for us to discover. In the metaverse, in this seamless,

immersive, physical and digital world, we're only just starting to discover what new lands there are.

This effectively means that the potential commercial value we have left to explore in our existing physical world is likely relatively small today compared to the commercial value that we can explore in the metaverse that we're only just beginning to explore.

Recently, some experts have estimated market size for the metaverse at $8 to $13 trillion by 2030.

Trevor Smith:

Those are some big numbers.

And, Jaymin, I really appreciated that analogy that you utilized about lands to discover versus how little land has actually been discovered or space has been discovered in this immersive or new world of the metaverse.

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Trevor Smith:

That's all for this edition of *Risk in Context*. I'd like to thank our guests for joining and you for listening. We hope you enjoyed our discussion.

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