

## Interactive Entertainment

### "Going Outside is Highly Overrated": Metaverse Primer

September 29, 2021

#### Key Takeaway

**Welcome to the Metaverse.** We take a look at what it is - why it's not here - how it will eventually be everywhere - and who is best positioned to benefit. We believe the accumulation of technology in the video game industry will eventually lead to a fuller, more robust internet that we call the Metaverse. The profound impact will be felt well beyond any single industry. Its final form is decades away, but in the meantime, expect many near term disruptions.

**Our definition:** the Metaverse is the convergence of physical and digital in a way that is persistent, real-time rendered and infinite in its ability to offer shared experiences allowing for total sense of presence to the point where it embodies us. Your virtual identity will become interchangeable with your physical and true economies will form around this immersion into virtual/augmented realities.

**The Five Elements to Build:** We see 5 key elements of technology that will accumulate over time to get us to our utopian definition of metaverse: technical infrastructure; platforms; interoperability; virtual pick and shovels; and user behavior. This ranges from the hardware side: faster network/chip speeds and better consumer hardware; to new software services like payments and virtual asset management; to standards on software interoperability and user behavioral codes. And everything in between. Each are in varying states of advancement and each open up new near opportunities and markets on their own.

**Why it starts with video games:** The very idea of being able to build whatever you can imagine and then to experience these fantastic worlds alone or with others has been at the heart of video games from the very beginning. Technology has thus been pushing forward to reach the edges of the imagination and to overcome the uncanny valley. With each breakthrough the industry has found new ways to reach a wider audience with deeper engagement. Or put another way, advancing technology has made virtual worlds more accessible and acceptable.

**Why it will end up everywhere:** As video games, social media, and broader media shape new social norms around virtual experiences, technology will advance and enable the convergence of the physical world with the virtual. Using the evolution of video games as our guide, the mixing of physical and virtual seems as the natural next step in the way we think about the use of the internet. Evidence is widespread: Video games replacing social interaction, physical experiences shifting to the virtual, normalization of digital ownership, and virtual self expression seeping into the virtual is all happening. The economic opportunity is too large to ignore by legacy and new players as the internet is set to evolve one more time.

**Coverage implications:** We see broad medium to long term implications across our coverage. Starting on page 18, we include impacts on the following covered companies: ATVi, EA, RBLX, TTWO, and WMG. We include commentary from our fellow analysts on tickers FB, SNAP, FNKO, HAS, TOY CN and MAT.



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## Utopian Definition of Metaverse

Everyone has a definition for the metaverse, so why can't we? We have avoided writing specifically about the topic as we find it too broad a term as well as something we don't see as new. Video games are often leading indicators of broader consumer trends and engagement tools. However, we do believe while there has long been and will continue to be an accumulation of technology leading to some utopian world we will eventually call a metaverse, there has been recent breakthroughs that have come together to bring this word to the forefront. Let's step over the void and get started. Here are some definitions we found interesting in our research.

*"The Metaverse is an expansive network of persistent, real-time rendered 3D worlds and simulations that support continuity of identity, objects, data and entitlements, and can be experienced synchronously by an effectively unlimited number of users, each with an individual sense of presence." - Matthew Ball (VC, Essayist)*

*"A nebulous, digitally mixed reality with both non-fungible and infinite items and personas not bound by conventional physics and limitations." - Luke Shabro (Futurist and Deputy Director fo the Mad Scientist Initiative - Army Futures Command)*

*"...the ideal definition is "full interactive reality" layered across every segment of our lives. It is the connective tissue between humanity that we have always literally lucid dreamed of but until recently haven't had the infrastructure to make it real." - Emma-Jane MacKinnon-Lee (CEO and Founder of Digitalax)*

*"...I see the Metaverse as the gradual convergence of the digital world with the physical world. A world where we no longer notice a distinction between our digital avatars and our physical selves. A world where smart lenses and BCI devices enable us to be surrounded by information – interactive information for work, entertainment, education, and more. This is the next iteration of the internet. And as dystopian it may sound, this is the next iteration of life." - Elena Piech (Experiential Producer at AMP Creative)*

*"...While it is tricky to make an exact definition of an aspirational thing that we want to build towards, it is very easy to talk about what it is not. The meta-verse is not here. Existing technologies are not the meta-verse. The meta-verse is not passive it is not streaming video, it is not chat, it is an immersive experience with presence that we have yet to build, and as such it has to be interactive, it has to be real-time rendered, it has to make use of technologies that do not yet exist." - Rafael Brown (CEO of Symbol Zero)*

**Our definition:** the Metaverse is the convergence of physical and digital in a way that is persistent, real-time rendered and infinite in its ability to offer shared experiences allowing for total sense of presence to the point where it embodies us. Your virtual identity will become interchangeable with your physical and true economies will form around this immersion into virtual/augmented realities.

All of which is made possible by the vast and continuous nature of technical networks. In other words, the Metaverse will not replace the internet, but instead build on top of it and, when combined with the right technology, would allow us to essentially step into it. Instead of being something that you access through your phone or laptop, the internet will constantly surround us.

**The bad news:** What we see today does not fit our definition. There is a lot of talk of Metaverse today. Putting Superman in Fortnite, a Vans store in Roblox, or a virtual concert does not make a Metaverse. There has long been brand crossovers and virtual concerts (Duran Duran in Second Life was possibly the first in 2006). We see this as diluting the meaning of the word and the potential opportunity that the technology needed to get to our utopian definition can bring in the meantime. While we see the full vision of the Metaverse as decades away, we couldn't be more bullish on the incoming disruption the technology will wrought along the way.

**The good news:** So why is the word used so much. The likely answer lies with the recent breakthroughs we've seen on the technology side + broader acceptance of the video game industry. Real time rendering 3D game engines, the rise of low code user-generated-content, ever faster graphic cards, blockchain/cryptocurrency, & cross platform play have all become mainstream in the last 2 years. Evidence of broader acceptance is plentiful: significant increase in brand crossovers; everyone is a gamer now, 87% of Gen Z, 83% of millennials, and 79% of Gen X; even the World Health Organization is recommending video games for once.

**The better news:** The video game industry remains very young. As new technologies work to disrupt the industry, it tends to be addictive to the industry, not destructive. As we think about the next generation of technology, it's likely to bore out new multi-billion companies but also enhance the value of legacy players. Real-time 3D game engines widens the gap between AAA titles and everything else; faster networks lead to cheaper distribution costs and wider audiences; Low code user generated content leads to new forms of content which leads to new generations of gamers; blockchain/cryptocurrencies is leading to play to earn and opening up in-game economies. Putting it together - we see the broader industry and covered companies as benefiting from the ground swell of change that comes from the accumulation of technology that will make the Metaverse.

**What's needed to build:** We see 5 key elements of technology that will accumulate over time to get us to our utopian definition of Metaverse: technical infrastructure; platforms; interoperability; virtual pick and shovels; and user behavior. This ranges from the hardware side: faster network/chip speeds and better consumer hardware; to new software services like payments and virtual asset management; to standards on software interoperability and user behavioral codes. And everything in between. Each are in varying states of advancement and each open up new near opportunities and markets on their own.

