
making the metaverse
The Metaverse Demystified
media .monks

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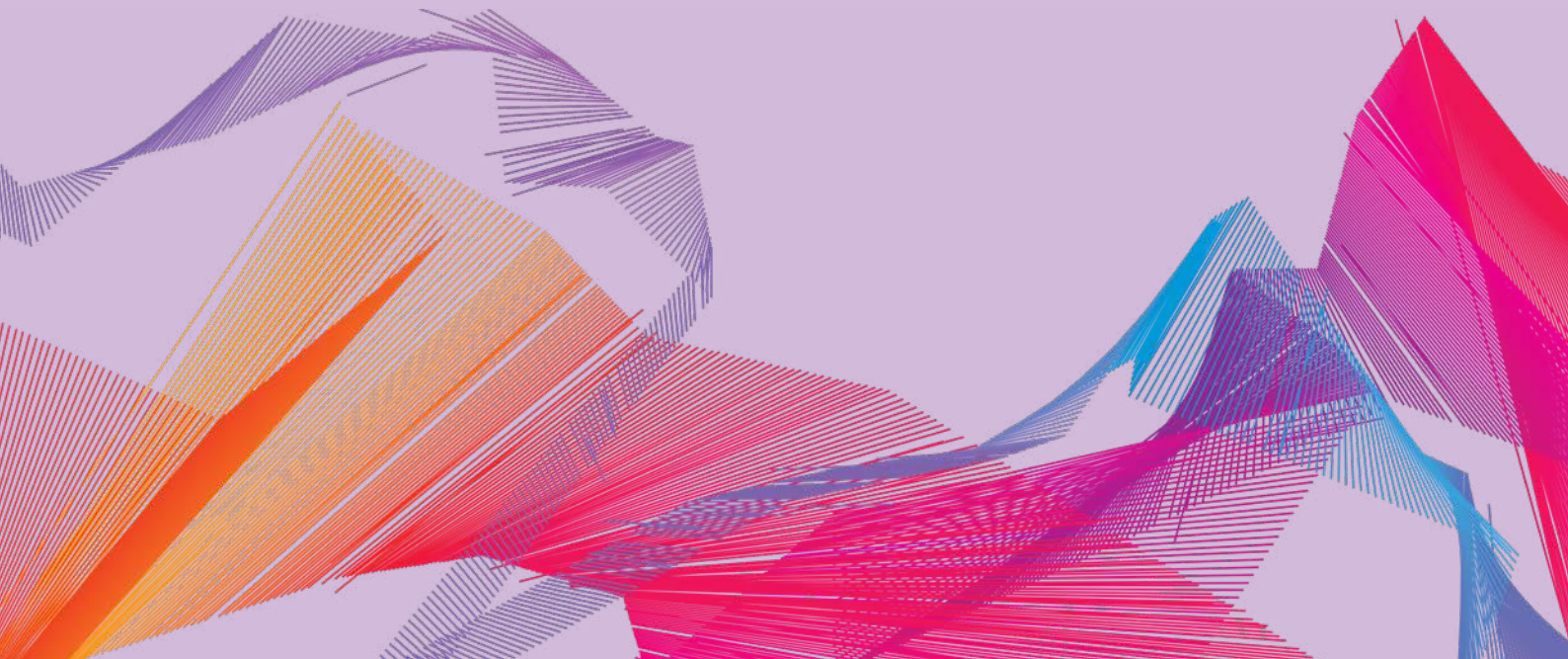
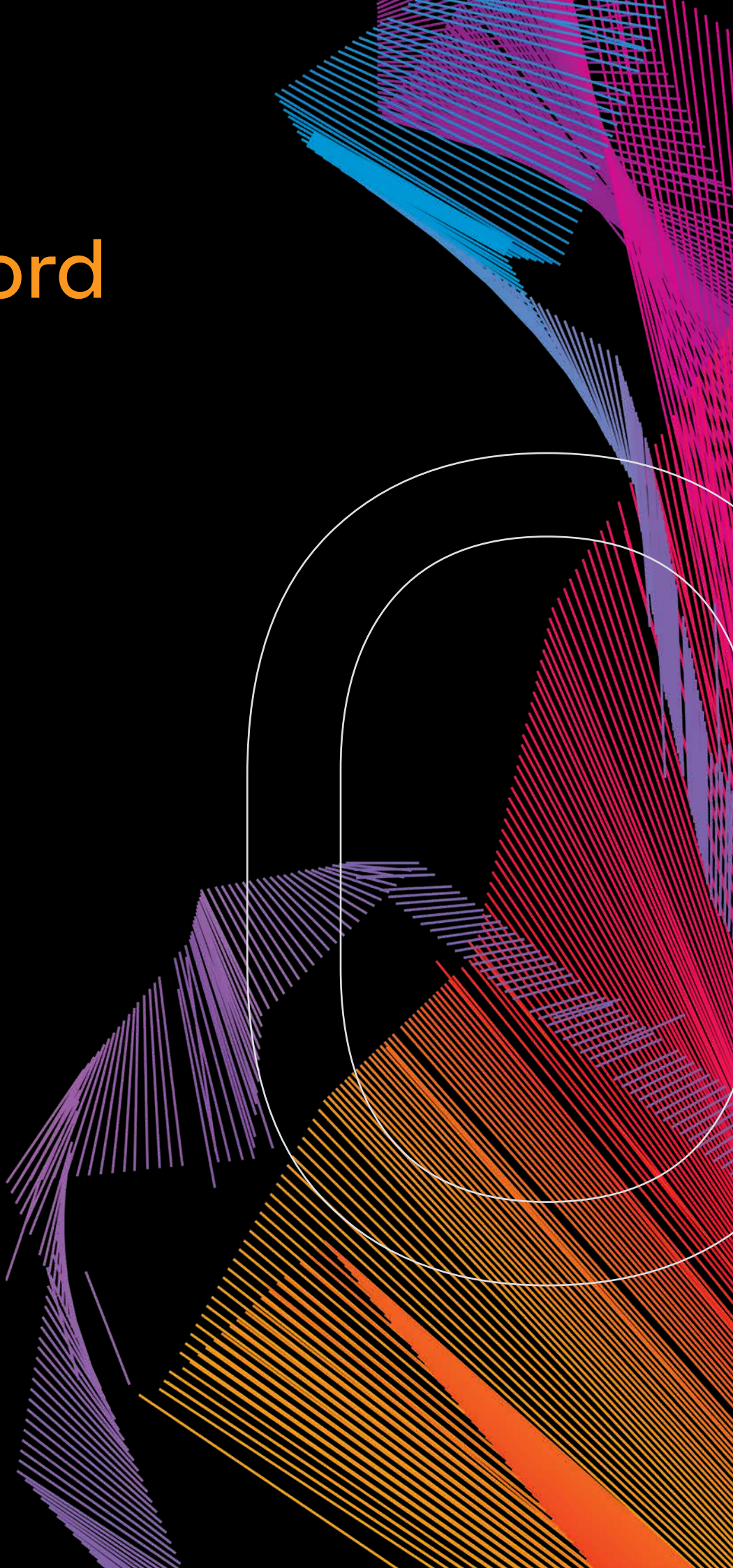


Chapter 00

Foreword



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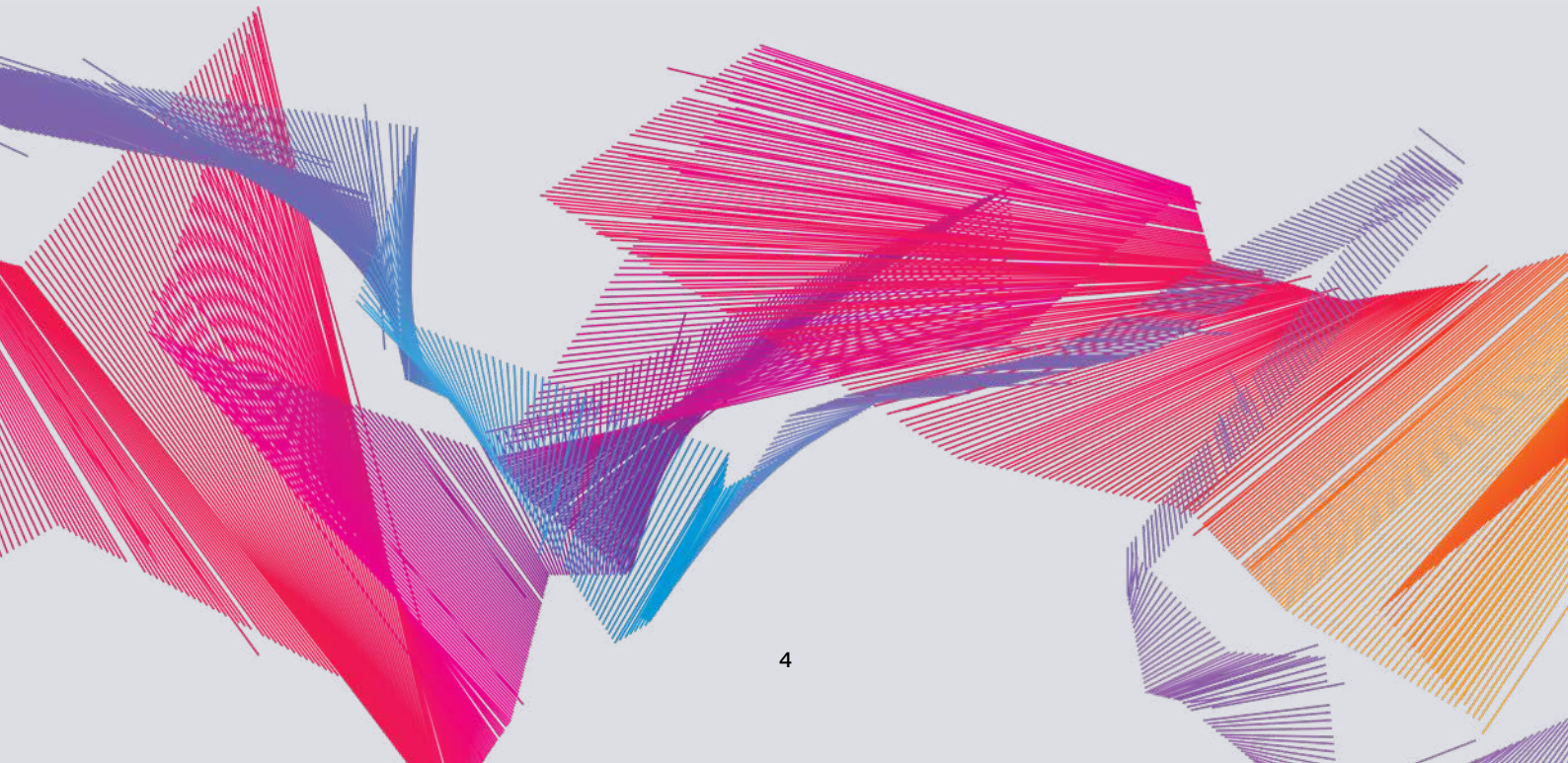
Before opening this report, you may have already seen a great deal of headlines and content espousing ideas on the metaverse and the benefits that it will bring to digital audiences. The sheer volume of content already available is certainly valuable to many, but it can also feel overwhelming, incoherent and unapproachable to others.

