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Tech Trends 2023
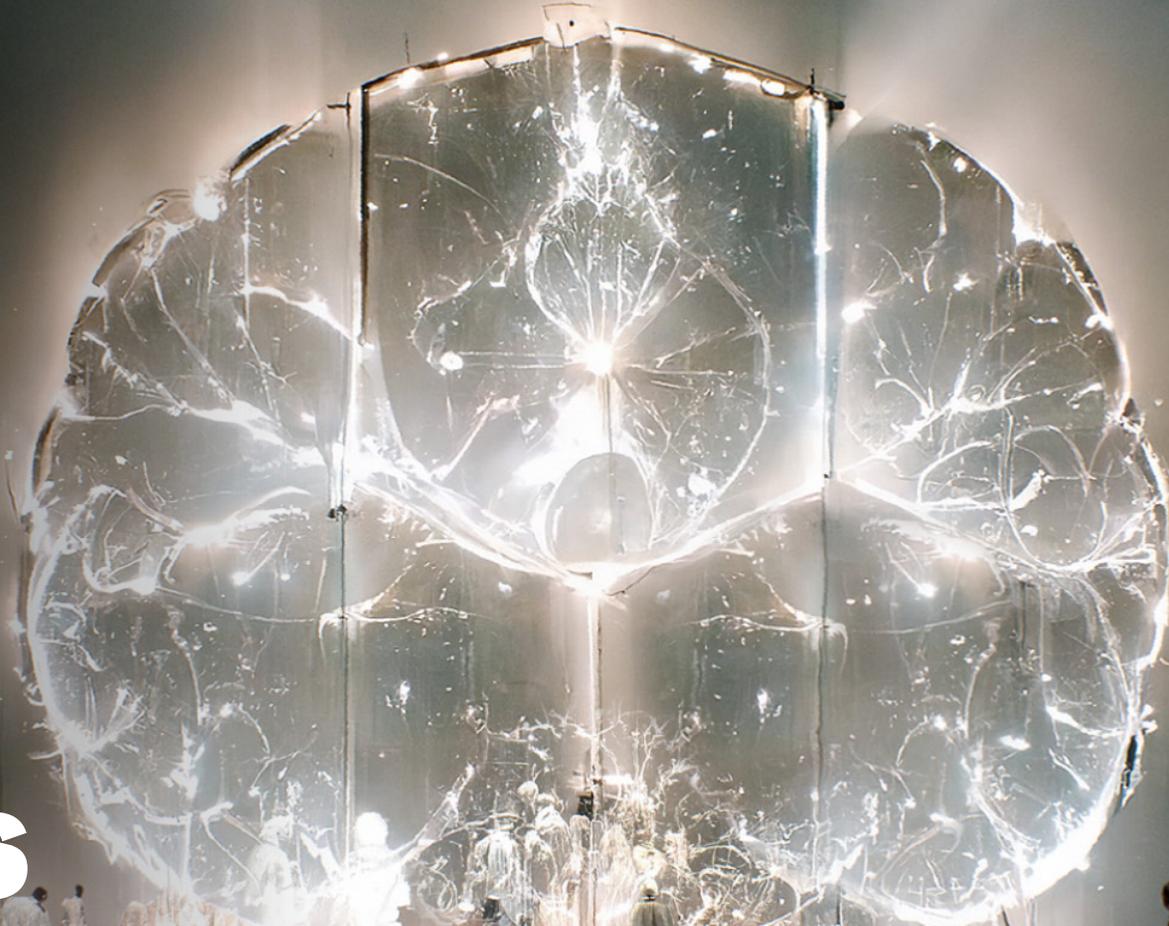
Trend 1
Through the glass:
Immersive internet for the enterprise

Technologies such as augmented and virtual reality are transforming the metaverse from specialized tech to enterprise tool—potentially paving the way to new business models.