**Coverage Implications:** As we look across JEF coverage in North America, we include a selection of companies that will benefit... FB/SNAP are both working on hardware to access the Metaverse while having social platforms with significant reach. Roblox (RBLX) is the closest to being an early stage Metaverse. TakeTwo (TTWO) is currently running three games that arguably could be early stage Metaverses. Electronic Arts (EA) has several IPs that would be ripe to be turned into walled garden Metaverses: Skate, Sims, SimCity, and even its sports franchises. Activision Blizzard (ATVI) has one of the innovators in early Metaverse with World of Warcraft in its library. Moreover, Call of Duty could use many of the tools in building a Metaverse to better monetize and engage users (cross platform, cross universe, single currency economy). Music will likely play a role along the way from here to there... Warner Music (WMG) already sees this as it has invested in several start ups that are building tools/platforms in the Metaverse.

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## Key Components of the Metaverse

Notice how we do not define the Metaverse as a particular game, piece of consumer hardware, or genre of entertainment? That's because the utopian Metaverse is the result of key enablers working together to accommodate a particular type of experience or existence. In fact, it may actually be easier to understand the concept of Metaverse when you break it down into its necessary components. Here are the 5 components that we believe will represent the building blocks for the utopian Metaverse: 1) Technical Infrastructure, 2) Virtual Platforms, 3) Interoperability, 4) Picks and Shovels of the Metaverse and 5) User Behavior.

"These three words were always the last thing an Oasis user saw before leaving the real world and entering the virtual one: READY PLAYER ONE" - Ready Player One

### Technical Infrastructure

**Hardware:** The physical devices that would allow us to interact with or access the Metaverse. On the consumer facing side, this includes VR headsets, smart glasses, augmented reality tools and more. Many people refer to these devices as Metaverse, but they're mistaking the access point with the actual destination. Component improvements, such as camera or sensor technology, are being used to improve avatars on popular virtual platforms. Last December, Roblox purchased Loom.ai, a company focused on accurately replicating emotions and facial expressions. Clearly this would make avatars more representative of our physical selves and make the virtual experience feel more authentic.

Hardware technology, like the other technical enablers, will determine the pace of development for Metaverse. For example, augmented reality glasses are still having difficulty maintaining reasonable field of vision while VR devices have yet to achieve fast enough refresh rates to avoid disorientation and nausea.

Separately, consumer facing hardware is where we're seeing attempts to replicate the walled garden model. Facebook and Snap are not looking to be the first companies offering access to a more decentralized, interoperable experience. Unfortunately, this would lead to a far less lucrative version of the Metaverse than our utopian definition.

**Compute:** The computing power required to support a persistent, shared environment with unlimited users, in-real time, is orders of magnitude greater than what we are capable of today. Scale is one of the most important aspects of the Metaverse. In order to feel that sense of presence as a virtual avatar, the experience must be shared with as many people as possible. Right now, servers are capable of handling hundreds, maybe a few thousand concurrent users and many are using shortcuts to help minimize the required computing power. Not to mention the processing demand that real-time experiences would require.

**Network:** The operability of our networks depend on bandwidth, latency and reliability. Bandwidth refers to the amount of data that can be transmitted over a unit of time. In our utopian Metaverse, people would jump freely from one experience to the next with most activities happening in real time. This would require significantly more cloud streaming than we have today.

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## Exhibit 1 - Companies Involved w/ Human Interface Technology



Source: Jon Radoff - Building the Metaverse V2.5

**Travis Scott concert - incredible technical feat:** Take the Travis Scott concert in Fortnite as an example. 27.7M unique users attended the concert over the course of the weekend. A total of 46M times it was viewed in game (many users attended more than once). On the surface this appears to be a great example of the metaverse. However, it's an example of both how far the industry has come but also the distance it has to go to get to the metaverse. In reality, the event required Epic to know exactly what was going to happen and even pre-load the environment onto local devices beforehand. If you didn't download and install the concert update from Epic then you couldn't attend. It's worth mentioning though 12.3M attended the concert concurrently - each concert experience was limited to 100 per session. This means Epic was running 1.23M Travis Scott concerts at the same time! It looks very much like a Metaverse event, however the required planning and limitations are exactly what make it not Metaverse. And yet - it was a technical marvel to run this without a hitch of which very few have duplicated. It's an example of the metaverse being more of a continuum, and we are still in the very early innings of what it will ultimately become.

**Latency needs to get better:** Latency is the time it takes data to travel from one point to another and back. Latency is rarely a problem because of various shortcuts and the nature of many virtual experiences. However, when we think about that feeling of presence, a utopian Metaverse needs to pick up on body language, social queues, facial expression etc. in order for it to feel as genuine as possible. Lag would devalue the entire experience. Video games are probably the closest comp to what the Metaverse would require because they're both potentially ruined by lag. Competitive gamers require <30ms and casuals notice issues at ~110ms.

**Reliability needs to improve:** Reliability is really just the consistently high performance of the other factors that we have mentioned. However, that doesn't mean it's not important. The Metaverse would be more than just entertainment for consumers. Eventually, time spent in virtual worlds would spur economic activity, educational possibilities and more. That means that people would be working and learning in the Metaverse. Reliability becomes a necessity for builders.

### Virtual Platforms

At a high level, virtual platforms are 3D simulations or environments that support a variety of experiences and economic activity for all participants. Importantly, many participants are content creators who produce a large portion of the content and share in revenues that are generated on the platform. In addition, a platform should provide the picks and shovels for content creation, the ongoing maintenance of live experiences, user interface and social interactions. Dynamic, two-way economies should flourish as transactions flow in all directions; user to creator and platform owner, user to user and creator to creator.

"You don't live in the real world, Z. From what you've told me, I don't think you ever have. You're like me. You live inside this illusion"  
Ready Player One

*"platform is when the economic value of everybody that uses it, exceeds the value of the company that creates it." - Bill Gates*

It's no surprise future Metaverse platforms will rely heavily, if not come straight from, the video game industry. Video games understand the power of game engines - ability to build worlds, economies, and engaging content. This has allowed the existing virtual platforms to grow users, increase spend, reinvest in the platform and repeat despite the rise of new technologies, hardware, and business models. This drive to push the limits of imagination requires ever improving technical performance, making them a great breeding ground for advancements that push us toward the Metaverse. The very foundation of metaverse comes from the video game industry: game engines, imagination, self-expression, and socialization. As technology has improved so has the game experience. From LAN parties to virtual hangouts; from single player shooters to battle royale via the modding community. From the modding community to low code game design and user generated content in Minecraft and Roblox. As we look ahead we are seeing new technologies opening up new genres of games...blockchain and NFTs are showing what play to earn can look like...the virtual farming in Animal Crossing could very well be worth something some day...Turnips to Turnip exchanges to cryptocurrencies to US dollars? It'll be here soon enough.

## Interoperability

From a user perspective, this means the ability to transport between experiences while maintaining assets, achievements, status, level etc. from any of your previous adventures. As a developer, this means the ability to create content that is publishable across platforms. In a utopian Metaverse, most experiences would work seamlessly across the universe...using today's games, it would be the equivalent of wearing a skin bought in Fortnite and using it in Call of Duty. However, if developers are unable to easily import/export their work across various platforms, it would become increasingly difficult to maintain persistent experiences.

In today's internet, we have a few platforms fighting to be a standard, not the standard. Each one offers proprietary services that "work best" on their operating systems/hardware and are unwilling to support alternatives. The ultimate goal is to become big enough that developers can't ignore you, forcing them to develop on your platform, and locking them in to ensure your ecosystem remains the strongest. Without common development standards, it's too costly for most creators to build for multiple platforms, so they're forced to choose. This limits the overall revenue or, if you do build for multiple platforms, profitability, leading to lower reinvestment, competition and innovation.