From virtual fashion and NFTs to immersive digital worlds and more, we're engaged in consulting, building and making new experiences that together will make up the emerging metaverse that you've heard so much about. Throughout our work, we've found context that helps connect the dots and aligns people on the disruptions on the horizon—and the opportunities they can make moves on today.

We want to make the metaverse comprehensible. To do that, we'll start with the basics by framing up the landscape that makes the metaverse possible: virtualization, the subject of our first chapter.

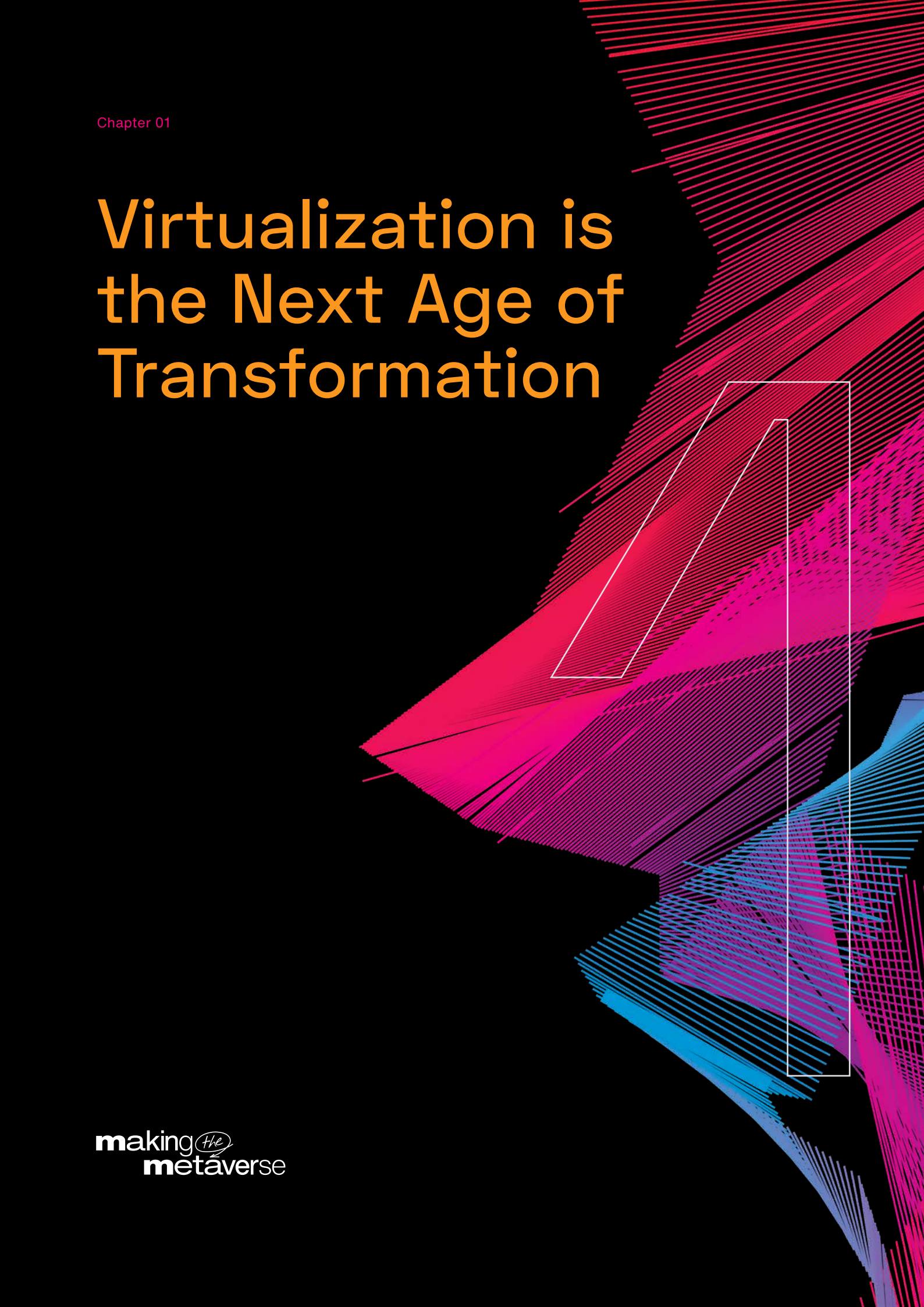
We've effectively broken our analysis into seven buckets of information, each of which is critical to understanding the space of virtualization and the metaverse. Within every chapter of this report, you'll find context to freely explore the critical concepts without getting lost in far-out hypotheticals. Our aim is to avoid complexity while delivering a broad overview of the space.

This report has been designed to keep things simple, straightforward and digestible. We're often asked to explain this space to senior executives who run companies worth billions of dollars—and in the next breath, to our parents. Here is our answer to both.



Chapter 01

Virtualization is the Next Age of Transformation



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Every generation ushers in a game-changing set of technical advancements, principles and disruptive mentalities that inspire new ways of thinking, doing and wanting. TV killed the radio star in the 80s, after all—and there will always be a new age, new era on the horizon to prepare for.

The beginning of the current decade greatly amplified the role that digital plays in our lives. Stuck at home because of the Covid-19 pandemic, people depended on technology to gather with their friends, collaborate with colleagues, purchase essential items, attend class and more. With rapid adoption of digital tools touching every aspect of our lives, we unwittingly entered the era of virtualization—succeeding brands' attempts to digitally transform over decades past.

"The digital transformation is in its third iteration, and [S4Capital] is perfectly positioned to benefit from this ... The last frontier for digital transformation is to virtualize the brand's experience across all digital touchpoints, and to create something unique and different for people to engage with."

——— Avi Dan, CEO of Avidan Strategies, in **Forbes**

So, what is virtualization? Virtualization is the process of adapting to the state in which the digital world and interactions therein are perceived as being just as real as the physical world. The transhumanist movement, devoted to enhancing human cognition and ability by interfacing with technology, takes this concept to an extreme—consider Bethany in the HBO/BBC miniseries Years and Years, whose ultimate desire is to free her consciousness from her physical body to become pure data.

Most of us aren't yet ready to make that change, but virtualization has guided us in the direction of building a hybrid world where physical and digital activities and relationships take place simultaneously.

Have you heard of parasocial relationships? It's a phenomenon in which an audience feels as though they have a relationship with a performer. If you met your favorite podcaster, for example, it would probably feel like meeting with an old friend—even though they may have no idea who you are. But online, these relationships become real: you might chime in on your favorite show by participating on Clubhouse, or join a Discord community exclusively for supporters of the show. That community could then extend into other activities, like watch parties or game nights. Suddenly, that show you listen to each week becomes your social world, like a bar or cafe you might frequent after a long day at work. You might even prefer the company to those who are in your physical proximity.

That's virtualization at play: profoundly transforming how people connect with each other in ways that supersede activities in the physical world. Virtualization and its impact are best understood in reference to three core concepts:

1. **Digital transformation is not perpetual.**
   You cannot accelerate a timeline that has no estimated completion date, just as you cannot be x% through a race that has no finish line.

2. **Virtualization is critical to reaching today's audiences.**
   According to a **commissioned study** by Media.Monks and Forrester Research, 77% of marketers recognize digital experience efforts of the past have allowed them to provide superior customer experiences; 76% of marketing leaders surveyed agree that previous transformation efforts set them up for success during the COVID-19 pandemic.

3. **Virtualization is not virtual reality.**
   Virtual reality (VR) is one of many ways through which people experience the byproduct of virtualization, although the concept is much larger, as you'll find by reading this report.

For all the talk of "digital experiences" over the last decade or more—as tools, infrastructure, connectivity and culture have evolved to embrace technology as a core component of modern life—the reality is that digital transformation has mostly covered table stakes groundwork as brands moved from offline to on. It's centered on plumbing and interfaces, largely driven by the adaptation to changes in traditional computing, and media consumption habits.

But virtualization's focus, meanwhile, is to put emotion into the code. This process has led to the creation of distinct, immersive environments that offer a glimpse of what the metaverse will look like: a persistent ecosystem combining embodied experiences ranging from a "digital twin" of the real world to more fantastical experiences and environments that are only possible in digital.