Since the first computer was built, businesses and consumers have enjoyed a progression toward simpler and more intimate interactions with technology. Professors wielding punch cards gradually gave way to business people brandishing PCs and, more recently, mobile and wearable devices. In a sense, the connection to the digital world has been mediated through a series of ever-shrinking rectangular screens. Networking and computational advancements have led users to constantly switch back and forth between their devices and physical reality. Now, as technologists recognize that screens can't keep shrinking forever, the paradigm is shifting again, toward interfaces that take us through the glass and into immersive virtual experiences, including the digital world known as the metaverse.

While the term *metaverse* was coined in 1992, and virtual worlds have been popular in online games over the past two decades, a marked shift has occurred in recent years. The proliferation of affordable augmented and virtual reality (AR/VR) technology and the cultural shift brought on by the COVID-19 pandemic have catalyzed the acceptance and importance of digital worlds as viable places for human connection. In addition, architectural challenges that slowed previous incarnations of immersive spaces, such as *Second Life*, have since been partially mitigated by the elasticity of cloud computing.[1]

Businesses have also doubled down on **virtual worlds**, with tens of billions in venture capital investment in the past year, and analysts estimating a US$800 billion market by 2024.[2] Despite the hyperbole around the metaverse, leaders should consider it *not* as a diminished proxy for in-person experiences but instead as an enriched alternative to email, text chat, and heads in square boxes. In other words, the metaverse is best thought of as a more immersive incarnation of the internet itself: "internet plus" as opposed to "reality minus."

Over the next couple of years, virtual interfaces will likely continue to graduate from tech to toy to tool as companies build business models around the capabilities afforded by an "**unlimited reality**."[3] Innovative companies are likely to reduce costs, increase customer engagement, and pioneer entirely new offerings for a piece of the budding market. Investing in technologies such as edge computing and AR/VR devices may become table stakes, so intentional, strategic adoption will be crucial.

Now

The metaverse has graduated from tech to (lucrative) toy on its path to enterprise tool

Consider the metaverse use case that has defined the market up to now: gaming. The entire digital gaming industry is expected to surpass US$220 billion in revenue in 2023, more than streaming video, digital music, and e-books *combined*.[4] Specifically, the online gaming industry is poised to exceed US$26 billion in 2023,[5] boasting an audience of 1.1 billion gamers.[6] Crucially, these gamers often gather online not just for gameplay but for the social and commercial possibilities offered by the immersive internet.

About a quarter of US gamers have attended an in-game event in the last year: The Fortnite concerts of Ariana Grande and Charlie Puth attracted millions of players.[7] A striking 82% of those attending live in-game events also made a purchase because of the event, either in the form of digital goods or physical merchandise.[8] In fact, luxury brand Gucci made news for selling a virtual handbag in the game Roblox for US$800 more than its real-world price.[9] Such figures are emphatic proof that the economy of the immersive internet mirrors the physical world: Brands can charge a premium for providing a unique experience or signaling value to other consumers. Considering these market opportunities in existing digital worlds, brands across industries can invest now to meet today's customers where they *already are*.

Whether through gaming or other means, 25% of consumers could be spending at least one hour in the metaverse each day by 2026, while 30% of businesses are estimated to have products and services ready.[10] By the time the metaverse becomes a full-blown enterprise norm, a sound strategy could make the difference between winners and losers in the burgeoning market.

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New

To turn the metaverse from toy to enterprise tool, start with strategy

As enterprise use cases for immersive experiences emerge, those looking to create an adoption plan should consider history as their guide. By studying the adoption of the internet during the dot-com boom, businesses might better predict how to move forward into the metaverse. While some will seek to grow new streams of revenue through mixed-reality experiences and engagement for consumers, others may focus on optimizing operations through enterprise simulations and augmented workforce experiences (figure 1).