**Payments:** Payments are a huge piece of the interoperability puzzle. Any enlarged, virtual ecosystem that effectively surrounds us will require infrastructure to support digital economies, payment processing, virtual currency exchange and more. However, we believe for our utopian definition, we would need to move away from platform fees and payment rails that have been established for virtual goods thus far. We're not making the case that platform fees should be as low as traditional payment processing for physical goods, given the value and IP that platforms provide to the equation, but the gap is too wide.

**Take rates are a problem:** A 30% fee, which has become the norm for virtual platform transactions, is limiting developer potential and even keeping certain business models or progressive technology from accessing mobile operating systems. Aside from the policy related issues, we believe cloud based gaming, blockchain based gaming and NFT platforms are being limited by the current mobile platforms in part due to the fee structure.

"See, the world is full of things more powerful than us. But if you know how to catch a ride, you can go places" Snow Crash

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**Virtual Currencies need further evolution:** Virtual currencies on today's most popular platforms are currently one way - meaning once real dollars are converted, there is no conversion back nor the virtual good able to be sold. And of course, there is no virtual currency exchange for virtual currency into other virtual currency. What's even more problematic is the lack of ownership over virtual assets. Virtual goods represented >\$70B of iOS transactions in 2020 (~\$50B in games) and a very small portion of that will have tangible value after the immediate purchase. Instead, many of those assets will be placed on a server somewhere, never to be exchanged again.

Assets in the Metaverse need to be able to transport freely with the virtual self and there should be very little restriction on the formation of secondary markets. Platforms would be far more lucrative if the hundreds of hours you put into the experience were then monetizable after you've decided to move on to your next adventure. There's a ceiling on the amount of virtual goods a person would be willing to buy, knowing that it will be trapped and/or worthless the moment ownership transfers to them.

*"I think it's less about who's right with their definition and more about us aligning on the values of what's most important. To me, decentralization is the key. If the metaverse will become a large part of our lives, which it will, like the internet, then the closer to reality it becomes the more it will be abstracted in defining through all of our own relative experiences of it and with it." - Ryan Gill (CEO and Co-Founder of Crucible)*

Fortunately, blockchain technology has emerged as a potential solution for much of the aforementioned ownership issues. Interestingly, blockchain has captured the trust of consumers in a way that large, well known brands probably could have, but for fear of disruption, loss of revenue, and competition, have chosen not to. There's a number of ways that blockchain could contribute to the Metaverse and many of them are being explored in gaming. It is deserving of a deeper dive than this report can warrant, but at a high level, the conversion of currency through digital wallets, defined ownership and potential for secondary markets are what make blockchain so revolutionary for driving interoperability forward.

## Exhibit 2 - Companies Working Towards Decentralization



Source: Jon Radoff - Building the Metaverse V2.5

## Picks and Shovels of the Metaverse

This is everything that would take advantage of, build on top of and improve the Metaverse experience for users. It's everything in a supply chain that isn't consumer-facing. We like to think about this section as - if we have the basic infrastructure, what can be built. If the answer is concerts? The picks and shovels would answer the how do you build a virtual concert? Who is making the merchandise? Who is selling the tickets? Who is making concert space or experience? Who is handling the sound and music distribution? It's a catch-all for intermediary technologies and services or industries that wouldn't necessarily

"Software development, like professional sports, has a way of making thirty-year-olds feel decrepit" - Snow Crash

lead the push into a Metaverse, but would take advantage of the platforms and technology once available. Importantly, they're still very necessary to complete the utopian Metaverse.

Consumer facing companies are going to want to remain relevant in the Metaverse. Strong brands and IP will likely transition smoothly over into the metaverse. Vans World is an early example. It's a skate park plus in-game virtual stores for the iconic brand. This experience was created by a 3rd party developer...a picks and shovel firm. We've already seen concerts, book tours, and TV viewing experiences test a virtual format in the platforms that are relevant today.

User generated content - the rise of low code and no code could see a boon for the creator economy. These service companies will likely take shape to support the creation of all new content, brands, and personalities. With digital distribution, it would be far easier for someone to be the next Ralph Lauren of the Metaverse than it would be to replicate that in the physical world.

Traditional service industries should also find a place in the Metaverse. For example, interior designers, real estate, and home decor could likely thrive and leverage the combination of the virtual and physical world. These skillsets combined with the emergence of real time 3D rendering should allow for smooth transitions into a metaverse.

As assets follow users into the Metaverse, services for financial management will be needed. Users would need guidance on currency conversion, managing various wallets, understanding what does or doesn't have value on various platforms, securing assets and much more. An entire virtual asset management industry could take shape around activity in the Metaverse.

The most interesting aspect of the Metaverse will be the ease of which physical business services shift over to the virtual while at the same time new opportunities arise. Solutions found in the Metaverse could also become standards in the physical world. As users become accustomed to and trust of virtual currencies, this could have profound impact on the physical world. This leads to our last key attribute.

## User Behavior

Technology moves at a faster pace than most consumers are comfortable with. Adoption and use of the metaverse will likely continue to be slow. Not only due to technology limitations but users mistrust of what it is. Let's go back to our virtual concert example. The first virtual concert was held in 2006. 15 years have passed and the number of virtual concerts that have been held is still a very small number. Facebook's Horizon - the virtual meeting space is not something that is new. AltSpace VR was founded in 2013 to be a virtual reality meeting space for work or pleasure. The technology for small scale metaverses have been with us for awhile. We believe slow adoption has been in part due to user behavior still forming for virtual spaces.

Fortunately, we've seen video games become much more socially acceptable over the last several years, helping lift the stigma around virtual worlds and avatars. One positive affect from the COVID-19 lockdown has been it forced most of us onto virtual platforms and to learn new norms for virtual presence and interaction. Younger generations use of low code user generated content + broader video game acceptance + improving technology to push us past the uncanny valley is what we believe will catalyze Metaverse experiences.

"No one ever looks like their avatar" Ready Player One

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A utopian Metaverse requires acceptance of virtual worlds from users and businesses. Think of the younger generations. They've grown up with an iPad; they're far more comfortable in virtual social situations than most of us that are over 25. It's that type of mindset that would make the most of the Metaverse.

Companies would invest in processes to ensure that their assets are replicable in a virtual format. The brands that are exclusively physical right now would embrace the Metaverse opportunity with open arms, partnering with the most popular virtual platforms. Blockchain would be accepted to enhance interoperability of assets. The faster virtual assets are legitimized, the faster economies would be able to build around virtual communities.

## The Reality of Metaverse

**Utopian Definition of Metaverse decades away:** As you can see, the utopian definition of Metaverse is really a term used to describe the result of many pieces working together to enable the next iteration of the internet. However, while thinking about these enablers we've come to two conclusions: 1) A single utopian Metaverse is very far away - likely decades and 2) technology hardware is the near term hurdle, but long term it'll likely be interoperability as the reason there isn't a unified metaverse. This is a key observation because it dovetails into our more realistic view of Metaverse, which is that there will actually be Metaverses. Obviously this is a looser definition of Metaverse, but it's probably better for understanding what Metaverse might look like in the future, particularly the 5-10 year time horizon, and why existing companies are considered to be the Metaverse.