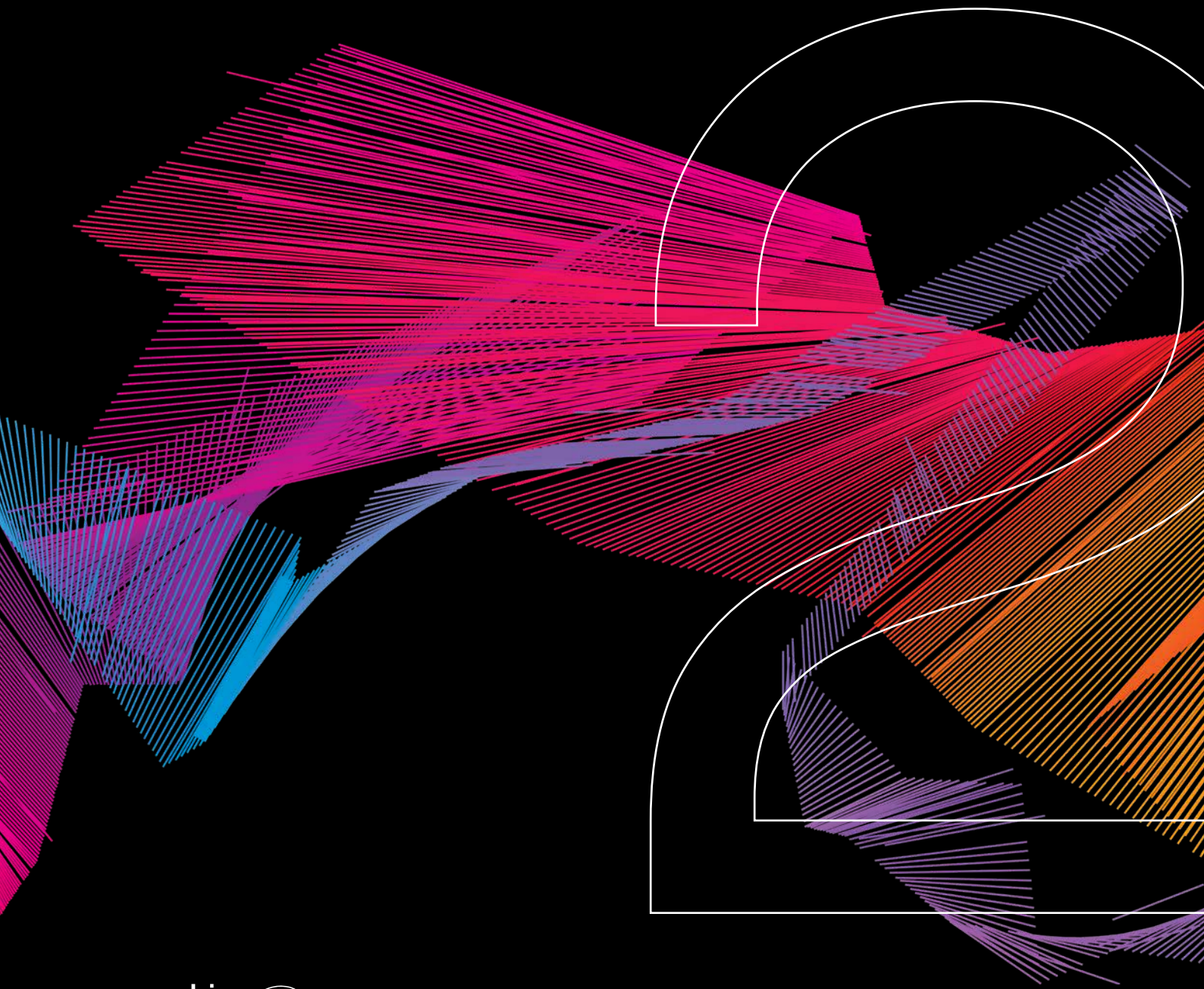
It's not a fad or a temporary reaction to a global pandemic. It's a tectonic shift originally envisioned thirty years ago, and it's inevitable. Virtualization is widely accepted as the "successor" to the internet, in the same way that the laptop is the successor to the typewriter. The fundamental difference between the internet as we know it now and the "next" internet to come is that we can access it in 3D and that it will be built on a decentralized data architecture.

Instead of passively scrolling through information on a flat surface, we can interact with objects and information just as we do in the real world. For example, you could replace a set of blueprints by offering virtual tours that let people explore the halls of a building before it's constructed, actively adjusting the surface textures, color scheme or even layout—all through a VR headset.

By making experiences more immersive and emotionally driven, virtualization has set the stage for the metaverse. Now, let's pull back the curtain and start the show.

Chapter 02

What is the Metaverse?



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What would the internet look like in 3D—if you couldn't just open a web page, but actually enter it? The metaverse is the 3D successor to the internet that will enable us to move around and explore environments both real and fantastical on a 1:1 scale. You might access these worlds via virtual reality, a mobile device, your computer or a game console.

Once there, you can represent yourself or engage with the world however you please. You might be as tall as a giant or as small as an ant. You could run, swim or even fly. Whether alone or with others, you can create and share content, view art, watch a concert or even a major sporting event taking place far away. In short, the possibilities of this new world are endless—and the limitations are few.

Think of it like the several theme parks found in Walt Disney World. One minute, you're socializing with your friends in the "world" of Facebook, where you each decide to take the party over to the "world" of Netflix. But instead of closing a browser tab and opening another, you can virtually teleport from one space to another. Once there, you might walk the streets of Hawkins, Indiana as portrayed in "Stranger Things," or solve a crime with Archie and the gang in Riverdale. In other words, the experience of exploring the internet is no longer passive: it's active.

The metaverse doesn't just open a (virtual) door to worlds of imagination. The same technology can bring you instantly into virtual representations of real-world places, including those that are inaccessible to most of the world's population due to geographic or financial barriers. Sitting in your home in California, you could shop at the Champs-Élysées in Paris (without the pricey airfare and time spent traveling). The metaverse erases the notion of borders and physical distance.

The metaverse erases the notion of borders and physical distance.

That's why Facebook's Mark Zuckerberg calls it the "embodied internet": the metaverse becomes a landscape filled with unlimited opportunities to travel, explore, build and collaborate firsthand. The metaverse is such a compelling idea to Zuckerberg that he has stated his plan to reorganize the company around bringing the metaverse to fruition. "Our overarching goal across all of these initiatives is to help bring the metaverse to life," he told employees in June 2020.

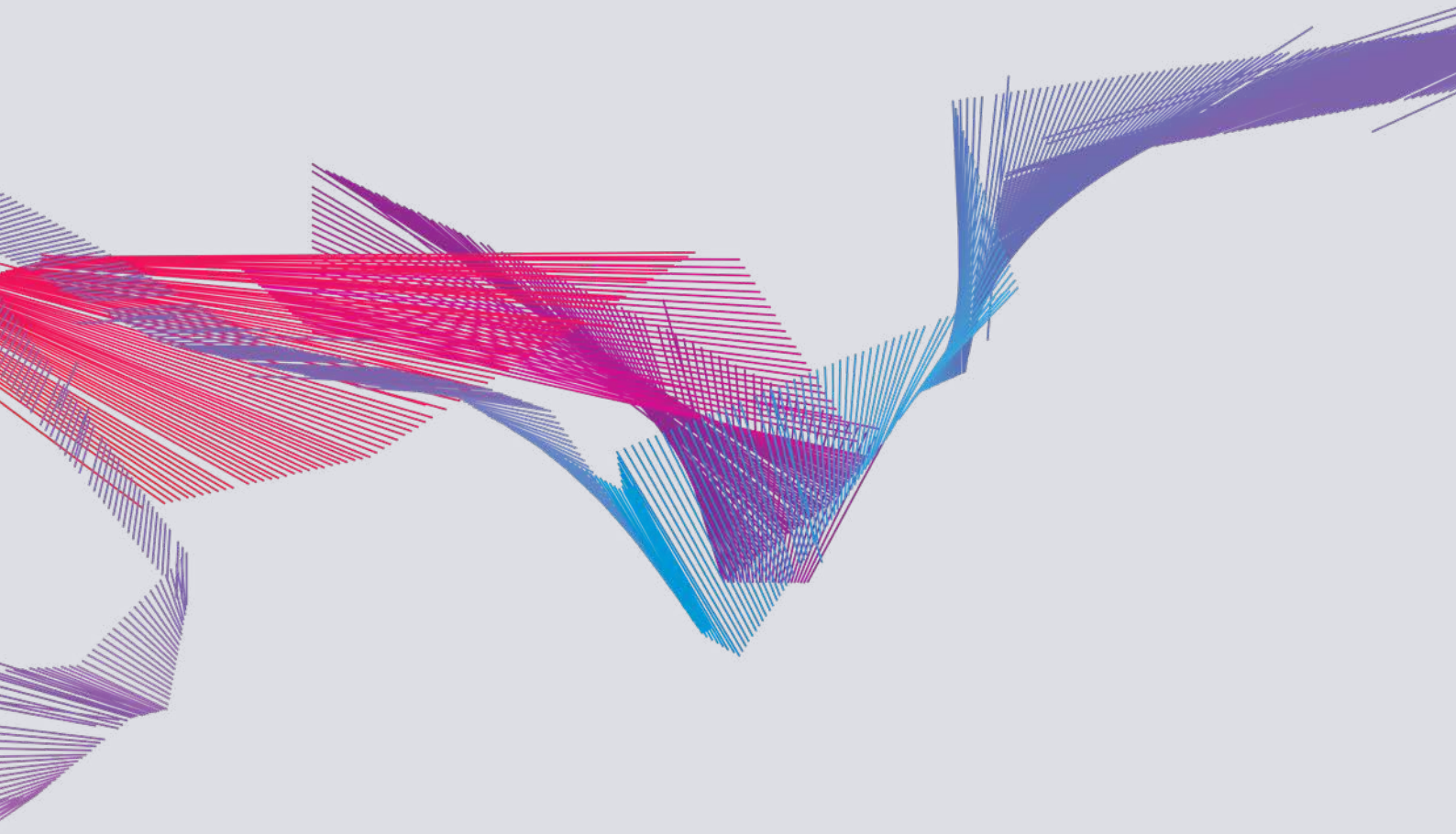
Products of virtualization exist already: you can attend a concert in Epic Games' popular gaming platform Fortnite or watch an entire NBA season with your friends from a virtual stadium experienced through Oculus headsets. But these experiences are disconnected from each other, whereas a key characteristic of the metaverse will be the interoperability between them—allowing for a seamless, more natural experience of moving from one space to another, like crossing the street from Event A to Event B. And that's where things really get interesting.

Developing this interoperable environment requires an open standard that allows for the exchange of information between one platform or system to another. This means you might buy a digital artwork within one world and display it in a virtual living space within another. Competition will have to give way to cooperation to build these standards and ensure a truly seamless experience for users, rather than sequester digital experiences into closed ecosystems (each perhaps requiring their own login).

While this interoperable metaverse doesn't exist just yet, immersive experiences and worlds like those we've touched on above are available for you to build and explore right now—and audiences are rapidly expanding and adopting new digital behaviors.