FIGURE 1: Choose your metaverse strategy and tactics

Promoters
Advertising existing offerings

Plussers
Augmenting existing offerings

Pioneers
Architecting new offerings

Enterprise simulation
Optimizing enterprise operations and decision-making

Augmented workforce experience
Personalizing collaboration and learning experiences

Growth

Value
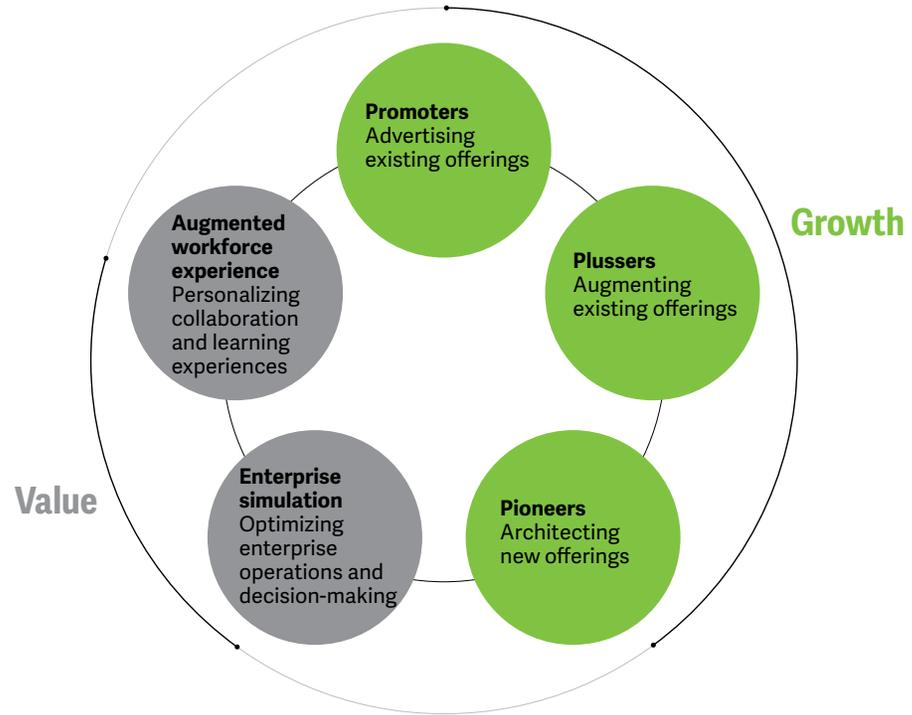
Source: Deloitte analysis.

Growth: Mixed reality experience and engagement

Promoters

Companies that have used the existing internet primarily to promote their products and services will likely continue to be promoters in the metaverse. Instead of a banner ad in the middle of the article they're reading, consumers may see interactive billboards while taking a stroll in the metaverse or enter a virtual storefront like those set up by Ralph Lauren.[11] Companies in this category may not consider the metaverse a core part of their product model but a way to engage consumers as the technology becomes more prevalent.

Plussers

For another set of companies, new AR/VR technologies present an avenue to augment, or "plus," their products and services in ways that are specific to the immersive internet. Like restaurants that used the web to fulfill delivery orders during the pandemic, "plussers" can cash in on today's metaverse interest without reinventing their business model. For example, the United Kingdom's **Lawn Tennis Association** (LTA), which organizes Wimbledon each year, recently augmented its brand by embedding AR messages into tennis ball canisters. Upon scanning a QR code, players see a tailored AR message from a prominent tennis figure, inviting them to an event or encouraging them to continue practicing.[12]

Through limited and strategic additions, even organizations that are not digital natives can attract younger consumers and update their offerings for a more immersive internet. For example, governments as diverse as the city of Santa Monica, South Korea, and **Saudi Arabia** are exploring how the metaverse can improve public services.[13]

Pioneers

The last category of revenue generation is reserved for companies aiming to take higher risks on the metaverse's potential—just as some companies created online-only business models in the early 2000s. Such companies are already developing key foundational metaverse technologies, platforms, products, services, content, and other enabling components. A prime example is Niantic, the maker of the mobile game Pokémon Go, which popularized the possibilities of an AR metaverse for tens of millions of users and grew in valuation from US$150 million to US$9 billion.[14] Companies that want to replicate this success are already investing in metaverse designers and creators who can envision exciting digital futures. Before the economic landscape of the metaverse changes from fluid to concrete, pioneers will need to make their moves.