**Wall gardens likely here to stay:** True interoperability, although potentially more lucrative over the long term, seems highly unlikely. The Apple-Epic lawsuit shows how far companies are willing to go to keep the walled garden approach. It's also worth noting the judge in the case indicated there are benefits to the consumer from a walled garden - privacy. Walled gardens have proved lucrative for those that have built them, and it appears to be a strategy that will continue to be pursued. FB and SNAP are working on hardware for VR and AR, respectively, but it's not to offer a common standard for creation in the Metaverse. It's to control your access to experiences and life in the Metaverse. Conversely, the game engines from Epic and Unity are what ubiquity in content creation looks like and could play a role in keeping the Metaverse decentralized and interoperable. Some will push for openness, others won't.

If we look at the Metaverse concept with more lenient guidelines for interoperability, then it becomes easier to see why certain companies are being referred to as Metaverse. On the virtual side, we'd point to companies like Epic Games, TakeTwo and Roblox. In augmented reality, it would be Niantic and SNAP. These are the large capitalized players in the space but albeit, not the only ones. We expect new multi-billion dollar companies will rise as the Metaverse becomes more mature.

**Roblox is a good example.** The content is almost entirely user generated, the engine that powers the developer studio is provided by Roblox and developers/creators share in almost all the money that users spend on the platform. In addition, many of the items that you purchase in the avatar marketplace, or even a branded experience like Vans World, can be taken across experiences. Roblox talks a lot about platform extension, which would move the platform beyond just gaming/leisure experiences and into education and workplace offerings. The developer community has the capability to build tools for other developers, there are professional studios being built on the platform and many consumer-

"Even though it was initially marketed as a new kind of MMO game, the OASIS quickly evolved into a new way of life." - Ready Player One

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facing brands/content are partnering with Roblox to ensure a virtual presence. Roblox actually has a lot of the pieces for our utopian definition of Metaverse, but things like technology, interoperability with outside platforms and a dynamic, two-way economy are what's missing. However, given our thesis that full interoperability is somewhat unrealistic, it's easy to see how Roblox fits the definition.

Epic Games is also considered to be an early iteration of the Metaverse, but there are some interesting differences. It has a UGC platform in two different ways - first with its Unreal Engine for professionals (both in the game industry and out). Second it has Fortnite Creative mode. Its Unreal Engine is likely the building blocks for a larger more robust Metaverse while Fortnite Creative is to be the near term micro-metaverse. Within Fortnite - users have creative and UGC modes, a single currency, self expression that transcends across different games/experiences including non-Fortnite related games like Fall Guys and Rocket League. The creative platform is a lot like Roblox with minor differences in curation (more on Fortnite) and the UGC tools approachability (more so on Roblox).

Where it especially differs from Roblox is with its professional game engine - Unreal. The real time 3D rendering tool is a professional tool for other game developers as well as other creative industries. This tool (along with Unity's game engine) will likely be the tool accelerant to bringing in other industries into the Metaverse. Having Unreal, the Epic Games Store, and Fortnite Creative, we believe this shows that the Metaverse will be the accumulation of technology and time...and not something that appears overnight. There will be no press release that says "the Metaverse is here, opens tomorrow"

**Roblox and Epic Games and....**If we isolate Roblox and Epic Games today, it would look like we have two Metaverse-like platforms. We're confident that both will have far more developed economies as time goes on, but it's hard to imagine money flowing freely between them for the time being. That's where many Metaverses begins to take shape. We expect many walled gardens to be built over time. Each with a primary audience focus or niche. Some will be in space (Star Citizen or EVE Online or Elite Dangerous), some will take place in the Wild West (Red Dead Online) or an absurdist view of criminal life (Grand Theft Auto) or sports related (NBA2K) or life simulators (The Sims) or fantasy (World of Warcraft) or a global skate park (Skate!) or...you get the idea. Each of these are in some state headed toward a more inclusive meta world...yet likely to stay separate for the near to medium term. This is also on the virtual/gaming side. These experiences will leverage metaverse technology to make the experiences more engaging and to bring the physical to the virtual.

AR companies like Niantic or SNAP are looking to overlay virtual reality on to the physical world. Niantic is doing it through games like Pokemon Go or Harry Potter Wizards Unite, whereby virtual objects, people, clues, etc. appear in the real world as part of the story. SNAP is doing it through AR experiences like virtual try-ons that allow users to see themselves in digital clothing before making a purchase. The difference in hardware and feel of AR vs VR will lead to a distinction between the two.

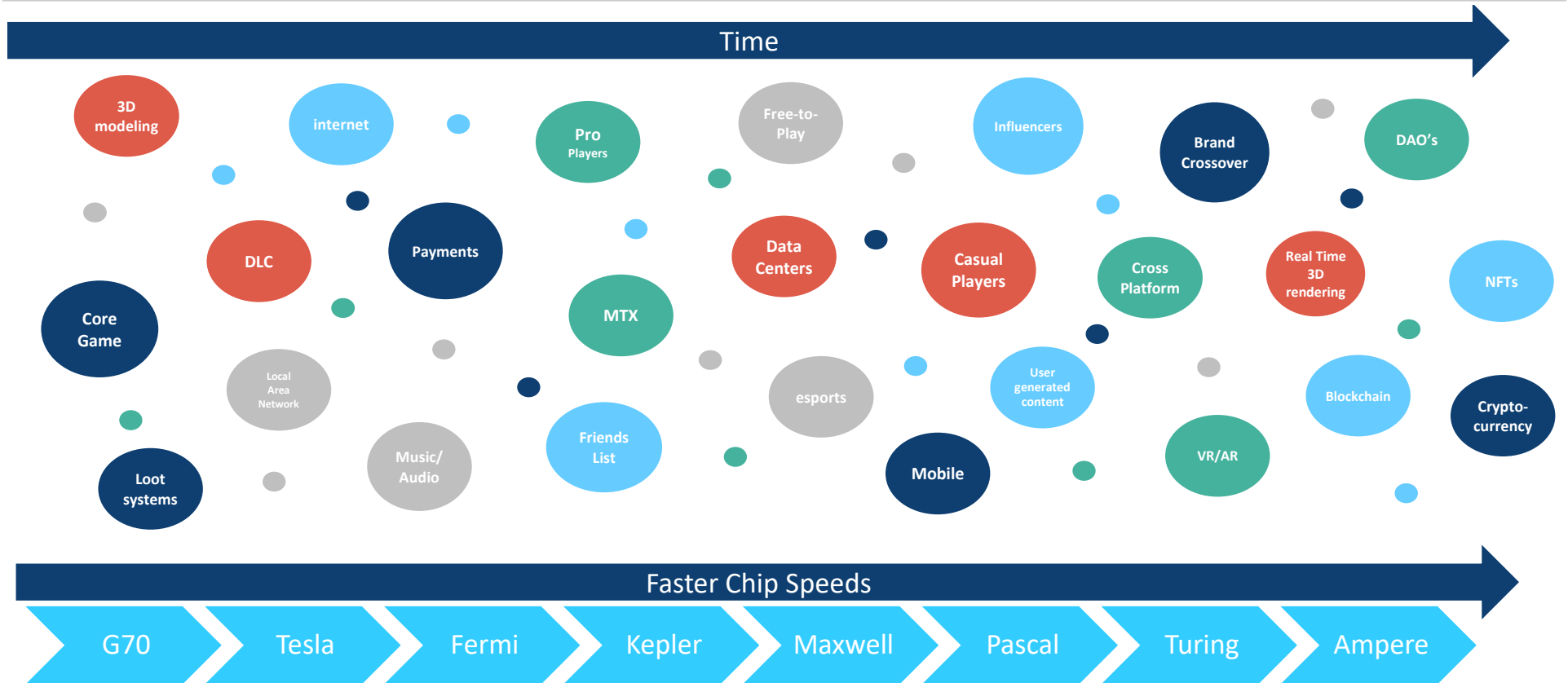
## So Why is it a Buzzword Right Now?