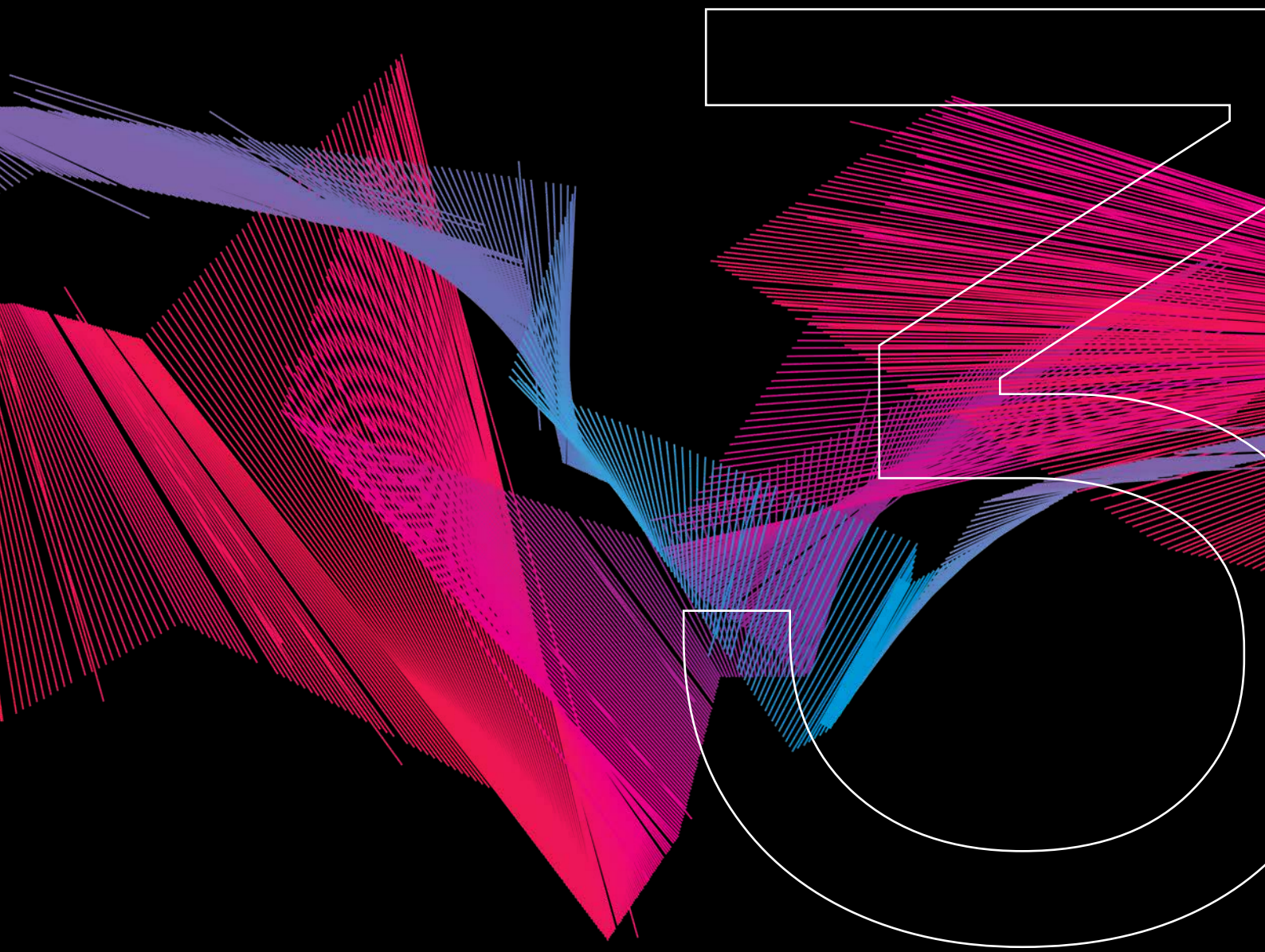
Fortnite, a free-to-play video game developed by Epic Games that brings players into an always-evolving, breathing world, **grew** to 80.4 million monthly active users in June 2020 and earned $9 billion in the span of two years. VRChat, a social world accessible via VR headset or PC, reached a peak of 28,000 concurrent users in July 2019 **according to Steam usage data**—numbers that capture only a slice of VRChat's user base. And Roblox, which went public in March 2021 with a $41 billion evaluation, **boasts** 199 million monthly active users, with 80 million joining in 2020 alone.

These platforms are just a sample of the environments that brands can tap into today. In the next chapter, we'll dig deeper into the characteristics of a meaningful digital experience and what brands can achieve with them.



Chapter 03

Metaverse Makeup



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“Is Roblox the metaverse?”
“What about Fortnite?”
“...Someone said Animal Crossing is the closest to a virtual real world.”
“Do virtual events count as the metaverse?”

If you’re confused, we don’t blame you—everyone and their uncle claims to be making a metaverse these days. As Tim Dillon, our SVP of Growth and expert in real-time technology, likes to say: “If someone tells you, ‘I’m in the metaverse’ and you have to ask them which one, then it’s not the metaverse.” So, where does the metaverse live, and how do you experience it?

If we accept the premise that the metaverse is fundamentally the internet—only transformed and “alive” within a persistent digital environment—then we might think of it as a combination of experiences and places that allow people to build, buy, sell, perform, collaborate and play together in real time. Just like a city, it will be composed of different parts, including transportation hubs, theaters, concert halls, shopping centers, offices and more. These worlds may be digital twins of environments in the real world, or they may be radically different. You’ll find game-based worlds, workspaces and social scenes.

Each of these spaces offer opportunities for brands to build a presence in the metaverse. Movie studios may build game worlds based on popular intellectual property. The suite of office software you use at work may become a full-fledged virtual office. Businesses may outreach to prospective customers—in fact, Media.Monks brought Ally Bank into the world of Animal Crossing to give players and islanders financial advice (and some in-game goodies) that they could really use. Or perhaps gaming technology can break down social barriers, like our work with Reporters Without Borders to build **the Uncensored Library**. The virtual library built in Minecraft circumvents cyber censorship by providing access to banned articles for people around the world.

The power and potential of these platforms are not to be underestimated; people feel very connected to the virtual spaces and digital communities they inhabit already, and new spaces continue to emerge that enable us to connect in unprecedented ways.

What can we experience in the metaverse?

Just as explained above, the metaverse may mimic our physical world in many ways. But the true promise of the metaverse is to enable experiences and relationships that otherwise wouldn't be possible in the real world, defying constraints and laws of nature.

Sure, a retailer could recreate its flagship store, filled with virtual goods and assets. But that would be a limited expression of virtual media's full capabilities. Marketing, branding, advertising, content and asset creation are very different in the metaverse than in the real world, or even compared to other digital platforms for that matter. Just as web pages are not the same as a document library, and apps are different from websites, it's important to think about the metaverse as a whole new space where new rules apply—and many established rules are to be broken.

Like how to network. Lewis Smithingham, Director of Creative Solutions at Media.Monks, was having a meeting one afternoon with his client, Brad. Things were going well—until they got chased by a lion.

The meeting was being held in the video game Red Dead Redemption, and they decided to jump on a horse and ride through the countryside while talking. The casual meeting took an unexpected turn when a mountain lion decided to break up the party, chasing them until they made a narrow escape.

"That was the best meeting ever," Brad later told Lewis. Though the two had never met before, the bond would now be stronger than after a regular meeting held in real life. Experiences like these are not only engaging and palpable—they're memorable. Because as Catherine Henry, SVP of Growth says, "While simulations are virtual, the emotions these technologies evoke are very real."

What can we experience in the metaverse?

The purpose of virtual worlds will vary. Some will be game worlds, while others will bring people together for community meetups, events or to perform work. You may even find yourself walking through abstract works of art that have no basis in the physical world. As brands consider how they will show up in the metaverse, they must first identify the kind of setting that fits their audience.

They may do so by focusing on the following goals:

1. **Presence:**
   FOMO (fear of missing out) has long been a driver of brands' marketing strategies. Accessible, immersive digital platforms offer a low barrier of entry for consumers to engage.

2. **Business expansion:**
   Brands can extend their business and products across multiple virtual platforms.

3. **Commercial/revenue generation:**
   Virtual assets and services offer an opportunity to generate new revenue streams.

4. **Advertising and marketing:**
   Immersive platforms allow you to reach new demographics where they are. Gamers, for example, have historically been difficult for brands to reach through traditional advertising channels—though many have had success by tapping into those platforms through experiences that feel authentic to that audience.

5. **Media and entertainment:**
   Engage, entertain and grow business with virtual content and merchandise.

As mentioned before, branding and advertising in the metaverse comes with unique opportunities and challenges. What does branding look like in 3D? What current standards, content, assets and UX can we bring into a spatial internet, and what needs to be developed? While the rulebook for best practices have yet to be drafted, the conceptual framework has been laid.

Branded worlds will need to be constructed on virtual platforms, each with its own protocols (like digital currencies), tools (world-building APIs), assets (avatars, accessories, building blocks, etc.) and importantly, demographics. We'll touch more on some of these considerations in the following sections.

The most important thing to appreciate about advertising in the metaverse is the need to create memorable experiences, interactions and opportunities for people to explore their own personal interests. A fan of Marvel, for example, might have the chance to join the Avengers on a mission, buy and wear a superhero outfit, visit her hero's birthplace or even gain a superpower of her own. Essentially, she could enter the Marvel universe as the hero of her own story, deepening her connection with the franchise and joining a community that feels as passionately as she does about it.

Media.Monks has been crafting the building blocks of the metaverse for the better part of ten years, ranging from extended reality experiences that support larger campaigns, brand activations inside video games, prototyping virtual fashion designs and more. As the metaverse is different from the digital channels and interactions that brands have become accustomed to supporting, we're able to apply our learnings and expertise to help them prepare for success while pieces of the metaverse begin to align. In the following chapter, we'll examine each of those technologies more closely.

Chapter 04

Technologies of the Metaverse

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To understand the metaverse, it's crucial that you also understand the key technologies behind its development. In addition to the role that they play, we'll also touch upon the maturation of these technologies and both the opportunities and challenges that they provide.

Gaming Drives Desire for Immersion

For a long time, gaming was considered a niche hobby. But during the pandemic, the video games industry has **dwarfed both film and sports combined**. Epic Games' Fortnite, one of the most popular multiplayer games on the market thanks in part to its persistent, constantly evolving world, has even been named a **top competitor to Netflix** over other streaming services—in fact, Netflix announced its own plans to move into cloud-based gaming. With gaming's popularity comes a growing interest in immersive worlds where people can compete, cooperate and engage with one another

Extended Reality Finally Goes Mainstream

Adoption of extended reality technology has also grown significantly in recent years. Historically, AR has outpaced VR in consumer adoption because it's nearly ubiquitous across mobile devices and social platforms like Snapchat, Instagram and Facebook. VR's growth has been slower, relegated more for upstream business activities than consumer experiences.