Value: Optimization and process improvement

Enterprise simulation

The metaverse need not be entirely about top-line growth. Indeed, many may look to immersive digital experiences to preserve, protect, and optimize their existing business models. Virtual testing grounds can reduce the cost of designing, building, and operating complex machinery in capital-intensive industries such as aviation. For example, both Airbus and Boeing are creating digital twins of new airplanes and outfitting their mechanics with AR headsets, leading to quality improvements above 70%.[15] Similarly, **NVIDIA** has developed an Omniverse platform, where manufacturers like BMW can simulate entire factories. The automaker expects to see a 30% gain in efficiency by applying AI to optimize floor movements.[16]

Importantly, not all enterprise simulations require headsets to engage with advanced scenario and strategic planning. Many impactful deployments are still using more traditional "glass"—tablets, laptops, kiosks, etc.—to allow a wide range of stakeholders to engage with tools to better understand, predict, and optimize their businesses. For instance, Stora Enso, a leading provider of renewable products in packaging, biomaterials, wooden construction, and paper, and one of the largest private forest owners in the world, aims to develop a digital twin of a forest to provide decision support for its forestry practitioners and protection of biodiversity through sustainable forest management.[17]

Augmented workforce experience

Other enterprises are looking to immersive technologies such as AR/VR to provide personalized experiences for learning and collaboration that are intuitive, streamlined, and scalable. These solutions have the ability to provide better data on participation rates, how long trainees are spending on lessons, and the steps they are struggling with—leading to improved training effectiveness. Case in point: **Exelon**, the largest electric utility in the United States, has seen significant benefits from rolling out VR trainings. Since electrical substations can be dangerous to the uninitiated, the virtual environment allows Exelon's staff to build muscle memory for donning protective gear and solving electrical issues, without risking their safety.[18]

Despite the media focus on revenue potential, some of the best uses of the immersive internet may be in creating equitable access to company processes and developmental opportunities, just as some of the best enterprise uses of the internet have been in storing and accessing internal data online.

Next
Reality moves online

Regardless of how enterprises adopt the immersive internet in their business models in the next two years, these technologies are still nascent. Going forward, the simultaneous advance of computing, connectivity, and context (location-based data and more) should create an array of exciting possibilities for the metaverse and immersive technologies. Potential paths for the next decade of progress include:

- **Sensory expansion.** Until now, immersive technologies have focused on visual and auditory stimulation, but consider the possibility of one day smelling a cake baking in the metaverse or, if you're willing to lick a screen, tasting it.[19] Startups such as OVR Technology are developing scent packs to connect to VR headsets,[20] while others such as HaptX are building haptic gloves to deliver a sense of touch.[21]

- **Thought-based control.** Brain-computer interfaces (BCIs) represent an extreme in simplifying user interactions with technology. While chips in brains may sound like science fiction, noninvasive BCI technology is already finding its way into AR/VR headsets,[22] which should eventually allow users to control digital avatars and environments using thoughts.

- **All-in-one devices.** The next generation of devices may connect users to the metaverse without requiring additional headsets or handheld devices. Imagine stepping into a media room that displays the metaverse as a hologram across the walls. Or imagine a laptop that uses cameras to translate an employee's real-life gestures into an avatar's movement in the virtual workplace.

- **Spatial interaction.** AR tools such as smart glasses and motion sensors can enable spatial interaction, allowing users to interact directly with physical data without creating a digital copy. For example, patrons can walk up to a restaurant wearing smart glasses and be treated to a display of hours, current promotions, and reviews. Or, by suppressing images in their glasses, a group of friends can attend a concert without seeing any of the city billboards in view.[23]

As we suggested in our **prologue**, technology interaction is poised to progress from separate digital realities toward ambient computing, where users can move beyond the glass and look up from their devices at a world that synchronizes effortlessly with technology.[24] In each path previewed above, the common denominator is simplicity, the ultimate end game of technology interaction.

Yet as leaders prepare for this future, they should know that the risks, including cybersecurity, privacy, safety, regulation, and ethics, are anything but simple. Given immersive technologies' potentially profound impact on the economy, enterprises' highest-level leaders and boards should dedicate their time to shaping the technology in a way that protects trust and creates value.

If history continues to be a guide for future-ready leaders, then moving through the glass and beyond will likely require moving beyond established orthodoxies. Preparing now could help propel enterprises from the current internet age to the next.

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