We see 3 reasons for the emergence of Metaverse as a buzzword. 1) Covid has accelerated the acceptance of virtual activity and the popularity of virtual platforms that provide social interaction. 2) Major tech executives are calling it out as the next leg of growth and 3) Most importantly, the Metaverse is the accumulation of many technologies, but recent breakthroughs have caught people's attention. Unsurprisingly, these breakthroughs are

making their first consumer facing appearance through gaming. For context, take a look at the exhibit below.

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## Exhibit 3 - Accumulation of Gaming Related Technologies - Metaverse of Gaming



Source: Jefferies

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It's not easy to visualize the Metaverse, but we think this graphic uses gaming as a case study to demonstrate the necessary progression of technology required to build a Metaverse. Jon Radoff, CEO of Beamable, has a blog called Building the Metaverse - it's a great resource for everything Metaverse and we strongly encourage you to check out this video illustrating this gaming Metaverse.

**The accumulation of technology.** The idea of a metaverse is deeply rooted in gaming. Combining physical with virtual, economies, NFTs, concerts, brand crossovers...all relevant today and evidence of a metaverse that has been in video games for a long time.

**Combining Physical with virtual can be traced back to LAN Parties.** LAN parties could be argued a very early form of a corner of the metaverse. LAN parties were about celebrating and sharing with friends in the physical world what was happening in the virtual. Quake, Halo, Red Alert, StarCraft, Warcraft, and Unreal Tournaments were very popular games that enjoyed the support of LAN parties. QuakeCon, celebrating 25 years, was started and still run today by passionate gamers around the idea of a LAN party.

In 1996, a handful of Quake players organized virtually on a player network a physical bring-your-own-computer LAN party. Tournaments were played, but it was mostly about building community and putting [real] faces to virtual names according to early organizers. The ID software team including John Carmack showed up on the last day to both play and say thanks for their support. It is estimated over 100 showed up in 1996. At the last in-person QuakeCon in 2019, over 10,000 showed up with computers to keep the tradition running.

**Brand Crossovers:** Bringing physical goods into the virtual world is also not lost on gamers. Brand crossovers have been a large part of video games for over a decade. There are natural uses in sports titles and unnatural like product placements. Movie characters as video game characters or vice versa is also not a new phenomenon. Successful crossovers might be what's getting noticed. Early video games based on movie IP or early movies based on video game IP has historically underperformed more often than not. We see this as a sign of recognition that the industry is maturing and more broadly accepting.

**NFTs:** The majority of revenue in the video game industry is in-game microtransactions. A good portion of this revenue is cosmetic related. Despite in-game items not sitting on the blockchain - there is still a hierarchy of rarity that utilizes supply & demand. The dynamics of NFTs in digital goods is, in our view, taking what gamers have been doing for over a decade that started with horse armour: applying value to a digital good. The additional layer that non-fungible tokens could bring to video games would be turning the one way economy games are today to a broader one that would allow the buying, selling, and trading. All actions tried to some extent previously in the industry; however, NFTs & blockchain would make it easier, more accessible, and add a layer of trust that was missing before.

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## Exhibit 4 - Phil Collins Rocking Out in Grand Theft Auto



Source: TakeTwo; Rockstar

**Virtual concerts are not new to gaming.** Duran Duran gave a concert in Second Life back in 2006. Also in 2006, Phil Collins did the same in Grand Theft Auto. Video games or virtual worlds should be natural extensions for the music industry. Rockstar Games launched its own music label in 2021. Leveraging game engines to build fantastical worlds or experiences to match the artistry of music seems only natural. Again, we see this as another example of the continuum of technology catching up with the medium. We still aren't there to make it a seamless, very broad shareable experience, but like other breakthrough technologies, we are likely on the cusp. Warner Music has invested in Roblox as well as Wave, a private virtual entertainment company.

**Bottom line:** There are numerous other examples, but our point is made. The ideas of a Metaverse aren't new nor something that will just happen one day. Rather it's been an idea borne out of the video game industry. As technology continues to progress the line between video games and entertainment and eventually reality continue to blur.

**Technology Breakthroughs:** Metaverse has entered our lexicon in part due to recent technology breakthroughs: Real time 3D rendering, decentralization and blockchain. Each stand out on their own merits, are evolutionary, possibly revolutionary. Although we would not characterize any one of these innovations as Metaverse, we do think they're some of the most interesting pieces in building what will become the Metaverse. We see such promise in the technologies and themes, we will likely see future public companies from the technology. We intend to dive deeper into many of them in future reports, but below is a short introduction on some of the most exciting innovations.

## Interesting Innovations Driven by Recent Technology

As usual, gaming is leading the way in its implementation of new technologies for consumer-facing products. Below are some of the different verticals in which we're seeing innovation.

But we cannot dilute ourselves into thinking that existing technologies or backwards-facing comfortable technologies are or can ever be the meta-verse. It has to be about a future-facing notion of what we will create

**Payment Infrastructure:** There are a number of companies building blockchain-based platforms for developers to build their games/content on top of. With decentralized economies as a foundation for future content creation, we'll see persistent value across virtual assets, gamer communities sharing in the economics of content and governance spread across many entities. that goes beyond what currently exists" - Rafael Brown (CEO of Symbol Zero)

- **Forte:** An end-to-end solution for token based game economies and NFTs that benefit the community of developers, players and fans alike. The blockchain platform for games is a complete set of technologies, tools and services that erase any barriers to entry to blockchain technology. Forte is offering new and existing games a way to start building a sustainable and resilient value foundation for games, players and community. In addition, you can seamlessly integrate a crypto wallet so that your community can own and manage digital assets in games. Once set up, Forte offers marketplace technology and exchange services that include safeguards, security and liquidity.
- **Flow:** A fast, decentralized and developer-friendly blockchain, designed as the foundation for a new generation of games, apps and the digital assets that power them. Flow empowers developers to build thriving crypto and crypto-enabled businesses. Applications on Flow can help consumers control their data, create new kinds of digital assets that are tradable on open markets and build open economies that are owned by the users that help make them valuable.

**Content and Assets:** Whether it's the payment infrastructure powered by blockchain technology, technical improvements in network, hardware etc, user behavior, or something else, there has been a noticeable shift in the type of content that we're seeing in games. As a result, games are shifting their gameplay or business models to align with emerging content.

- **Non-Fungible Tokens (NFTs):** Most commonly referred to as the digital version of trading cards. Although NFT's are built on blockchain, many on the Ethereum blockchain, they are not the same as cryptocurrencies because currencies are fungible. When you trade one NFT for another, you're getting something entirely different. NFT's have provided a way for ownership to be assigned over digital creations. Just like art, there are prints and originals - NFT's allow people to keep track of the originals. As such, the process has opened up ways for artists and content creators to monetize their digital assets, participating in both the original sale and secondary market transactions. Just like physical collector communities, there are NFT communities built around things like Pudgy Penguins, CryptoPunks, Bored Apes and more. Some popular marketplaces include OpenSea, Rarible and Nifty Gateway.
- **Generative AI Content:** Computer generated art or content whereby the artist instructs the machine to create content through algorithmic parameters. This allows for scalable content creation that maintains an artistic touch. It's not just art either - the AI technology can be applied to videos and music too. Users are looking for increasingly immersive experiences and the flexibility of generative AI content allows creators to implement that into their work. This is great for creator economy. It can save a creator time on less meaningful parts of their process and help avoid burnout.
- **Play-to-Earn:** Leverages blockchain technology to give gamers ownership of in-game assets as well as the ability to increase asset value through gameplay.