Facebook's Oculus VR headsets are leading the pack by transitioning users from the social network to virtual platforms. The headset arrived at a competitive price point (previously, VR headsets were prohibitively expensive for many) without the need to be tethered to a powerful PC or console. Oculus also offers collaborative virtual environments for work and entertainment: Oculus Venues allows people to watch immersive content within a virtual theater, while Horizon Workrooms brings colleagues together virtually.

While consumers have become well acquainted with AR on mobile devices, the technology hasn't been developed to its full potential due to various constraints. The strongest, most detailed experiences can be data-heavy, requiring the download of an app to activate—but as brands have discovered, convincing audiences to download yet another app can be challenging. And while smaller AR experiences enjoyed through social apps are certainly engaging, they also come with a file size limit. Web-based AR is further making AR accessible, opening the technology to uses beyond social.

Hardware Blurs Boundaries

We can expect stronger AR experiences to emerge with the release of AR-enabled glasses designed for the everyday consumer. The next generation of Snap Spectacles will let wearers see their surroundings in AR, while Facebook is developing their own AR-enabled pair, Project Aria.

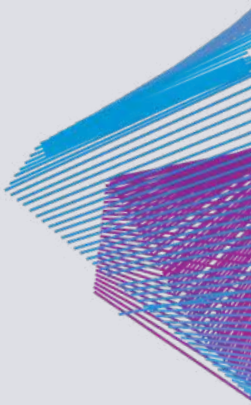
Meanwhile, Apple is rumored to enter the ring with their own AR goggles and VR headset. Apple's strength has long been to introduce new hardware to its smooth, interconnected ecosystem—carving a use case for devices that had previously failed to attain true mainstream adoption. Apple didn't invent the tablet or the smart watch, but it certainly made them fashionable. It will be interesting to see how a move into AR and VR hardware will shake up the scene.

A Developing Infrastructure, and Environmental Concerns

Because the metaverse is virtual, it's easy to forget the physical component—the nuts and bolts existing in the real world that power digital experiences and connect people together. But it's important to consider our existing internet infrastructure as well as hardware limitations to understand the hurdles that must be overcome to bring the metaverse to life.

Over the past couple years, the tech industry has faced a chip shortage. No, not your favorite salty snack; we're talking integrated circuits that power nearly every electronic device you habitually use. Advances in microlithography are allowing the production of ever smaller and more powerful chips, yet demand frustratingly outweighs the supply, to the ire of hardware manufacturers.

More powerful digital experiences also require more power. With digital activity migrating to the cloud, expect more expansive server farms—and a growing digital carbon footprint. Furthermore, interest is growing in deep-sea mining for metals required to make stronger batteries, which will in turn prompt deregulation of the underwater ecosystem.



New Ways to Connect

Would you believe that despite the evolution of the internet, Americans still connect on the same copper wire invented over a century ago? While you may be connected on a wireless device like a laptop, your router that enables that connectivity remains tethered to a wired network. But these telephone wires weren't designed to deliver the vast amounts of data we generate, stream and use each day—and they're decaying. An infrastructure of fiber-optic cable or a successor to 5G connectivity will be needed to realize the metaverse at its fullest potential.

Edge computing can also help speed up the transference of data and save on bandwidth. Edge computing is an architecture of distributed technologies that bring computation and data storage closer to the source of data. This will greatly enhance streaming, which businesses and consumers will increasingly rely on as computing power shifts to the cloud, rather than the devices they use.

Challenges in Integration Remain

A key characteristic of the metaverse is interoperability, or the seamless connection between digital experiences. How will people transition from one world to another, and will they be able to bring digital assets (like purchased outfits) with them? Today's tech platforms function as walled gardens that, save for APIs, inhibit interoperability. Open standards must be created to lay the foundations for the metaverse as a living, interconnected virtual world—and some are trying to solve the challenge right now, like **Crucible**. Crucible wants to create a plug-and-play tech layer that allows developers to easily access information without having to learn about each individual world and their requirements.

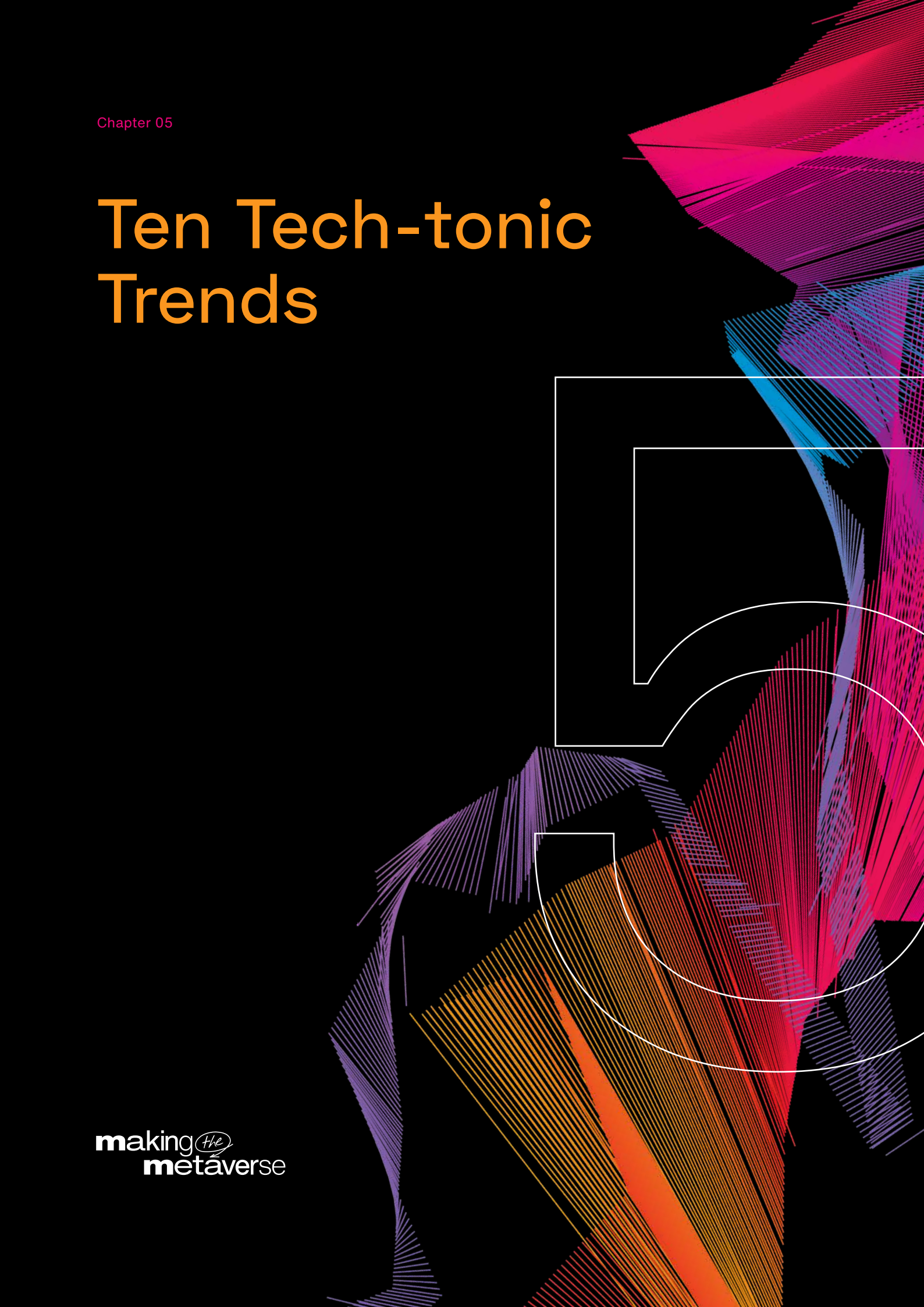
Regulations Must Be Put in Place

Anonymity online is a double-edged sword; the very same technologies that some find liberating have also raised significant challenges for society, from trolling to illegal activity. Blockchain technology, for example, enables the anonymous trade of contraband. Encrypted networks, which provide safe and private communication, provide a space for organized crime to collaborate. Pervasive illegality using emerging technologies will post challenges in how they are regulated around the world. Platforms already wield great power in dictating who can use their platforms and to what end. Who will be the police force of the metaverse?

You now have a run-down of some of the technology behind the metaverse—both in their current states and where they're headed next. With that foundation laid, we'll tackle some of the consumer behaviors that are shaping up the digital experiences you'll find in the metaverse.

Chapter 05

Ten Tech-tonic Trends



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In the previous chapter, we touched on some of the major ways the landscape is shifting, along with some of the hurdles that technology companies and brands must solve to bring the metaverse into tangible reality. But if we look further ahead, what do we see? How do we get there?

Expect an environment of high customization in which people can freely build worlds and avatars, rich and complex story worlds, exclusive experiences and ticketed events, and branded worlds with merchandising opportunities. Virtual influencers and entertainers may evolve from mobile platforms to virtual ones, while mirror worlds as yet unimagined will take shape. Let's look deeper into some of the trends we see emerging today, and where they're headed.

1. Control Changes Hands

Already, there has been a shift from passive consumption to active engagement as consumers become heroes of their own stories and makers of their own worlds. We see this particularly in gaming, with players desiring some sort of interactivity (building, exploring and playing in user-created worlds) within the digital environment. The act of building even becomes an end unto itself, because the main activity is the social component of participating with others.

Even traditionally passive events like concert-going have become active. The Ariana Grande Rift Tour concert in Fortnite wasn't just a performance to watch; it was effectively a game filled with levels for attendees to explore, accompanied by music. Opting into these experiences has also become more accepted as a primary, not secondary, mass leisure activity. It speaks back to a tenet of virtualization: rather than try (and fail) to make a digital concert the same as the physical experience, leverage digital's power to build something unique and wholly new.

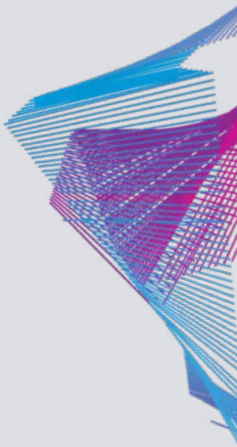
For a generation of middle and high school students who have been homebound for the better part of two years, the transition is a significant one. 75% of people **attended a virtual event throughout the pandemic**, including 90% of those part of Gen Z. 88% of them said they will continue attending virtual events, even after in-person ones fully return.