By participating in the virtual economy, players are creating value for the entire ecosystem and are actually rewarded for that effort. In Axie Infinity, one of the most popular play-to-earn games, players work to earn Small Love Potions that are required to level up the characters. Because you can sell your character (Axie), the higher the level, the more your character is worth. You can also sell the Small Love Potions that you earn instead of using them on your own Axie. This differs from traditional pay-to-play or free-to-play because the time and capital invested by gamers is worthless in the long run. To be clear, play-to-earn has been around for quite some time, but blockchain has given players more confidence in the authenticity of in-game assets.

## Exhibit 5 - Companies Involved w/ Creator Economy



Source: Jon Radoff - Building the Metaverse V2.5

**Social Experiences and Platforms:** We're seeing new experiences attempted on some of the most innovative platforms. New combinations of technology are allowing developers to rethink their content. There has also been a push to create low-code or no-code platforms that allow anyone to become a creator no matter their technical ability. This will open up so much creativity that has been limited by the requirement for an entirely different skill set.

- Mass Social Experiences:** The virtual format allows events that, at least from a participant perspective, are significantly larger than traditional in-person events. The most popular example is the Travis Scott concert held in Fortnite, which brought in 27.7MM unique attendees. The Lil Nas X concert in Roblox saw similarly large total viewership numbers. We still have a ways to go before these events are held real-time and actually shared by attendees, but it's a trend that we expect to continue. Companies like Wave are pushing the boundaries of live, interactive and immersive virtual concert experiences.
- User Generated Experiences:** There are a number of platforms simplifying development tools which reduce the barrier to entry for an entire class of creators. Many are looking to implement low-code or no-code processes that make it possible for anyone to create on their platforms. Right now, we see a lot of this innovation in gaming with platforms for creation, blockchain implementation and backend infrastructure for live services. Roblox is the most popular UGC based platform with almost all the content coming from its users. Other examples are Manticore, RecRoom and Beamable.
- Decentralized Autonomous Organizations (DAOs):** An organization built on rules that are embedded in blockchain code, eliminating the need for a hierarchy, and is fully controlled by the organizations members who vote on any decisions or changes to the rules. All activity within the organization is recorded on the blockchain so nothing will go unnoticed, particularly if it wasn't approved by a majority of members. One example is Jenny DAO, which acquired its first NFT in



May 2021. Members of this DAO are provided fractional ownership of NFTs and can oversee future NFT purchases.

- **Digitized Tabletop Games:** Advancements in AR and VR technology has opened up opportunities for many popular tabletop games.

## Exhibit 6 - Companies Building Experiences for the Metaverse

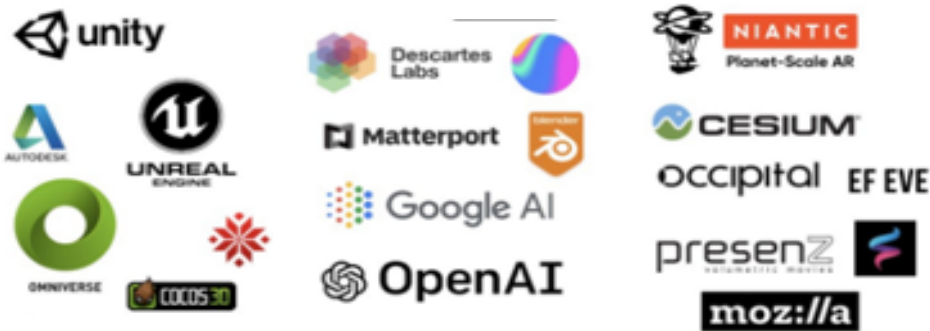


Source: Jon Radoff - Building the Metaverse V2.5

**Spatial Computing:** There isn't a specific definition for this type of technology because it's sort of an umbrella term for a number of technologies that are allowing humans to move beyond 2D interactions and into 3D spaces where the environment around us is the user interface. Spatial computing builds on the "digital twin" concept by implementing GPS, lidar (light detection and ranging), video and other geolocation technologies to create a digital map of a room, building or city.

- **Epic Games & Unity:** Both companies are using their game engines to help drive spatial computing forward for creators and developers. For example, one of Epic's recent acquisition, Quixel, produces ultra-realistic, large scale scans of real-world environments. It then licenses the images to movie studios, game developers and ad agencies to be used as part of the content. Real-world rendering has many applications and Unity has spoken openly about leveraging its technology to capitalize on some of the opportunity.

## Exhibit 7 - Companies Involved w/ Spatial Computing



Source: Jon Radoff - Building the Metaverse V2.5

As you can see, there are a lot of exciting things happening and gaming is a great incubator for many of them. However, each piece is sort of receiving Metaverse designation, when in fact, it's just part of the accumulation of technology that Metaverses require. "You'd be amazed how much research you can get done when you have no life whatsoever." - Ready Player One

## Key Companies Involved:

### SNAP (Buy, \$90 PT)

We believe SNAP may be one of the best positioned virtual platforms in the development of the Metaverse. In order to better understand SNAP's leadership position, we examine the significance of four key product areas; 1) the camera and augmented reality, 2) virtual avatars, 3) the Snap Map, and 4) hardware.

- Camera and Augmented Reality:** SNAP distinguishes itself from its peers by building products that leverage camera and AR technology as the principal drivers of engagement and user generated content. Currently, SNAP has 290M+ DAUs who create on average 5B snaps per day, open the app on average 30 times per day, and regularly use AR lenses to communicate with friends and brands (200M+ DAUs using AR). As we mentioned in the "Virtual Platforms" section of this report, the Metaverse is enabled by platforms that provide the "picks and shovels for content creation, the ongoing maintenance of live experiences, user interface, and social interactions". We believe SNAP is beginning to successfully democratize its AR tool sets through its recently launched **Lens Studio** and **Camera Kit**. We highlight that the Lens Studio enables a community of 200K+ creators to build their own AR experiences using their own machine learning models. The Camera Kit makes the tools from the Lens Studio interoperable with partner apps like Zoom, the MLB, and Disney. In our view, SNAP is one of few platforms making AR technology easily accessible both inside and outside its App, which should support the company's AR leadership for years to come.
- Virtual Avatars:** For the past 5 years SNAP has invested heavily into its Bitmoji avatars, which represent snapchatters' virtual identity. Bitmoji gives users the opportunity to express not just their physical characteristics (e.g. hairstyle, eye color, skin tone, etc.), but also their fashion taste, sports team allegiances, and mood. The use cases for Bitmoji continue to expand, as SNAP has invested in its own gaming platform, which allows users to play games as their virtual avatar. Additionally, fashion brands like Ralph Lauren and Levi's have developed custom items that can be worn by snapchatters' Bitmoji. While the use cases within the Snapchat app are expansive, we believe the more important use cases could actually exist outside the app. For instance, SNAP has already made Bitmoji interoperable with 3rd party apps like Tinder and game developers in the Unity network. Today, SNAP is hardly monetizing its Bitmoji, but we ultimately believe the company can tap into new revenue opportunities in both advertising (direct-to-avatar marketing) and e-Commerce. As mentioned above, the market for virtual assets is currently \$50B (iOS only) indicating ample runway for SNAP to monetize its already high engagement around virtual avatars.
- Snap Map:** SNAP already owns one of the world's most popular virtual maps reaching over 250M users and 35M businesses monthly. We view that Map as SNAP's primary bridge between the digital and physical world enabling users to locate both their friends and local businesses. In the future, we envision a world in which users could locate local businesses on the Map, virtually enter their digital storefront, try on items virtually using AR, and then make a purchase directly in the app. The Map also serves as another surface for users to express their digital identity as your Bitmoji is persistently displayed for your friends to see.

### Exhibit 8 - Example of Snap Bitmoji



Source: Snapchat, Jefferies

- Hardware:** SNAP has historically lagged its peers on the AR/VR hardware front. At its recent Partner Summit, SNAP released its 4th generation of Spectacles, but is providing them only to a small set of AR creators and not yet releasing them to the public. The new smartglasses are likely the biggest improvement that SNAP has made to its Spectacles line-up, as they offer the ability for users to immerse themselves in AR experiences without needing to access their smartphones. However, SNAP has not yet proven that they can integrate their hardware and AR technology into compelling user experiences. In our view, FB is much further ahead on its hardware efforts through its Oculus products, which already have exciting use cases for gaming and other entertainment verticals.

## FB (Buy, \$440 PT)

While still early, FB is in the process of building the platforms that will ultimately support the development the Metaverse. We look at FB's position through the lens of 4 current investment initiatives: 1) Oculus VR hardware, 2) Smart glasses, 3) Augmented Reality lenses, and 4) "Horizon Workrooms"

**Oculus Virtual Reality hardware:** Since acquiring Oculus in 2014 (\$2B deal), FB has been focused on developing best-in-class hardware and complementary software & services to support VR experiences. The Oculus Quest 2 is FB's newest VR headset; it retails at \$299 and allows users to play games, try fitness classes, play sports, and watch concerts in virtual environments. Most importantly, Quest 2 is linked to users' Facebook accounts, which means users can seamlessly connect with friends in virtual environments to play games or spend time together. We believe one of FB's biggest differentiators in VR is its large array of non-gaming experiences that were designed for Oculus. For instance, users can explore extreme terrain in National Geographic Explore VR, join virtual fitness classes, or simulate being a chef. As FB's hardware continues to improve and becomes less cumbersome, we would expect a flywheel of greater developer and user adoption of VR.

**Smart glasses:** In September 2021 FB launched its first generation of smart glasses, which we believe are the next step in enabling the Metaverse. Admittedly, the glasses, which were developed in partnership with Ray-Ban are somewhat underwhelming. Notably, the glasses don't have an AR functionality built in and are designed more for taking pictures, recording videos, listening to music, and taking calls. While the glasses are stylish and have some helpful use cases, for \$299 we believe most users will wait for a more significant technological breakthrough before investing in smart glasses. Longer-term, the prospect of fully immersive AR glasses will definitely be a driver for experiences in the Metaverse, but we don't expect that technology to come for another 5-10 years.

**Augmented Reality lenses:** Similar to SNAP, FB has built AR lenses within the Instagram chat and Messenger platforms. There is definitely appetite for FB's AR platform, as the company disclosed at their F8 developer day that there are currently 600K AR creators that have produced 2M AR filters in 190 countries. However, we believe there is still a lot of work ahead as FB is yet to crack the code on AR commerce, which we view as a key driver of AR adoption.

**"Horizon Workrooms":** FB recently launched a VR experience for Oculus Quest 2 that allows users to join collaborative work spaces virtually. The product "Horizon Workrooms" creates a virtual office space that can be accessed by up to 16 people who can join as their avatar. While the experience is Metaverse-like there are still many technical limitations like the

number of people that can join, the ability to dynamically alter the space, and the hardware that is required to access the space. Long term we do think the prospect of shared, virtual, and collaborative work spaces is promising, but broad adoption could take 5-10 years.

## **Roblox - RBLX (Hold, \$86 PT)**

Many already consider RBLX a Metaverse, or at least an early iteration of one, and here's why. The platform offers all the tools required for content creation in a low-code / no code format and handles publication, language translations, billing, collections, safety and security of the environment and more. It's hard to find a platform that makes the creative process easier for developers than Roblox; we see this as very supportive of creator economy.

The content is almost entirely user generated and developers/creators share in almost all the money that users spend on the platform. The developer community has the capability to build tools for other developers, there are professional studios being built on the platform and many consumer-facing brands/content are partnering with Roblox to ensure a virtual presence. Roblox talks a lot about platform extension, which would move the platform beyond just gaming/leisure experiences and into education and workplace offerings. Lastly, many of the items that you purchase in the avatar marketplace, or even a branded experience like Vans World, can be taken across experiences. In essence, the RBLX ecosystem includes creator economy, a virtual platform, picks and shovels of the Metaverse and some interoperability - many of the key enablers for Metaverse.

However, there's always work to be done. We would expect to see a more dynamic economy emerge with resale moving beyond limited items and premium members, particularly with newer gaming models such as play-to-earn. Increasingly, gamers are going to want some return for the time and money invested on a platform. Advancements in technology will allow for truly shared experiences among a larger and larger group of people. We remain skeptical on the reality of interoperability; RBLX could very well end up being one of many Metaverses.

## **Warner Music Group - WMG (Hold, \$41 PT)**

WMG is actually in a very good position to benefit from Metaverse developments. Music is incredibly important to many of the most popular social platforms and record labels stand to benefit as rightsholders. In addition, the evolution of digital distribution makes it even more critical that you have a strong team helping you maximize the opportunity. Record labels have a key part to play in navigating that landscape, whether it be traditional recording contracts or through the artist services business. In fact, we see music as being a beneficiary of the Metaverse no matter which direction distribution goes, so WMG is a relatively low risk play on the expansion of virtual interactions.

Thus far, WMG has not been shy about experimenting with the virtual format. The company recently partnered with Roblox for a virtual concert that kicked off Twenty One Pilots' Takeover Tour and signed Ha Jiang, a "virtual idol" that exists exclusively online, to Whet Records. In addition, WMG is invested in companies like Dapper Labs, Wave and Roblox while having a global partnership with Genies, the worlds largest avatar tech company.

**TakeTwo - TTWO (Buy, \$231):** TakeTwo's IP Grand Theft Auto, Red Dead Redemption, and NBA2K are already on the road toward a "Metaverse". They lack a true economy and many of the attributes needed today to be a Metaverse, but they have high social engagement,

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brand crossovers, and the start of an economy that makes sense. In our initiation we wrote about Red Dead Online potential - the ability to take on economic roles is already in the game (moonshiner, bounty hunter, trader, naturalist, & collector). Expanding into a bigger economy, cross branding, and expanding the roles/player base would both increase engagement & monetization, but also move it deeper into the Metaverse.

## Exhibit 9 - NBA2K Brand Spotlights Expand Again in 2022



Source: TakeTwo; Jefferies

NBA2K's The City is even further along with many virtual stores of physical brands from Jordan, Nike, Reebok, Gatorade, and many others already in the game. Even Jake from State Farm makes an appearance. This mode is built on social interaction and self-expression. Leveraging brands from the majors to smaller indie labels has been ongoing for the nearly a decade. An example of technology being a limiting factor - on current consoles TheCity is far more robust in capabilities, experiences, and number of players vs. older generations. In fact on older generations, the irony isn't lost on us. The mode is called TheNeighborhood.