This trend will challenge brands to fundamentally reimagine how people want to interact on digital platforms. This can range from physical activities, quests, games and user experiences; tapping into specific communities; and offering limited merch and access to temporal experiences.

2. Communities are Growing

Virtual socializing is now “socializing” in the same way that a “smartphone” is now just a phone. Routines have shifted, and communities that used to be IRL have increasingly shifted online. Online, people find emotional connection over their values and passions, and these communities will replace “work families” and other communities based on physical proximity as values and norms shift.

Online relationships are real, and they offer an exciting opportunity for brands to align themselves with people who share their brand values. Similarly, these communities may share passions that are undesirable: things like a passion for guns, trysts, black-hat hacking and more. Navigating platforms and vetting these communities is like planning to open a store: you must select your location and carefully consider the local demographics before making your investment.



3. Virtual Becomes Real

The experience economy has extended into the virtual world. While the spaces people visit and the characters that inhabit them may be virtual, the emotions they will spark in audiences are real.

Lil Miquela is a pop star. She has an album, a huge Instagram following, a celebrity boyfriend and wears the latest clothes and branded fashion. Her movements are closely tracked by international fans around the world. Lil Miquela is also an avatar.

Virtual influencers like Lil Miquela—whose production company earns upwards of $9 million a year for her posts and “appearances”—are on the rise. Like the Kardashian clan, the world of Lil Miquela is populated by other virtual celebrities with independent storylines, gossip and romantic intrigue. It’s complicated. But it’s also highly compelling to a broad range of Gen Z who follow her. It doesn't matter that she isn't real. For many, Lil Miquela is as real as any celebrity; which is to say, inaccessible and fabricated.

Increasingly realistic avatars and “metahumans” will take the role of hosting events and experiences. CGI and developer tools like Unity and Unreal Engine can enable highly realistic brand ambassadors who host and engage in CEO and board presentations (across many timezones and languages), participate in meet and greet events, perform virtual concerts and even deliver personalized messages for hardcore fans.

Meanwhile, the graphic quality of video games has evolved a long way from the days of Pac Man and Super Mario Brothersto deliver a greater sense of realism. While VR has done well to create a sense of presence and immersion without photorealism, leaps in graphics processing further blur the boundary between physical and virtual worlds.

The development of increasingly realistic avatars and digital environments mean brands can extend themselves and their ambassadors across platforms and worlds. Whether offering greater access to high-profile personalities or discovering new ways to interact with key demographics, brands can build presence in the worlds they inhabit—or risk becoming shunned by a digital-native audience.

4. A Rush for Digital Collectibles

You've likely seen the craze initiated in early 2021 around non-fungible tokens (NFTs) backed by blockchain technology. While not every NFT is unique—some artists for example may sell an image in an open edition of unlimited copies—NFTs allow consumers to own digital assets ranging from images, digital objects and even virtual property.

Many NFTs are unique or sold in limited editions, and that scarcity drives demand. Imagine a limited run of virtual merchandise sold at a digital concert, snapped up by fans who want to express their love for their favorite band. They could wear the merchandise on their avatar—or, because they own the digital asset itself, they might decide to resell it to someone else. Social platforms may drive art and asset development, prompting brands to follow suit by establishing a presence in the market.

Asset creation offers brands an entryway into the metaverse. With a matured strategy around NFTs, they can enjoy new revenue streams from non-physical assets and experiences. From amping up excitement around the latest "drops" to tapping into communities that strongly associate with your product, digital collectibles offer a simple but meaningful way to engage with new digital behaviors.

There is a caveat: mainstream approaches to minting (or publishing) NFTs can consume vast amounts of energy. One could spend a great deal of time discussing factors in energy consumption. Greener methods of minting and trading NFTs do exist already, and popular blockchains like Ethereum are in the process of becoming friendlier to the environment.

5. Mirror Worlds, Digital Doubles and Machine Learning

Augmented reality (AR) will drape a new world onto the extant one in a "mirror world" that matches our own. This new layer will add contextual information, give access to exclusive offers and invitations and identify people. In many ways, this technology already exists and is being used; Google's **Earth Cloud Anchors** allow developers to tie virtual objects to a specific geographical location that can be viewed via AR when a user is in its proximity.

In this way, we might think of AR as an opportunity for the metaverse to intersect with our own. You might visit an exclusive, virtual pop-up shop in a city center to browse for digital objects using AR—then port those purchases into the virtual world. This will give rise to an entire industry of services catering to the fabrication of virtual goods and services.

And unlike many of the trends discussed so far, mirror worlds don't just benefit consumers; digital twin technology is being used right now to optimize production and operational logistics. General Electric has built virtual parks replicating the vast fields where their windmills exist in the real world. Imagine carrying out an inspection of each windmill virtually without having to leave your workstation miles away. This is possible because the virtual windmills are tied to sensors in the physical world.

AI and machine learning will both play an important role in linking physical and virtual environments. Imagine a future in which a virtual asset exists for every item commonly found in the grocery store—perhaps not too far off with existing platforms like Amazon AR View, which lets you inspect a product within your real-world environment before purchasing.

A virtual cereal box would serve as both a consumer product and a media content platform that could be linked to other systems and updated, perhaps with interactive games on the back that reward the player with physical or virtual goods. So in addition to developing digital twins, brands must carefully consider how users will interact with them and ideate opportunities to bring those experiences into the physical world, aided by AI.

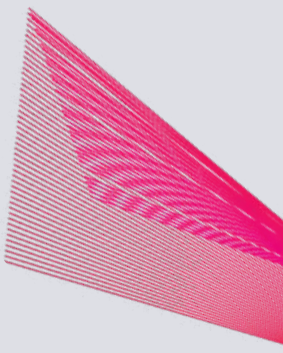
6. Continual Customization

Through immersive content and embodied experiences, the metaverse enables meaningful opportunities for brands to personalize to their audiences' taste and needs, no matter how niche. These benefits extend not only to entertainment; such experiences are having profound effects on education, healthcare, manufacturing and logistics.

In education, VR already plays an important role in the training, onboarding and upskilling of employees. **According to PwC**, employees in VR courses can be trained four times faster than those in a classroom. Those trained in VR are also 275% more confident than those trained by other means.

What these technologies offer is a shift away from fact retention and rote memorization, instead focusing on learning by doing and interaction. Spacebuzz, an experiential education program made by Media.Monks, simulates the "overview effect" of seeing the Earth from space to teach school children about the role they play in protecting the planet.

This same immersive technology has also proved useful for physical rehabilitation, managing patient pain and treating mental health. For example, patients can overcome phobias within a safe environment by facing them in virtual reality.



Of course, virtualization can help with the fun stuff, too. Typically, purchasing a limited-run, custom-designed product can have a long lead time during which it's manufactured and delivered—and without maximizing economies of scale like mass-produced goods, they can also be prohibitively expensive for brands to produce.

But real-time production enables the faster design of assets at scale, giving brands the chance to quickly vet products and gauge consumer interest and before manufacturing—eliminating much of the little risk. Leaps in artificial intelligence can prime these releases for just-in-time delivery, enabling more diversity in product types and designs to account for every consumer's preference and taste.

The benefits of real-time rendering using game engines like Unreal and Unity extends to entertainment and advertising production, too. Virtual backlots shorten shooting timelines and drive costs down—enabling an explosion of content designed to meet the interest and needs of audiences around the world. Media.Monks has taken this approach by working with Mondelēz to **supercharge the transcreation of content** at lightning speed using the Unreal Engine and live virtual experiences like the **2020 ASML Technology Conference**.

The production and delivery of immersive digital experiences is opening the doors to greater personalization and customization across industries. Brands can get acquainted with these tools right now to not only engage their audiences with greater relevance and resonance, but to also achieve greater ROI through cost savings.

7. New Identities Emerge

Halloween spending rose **over 40%** from $4.9 billion in 2006 to just over 9 billion in 2017. Meanwhile, attendance to New York Comic Con—where attendees commonly dress in costume or "cosplay"—has **grown by 147,000** from 2006 to 2016. What's driving people's desire to dress up?

Story worlds and pop culture resonate with audiences, often building empathy. By dressing up as their favorite characters, fans can creatively engage with the stories and intellectual property they enjoy—few things are as powerful as donning a mask and stepping to the "magic circle" where standard rules of reality no longer exist, after all.

Of course, there's a social aspect, too: at cosplaying events, people gather and display their personal or unique expressions of the characters, or simply bask in the shared love of fandom. It becomes a way to connect with a like-minded community.

In the metaverse, avatar creation offers people an even greater—and more accessible—chance to assume new roles or personages. Skins, or avatars, in gaming platforms like Fortnite are compelling because they allow you to digitally become characters such as Batman, celebrities like Travis Scott and many other identities. On other platforms, people can design their own avatars—both photoreal or fantastic—to freely present as any gender they identify with or adopt any physical trait they desire. Want vampire fangs? Smile and say cheese—because in the metaverse, you can. "Normal" social constructs and qualifiers no longer apply, giving people the opportunities to portray an idealized self.

Fox's new series, Alter Ego, plays with this idea by inviting contestants to perform as avatars rendered in real time. Powered by Unreal Engine and advanced camera-tracking technologies, the avatars transform singers into new identities. For some, these new identities help to reveal their true selves, overcoming challenges like stage fright.

Brands therefore have an opportunity to leverage their product or mascot to fulfill this desire to customize appearances. You might even design a virtual being that people can associate and connect with, or a story world that people can connect with on a deeper level.

It's important to consider how this technology may change the way we see people—or ourselves. In the pursuit of an "ideal" representation of the self, who gets to decide what "ideal" looks like? Representation and inclusiveness are already sorely lacking in marketing and digital experiences; will avatars erase the presence of those living with certain disabilities, for example? Platforms and brands must keep these questions in mind to ensure they responsibly meet the demand for self-expression in the metaverse.

8. Currencies Go Digital

Money is a form of exchange, and what that exchange looks like is rapidly changing.

Those in Gen Z don't remember a time before online shopping existed. **Nearly half (48%) of them have a money or payment app on their phones** right now, and only 54% visited a bank branch in the past month, compared to 70% of Millennials. Add to this some of the common complaints about cash—it's dirty, it's bulky and it's easy to lose—and the physicality of money has largely come to be viewed as an inconvenience for younger generations.

In the United States, money is no longer tied to a gold standard, but is backed by the US Treasury. This makes the value of money notional—its value comes from our faith in the Treasury to cover all debts, public and private, issued in the US dollar.

But could businesses mint their own digital currencies? Traditional logic held that governments were the most solid and wealthiest entities in the world, responsible for tax collection and distribution, and hence were the logical issuers of currency. No longer.

Switzerland is a small country, about the size of the state of Connecticut. Its GDP is about $850 billion. But UBS and Credit Suisse both have a market capitalization of about $1 trillion. Who is to say that the country is more "stable" than its largest corporate entities?

Private currencies have been used in the United States since the mid-1800s and continue to be used today in some localities. In an ecosystem like the Metaverse, where virtual payment is an absolute necessity, we can expect to see multiple versions of currencies issued. By 2022, Facebook's Libra coin will re-emerge as Diem, a blockchain-based payment system minted by the Diem Association.

In addition to digital currencies issued by private companies (or even digital alternatives to government-issued currency, like digital yuan), cryptocurrencies will likely become the foundational monetary system of the metaverse. Built on blockchain technology (an anonymous ledger of every trade), cryptocurrencies are seen by many as more transparent to fiat currencies managed by a central bank. This technology is also foundational to the trading and ownership of NFTs, unique virtual assets that will rise in popularity and practicality with the metaverse.

Regardless of how you feel about cryptocurrencies, brands need to think about how consumers can "buy in" to their activities. Explore the opportunities that are presented by this new marketplace and establish a presence there with a business model that positions you to benefit in the long run.

9. The Rise of China and South Korea

Among its **2021 "Five-year plan," China committed to rolling out 5G networks** and green technology. According to the plan, the government aims to achieve 5G penetration of 56% in the next five years. In the United States, by comparison, 5G penetration is 15% and expected to rise to 50% by 2025.

The pace of 5G adoption varies widely by region. Europe is off to a slower start and has continued to fall far behind China, the US, Korea, Japan and the Gulf Cooperation Council. Northeast Asia is expected to account for the largest share of 5G subscriptions by 2026, with an estimated 1.4 billion 5G subscriptions.

Some are already looking at connectivity that will succeed 5G. The Korean government unveiled in June 2021 **a five-year plan to spend some 220 billion won ($193 million) on the development of core technologies for 6G**—which has not yet been standardized—while stepping up joint research and cooperation with the United States. South Korea aims to deploy the world's first commercial "6G" network in 2028 and will develop the core standards and technologies within the next five years.

If the metaverse does become the successor to the internet, who builds it (and how) becomes extremely important to the future of the economy and society. Beijing's industrial policies, packaged together as five-year plans, result in a shock to growth in targeted industries, both inside and outside the country. Ultra-fast connectivity speeds made accessible by 5G will play an essential role to how people reach the metaverse—and so far, China is leading in its enablement.
On the matter of who's building the metaverse, Chinese "super app" WeChat may serve as a precursor. The app, which hosts "mini apps" that are each accessed within the platform, boasts a huge customer base, a rich commercial ecosystem and an essential ingredient for making a metaverse: interoperability between brands and experiences.

WeChat and Weixin (the version of the app for the domestic Chinese market) currently have about 1.24 billion monthly active users. Almost 40% of WeChat users are between 25 and 35 years of age. Notably, WeChat has over 35% active users under 24; 60% are under 30. China's advertising market is expected to grow 11.2% in 2021, with its online segment to grow by 10.5%. This follows a 14% growth in its advertising market (equal to $76.36 billion) in 2020.

A rise in connectivity and an interoperable ecosystem of brand experiences show that global brands cannot ignore Asian markets. Establish a presence early and be prepared to stick to it. But make sure you understand the market first; Xi Jinping's government has embarked on a series of crackdowns on China's most influential private-sector companies, including WeChat. In late August 2021, the Chinese government limited the time that children can spend playing online games to only three hours a week—a regulation that could have implications for time spent in the metaverse. The digital yuan also poses challenges for the use of alternative digital currencies, like cryptocurrencies.

10. Rich Data Opportunities

While the nature of engagement changes with the metaverse, so will the kinds of data gained by platforms and brands. Consider the amount of data a VR headset could collect: they typically track body movements 90 times per second to display the scene appropriately, and high-end systems record 18 types of movements across the head and hands. Spending 20 minutes in a VR simulation leaves just under 2 million unique recordings of body language. Add in the microphone and external cameras, and it's not just your actions that can be recorded—it's also your environment.

As with building privacy-minded data collection strategies for other digital channels, the metaverse will challenge brands to adopt new skill sets focused on earning user data and employing that data to enhance the experience.

There are already several conversations around concern for privacy using XR technology—conversations that we welcome. General industry sentiment is leaning towards respect for users' privacy and anonymity, meaning brands shouldn't expect unfettered access to a user's every hand wave. As with building privacy-minded data collection strategies for other digital channels, the metaverse will challenge brands to adopt new skill sets focused on earning user data and employing that data to enhance the experience.

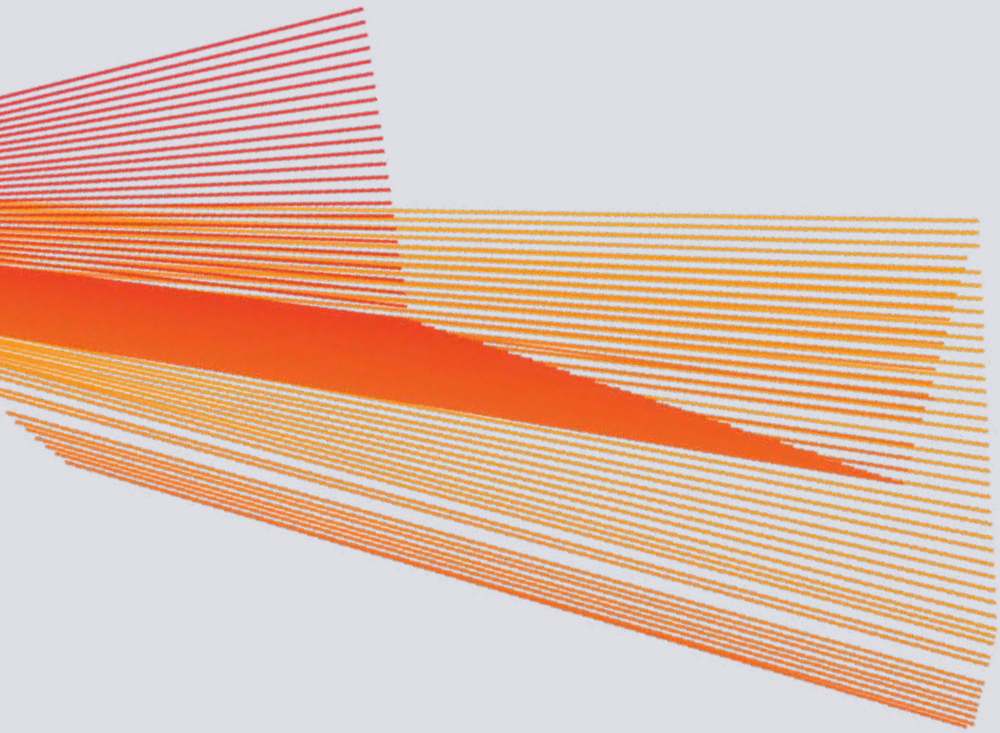
Of course, with the metaverse comes opportunity for greater relevance and contextual advertising. Imagine you're walking around a virtual Times Square in New York City. After consenting to your data being used, you take in the sights and view the brightly lit billboards surrounding the environment.

One of the billboards has a real-time bidding protocol enabling advertisers to bid for a spot to show you an ad while you're cruising through. Louis Vuitton's bidder reads that your avatar is wearing one of their limited-edition watches and bids high to win the virtual impression. As you continue walking through, you'll notice that an ad on one of the billboards is your avatar rendered wearing a pair of LVMH sunglasses on a remote beach, the very one you frequent in an adjacent virtual galaxy. All this, rendered in real time to provide a hyper personalized experience in the virtual world through automation.

Speaking of automation, the metaverse and the data gleaned there will have implications for the role automation plays in our everyday lives. In a virtual environment, physical presence and effort matter far less than they do in the physical world. There are no physical people there, just their representation. The limits of the physical world can all be removed; and automation as we've developed it today will also need to evolve from the physical replacement of human work to the assistance and enablement of the human experience within virtual worlds.

But by connecting the global workforce, the metaverse may also enable an influx of low-cost labor. Even today, low-cost workers assume the role of "mechanical Turks" to train or intervene with tasks performed by artificial intelligence—a practice that often erases the humans behind the algorithm. Connectivity may also drive down the cost of skilled white-collar labor.

Where automation once was just a set of low-level tasks that were carried out by robots replacing humans, it now becomes a part of the virtual experience by introducing AI that can assist with decisioning (or in some cases make decisions) to accelerate the seamless interchange between the physical, digital and virtual worlds, as well as provide entirely new experiences of how we navigate them.



Chapter 06

Key Players and Strategies

making the metaverse

Throughout this report, we've aimed to give a glimpse into what the metaverse looks like and how brands can prepare for it. But who's building it? The answer isn't so simple; many commercial players are betting their future growth on virtualization by investing heavily in the platforms, hardware, development tools that will aid in the creation of the metaverse. This successor to the internet isn't a distant idea; it's table stakes for many of the world's leading companies in tech, and the foundations are being set for brands to make plays of their own.

If you're overwhelmed by looking at that, you're not alone. Thankfully, we're familiar with this space and have even partnered with many of the businesses you see above. Through our knowledge and experience with virtualization, we've gathered a who's-who of some of the major players that brands should keep their eyes on.

Snap:
Snapchat a location-based AR platform. In addition to AR content in the form of lenses and filters, Snap has extended into hardware with Spectacles, its AR-enabled glasses.

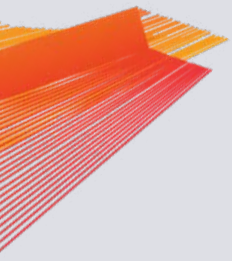
Niantic:
Niantic is a planet-scale AR platform. The developer behind Pokémon GO—by far the biggest AR game—and others, Niantic has also developed its Niantic Lightship platform for creating multiplayer AR experiences.

Epic Games:
Epic Games is the creator of the Unreal Engine, a powerful gaming engine used to develop 3D assets used in video game, advertising and film production. In addition to Unreal Engine, Epic is the developer behind Fortnite, a popular online video game and virtual space for socializing. The company has announced a $1 billion funding round to support its long-term vision for the metaverse and building connected social experiences.