**Electronic Arts - EA (Buy, \$165):** EA is the most intriguing in our coverage group. In our conversations with management, the company seems eager to embrace many of the new technologies we've discussed in this note. Moreover, much of EA's best IP - The Sims, SimCity, Skate, and the sports franchises are well positioned to leverage user-generated content; robust virtual economies; pay to earn mechanics, and brand crossovers. Imagine the home decor opportunities in the Sims, the architectural fun and sharing that SimCity could offer, or the build and share skatepark, skateboards, tattoos, and clothing brand crossovers Skate could provide. Why is it intriguing? Skate and SimCity haven't had a recent title in years. The Sims launched in 2014 and lacks multiplayer. And the sports titles currently lack any mode similar to NBA2K's TheCity. We do think all of this is in the pipeline, but timing remains uncertain.

**Activision Blizzard - ATVI (Buy, \$120):** World of Warcraft was meta before metaverse. Large persistent worlds have been a staple of WoW from the beginning. Self-expression in skins, armor, and mounts have long been part of the game. WoW also has a robust economy - while there isn't any opportunity to play to earn legitimately in the game as only trading is allowed, its economy is more advanced than most games. Other titles like Call of Duty or Diablo would have more limited opportunities to leverage technologies building

the metaverse. Regardless, the ones it could, would still drive incremental engagement and revenue opportunities.

**Consumer Implications for: Funko - FNKO (Buy, \$25), Hasbro - HAS (Buy, \$120), Spin Master - TOY CN (Buy, \$58), Mattel - MAT (Hold, \$23)**

As the Metaverse emerges as an alternate but parallel universe where consumers can express their passions & values, we expect the convergence between digital and physical “things” to accelerate and amplify. Brands with the ability to translate their physical experiences into digital environments and vice versa will see the benefits of coincident revenue potential. We also see Metaverse as an exploratory domain for brand marketing and customer acquisition, similar to how the physical universe has various channels of access. This will require companies to invest in new asset models, talent & skillsets, and duality of brand presence in a way that hasn’t been explored in the past. Moreover, in the spirit of next-gen brands, the Metaverse will offer boundary-less spaces for co-creation and for brands to discover and uncover new story arcs that can be brought to life in the physical world.

Fandom in the digital world continues to evolve. We expect super fans to collect across both the physical and digital domains. Pricing is being sorted with the balance between premium/luxury priced limited edition exclusives and hyper accessible, sharable, and tradable NFTs for the masses. Companies such as Funko (FNKO) that are deeply rooted in fan culture will likely be first to realize the benefits of parallel universes. But we also see the potential for companies across luxury goods, fashion, lifestyle brands, travel, sports, toys & games (HAS, MAT, TOY CN), etc. to extrapolate value from their owned IP in more targeted and strategic ways. Metaverses, esp when powered by community attributes, provide for hyper effective & efficient marketing portals to activate, stimulate, resurrect, and bind fan communities without geographic boundaries. We expect brands to coordinate digital and physical releases to increase cross-platform collector engagement. 86% of NFT collectors cite community as a reason that they collect according to a survey conducted by the Morning Consult (Exhibit 11).

As an example, in September, Spin Master’s (TOY CN) Bakugan became the first to premiere a full-length episode on Roblox (RBLX) to highlight their concurrently running Netflix series. Spin Master is leveraging the concept of a Metaverse through the Bakugan hub to reach beyond the brand’s traditional physical card and ball play pattern. We see this strategy enabling physical products to be digitized, extend a franchise past its niche group, increasing inclusively, and potentially aging up a property beyond its historic age cap. Kids gain the ability to exert control over digital Bakugan content in ways that can’t be done in its physical form.

At this stage, there is little/no valuation consideration for companies extending their consumer brands into digital Metaverses but in the future, it could provide for a source of revenue and stronger brand engagement than single domain product classifications.

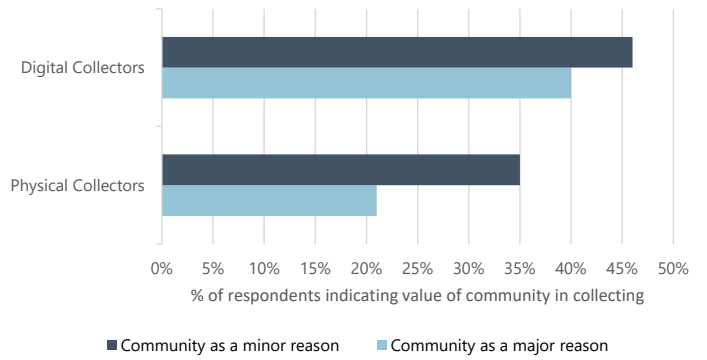
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Exhibit 10 - Spin Master's Bakugan Enters Roblox Metaverse



Source: Spin Master; Jefferies

Exhibit 11 - Digital Collectors Value Community



Source: Morning Consult; Jefferies

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## Investment Recommendation Record

(Article 3(1)e and Article 7 of MAR)

Recommendation Completion	September 29, 2021 , 07:13 ET.
Recommendation Distributed	September 29, 2021 , 07:13 ET.
Recommendation Recalled	September 29, 2021 , 09:54 ET.
Recalled Recommendation Distributed	September 29, 2021 , 09:54 ET.

## Company Specific Disclosures

David Lustberg owns shares of Activision-Blizzard common stock. James Heaney owns shares in Activision Blizzard.

James Heaney has a long position in Facebook.

Steven DeSanctis owns shares of Alphabet Inc. common shares.

James Heaney owns shares in Take-Two Interactive Software.

Jefferies Group LLC makes a market in the securities or ADRs of Activision Blizzard, Inc.

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The expected total return (price appreciation plus yield) for Buy rated securities with an average security price consistently below \$10 is 20% or more within a 12-month period as these companies are typically more volatile than the overall stock market. For Hold rated securities with an average security price consistently below \$10, the expected total return (price appreciation plus yield) is plus or minus 20% within a 12-month period. For Underperform rated securities with an average security price consistently below \$10, the expected total return (price appreciation plus yield) is minus 20% or less within a 12-month period.

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## Other Companies Mentioned in This Report

- Activision Blizzard, Inc. (ATVI: \$76.33, BUY)
- Alphabet, Inc. (GOOGL: \$2,716.60, BUY)
- Electronic Arts Inc. (EA: \$133.77, BUY)

- Facebook, Inc. (FB: \$340.65, BUY)
- Funko, Inc. (FNKO: \$19.58, BUY)
- Hasbro, Inc. (HAS: \$92.52, BUY)
- Mattel, Inc. (MAT: \$19.30, HOLD)
- Roblox Corp (RBLX: \$77.05, HOLD)
- Snap, Inc. (SNAP: \$74.42, BUY)
- Spin Master Corporation (TOY CN: C\$41.62, BUY)
- Take-Two Interactive Software, Inc. (TTWO: \$149.11, BUY)
- Warner Music Group Corp. (WMG: \$41.77, HOLD)

## Distribution of Ratings

Distribution of Ratings						
			IB Serv./Past12 Mos.		JIL Mkt Serv./Past12 Mos.	
	Count	Percent	Count	Percent	Count	Percent
<b>BUY</b>	1857	63.95%	163	8.78%	25	1.35%
<b>HOLD</b>	924	31.82%	28	3.03%	7	0.76%
<b>UNDERPERFORM</b>	123	4.24%	1	0.81%	0	0.00%

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