Unity:
Unity is a game engine used for 3D asset creation. A popular tool for mobile and console games alike, Unity is also used to develop VR gaming content.

Microsoft:
The computing giant has operated in the spaces of extended and mixed reality for some years now, particularly for enterprise use. Its Hololens AR goggles are designed for business and industrial applications, while the AltspaceVR platform offers a virtual world to socialize and connect with others. Mesh, a platform for enabling team collaboration through immersive telepresence, is accessible using both AR glasses, VR headsets, PC and mobile devices. Finally, its Xbox Cloud video game streaming platform brings PC-level graphics to any device, enabling rich and immersive experiences on less powerful hardware (like a mobile device).

Facebook:
Mark Zuckerberg recently announced his aim to position Facebook as a "metaverse company," and the company has so far invested $50 million into that pursuit. Facebook's login system spans across apps and platforms, and the company's focus on social makes it well positioned to populate the metaverse. Its Oculus headsets have made VR more palatable to consumers with a competitive price point and doing away with the need to tether to a powerful PC. It is also developing its "Project Aria" AR glasses and recently released smart glasses in collaboration with Ray-Ban. In addition to Oculus Venues, where viewers can watch content together in VR, Facebook is building Horizon—a social VR platform—and has already released Horizon Workrooms for remote collaboration in VR.



Sony:
Maker of consumer electronics including Playstation, Sony is no stranger to VR gaming content and social worlds (like its Playstation Home platform that ran from 2008-2015). Following up on the Playstation VR headset that pairs with both the Playstation 4 and Playstation 5, Sony is developing the next generation of its headset.

Apple:
Apple has been rumored to be developing AR goggles for years, and a VR headset is also reportedly coming. Its ARKit and RealityKit software powers AR experiences across iOS devices to enable experiences that bring the virtual and physical together.

Google:
Like Facebook, Google has its hands in several technologies, platforms and experiences making up the metaverse. Google Cloud includes hosting and data management in addition to artificial intelligence and machine learning. ARCore, powering AR applications on mobile devices, supports location-based experiences. Its gaming service, Stadia, allows players to stream video games just like they might stream a movie or album, while Google Maps (and related product Google Earth) offers a digital twin of the world we call home.

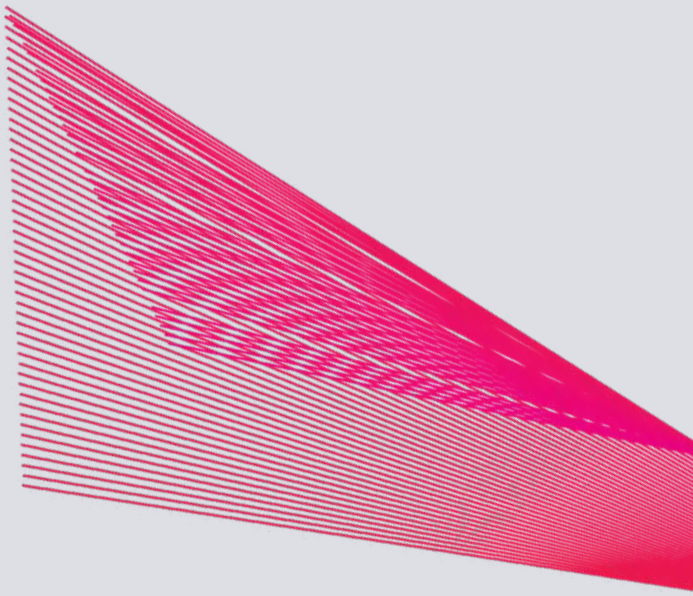
Amazon:
Amazon Web Services is an essential infrastructure for hosting experiences in a cloud. The company has also developed games for a range of platforms including mobile, consoles and PC—including the recently released title, New Worlds.

Valve:
Valve Corporation is a video game developer, publisher and distribution company. The Steam platform is a leading digital marketplace to purchase video games and other digital content. Valve has also extended into hardware, including its collaboration with HTC to build the Vive VR headset.

Nvidia:
Nvidia's graphic processing units power the rendering of content to enable gaming, production and other graphic-intensive activity. Its Omniverse graphic platform offers real-time interchange to make it easier to collaborate in developing shared virtual worlds across platforms and vendors.

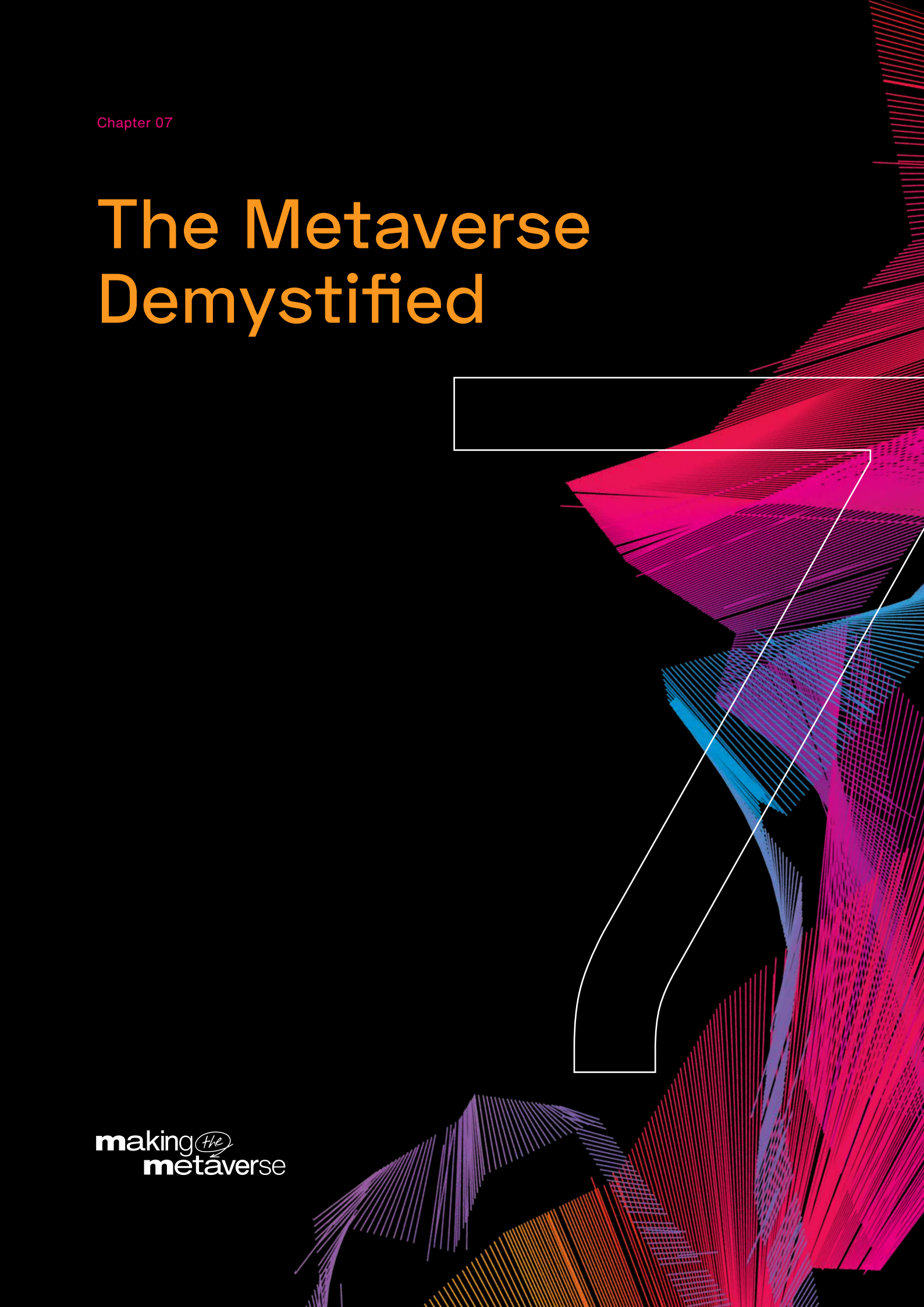
Payment systems:
Automated clearing house (ACH) networks enable the processing of large volumes of credit and debit transactions. Digital payment platforms like PayPal, Venmo, Zelle, Cashapp and more have gained popularity as consumers share money with friends and family digitally.

From laying the infrastructure that will enable the metaverse to building the platforms where users will engage, there are many players involved in creating the metaverse—it will belong to no single business or entity. Media.Monks has worked with many of the tech partners listed above in detail, tackling aspects of the virtualization from several different angles. Build your strategy around the goals that you wish to fulfill, and consider partnering with businesses and platforms that will help you get there.



Chapter 07

The Metaverse Demystified



making the metaverse

From reading these pages, you've gained an overview of what the metaverse is—ranging from the experiences people can engage with there and the technologies that make it all possible. We've also explored the major players in the space and the role that each is playing to make the metaverse a reality.

While the metaverse will play a positive role in bringing communities together, unleashing personal creativity and making experiences more accessible by eliminating distance, it's not a utopia. When investing in immersive experiences or planning their presence in the metaverse, brands should be mindful of a deepening digital divide: not everyone in the global community will have access to the immersive technologies and connectivity required to engage in these experiences, and many in the developed world remain "unbanked" and unable to rely on digital payments.

Success and responsibility in the virtualized era will require brands to carefully consider the roles they play in society—either in building distinct digital experiences that deliver on brand promise or leveraging their resources to help a broad base gain access to such experiences. The metaverse won't only be built by brands; it will thrive on user creativity, and brands are optimally positioned to support artists, creators and communities in building this space together.

So, where to start? Hopefully this overview has given you some ideas and direction. Consider building social worlds where you can tap into communities relevant to your brand—or even extend into an entirely new audience. Leveraging existing IP is a great way to build story worlds, design avatars for customization and more. Digital twin technology, meanwhile, can be used for business (like prototyping designs or collaborating across distributed teams) or in the creation of digital assets for the consumer.

The Media.Monks team has helped brands future proof by building such experiences across different platforms, hardware and audiences. From extended realities to sports broadcasts in VR to the creation of digital humans and more, we've partnered with many of the world's leading platforms and technology companies to deliver unique, immersive experiences to audiences.

The possibilities enabled by the metaverse are endless—and we're just getting started. Now, what can we build together?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